



City of
Pasco Fire
Department



2021

**MASTER
PLAN**

TABLE OF CONTENTS

| | |
|----------------------------------------------------------------|------------|
| GLOSSARY OF TERMS | ii |
| ACKNOWLEDGMENTS | iii |
| EXECUTIVE SUMMARY | i |
| Purpose & Approach | i |
| Baseline Assessment | i |
| Improvement Strategies | ix |
| EVALUATION OF CURRENT CONDITIONS | 1 |
| Organization Overview | 1 |
| City Governance & Structure | 1 |
| Pasco Demographics | 2 |
| Pasco Fire Department Structure | 3 |
| Agency Comparisons | 5 |
| Management Components | 9 |
| Management Elements | 10 |
| Management Documents and Processes | 10 |
| Critical Issues | 11 |
| Communication | 11 |
| Record Keeping, Documentation, & Security | 11 |
| Capital Assets and Capital Improvement Programs | 13 |
| Facilities | 13 |
| Apparatus | 21 |
| Staffing & Personnel | 25 |
| Administrative and Support Staffing | 25 |
| Emergency Response Staffing | 26 |
| Personnel Management | 27 |
| Service Delivery and Performance | 30 |
| Service Demand | 30 |
| Distribution of Resources | 36 |
| Concentration of Resources | 43 |
| Reliability of Response Units | 45 |
| Response Performance Summary | 49 |
| Mutual and Automatic Aid Systems | 52 |
| Incident Control and Management | 53 |
| Training Program | 54 |
| General Training Competencies | 54 |
| Training Administration | 55 |
| Training Facilities | 55 |
| Training Manual | 56 |
| Training Record Keeping | 56 |
| Community Risk Assessment & Reduction Program | 57 |

| | |
|-------------------------------------------------------------------------------|------------|
| Community Risk Assessment..... | 57 |
| Community Risk Reduction..... | 60 |
| Emergency Medical Services | 62 |
| Medical Direction & Control..... | 62 |
| Quality Assurance & Quality Improvement..... | 63 |
| Clinical Skills & Continuing Education | 64 |
| EMS Staffing & Operations..... | 64 |
| EMS Administration..... | 64 |
| EMS Logistics..... | 65 |
| HAZMAT Services Support and Response Capability | 66 |
| Specialized Response Services | 68 |
| Types of Technical Rescue..... | 68 |
| Technical Rescue Team Configuration..... | 69 |
| Fire Department Planning..... | 70 |
| Response Performance Planning..... | 70 |
| Community Risk Assessment Planning | 71 |
| Community Risk Reduction Planning | 71 |
| Community Growth Planning | 72 |
| Target Hazard Response Planning..... | 73 |
| Resource Planning..... | 73 |
| Financial Planning..... | 76 |
| Succession Planning | 76 |
| Organizational Work Planning..... | 77 |
| Airport Impacts..... | 78 |
| Adequacy of Current ARFF Response Capability at Tri-Cities Airport (PSC)..... | 79 |
| PSC Growth Impacts on PFD..... | 81 |
| Washington Surveying & Rating Bureau | 82 |
| WSRB & the Pasco Fire Department..... | 83 |
| Protection Class Maintenance..... | 83 |
| Fiscal Review of Current Conditions | 88 |
| City Economic Context | 88 |
| Historical Revenues and Expenses..... | 91 |
| FUTURE SYSTEM DEMAND PROJECTIONS | 94 |
| Population Growth History & Projection | 94 |
| Comprehensive Plan and PFD | 97 |
| Demographics..... | 98 |
| Service Demand Projection..... | 100 |
| FUTURE DELIVERY SYSTEM..... | 102 |
| Near-Term Improvements..... | 102 |
| Mid-Term Improvements | 104 |
| Long-Term Improvements..... | 111 |
| APPENDIX A: TABLE OF FIGURES | 113 |

GLOSSARY OF TERMS

Automatic Aid: Assistance dispatched automatically by contractual agreement between two or more communities or a region to all first alarm structural fires.

Effective Response Force (ERF): The minimum number of firefighters and equipment that must reach a specific emergency incident location within a maximum prescribed travel [driving] time. This is established by various agencies, such as the Washington Surveying and Rating Bureau, the NFPA, and local elected officials. At the local level, this is established after conducting a risk assessment and is usually enumerated within a Standards of Cover created by the local agency.

Mutual Aid: Assistance that is dispatched, upon request, by the responding (host) fire department. Usually, it is requested upon arrival at the scene by the responsible jurisdiction. Mutual aid is defined by a signed contractual agreement.

National Fire Protection Association (NFPA): An international nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. The organization does this primarily through the development of codes and standards.

Peak Demand Unit: A unit configured for its primary mission (as used in this report, a medical unit) with staff and equipment assigned. As the name implies, the unit is assigned to serve during peak hours of service demand, augmenting existing 24-hour resources. Usually assigned ten to twelve hours per day, it is assigned to serve a geographical area (often not just one fire station area) for this peak period of time, reducing the demand burden on the 24-hour units during those peak hours.

ACKNOWLEDGMENTS

The consultant thanks all the members of the Pasco Fire Department, the Mayor, Council members, and City Manager of the City of Pasco for their dedication and commitment to providing the highest levels of service possible within the constraints of available revenue.

All members contacted during this study fully engaged in the process and were professional, positive, and devoted to PFD. Members and leadership together were motivated to make the organization and community an even better place to work and live. The consultant genuinely enjoyed working with the group.

In addition, the Pasco Fire Department liaison to the consultant was key to the success of this report. Battalion Chief Matt Nelson made himself available throughout the life of this project at all hours and on his days off to ensure a smooth flow of information was provided. He provided logistical support, ensured the right people were contacted and consulted, while also tracking down datapoint discrepancies.

To help keep costs down and to utilize the in-house expertise at the City of Pasco, the consultant was assisted ably by Pasco Fire Department administrative staff, as well as Pasco Finance Director Richa Sigdel, Pasco GIS staff (DeShawn Robins, Jerry Dilger, and Jenn Smithyman), and Pasco Senior Planner Jacob Gonzalez.

Finally, Pasco Fire Department is to be congratulated for its commitment to planning, data gathering, and data analysis. While many fire departments gather data, few take the next step to analyze what the data indicates in terms of service efficacy and efficiency. Planning is a highly valued ethic within PFD. The residents of Pasco should be rightfully proud of their fire department. They are well served by these professionals.

City of Pasco Mayor and Council

Mayor Blanche Barajas
Mayor Pro-Tem Craig Maloney
Councilmember Joseph Campos
Councilmember Irving Brown, Sr.
Councilmember Pete Serrano
Councilmember David Milne
Councilmember Zahra Roach

City Manager

Dave Zabell

Pasco Fire Department

Bob Gear, Fire Chief
Edward Dunbar, Deputy Chief
Patrick Reid, Deputy Chief
Matt T. Nelson, Battalion Chief

-and-

The men and women of PFD who made this study possible,
and who serve the community with tireless energy and professionalism.

This page intentionally left blank.

EXECUTIVE SUMMARY

Bivins Consulting LLC was engaged by the City of Pasco Fire Department (PFD) to conduct an update to the 2016 Emergency Services Master Plan for the fire department. Project work was initiated on March 1, 2021, and completed in June 2022. Data was analyzed for the last full year available (2021). This report reflects the conditions in place during that time. This Master Plan is an update to the Master Plan conducted by Emergency Services Consulting International (ESCI) in 2016. Bivins Consulting LLC is not affiliated with ESCI and conducted this Master Plan Update as an independent contractor with the assistance of internal Pasco stakeholders.

Purpose & Approach

The purpose of a master plan for the fire service is to understand where the PFD is in relation to the risks the community is faced with today, anticipate community growth (and therefore service demand growth), and recommend steps to take to position the department to address that growth in advance with appropriate resources and infrastructure. In short, a master plan is a tool to help keep the department from lagging behind community growth and development, maintaining or enhancing service as the community grows. It is an effective policy-making and budgeting tool as well. Knowing where and how the community will grow into the future and what the fire department will need in terms of policy and budget support to address it—well in advance—is critical information for the City Council in their policy making role.

This Master Plan update is divided into four sections as follows: 1) conduct a baseline assessment of the current conditions and current service performance of the fire department; 2) assess the potential future community growth; 3) identify the future service delivery system needs to address that growth; and 4) recommend short-, medium-, and long-term improvements to meet the needs of the community now and into the foreseeable future, keeping pace with growth and address gaps in the existing system where possible.

Baseline Assessment

The PFD is a modern fire department with the appropriate equipment, new facilities in two locations, and personnel who are well trained and professional. With 83 total personnel, Pasco has a low level of staff as compared to their comparable jurisdictions.¹ Incident demand is also lower than their comparable agencies. PFD uses its Community Risk Reduction program to redirect less emergent calls toward other, more appropriate social service agencies. This has the effect of reducing the number of non-emergent calls for service, increasing the likelihood units will be available for a true emergency.

¹ See Figure 23: Comparable Agency Staffing Levels (2020)*

This is an important philosophy to embrace, given the growth Pasco is projected to experience. The estimated population of Pasco is 78,700² for 2021. This is significant as the City has grown by over 25.8 percent over the last ten years. While Kennewick is larger by population than either of the other two cities that make up the Tri-Cities, Pasco (median annual growth rate of 2.53%) is rapidly catching up, and their growth rate has been significantly outpacing that of Kennewick (median annual growth rate of 1.63%) and Richland (median annual growth rate of 1.53%) over that same period. The City's recently adopted Comprehensive Land Use Plan anticipates that Pasco will reach a population of 121,828 by the year 2038; the addition of almost 45,000 additional residents between now and then.

The City Council has adopted a goal to maintain the excellent Washington Surveying and Rating Bureau (WSRB) Public Protection Class (PPC) three (3), which was awarded in 2019. A reduced rating reduces fire insurance premiums paid by businesses whose insurance companies rely on the PPC ratings and can make a positive difference in homeowner insurance premiums. A closer analysis of the rating is conducted within this report, along with recommendations to strengthen the Class 3.

Service Delivery and Response Performance

PFD has a lower frequency for EMS incidents than its counterparts, at almost 70 percent (69.8%) of total calls for service (demand). However, this is likely due to the aggressive actions of the department's Community Risk Reduction program and the Pasco Resource Coordinator redirecting otherwise inappropriate use of the 9-1-1 response system toward more appropriate social services. Pasco experiences 3.5 fires per 1,000 population, which is just below the median of four for their peer group. Fire loss is second highest among the peer group at \$2,997,175.

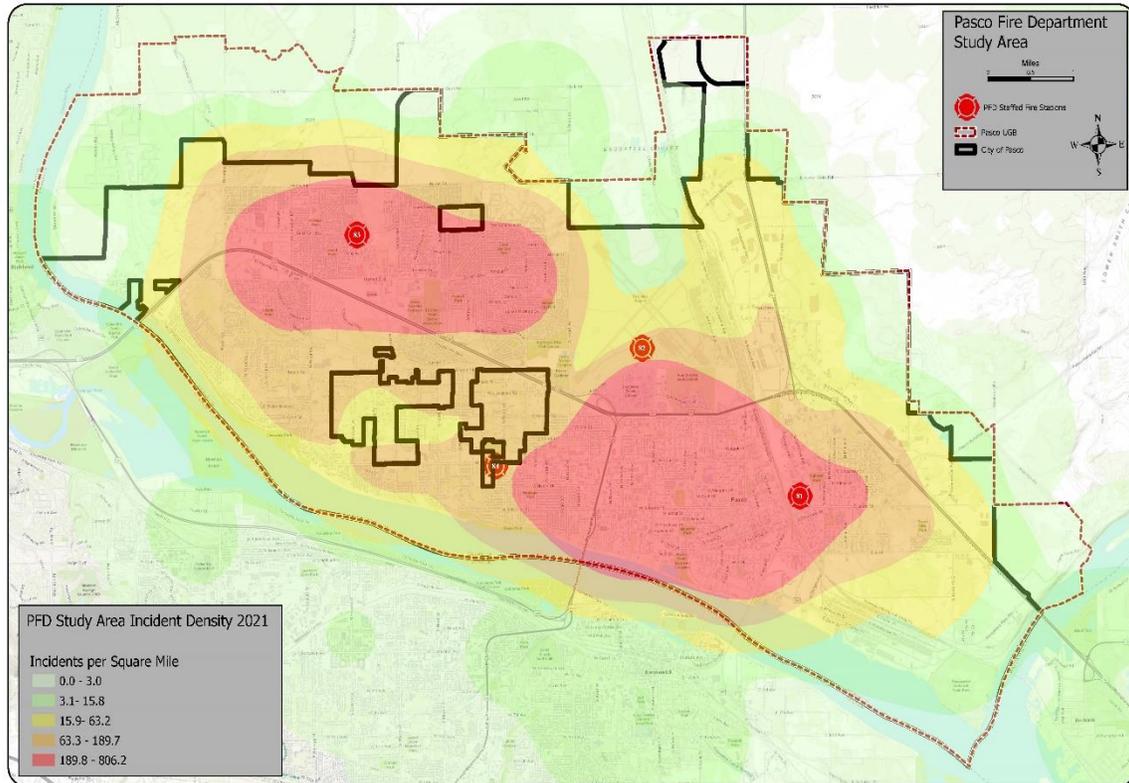
Monthly service demand varies within a range of 2.7 percent throughout the year. In general, the lowest service demand occurs during April (7.1% or 442 calls) and May (7.3% or 455 calls). July (9.8% or 604 calls), August (9.5% or 591 calls), and December (9.1% or 566 calls) demonstrate the greatest service demand for the year.

PFD hourly service demand correlates with the activity of people, with workload increasing during daytime hours and decreasing during nighttime hours. Incident activity is at its highest between 10:00 a.m. and 6:00 p.m., which is the identical peak as the 2016 master plan identified. Over 70 percent (70.7%) of calls for service occurred between 8:00 a.m. and 8:00 p.m., which is over 6% higher than the 2016 master plan identified for the same time frame.

Emergency response activity is concentrated in two large areas, as is depicted in the following heat map. These large concentrations of calls occur within close proximity of existing fire stations, reducing travel time for emergencies. In the last six years, PFD service demand has expanded the concentration of responses in two ways; the 2016 hot spot (hereinafter referred to as the Station 81 hot spot) has expanded in 2021 to extend substantially west of Highway 395 and north of Interstate 182, and a second large hot spot surrounding Station 83 (hereinafter referred to as the Station 83 hot spot) has developed in 2021 and expanded to both sides of Interstate 182. It is approximately the same size as the Station 81 hot spot. The Station 83 hot spot growth was anticipated in the 2016 master plan, although not as quickly as has occurred. Combined, a significant majority of the city is within a hot spot.

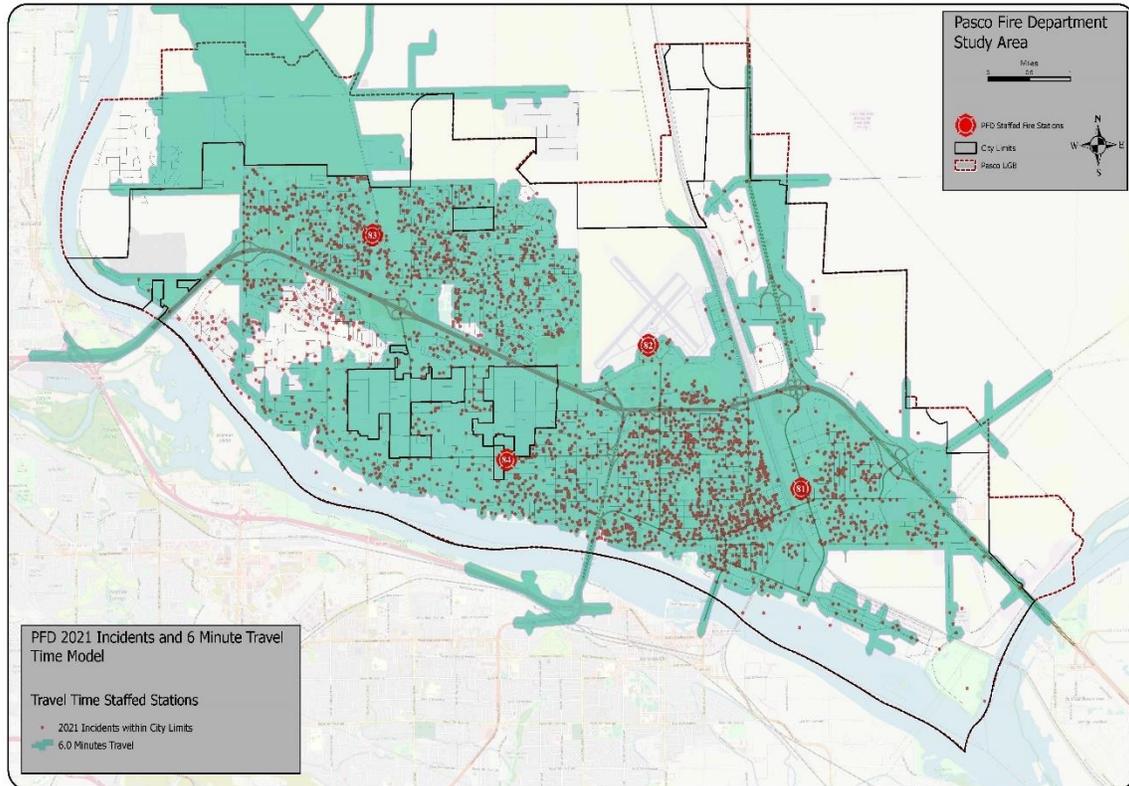
² Washington State Office of Financial Management, Forecasting and Research Division, acquired 5-29-2022.

City of Pasco, Incident Density – 2021



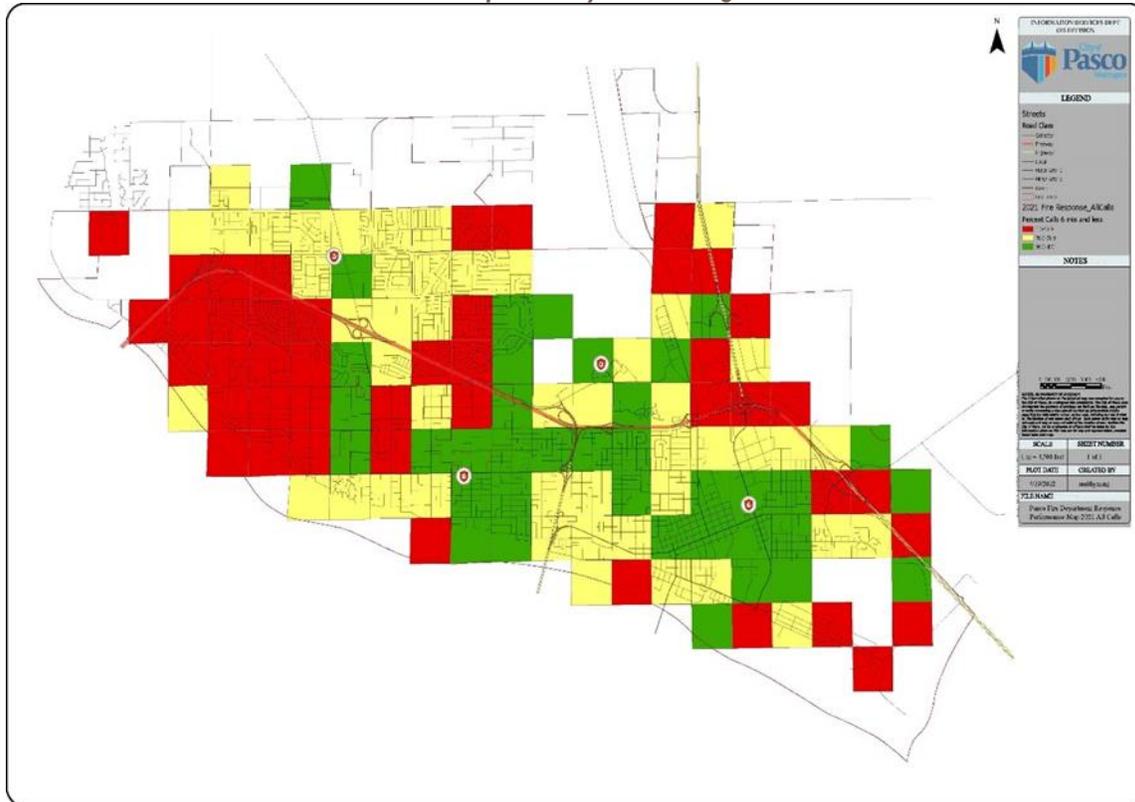
The following map illustrates potential travel time capability (in green), assuming all apparatus are in quarters and available to respond. Approximately 96 percent of the incidents that occurred in 2021 were within 6 minutes travel time of a staffed fire station within the city limits. If the urban growth boundary were included, the percentage changes to 95 percent within six minutes. This is a slight improvement over the 2016 master plan (95 percent within the city limits).

PFD Travel Time Model & Incident Distribution



The following map demonstrates actual travel time performance within half-square-mile fire management zones. The areas in green indicate PFD met the travel time goal of 6-minutes or less 90 percent of the time. The yellow indicates the 6-minute goal was achieved between 70 percent to 89.9 percent of the time. The red indicates the 6-minute goal was achieved less than 70 percent of the time. This reflects an overall decline in geographical performance, but not necessarily overall performance and can be attributed to the lack of a well-connected transportation system in some areas, rail disruptions, and significantly, concurrent call volume. It is also important to note that each fire management zone is not equal or balanced in terms of call volume and demand for service.

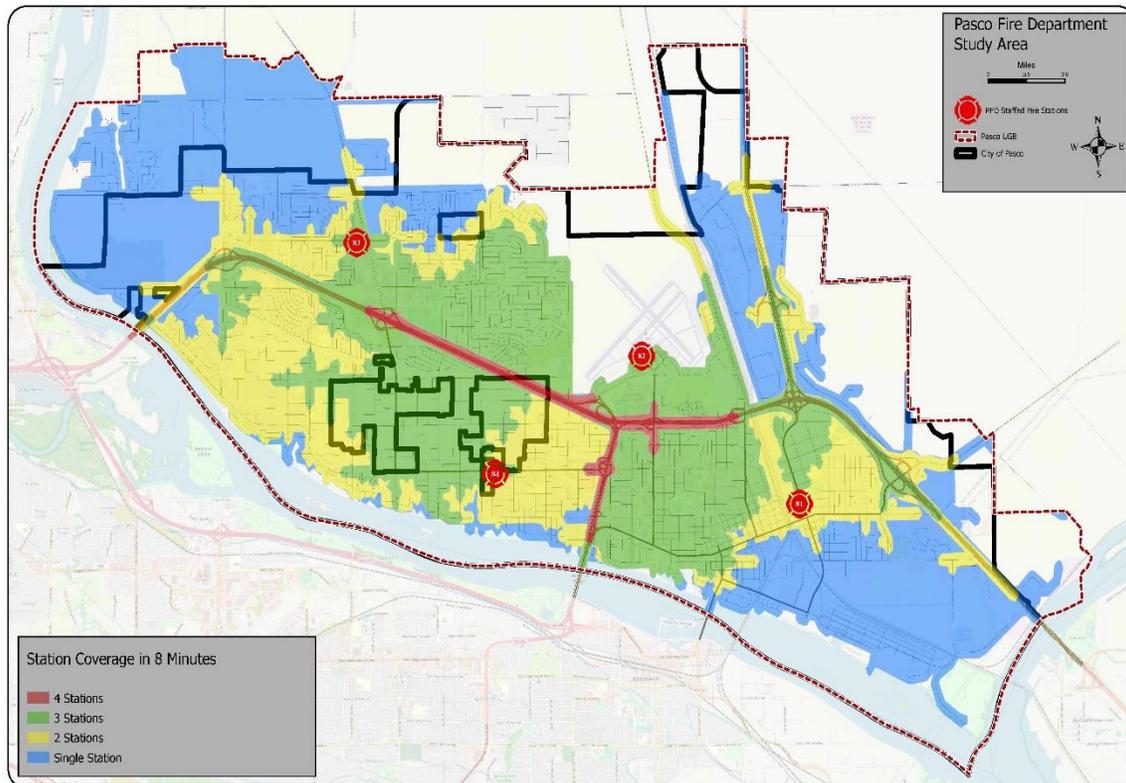
Actual Travel Time Compliance by Fire Management Zone, 2021



The National Fire Protection Association (NFPA) is a national fire service consensus codes- and standards-making agency. NFPA 1710 Standard specifies that the full first alarm assignment (17 personnel when aerial apparatus are assigned) for a moderate risk structure fire (a 2,000 square foot, two-story residence) should arrive within 8 minutes travel time, 90 percent of the time.

The following map reflects the concentration of resources and demonstrates that only along the central portion of Interstate 182 and the southern portion of State Route 395 in Pasco are within 8 minutes or less travel time of all four of the PFD stations. The northwest part of Pasco and much of the east side of Pasco only deliver one fire station to the areas highlighted within the 8-minute national standard. This is significant and will be addressed in the recommendations portion of this report.

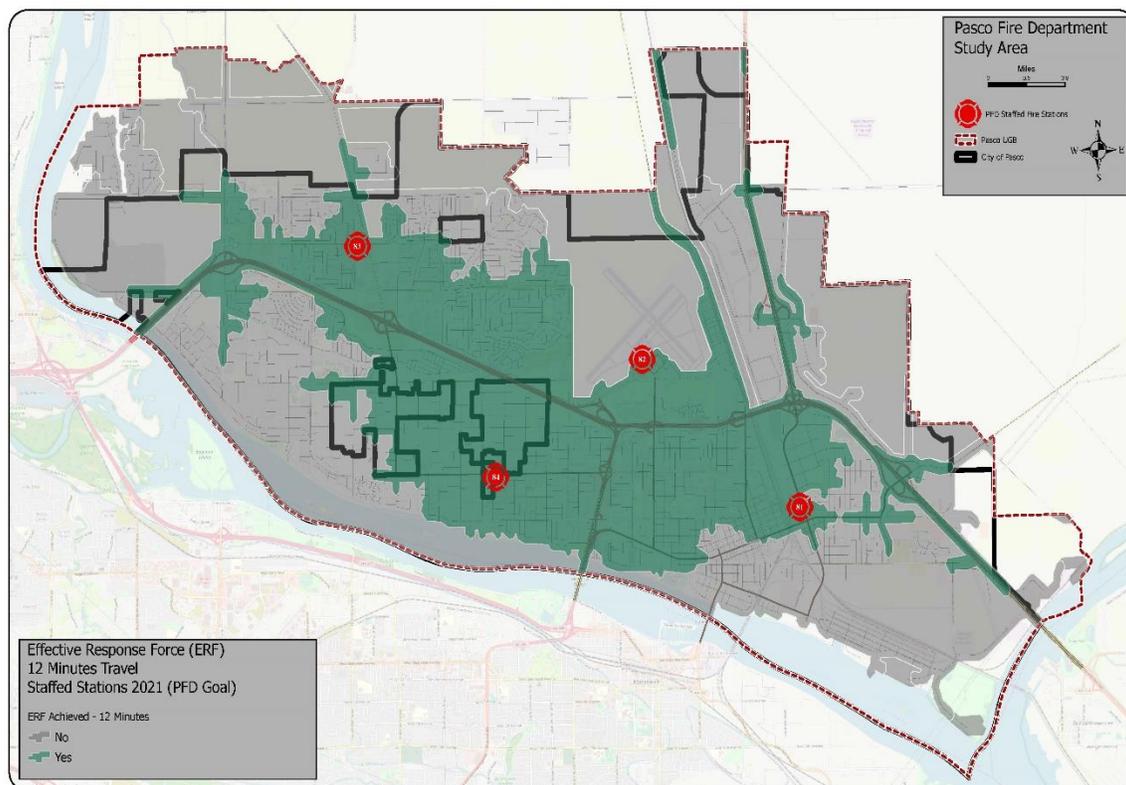
Station Concentration, 8 Minute Reach From Staffed Stations



PFD has adopted a travel time goal of 12 minutes for the arrival of the full first alarm assignment to a fire suppression event 90 percent of the time. The following map demonstrates the portions of the PFD service area that are within 12 minutes or less travel time of all four staffed fire stations.

At 12 minutes or less travel time, PFD can assemble the staffing for a full first alarm (referred to as an effective response force, or ERF) within the center of the service area (highlighted in green). Again, this map models potential travel time, assuming all apparatus and personnel are available.

Full First Alarm (ERF), 12 Minutes Travel Time (PFD Travel Time Goal), 2021



Simultaneous or concurrent incidents can also affect a fire department’s ability to muster sufficient resources to respond to additional emergencies. A concurrent call is defined as an incident dispatched in the same station area as another call within 30 minutes of each other.

These concurrent calls are illustrated on a station-by-station basis in the following chart.

Concurrent Incidents by Station Area, 2021

| Location | Concurrent Events | % of All Calls | % in 2015 |
|------------|-------------------|----------------|-----------|
| Station 81 | 327 | 16.18% | 15.4% |
| Station 82 | 162 | 11.18% | 13.2% |
| Station 83 | 442 | 19.53% | 12.3% |
| Station 84 | 96 | 8.81% | N/A |

In 2021, concurrent calls for service overall occurred 1,027 times. This is significantly lower than the 2015 numbers cited in the 2016 master plan (1,843). The decline is likely due to a fourth station being staffed, causing the burden to be shared across a larger base and causing neighboring station boundaries to be adjusted to a smaller footprint.

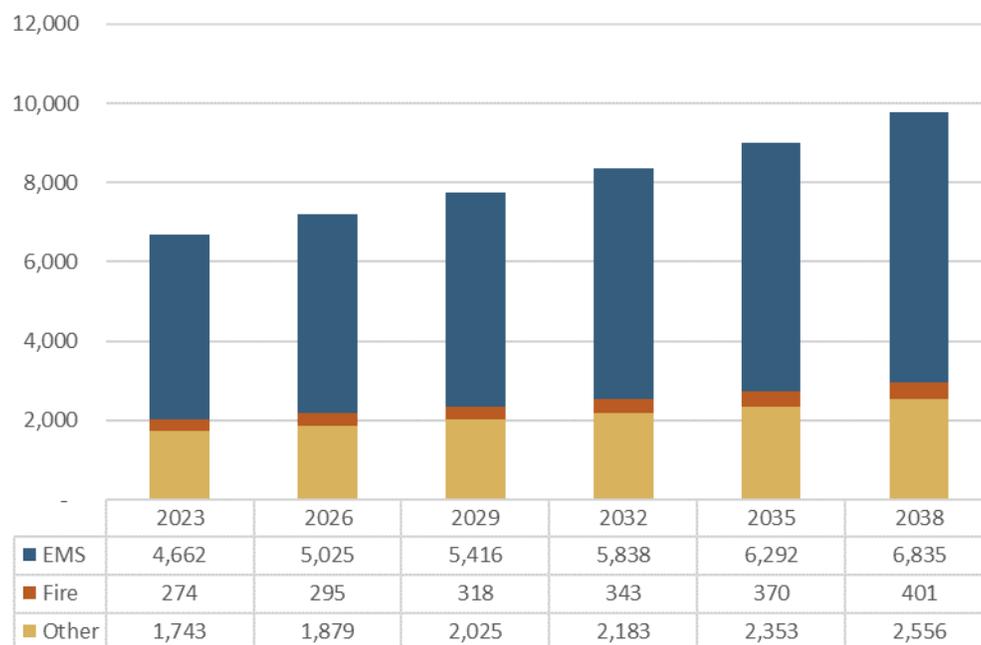
The following chart displays the current PFD response performance goals at the 90th percentile and the department’s actual response performance in 2021 in the City of Pasco.

Response Performance Goals & Actual Performance, 2021

| Response Type | Turnout Obj. (mm:ss) | 2021 Actual (mm:ss) | Travel Obj. (mm:ss) | 2021 Actual (mm:ss) |
|--------------------------------------------|----------------------|---------------------|---------------------|---------------------|
| Fire Suppression Response | 2:00 | 2:14 | 6:00 | 8:27 |
| Full First Alarm—Fire Suppression Response | N/A | N/A | 12:00 | 12:35 |
| First Arriving Medical Unit (BLS or ALS) | 2:00 | 2:14 | 6:00 | 6:44 |
| First Arriving ALS Unit | 2:00 | 2:14 | 6:00 | 6:40 |
| Hazardous Material | 2:00 | 2:14 | 6:00 | 7:51 |
| Technical Rescue | 2:00 | 2:14 | 6:00 | 15:11 |
| ARFF | N/A | N/A | 3:00 | 3:37 |
| Wildland | 2:00 | 2:14 | 6:00 | 8:29 |

Projections

The City of Pasco Urban Growth Area & Comprehensive Plan – 2018–2038 Update (Comp Plan) projects a population of 121,828 by the year 2038, which equates to the addition of almost 45,000 additional residents in the next eighteen years. By extrapolating the mean number of emergency responses per one thousand residents historically (93.29 per 1,000), service demand can be projected as it coincides with population growth.



By 2038, Pasco Fire Department will be experiencing almost ten-thousand calls for emergency services. This is a conservative projection, since it is unknown at this time whether the 18.53% growth in demand in 2021 over 2020 is an anomaly, a result of the pandemic, or a new, more aggressive trend in service demand growth going forward.

Improvement Strategies

The near-term strategies listed in this report are a compilation of the recommendations aimed at improving the current conditions of the Pasco Fire Department. While the consultant felt that PFD was a highly-skilled, well-managed, and professional organization, there is always room for improvement. The recommendations compiled throughout the report are consolidated at the end of this report for ease of review and implementation. The mid- and long-term strategies are explained in greater detail under the Future Delivery System section of this report.

NEAR TERM STRATEGIES

There are 24 near-term strategies for improvement in various sections of this report. Most are easily implemented with relatively low or moderate cost. Recommended mid- and long-term strategies will require budget discussions to prioritize the changes, financial resources if approved for implementation, and development of an implementation calendar.

MID- AND LONG-TERM STRATEGIES

The following are mid- and long-term strategies for improvement or increased efficiency.

- **Regional Training Manual:** The creation and application of a single standardized training manual for the region will provide for more consistent training, better on-scene coordination, and improved firefighter safety. With firefighters of Benton and Franklin County fire departments trained in the same techniques, responders to emergency incidents can be confident that they will be prepared to work effectively as a team. The cost for this endeavor is staff time to attend meetings, draft training manual sections, and implement the regional training manual.
- **Peak Demand Units (PDUs):** PDUs are typically staffed and deployed during the most statistically busy times of the day and week, which make the unit less costly and more flexibly deployed, both by time of day and geography. In any usage of this concept, it is important to understand that the value is added when the unit is deployed as an adjunct to existing staffing patterns. Otherwise, it compromises overall response capability. Deployment of a PDU during the busiest times of the day (between 8 a.m. to 8 p.m.) would also help reduce deficiency points assigned by the Washington Surveying and Rating Bureau for staffing levels during the day (currently 74 deficiency points). The cost of a medical unit as a PDU would be approximately \$530,000 for the unit fully equipped (one-time capital cost), with the staffing costing approximately \$1,000,000 fully loaded annually.
- **Staffing Increases:** Administrative support would be bolstered by adding a Management Analyst to the management team at PFD. This position can routinely compute response statistics, calculate alternative response scenarios, and generally provide the management team with exceptional, real-time data to make sound management decisions. The cost for this position is approximately \$95,000 and would be a civilian position.

The Pasco Fire Department currently has one Administrative Assistant for the entire fire department. With a Fire Chief and Two Deputy Chiefs, plus administratively assigned line personnel (EMS Officer, Training Officer, Community Risk Reduction Specialist), the clerical support is insufficient to support these activities. The department needs one, possibly two additional clerical support positions. The cost of a clerical support position is approximately \$87,000 (fully loaded).

The operational staffing does not meet national standards and does not meet state or local norms. The City of Pasco should follow a plan of ramping up staffing in the fire department over successive years. This improves incident safety, reduces worker fatigue, and increases the likelihood of PFD maintaining its Class 3 rating from the Washington Surveying and Rating Bureau. It should be the goal of PFD to achieve three-person engine companies and two-person ambulances. The firefighters would cost \$102,000 per person annually, fully loaded.

- **Logistics Center:** The procurement and distribution of routine supplies is an important behind-the-scenes process that needs hands-on work and meticulous record keeping. These support services are currently provided by a variety of personnel in each fire department in the region; some are line personnel, some are support, and some are management. An opportunity exists for a more efficient regional process.

Standardizing specifications for the purchase, repair, and maintenance of apparatus, self-contained breathing apparatus (SCBA), communication devices, Personal Protective Equipment (PPE), uniforms, replenishable supplies, and miscellaneous equipment often equates to less out-of-service time. Support personnel setting up a requisition and delivery system is a key efficiency of this type of approach. These economies of scale accrue to the benefit of each participating agency.

The agencies can jointly develop a “Just-In-Time” inventory system to avoid large warehouse needs. To a great degree, a just-in-time inventory process relies on the efficient monitoring of the usage of materials and ordering replacement goods that arrive shortly before they are needed. This simple strategy helps to prevent incurring the costs associated with carrying large inventories of raw materials at any given point. The net cost of such an endeavor (supplies for each agency are already being purchased separately, likely at a higher unit cost) is in a logistician and the warehouse (which could be a converted surplus fire station). The logistician would cost approximately \$89,000 fully loaded, divided equally among the participating agencies. An inventory delivery specialist can be added to this function for just-in-time delivery of replenishable supplies for approximately an additional \$67,000 fully loaded, plus vehicle, also divided equally among the participating agencies. An evaluation of potential existing warehouse space from one of the partner agencies could be utilized to store inventory and house the logistics staff.

- **New Station 85—3624 Road 100**

Station 85 would serve the west side where Stations 83 and 84 fail to achieve a 6-minute travel time. When the first due area around the proposed station (the area Station 85 units are expected to arrive first at an emergency) experiences 500 calls for service, the process should begin to design and construct the station, develop specifications for new apparatus that will be assigned there, and develop a plan to hire the personnel expected to operate out of the station. In 2021, the first due area for Station 85 had 520 calls for service. This means Station 85 has already hit the trigger point for construction to begin, apparatus to be put out to bid, and plans to be developed to hire sufficient personnel to staff the unit(s) assigned there. This station should have a single engine company staffed with three firefighters and limited EMS capabilities; an ambulance unit would not be required for some time.

- **New Station 87—Kartchner Street, east of State Route 395**

Station 87 addresses industrial growth in the east portion of the city and bolsters response to the east end generally. It would serve the Colville Tribal Casino once built as well as other tribal service and entertainment related economic development projects planned in that area, which would be a high concentration of transient population. In addition, large commercial/industrial development is occurring or slated to occur in the area (a second Resers facility and a large Darigold facility, for example). Triggering the timing of construction of Station 87 includes achieving approximately 500 calls for service in a given twelve consecutive months in what would be the service area of the station, or; when the land the Colville Tribe owns is converted to Tribal Trust lands and the casino is approved to begin construction.

The station should be modeled after the other new stations. As construction is under way, apparatus should be put out to bid, and plans developed to hire sufficient personnel to staff the unit(s) assigned there. Station 87 should be equipped with a Telesquirt (or boom Squirt) staffed with three firefighters. No ambulance unit is anticipated to be required here. A Telesquirt is an apparatus that adds to the ladder credit Pasco receives, but also matches the relative risk Station 87's first due area poses.

- **New Station 86—Northwest Urban Growth Boundary area**

A future Station 86 should be planned for in the far northwest corner within the urban growth expansion area. While some of the far northwest corner of the city has undeveloped land, the majority of the area to be served by this station is currently outside of the city but is likely to be annexed into the city as part of the comprehensive plan implementation (assuming approval by the county and/or state). This area is expected to see significant development according to the Pasco Comprehensive Land Use Plan. It is difficult to identify the ideal location for a fire station at this time given the lack of a robust transportation network there.

Once plans to develop the area are put forth and the road network is laid out, travel time calculations should be conducted to determine the ideal location for a future fire station and property acquired. The station should have an engine assigned to it and should be staffed with three firefighters. An ambulance should not be required at this time. This station area should also have a trigger point of 500 calls for service in a given year as an indication that design and construction should begin for the new Station 86.

EVALUATION OF CURRENT CONDITIONS

Other than a survey among comparable agencies conducted in early 2021 using the most recent complete year of data (2020), this phase of the study identifies the current conditions in place at the end of 2021. While it is clear that organizations constantly evolve, it is not practical to update the study as the department changes in real-time. This study reflects a snapshot in time (year-end 2021).

This portion of the study describes the conditions in place during the study window, identifies gaps in service, and provides recommendations for improvement. The evaluation and analysis of data and other information are based significantly on the internal data provided by the Pasco Fire Department (PFD), Pasco Finance Department, and Pasco Planning Division (Comprehensive Plan and GIS), and other external sources. The current conditions are compared to industry best practices where applicable, including National Fire Protection Association (NFPA) standards, Commission on Fire Accreditation International (CFAI) self-assessment criteria, health and safety requirements, and generally accepted best practices within the emergency services industry.³

Each section in this phase of the report provides the reader with an overview of its purpose and function, then an analysis is conducted and results explained. Where significant issues or conditions are present, a more specific analysis is conducted, with discussion and recommendations provided as appropriate. Observations are supported by stakeholder interviews and validation of data provided by the client to the extent practical.

For continuity purposes, this report generally follows the flow of its predecessor, the 2016 Pasco Fire Department Master Plan.

Organization Overview

The Organizational Overview component provides a summary of agency composition, configuration, and the services provided. Data provided by the administrative and management staff of the Pasco Fire Department were evaluated. In addition, interviews with line personnel, bargaining unit representatives, supervisory and administrative staff, city management, and elected officials were used to validate data and to provide context.

The purpose of this section is to ground the reader in the operating environment of PFD, verify the accuracy of baseline information, and ensure that the consultant clearly understands the organizational context.

City Governance & Structure

The City of Pasco operates under a "Council-Manager" form of government, pursuant to Revised Code of Washington Chapter 35.18. Under this form of city government, the City Councilmembers are the elected officials of the city and constitute the legislative branch. They in turn appoint and oversee the City Manager to head the executive branch of the organization. The City Council sets policy for the city, adopts a budget, and supervises the City Manager. The City Manager implements policy as set by the City Council, manages the adopted budget, and manages the day-to-day operation of the city through subordinate department heads within the city, including the Fire Chief.

³ The CFAI organization is now a subsection of the Center for Public Safety Excellence (CPSE) but maintains its prime function of accrediting fire agencies.

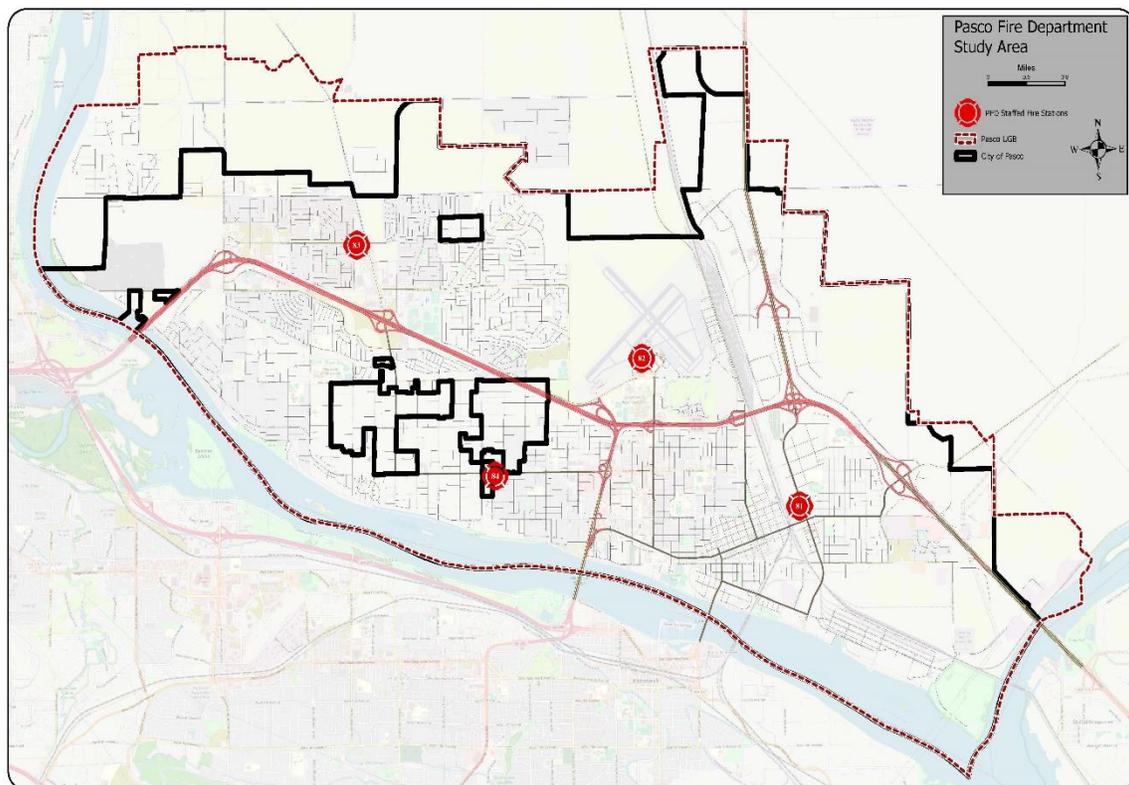
The Pasco City Council is comprised of seven elected officials, each serving four-year terms. Six council members are elected within geographic districts of the city, while one is elected at large. The council elects a mayor from among the seated Councilmembers. Pasco Fire Department is one of nine departments providing service or support from the City of Pasco to its citizens and visitors.

Pasco Demographics

Pasco is a mid-sized city in southeast Washington State and growing rapidly. According to the Washington State Office of Fiscal Management, the city is home to approximately 78,700 persons in 2021.⁴ That is a population growth of 11.6% (8,140 people) since the last master plan for the fire department was written six years ago. The city is the sixteenth largest city by population in the State of Washington. The city area encompasses approximately 37.5 square miles, with an additional seven square miles of potential expansion in the urban growth boundary. The city contains 24,924 homes.

The following map reflects the service area of the Pasco Fire Department for 2021.

Figure 1: Pasco Fire Department Service Area Map, 2021



⁴ Washington State Office of Financial Management, Forecasting and Research Division, acquired 5-29-2022.

Pasco Fire Department Structure

The Pasco Fire Department was established by council action on July 16, 1908, after a series of fires destroyed portions of the town. Little is published in the public domain about the fire department’s history beyond that, though IAFF Local #1433 maintains an informal history of the PFD for posterity.

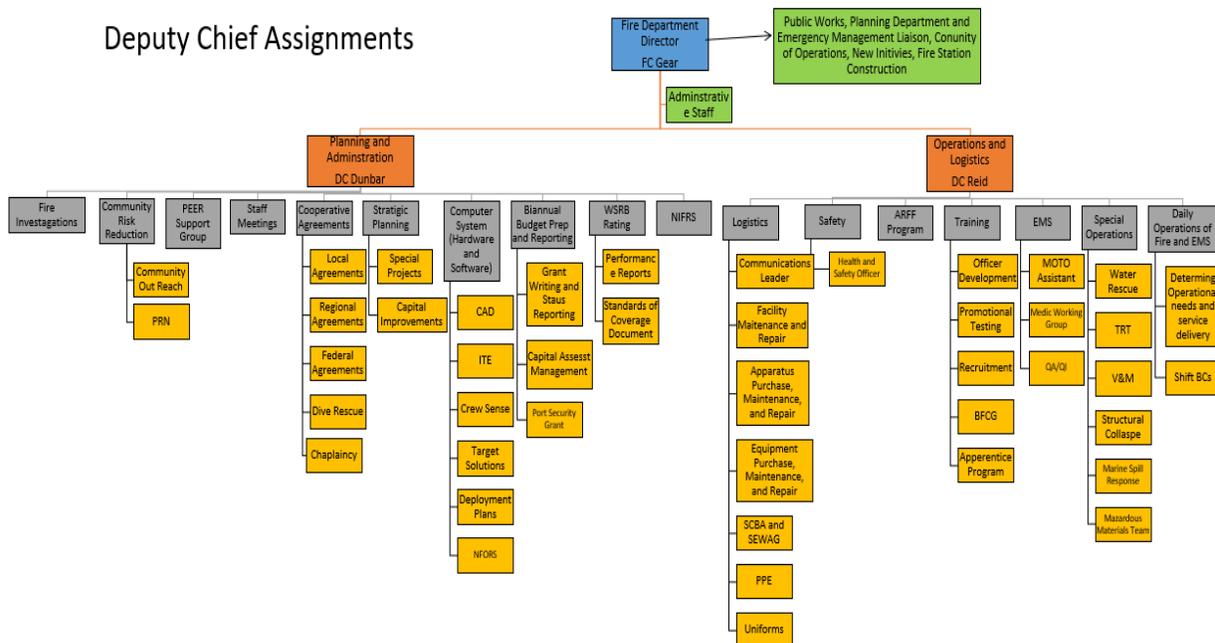
The headquarters of the Pasco Fire Department is located at the new Station 84, which was designed to accommodate both the operational and administrative elements of the department without work space conflicts. The Fire Chief’s position is generally described by a current position description, which is posted on the Pasco Human Resources website. The incumbent Fire Chief, Bob Gear, was appointed in 2009.

The Fire Chief is an at-will employee and is under contract with the city. The Fire Chief recommends hiring and termination actions to the City Manager, but otherwise administers discipline at his sole discretion as guided by Human Resources policies and the collective bargaining agreement. As resources in this regard, the Fire Chief has available to him, legal counsel from the City Attorney and personnel advice from the HR Director.

As with most fire departments, PFD is hierarchical, reflecting the paramilitary structure of the fire service. However, PFD makes a distinction about its hierarchy in that it is scalar during emergency incidents and project-oriented day to day.

The Pasco Fire Department organization chart follows:

Figure 2: Pasco Fire Department Organization Chart



The functional program management structure follows a similar hierarchical structure as the staffing, with two deputy chiefs overseeing the programs. Program activities are assigned to various individuals across the department, regardless of rank. There are several routine program activities required to maintain emergency operational readiness and include such things as facilities, equipment, apparatus, community risk reduction, training, EMS, and special operations. Mid-managers are assigned these program areas, with additional, smaller projects connected to the major programs. The processes are interdependent where better and faster decisions can be made. This process is illustrated in the following figure.

Figure 3: Functional Program Management Structure



All suppression employees from Battalion Chief down are covered by a collective bargaining agreement. All exempt employees are covered by employment agreements and/or personnel and civil service rules of the city. The span of control in the fire department is in an ideal range for the operations branch and within industry standards at 1:5 for the Captain. The fire department has four career-staffed fire stations within the city. PFD provides to its constituency services such as fire suppression, advanced life support emergency medical services, ambulance transport services, and other services as illustrated in the previous figure.

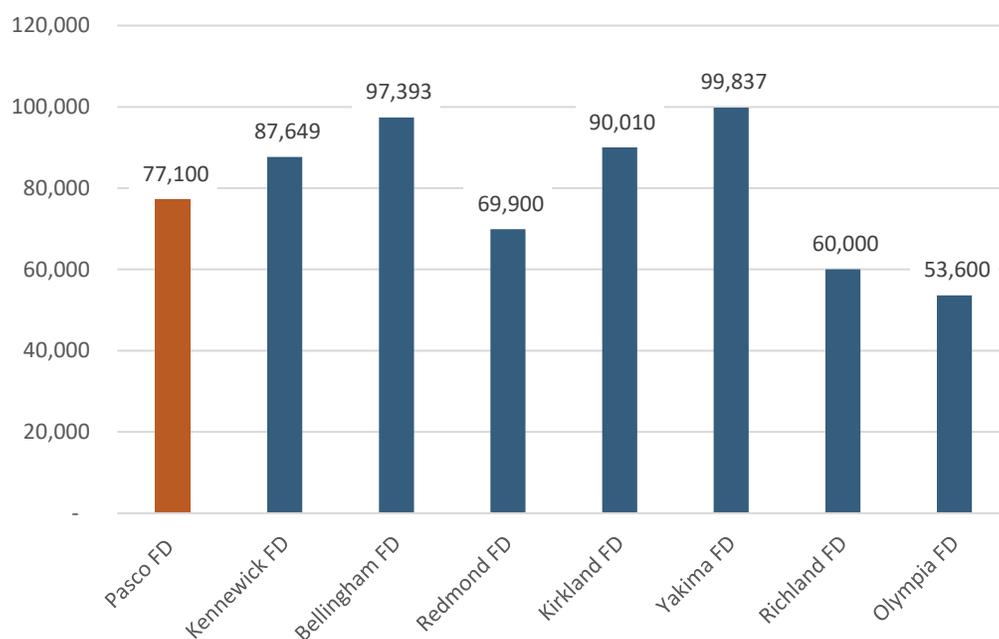
Agency Comparisons

In the 2016 Master Plan, the National Fire Protection Association benchmark data for 2015 was used to compare Pasco Fire Department to fire departments in the thirteen states that make up the western region of the United States as defined by the NFPA. The contemporary data (2021) was not available, so the consultant used the same criteria (municipalities serving a population of between 50,000 and 99,999) to survey comparable-sized agencies within Washington State. The respondents answered the questions in the survey relying on 2020 data, so PFD's 2020 data was also used to ensure an apples-to-apples comparison.

All agencies that fell into the comparable range (municipal fire departments in Washington state that serve between 50,000 and 99,999 population) responded promptly to the survey. These comparable agencies include Kennewick, Bellingham, Redmond, Kirkland, Yakima, Richland, and Olympia.⁵ It is interesting to note that the eight municipalities serving between 50,000 and 99,999 persons in Washington State are evenly divided geographically: four on the east side and four on the west side of the state.

All of the following graphics illustrate PFD compared to the other seven municipal fire departments within the population range.

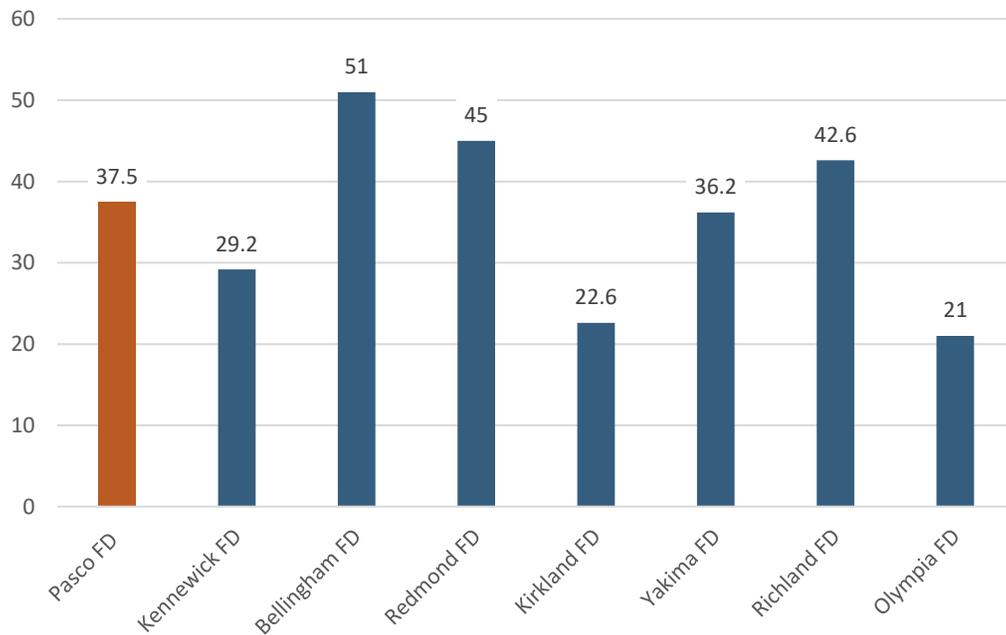
Figure 4: Population Served Comparison (2020)



The average population served by the seven comparable agencies is 79,770. At a population of 77,100 (2020 data), Pasco was slightly smaller than the average of the comparable agencies. Pasco is the fifth largest of the eight agencies by population.

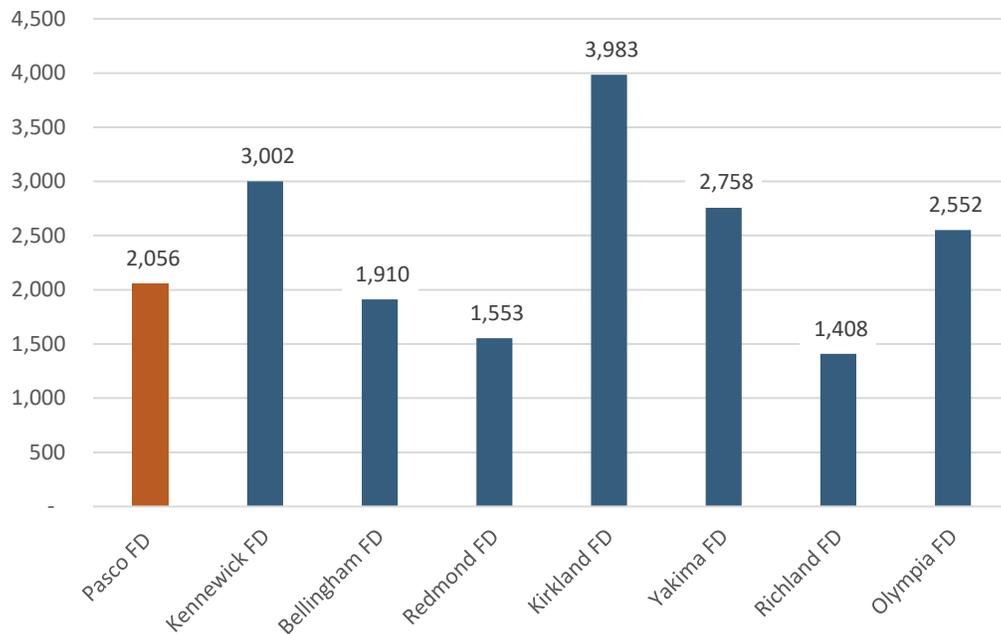
⁵ Ask MRSC. (n.d.). Retrieved March 31, 2021, from <http://mrsc.org/Home/Research-Tools/Washington-City-and-Town-Profiles.aspx>

Figure 5: Service Area Comparison, Square Miles (2020)

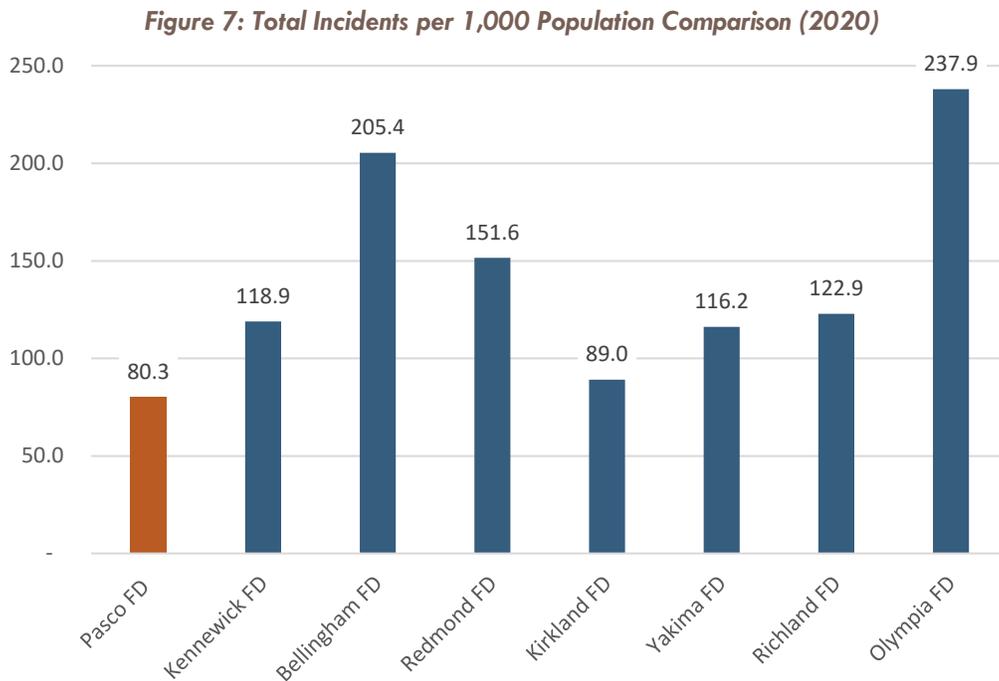


Pasco Fire Department has a slightly larger service area to protect as compared to the average of the comparable agencies (35 square miles). It has the fourth largest area to serve of the comparable agencies.

Figure 6: Population Density Comparison, per Square Mile (2020)

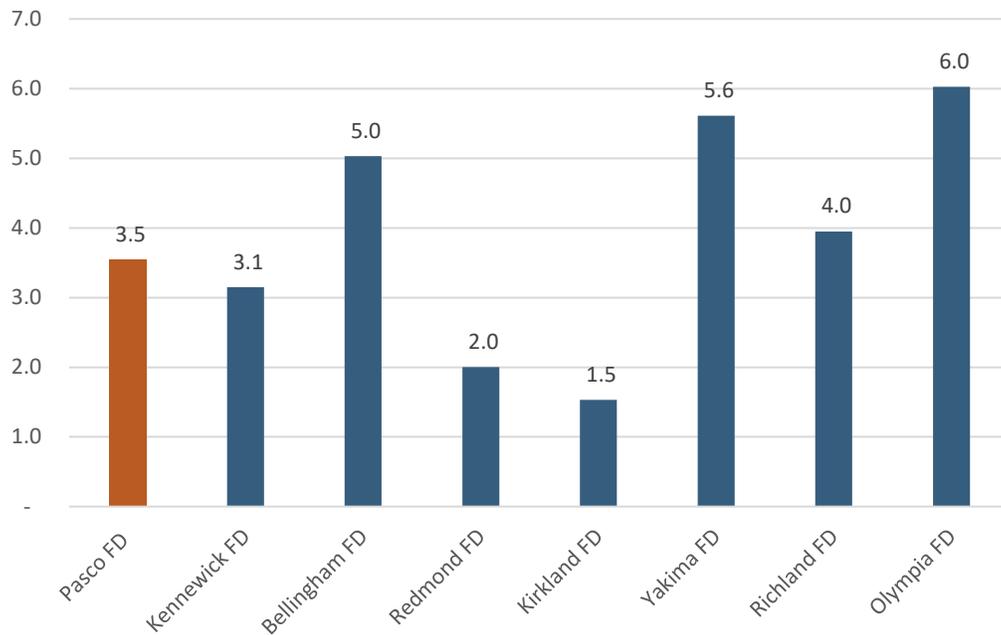


The Pasco Fire Department has a slightly lower population density (2,056 persons per square mile) than the average of the other seven agencies (2,452 persons per square mile). The fact that Pasco is one of a few of the comparable agencies hosting a regional airport, which encompasses considerable area, has a bearing on population density.



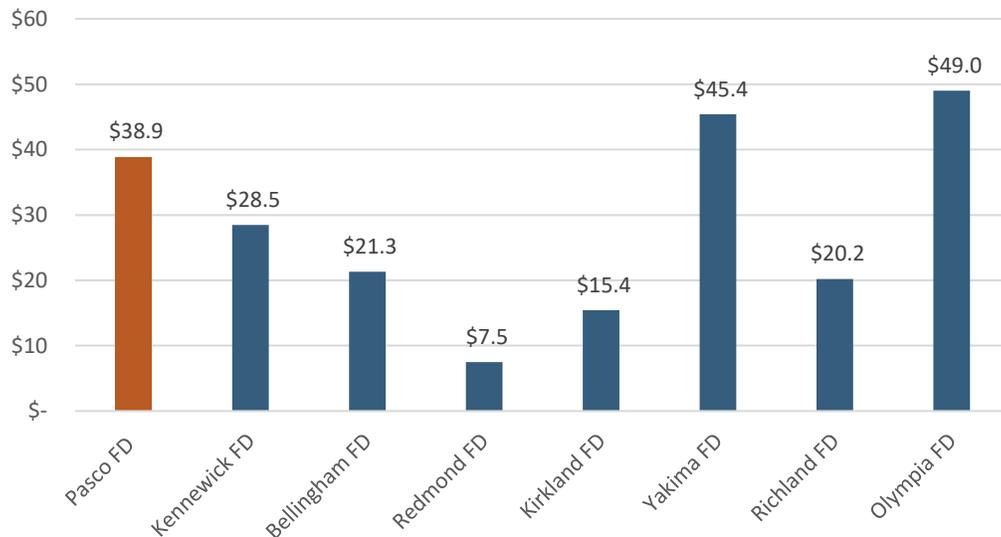
The Pasco Fire Department has the lowest number of incidents per 1,000 population served compared with the seven other agencies. The number of incidents per 1,000 population (80.3 in 2020) is higher than the ratio for Pasco as reported in the 2016 Pasco Master Plan (74.7).

Figure 8: Fires per 1,000 Population Comparison (2020)



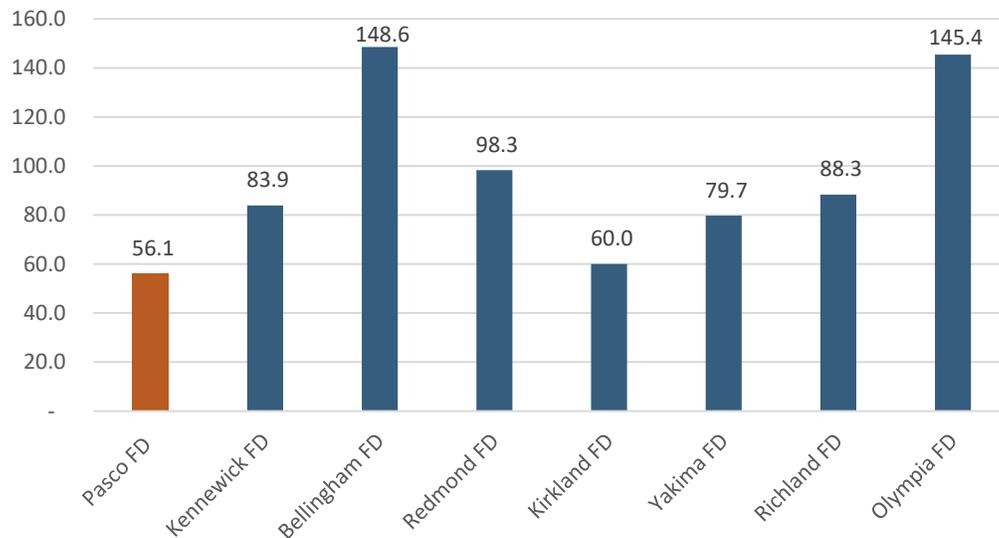
Despite having the lowest number of all incident types per 1,000 population (Figure 7), Pasco Fire Department has the fifth highest number of fires per 1,000 population (Figure 8).

Figure 9: Fire Loss per Capita Comparison (2020)



The Pasco Fire Department has the third highest fire loss per capita of the comparable agencies at \$38.9 per capita. The average of the other seven comparable agencies is \$26.8 per capita.

Figure 10: EMS Incidents per 1,000 Population Comparison (2020)



The Pasco Fire Department has the lowest number of medical responses per 1,000 population (56.1) of all the comparable agencies. The average of the other seven comparable agencies is 100.6 per 1,000 population. This is likely due to PFD recodifying what constitutes an EMS call, and the exceptional work of the Community Risk Reduction program and the resource coordinator, which redirects many low acuity calls to social service agencies for more appropriate redress.

Recommendation:

- Establish a process to formally maintain the history of the PFD.

Management Components

Management of emergency service agencies has always been challenging, made more so by recent societal and environmental changes. Changes and concerns surrounding emergency response during the COVID-19 pandemic have required out-of-the-box thinking. This not only includes how to safely respond to emergencies in the community but how to maintain safety during more routine activities by crews while at the fire stations. Social distancing, masking, and frequent washing all become more difficult to comply with while crews are living together for forty-eight consecutive hours, training together, eating together, and interacting with each other in preparation for responses. Firefighters look to management to keep them safe while also looking to management to accommodate the activities that make a working crew function effectively.

In addition to COVID-19, there are the challenges that come with significant increases in social unrest and civil disobedience. Fire departments are faced with difficult decisions and tactics when assisting law enforcement during these events. Legislative changes to law enforcement engagement in 2021 has shifted many of these types of responses to the fire department. This increases the fire department burden and dramatically increases the risk profile for fire department operations. Over and above these complexities, fire service leadership must continue to deal with the more routine challenges associated with maintaining an effective organizational structure, setting and measuring levels of service, staying abreast of new technologies and methods, evaluation and maintenance of a qualified workforce, staff development for effective succession, and financial sustainability for the future. This section of the report deals with the elements typically found in the management structure of an organization.

Management Elements

Successful organizations must be clear about their purpose, direction, and culture. They must also have a plan in place, complete with goals and objectives, metrics to measure effectiveness or achievement, areas of responsibility assigned, and timelines to achieve them. All these elements together are incorporated into a strategic plan. The Pasco Fire Department has been a key leader in planning (which is addressed in greater detail in the Planning Section of this report) for the future. It established a complete strategic plan in 2017 that addressed all the above-listed elements. It managed to complete the vast majority of the five-year plan in three years and commissioned a second strategic plan in 2020, which was adopted just prior to the initiation of this master plan.

Management Documents and Processes

Emergency services organizations usually rely on regulatory documents to augment direct supervision, empowering crews to make appropriate decisions when direct supervision is not practical. This provides the leader's intent, allowing members to make decisions independently when guidance is otherwise unavailable.

Pasco Fire Department has a complete and thorough set of regulatory documents broken into rules and regulations (R&Rs), Standard Operating Guidelines (SOGs), and Administrative Orders (AOs). The R&Rs, complete with a code of conduct and a code of ethics, are intended to, "... cover in a general way the obligations and duties of the members of the Pasco Fire Department." The SOGs are intended to, "... be only a guide for members to use in daily activities." AOs are issued by city leadership above the fire department and supersedes any conflicting R&Rs or SOGs, but do not supersede conflicts with the collective bargaining agreement.

As in many organizations, these regulatory documents are in writing but are not up to date. All the regulatory documents reviewed by the consultant were issued in mid-2014, with no revisions identified since then. Some are out of date, e.g. the fire department's mission statement was amended in the 2017 strategic plan but is not reflected in R&R 0002 – Mission Statement.

Industry best practice suggests that one-third of the documents be reviewed each year so that the complete set is reviewed and revised every three years. PFD should also establish a formal process to develop new R&Rs and SOGs.

Critical Issues

As mentioned at the beginning of this chapter, public safety agencies routinely face a complex array of new critical issues and emerging challenges. Engaging members of the organization in addressing organizational challenges is a fruitful and productive practice. For the members to engage, however, they must understand the most difficult issues facing the organization from the perspective of the leadership. The PFD administration has listed the following top three critical issues facing the organization.

Figure 11: Critical Issues

| Critical Issues | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st Priority | Focusing on the long-term goal of sustaining a WSRB protection class rating of 3. |
| 2nd Priority | Working to achieve and maintain target fire response times through operational improvements and long-range strategic planning of facilities and staffing. |
| 3rd Priority | Ongoing evaluation of costs, processes, and performance associated with the delivery of city services, including customer feedback and satisfaction, staffing, facilities, and partnership opportunities. |

Communication

PFD invests significant time and effort into its internal communication. Staff meetings are convened regularly, with minutes taken. Written memoranda are occasionally used to supplement staff meeting information and member forums are conducted (all-hands meetings) to address urgent issues of global impact. The Fire Chief and his command staff subscribe to an open-door policy. While the organizational chart clearly depicts formal authority, it reflects the emergent nature of the fire service. The routine, day-to-day communication and activities in the department are less formal. Programs are often assigned to personnel that deviate from the formal organizational chart or roles.

External communication is more dependent upon the broader city. PFD does have a formal complaint process in place and does rely occasionally on community surveys, performed by the city on behalf of all departments. A community newsletter, which occasionally has articles of interest about the fire department, is distributed by the city. The Pasco Fire Department does have a presence on Facebook and a thorough presence on the City of Pasco website. City social media is robust and provides an opportunity to discuss PFD issues of interest to the general public. Further, the AskPasco app was implemented during the development of this report, facilitating any complaints or citizen feedback.

Record Keeping, Documentation, & Security

The Pasco Fire Department has a process for public records access in place and has hard copy files protected in office file drawers. Electronic files are secured by passwords assigned to users with rights to appropriate documents, and the file server is backed up daily off-site. This process is coordinated with the City Clerks Office, specifically records management, retention schedules and destruction. Incident reports, patient care reports, and exposure reports are maintained by the department and appropriately secured. The department uses Image Trend™ and TargetSolutions™, which are fire service industry-specific software programs. These are password protected. New World™ is a program used by citywide operations and is also password protected. Finance reports are issued by the Finance Department of the city regularly, and management reports are shared weekly at department managers meetings. Operational reports are issued by the Pasco Fire Department annually, addressing performance.

At fire stations, public access doors are secured with keypad or fob locks. Response vehicles rely on locked fire stations to provide security, but staff vehicles are typically unsecured in the parking lot. Small, attractive assets are inventoried annually. No petty cash is maintained on-site. Instead, Purchase (P) Cards are used by those with the authority to use them. They have small limits placed on them, and the program is audited by the City Procurement Specialist.

All testing records are in place for self-contained breathing apparatus, which is conducted internally. Hose, ladders, pumps, and breathing air from the cascade system are tested by outside contractors. Vehicle maintenance records are retained at city shops, where vehicle maintenance is conducted. Gas monitor calibration occurs internally by on-duty personnel.

Recommendation:

- Review and update all regulatory documents on at least a three-year cycle.

Capital Assets and Capital Improvement Programs

Two of the three critical elements of an effective emergency response system are capital assets in the form of facilities and equipment. The PFD is well-equipped with appropriate apparatus, and most of the facilities themselves are appropriately designed, placed, and maintained. Without these, it is impossible for a fire department to deliver services effectively. This section reviews the capital assets of the Pasco Fire Department to determine their effectiveness for the mission.

Facilities

The Pasco Fire Department has a capital improvement plan that spans six years (from 2021–2026 and is updated annually). Funding has been identified and earmarked for the projects. The following figures focus on the facilities in place or under construction, and identify sites acquired to address future needs.

Figure 12: Station 81



Station 81 is located at 310 N. Oregon Street. It is home to Engine 2811 and Medic 2821; each is staffed with two personnel. Additional units are stored here to be cross-staffed as the need arises. The station formerly housed the administrative offices but has been vacated by admin staff to facilitate a smoother operational purpose and greater operational flexibility.

| Survey Component | | Observations | |
|---------------------------------------|-------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------|
| STRUCTURE: STATION 81 | | | |
| Construction type | Wood Frame | | |
| Date | 11-30-1999 | | |
| Seismic protection/energy audits | No | | |
| Auxiliary power | Yes, Diesel Generator | | |
| Condition | Remodeled in 2020 | | |
| Other (ADA, gender appropriate, etc.) | ADA and mixed gender compliant; Storage Minimal | | |
| Square footage | 6,400 | | |
| FACILITIES AVAILABLE | | | |
| Exercise/workout | Yes | Sprinkler system/Smoke detection | Yes/Yes |
| Kitchen/dormitory | Yes | Washer/dryer | No |
| Lockers/showers | Yes | Security | Parking is gated with gate and station doors key coded |
| Training/meetings | No | Apparatus exhaust system | Yes |
| Apparatus Number | Minimum Staffing | Comments | |
| Engine 2811 | 2 | Type I engine with a 50' ladder and elevated master stream | |
| Medic 2821 | 2 | | |
| Engine 2861 | CS | Wildland engine cross-staffed from existing units when called for | |
| Type 4 Rescue Boat | CS | Cross-staffed from existing units when called for | |

Figure 13: Station 82



Station 82 is located on the Port of Pasco Airport (PSC) property at 3502 Varney Lane and is provided as an element of the partnership with the Port to provide fire and medical response to all air operations activities. It has two ARFF units with two dedicated firefighters assigned to the station and they do not leave airport property. The remaining units and staff respond in and out of the PSC for more typical responses. The crews anchored to the airport limits the utility of the station for purposes other than airport response due to its required location at the airport.

| Survey Component | | Observations |
|-----------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------|
| STRUCTURE: STATION 82 | | |
| Construction type | Cinder Block | |
| Date | 03-13-2006 | |
| Seismic protection/energy audits | No | |
| Auxiliary power | Yes, Diesel Generator | |
| Condition | Fair | |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | ADA Yes, Mixed Yes, Storage Adequate | |
| Square footage | 10,710 | |
| FACILITIES AVAILABLE | | |
| Exercise/workout | Yes | |
| Kitchen/dormitory | Yes | |
| Lockers/showers | Yes | |
| Training/meetings | Yes | |
| Washer/dryer | Yes, Turnout gear extractor and dryer | |
| Sprinkler system | Yes | |
| Smoke detection | Yes | |
| Security | Yes, Locked at all times due to FAA rules | |
| Apparatus exhaust system | Yes | |
| Apparatus Number | Minimum Staffing | Comments |
| Engine 2812 | 2 | |
| Medic 2822 | 2 | |
| PSC ARFF 281 | 2 | Dedicated staffing for airport operations – does not leave PSC property |
| PSC ARFF 282 | CS | Cross-staffed as needed from other crews. |
| Tender 2822 | Unstaffed | Cross-staffed from existing units when called for |

Figure 14: Station 83



Station 83 is located at 7510 Sandifur Parkway. It is a new facility (opened January 2021) and houses four personnel; two on the engine and two on the medic unit. A type 6 engine (brush unit) is also housed here and can be cross-staffed from the regular staffing here as the need arises.

| Survey Component | | Observations |
|-----------------------------------------------------------------------|--------------------------------------|---------------------------------------------------|
| STRUCTURE: STATION 83 | | |
| Construction type | Wood frame | |
| Date | 1-18-2021 | |
| Seismic protection/energy audits | Yes | |
| Auxiliary power | Yes, Diesel Generator | |
| Condition | New | |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | ADA Yes, Mixed Yes, Storage adequate | |
| Square footage | 10,600 | |
| FACILITIES AVAILABLE | | |
| Exercise/workout | Yes | |
| Kitchen/dormitory | Yes | |
| Lockers/showers | Yes | |
| Training/meetings | No | |
| Washer/dryer | Yes (installing as of this writing) | |
| Sprinkler system | Yes | |
| Smoke detection | Yes | |
| Security | All doors key code and/or FOB | |
| Apparatus exhaust system | Yes | |
| Apparatus Number | Minimum Staffing | Comments |
| Engine 2813 | 2 | |
| Medic 2823 | 2 | |
| Type 6 Engine | Unstaffed | Cross-staffed from existing units when called for |

This new station has caused the old Station 83 to be surplus to the needs of the PFD. The old facility has been transferred to Pasco Public Works and Pasco Police Departments. The cost will be split between the two agencies according to the space each agency utilizes.

Figure 15: Old Station 84 (Replaced in September 2021)



| Survey Component | Observations |
|------------------------------------------------------------------------------------|------------------------------|
| STRUCTURE: OLD STATION 84, (crew and equipment relocated in September 2021) | |
| Construction type | Cinder Block |
| Date | 1958 |
| Seismic protection/energy audits | No |
| Auxiliary power | No |
| Condition | Poor |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | ADA No, Mixed No, Storage No |
| Square footage | 1,920 |
| FACILITIES AVAILABLE | |
| Exercise/workout | No |
| Kitchen/dormitory | Yes |
| Lockers/showers | No |
| Training/meetings | No |
| Washer/dryer | No |
| Sprinkler system | No |
| Smoke detection | Yes, battery only |
| Security | No |
| Apparatus exhaust system | No |

This station has separate apparatus bay and crew quarters on adjacent lots. It was put to use as a temporary facility in 2017 by utilizing an acquired station from Franklin #3 and adjacent home to cobble together a response capability until a suitable station could be funded and constructed. It was replaced in September 2021 with new Station 84 at 4920 West Court Street. PFD is currently negotiating with Franklin #3 to lease the station back to the District for their resident program.

Figure 16: Station 84 (new as of September 2021)



Station 84 is located at 4920 West Court Street. This station replaced the existing temporary Station 84 (which will become surplus). The station is also the PFD Headquarters station with the administrative staff relocating here from their former location on Ainsworth. This station also serves as the office for the on-duty shift Battalion Chief.

| Survey Component | | Observations |
|-----------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------|
| STRUCTURE: NEW STATION 84 HEADQUARTERS | | |
| Construction type | Wood Frame | |
| Date | Opened September 2021 | |
| Seismic protection/energy audits | Yes | |
| Auxiliary power | Yes, Generator | |
| Condition | New | |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | ADA Yes, Mixed Yes, Storage yes with additional storage building | |
| Square footage | 16,663 | |
| FACILITIES AVAILABLE | | |
| Exercise/workout | Yes | |
| Kitchen/dormitory | Yes | |
| Lockers/showers | Yes | |
| Training/meetings | Yes | |
| Washer/dryer | Yes, Turnout washer and dryer | |
| Sprinkler system | Yes | |
| Smoke detection | Yes | |
| Security | All doors secured with Key Code and/or FOB | |
| Apparatus exhaust system | Yes | |
| Apparatus Number | Minimum Staffing | Comments |
| Battalion 281 | 1 | |
| Ladder 2814 | 2 | |
| Rescue 2834 | CS | L2814 and R2834 will be cross staffed depending upon nature of incident |
| Medic 2824 | 2 | |

Figure 17: Vehicle Storage Building (Station 84 adjacent)



The Vehicle Storage Building is located on property adjacent to Station 84. The purpose of this building is to house ancillary and seasonal apparatus in a facility that requires lower costs per square foot to construct and maintain, while making these units quickly accessible and convenient to the PFD.

| Survey Component | Observations |
|-----------------------------------------------------------------------|-----------------------------------------------|
| STRUCTURE: STORAGE BUILDING LOCATED AT STATION 84 | |
| Construction type | Wood Frame |
| Date | Opened September 2021 |
| Seismic protection/energy audits | Yes |
| Auxiliary power | Yes |
| Condition | New |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | ADA Yes, Mixed Yes, Storage yes, storage only |
| Square footage | 5208 |
| FACILITIES AVAILABLE | |
| Exercise/workout | No |
| Kitchen/dormitory | No |
| Lockers/showers | No |
| Training/meetings | No |
| Washer/dryer | No |
| Sprinkler system | Yes |
| Smoke detection | Yes |
| Security | All doors secured with Key Code and/or FOB |
| Apparatus exhaust system | No |

Figure 18: Future Station 85 Site



Property for a future Station 85 is located at 3624 Road 100. The property is currently vacant and awaiting the results of future development to drive the need for construction.

| Survey Component | Observations |
|--------------------------------------------------------------------------------|----------------------------------------------------|
| STRUCTURE: STATION 85 SITE SELECTED, NO START DATE FOR CONSTRUCTION SET | |
| Construction type | Under planning, no start date for construction set |
| Date | |
| Seismic protection/energy audits | |
| Auxiliary power | |
| Condition | |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | |
| Square footage | |
| FACILITIES AVAILABLE | |
| Exercise/workout | |
| Kitchen/dormitory | |
| Lockers/showers | |
| Training/meetings | |
| Washer/dryer | |
| Sprinkler system | |
| Smoke detection | |
| Security | |
| Apparatus exhaust system | |

Figure 19: Future Station 87 Site



This is the site of a future Station 87. There is currently no address associated with the property, but it is at the end of Kartchner Street near the Auto Zone Distribution Center, east of State Route 395. This is also near a proposed casino site for the Colville Confederated Tribes. The PFD property is currently vacant and awaiting the results of future development to drive the need for construction.

| SURVEY COMPONENT | OBSERVATIONS |
|--------------------------------------------------------------------------------|----------------------------------------------------|
| STRUCTURE: STATION 87 SITE SELECTED, NO START DATE FOR CONSTRUCTION SET | |
| Construction type | Under planning, no start date for construction set |
| Date | |
| Seismic protection/energy audits | |
| Auxiliary power | |
| Condition | |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | |
| Square footage | |
| FACILITIES AVAILABLE | |
| Exercise/workout | |
| Kitchen/dormitory | |
| Lockers/showers | |
| Training/meetings | |
| Washer/dryer | |
| Sprinkler system | |
| Smoke detection | |
| Security | |
| Apparatus exhaust system | |

Figure 20: Pasco Fire Department Training Center



The Training Center for Pasco Fire Department is located at 1011 Ainsworth, adjacent to the current Franklin County Emergency Management building in the Port of Pasco. The Training Division has expanded to use some of the office and classroom space vacated by PFD headquarters staff in their move to Station 84.

| Survey Component | Observations |
|-----------------------------------------------------------------------|----------------------------------------------------------|
| STRUCTURE FIRE DEPARTMENT TRAINING CENTER | |
| Construction type | All Metal |
| Date | 10-1-2018 |
| Seismic protection/energy audits | No |
| Auxiliary power | No |
| Condition | Fair, added restroom facility in 2020 |
| Special considerations (ADA, mixed gender appropriate, storage, etc.) | Fire and Rescue Training Tower only |
| Square footage | 1,600 |
| FACILITIES AVAILABLE | |
| Exercise/workout | No |
| Kitchen/dormitory | Kitchen in adjacent facility |
| Lockers/showers | Lockers and limited showers located in adjacent facility |
| Training/meetings | Classroom located in adjacent facility |
| Washer/dryer | No |
| Sprinkler system | No |
| Smoke detection | No |
| Security | No |
| Apparatus exhaust system | No |

Apparatus

The Pasco Fire Department has an apparatus and higher valued equipment replacement plan in place, which schedules replacements out to the year 2035. This is a detailed plan and addresses replacement consistent with NFPA 1911 and its Annex D. This standard states that engines and ladder trucks should not exceed 15 years of frontline service, with a maximum of an additional ten years of reserve status before being surplus. Ambulance-type vehicles have a much shorter life expectancy, with seven years being the typical maximum life for these units. Pasco follows these guidelines in its written apparatus and equipment replacement schedule.

The intent behind Annex D is to maintain firefighter safety. Apparatus manufacturers comply with the NFPA standard each year. With changes to the standard every few years, improvements such as lighting, visibility, crew compartment safety, rollover protection, harnessing of passengers, and other safety systems are added. Annex D recognizes that an older fleet that has not been upgraded to meet current NFPA standards poses a greater risk than newer apparatus. A retrofitted apparatus that has been upgraded may meet the intent of NFPA 1911 and Annex D. However, Annex D is only guidance, not a mandate.

In addition to apparatus replacement schedules, expensive capital equipment carried on the apparatus needs to be reflected in a replacement schedule. The equipment includes defibrillator-monitors, power stretchers, self-contained breathing apparatus, and ruggedized portable radios. Expected service life can be obtained from manufacturers of these various types of equipment.

In developing an apparatus and equipment replacement plan, Pasco Fire Department has established the criteria for replacement. The price point for the apparatus and equipment is determined and a price escalator to project how much money will be required to purchase replacement vehicles and equipment once they have reached the end of their useful lives. Each year, that price escalation factor should be evaluated against the actual price increases that year, and the replacement schedule trued up. Pasco Fire Department models this industry best practice.

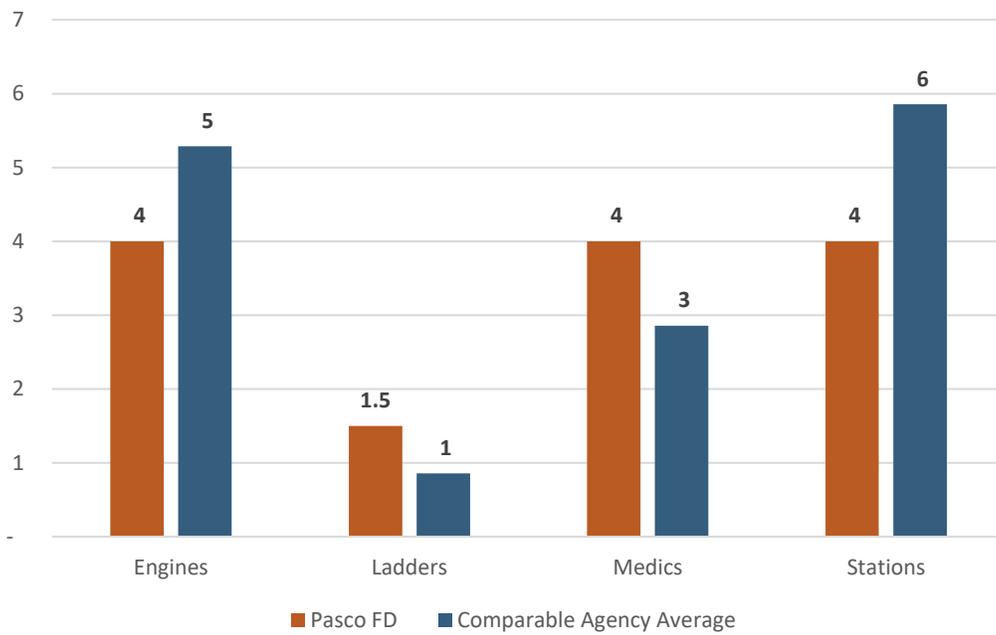
Funding for the replacement plan is derived from the city general fund or the ambulance utility fund (or a combination of the two where the unit serves both missions). When the apparatus is retired, there is usually a nominal return for the salvage value of the sale. Proceeds from this may also be reinvested into the apparatus and equipment fund or into appropriate fund balance.

Figure 21: Apparatus & Major Equipment Replacement Schedule

| Description | Estimated life in Years | Replacement Year |
|--------------------------------------------------------|-------------------------|------------------|
| Apparatus | | |
| 2016 Rescue Boat | 10 | 2026 |
| Boat Grant GR0.FR.35.2020 Spill prevention Boat | 10 | 2031 |
| 2015 Chevy Tahoe 50% | 6 | 2021 |
| 2014 Ford Transit Van 50% Split | 7 | 2024 |
| 2014 Ford F250 4x4 Super Duty Cab | 10 | 2024 |
| 2016 Ford Pickup - Training | 10 | 2026 |
| 2016 Ford Pickup 50% Split General/Ambulance | 10 | 2026 |
| 2015 Chevy Tahoe 50% Split General/Ambulance | 5 | 2026 |
| 2020 Ford F150 50% Split General/Ambulance | 10 | 2030 |
| 2018 Ford Explorer 50% Split General/Ambulance | 10 | 2028 |
| 2014 Dodge Ambulance 4500 4x4 | 7 | 2021 |
| 2014 Dodge Ambulance 4500 4x4 | 7 | 2021 |
| 2017 North Star Ambulance on Dodge Chassis | 7 | 2024 |
| 2017 North Star Ambulance on Dodge Chassis | 7 | 2024 |
| 2020 Northstar Ambulance | 7 | 2027 |
| New ambulance—facilitate re-chassis of other ambulance | 7 | 2027 |
| 2013 Ford F-550 Grass Truck Type 6 Engine | 10 | 2022 |
| 1989 Water Tender-refurbished | 10 | 2025 |
| 2020 Ford F-550 Grass Truck Type 6 Engine | 15 | 2035 |
| 2012 Viper Aerial Apparatus Ladder | 15 | 2027 |
| Retro fit vehicle 3134 replace Ladder | 15 | 2027 |
| 2014 Rosenbauer Fire Pumper Apparatus Type 1 | 15 | 2029 |
| Retro fit vehicle 3137 replace Pumper | 15 | 2029 |
| 2006 International 4400 Rescue Truck | 13 | 2031 |
| Retro fit vehicle 3149 replace Rescue | 13 | 2031 |
| 2018 E-One Custom Pumper Type 1 Pumper | 15 | 2033 |
| 2018 E-One Ladder Truck (Teleboom) | 15 | 2033 |
| Retro fit vehicle 3147 replace Pumper | 15 | 2033 |
| Retro fit vehicle 3148 replace Teleboom | 15 | 2033 |
| Equipment | | |
| Defibs – Lifepaks (2) each @ 50,000 each | 5 | 2021 |
| Defibs – Lifepaks (2) each @ 50,000 each | 5 | 2023 |
| Defibs – Lifepaks (2) each @ 50,000 each | 5 | 2025 |
| CPR Machine (4) @ \$14,000 each | 10 | 2030 |
| MDT (15 units) | 5 | 2022 |
| Breathing Air Compressor – Training | 15 | 2034 |
| SCBA – 57 \$8,439 each | 15 | 2021 |

The following figure illustrates the apparatus deployment of Pasco Fire Department as compared to similar-sized municipal agencies in Washington State (Kennewick FD, Bellingham FD, Redmond FD, Kirkland FD, Yakima FD, Richland FD, and Olympia FD). Again, this reflects the results of the survey conducted in 2021 using data available from 2020 for each agency.

Figure 22: Resources Deployed by Type Comparison (2020)



Staffing & Personnel

The third critical element of an effective emergency response system, and most valuable asset is people. The effective management of human resources requires a balance between the maximum utilization of the overall workforce and a high level of job satisfaction by individual workers. To achieve this, management must combine reliability with a safe working environment, fair treatment, the opportunity to provide input, recognition of the individual's commitment and sacrifice, and job enhancement opportunity. Job satisfaction depends upon this combination of factors.

Administrative and Support Staffing

One of the primary responsibilities of a fire department's administration is to ensure that the fiscal, infrastructure, and support elements are in place and functioning smoothly and effectively so that the core mission—responding to and mitigating emergencies—can be accomplished in a safe and efficient manner. Careful choreography of these elements is required to strike an effective balance.

Like any other part of a municipal fire department, administration and support need the appropriate resources to function properly. In this section of the staffing analysis, the ratio of administrative and support positions to total organizational staffing is compared to industry best practices and similar organizations. Too large an emphasis on administrative staffing can have as detrimental an influence on the efficient functioning of an organization as too little. It is important to achieve an appropriate balance between administration and support and the operational sides of a department since organizational success may depend upon it.

The level of administration and support staffing represents 9.64 percent of Pasco Fire's total staff. This is a slightly lower ratio than was in place in the 2016 master plan (10.5%). Pasco has done a good job of integrating the needed fire department support under other civilian divisions within the city and temporary assignments of line staff for special projects. The comparable agencies and their staffing levels are illustrated in the following figure.

*Figure 23: Comparable Agency Staffing Levels (2020)**

| Agency | Total Employees | Exempt Staff | Exempt % of Total | Support Staff | Support % of Total | FF | FF % of Total | FLSA Hrs/week | Shift Min on Duty |
|----------------|-----------------|--------------|-------------------|---------------|--------------------|------------|---------------|---------------|-------------------|
| Pasco | 83 | 3 | 3.6% | 5 | 6.0% | 75 | 90.4% | 49.0 | 19 |
| Kennewick | 98 | 3 | 3.1% | 3 | 3.1% | 92 | 93.9% | 49.8 | 18 |
| Bellingham | 149 | 4 | 2.7% | 6 | 4.0% | 139 | 93.3% | 47.4 | 30 |
| Redmond | 178 | 7 | 3.9% | 8 | 4.5% | 163 | 91.6% | 48.6 | 32 |
| Kirkland | 112 | 2 | 1.8% | 4 | 3.6% | 106 | 94.6% | 48.0 | 21 |
| Yakima | 99 | 3 | 3.0% | 1 | 1.0% | 95 | 96.0% | 49.5 | 22 |
| Richland | 87 | 4 | 4.6% | 10 | 11.5% | 73 | 83.9% | 48.1 | 16 |
| Olympia | 100 | 6 | 6.0% | 4 | 4.0% | 90 | 90.0% | 49.8 | 20 |
| Average | 118 | 4 | 3.6% | 5 | 4.7% | 108 | 91.9% | 48.8 | 23 |

*Comparable agencies: municipal fire departments in the State of Washington with between 50,000–99,999 population

The administrative functions of PFD are physically located at Station 84. The building was designed to be the Headquarters Fire Station that will accommodate the administration and operational assets with appropriate space for each without having spacing conflicts. The design is advantageous in that it keeps the administration connected to operational elements to prevent them from losing touch, but keeps operational elements from feeling micromanaged by a hovering administration.

Emergency Response Staffing

An adequate number of professionally trained staff of emergency responders is required for putting the appropriate emergency apparatus and equipment to its best use in mitigating incidents. Insufficient staffing at an operational scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved. Further, it lends itself to undesirable results (greater fire damage and poorer medical outcomes).

The first 15 minutes is the most crucial period in the suppression of a fire. How effectively and efficiently firefighters perform during this period has a significant impact on the overall outcome of the event. This general concept is applicable to fire, rescue, and medical situations. Critical tasks must be performed in a timely manner to control a fire or to treat a patient. Pasco Fire Department is responsible for ensuring that responding companies can perform all the described tasks in a prompt, efficient, and safe manner. This requires actions to be performed simultaneously, not sequentially. The following figure lists PFD's emergency response staffing.

Figure 24: Emergency Response Staffing per Shift

| Operational Assignments | Station 81 | Station 82 | Station 83 | Station 84 | Battalion Chief | Total Suppression |
|-------------------------|------------|------------|------------|------------|-----------------|-------------------|
| Minimum Staffing | 4 | 6 | 4 | 4 | 1 | 19 |
| Maximum Assigned | 6 | 6 | 6 | 6 | 1 | 25 |

Considerable ongoing local, regional, and national discussions and debates around large incidents of significant consequence have brought attention to the matter of firefighter staffing. Frequently, this discussion is set in the context of firefighter safety. While there are published standards regarding firefighter staffing, they generally speak in terms of the number of firefighters assigned to a particular apparatus, often characterized as a preferred standard of, "...a minimum of four personnel per company."⁶ The more critical issue is the number of firefighting personnel assembled as teams in an appropriate amount of time at the scene of an emergency that can perform the required critical tasks to mitigate the emergency regardless of the number of vehicles upon which they arrive.

Complicating the issue of operational staffing for large fire incidents is the continued responsibility of the fire service to provide their communities with emergency medical response. These responses often require fewer personnel resources but are occurring in much greater numbers than fires. Whether a fire department provides emergency transport to the hospital or not, medical emergencies have continued to challenge many fire service organizations' abilities to keep up with service demands. PFD is no exception.

⁶ NFPA 1710 continues to require that engine companies be staffed with a minimum of four on-duty members, as stated in section 5.2.3 and subordinate subsections of the standard.

PFD's response protocols necessitate transferring Medic Unit crews to "swing" over to the fire apparatus when a multi-unit fire response is dispatched (i.e., structure fire), resulting in a four-person company. If the medic units are in quarters and available, as well as their counterpart fire engine, the crews will merge on the engine to respond, leaving the medic unit unstaffed and out of service. If the medic unit or fire engine are separated when the dispatch occurs, they respond to the fire incident separately. In either case, medical incident response capacity is adversely impacted, yet the additional staffing is critical to the structure fire response. This process represents an exposure to the potential for reduced EMS capability for the duration of the fire incident. This is discussed in greater detail in the Service Delivery & Performance section of this report.

Regarding fires and other major emergencies, the number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of incidents. In the absence of adequate personnel to perform concurrent action, the incident commander must prioritize the tasks and complete some in sequential order rather than concurrently. This delays mitigating actions and degrades the outcome of the emergency (resulting in greater fire losses).

Many fire departments develop Community Risk Analysis: Standards of Cover (CRA:SOC) to define how they will respond to a variety of emergencies. A CRA:SOC considers the particulars of an organization, including community risks, recognizing that how fire departments respond to various situations depends upon their size, their available resources, and the priorities of that agency's community. CRA:SOCs also communicate to employees and to citizens how the agency expects its responders to approach emergency situations. PFD has created a CRA and an SOC (two separate documents) in-house. The format of a CRA:SOC is specifically prescribed by the Commission on Fire Accreditation International (CFAI), Sixth Edition and is an industry best practice. While not a legal requirement, the PFD SOC should be reviewed and revised to reflect the Sixth Edition of the CFAI's Community Risk Analysis: Standards of Cover. This is being budgeted as a regional effort (Pasco, Kennewick, and Richland) for a 2023 project. This will include EMS response and staffing.

Personnel Management

The following review relates to the baseline personnel management components typically found in an appropriately administered organization.

Operations personnel in the fire service in Washington most commonly work 24-hour or 48-hour shifts. Under federal labor regulations, they can work up to 53 hours per week before their employers are obligated to pay them at an overtime rate, and those 53-hour weeks can be averaged over a longer period than one week. Each employer may adopt a period of time for averaging the employees' work week from a maximum of 28 days to a minimum of 7 days. In the fire service in the northwest, these time periods, known as "FLSA (Fair Labor Standards Act) cycles" tend to run from 24 to 28 days. The FLSA cycles are broken up by off-duty periods that can be regular or varied. These are referred to as Kelly Days.

PFD, like many other fire departments in Washington, schedules additional off-duty shifts to bring the average work week below 56 hours to avoid overtime costs. Almost all firefighters in Pasco work 48 hours on duty and 96 hours off with 15 Kelly days scheduled per year (to reduce the hours of work per week for a 24-day FLSA cycle), resulting in an average work week of 49 hours. This places PFD's FLSA cycle at the average among the comparable municipal agencies in Washington State.

PFD has also established a floating work schedule (called “D” shift) that is designed to give the department the flexibility to place “extra” firefighters where they are needed to cover vacancies created by injuries, vacations, or other absences, thereby reducing overtime. This shift has not been consistently staffed for the last five years due to low staffing levels overall. As staffing levels allow, assignment of personnel to D shift is continuously evaluated. This schedule is an example of the City’s and the Union’s willingness to look at creative ways to address a common emergency services issue—staffing for vacancies that occur in an unpredictable way.

The department engages with employees in a variety of groups, committees, and teams to provide input into systems and process. They include:

Figure 25: Committees, Workgroups, or Teams

| Committee, Workgroup, or Team | Level of Engagement |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| EMS quality management (QA/QI) | On-duty personnel with Medical Advisor follow-up |
| Medic/Ambulance Work Group | Medics from each shift—reviewing training and budget |
| Training | Training Captain and on-duty personnel |
| Safety | Safety Committee with 2 members from each shift, chaired by department Safety Officer (the Operations Deputy Chief) |
| Uniforms and PPE, Specifications, maintenance, and repair | B shift Battalion Chief, through on-duty personnel |
| SCBA repair and maintenance | 4 Trained SCBA Technicians, one per shift plus a Lead |
| Communications Technician | On-duty personnel and contracted with outside agency |
| Apparatus purchase, repair, and maintenance | A shift Battalion Chief; maintenance/repair through city shop |
| Equipment purchase, repair, and maintenance | C shift Battalion Chief |
| Facilities maintenance and repair | B shift Battalion Chief |
| Airport Fueler program | B shift Battalion Chief |
| Investigations and Public Education | Administrative Deputy Chief |
| Technical Rescue Program | A shift Battalion Chief, through on-duty personnel |

This is a remarkably high level of employee engagement in what is often retained by the administration in other agencies. The approach taken by PFD demonstrates a desire to share a level of ownership of the fire department’s operations not often seen in other agencies. This approach builds ownership, develops personal organizational skills, improves communication, expands decision-making, and develops personnel for higher and more complex positions of supervision and leadership. In short, it contributes to succession planning.

Pasco has consistently encouraged Spanish speaking competence by their emergency workers. Financial incentives are provided to bi-lingual employees, but a relatively small percentage of the employees qualify for this benefit. Anecdotally, employees interviewed about this less-than-optimal engagement in the program opine that the standardized test for competence as a Spanish speaker has changed several times in the past. Employees further remarked that there is a need for conversational Spanish targeted primarily toward emergency communication during stressful situations. It would serve Pasco well to find such a program to provide flexible and easy-to-implement Spanish for emergency workers. Such programs exist, but the author of this report makes no warranty as to the effectiveness of these programs.⁷

⁷ <https://www.myspanishteacher.com/learn-spanish-for-fire-ems>. - <https://121spanish.com/spanish-for-emergency-workers>.

Recommendations:

- Research and identify a consistent mechanism to provide a flexible and easy-to-implement Spanish for emergency workers curriculum.

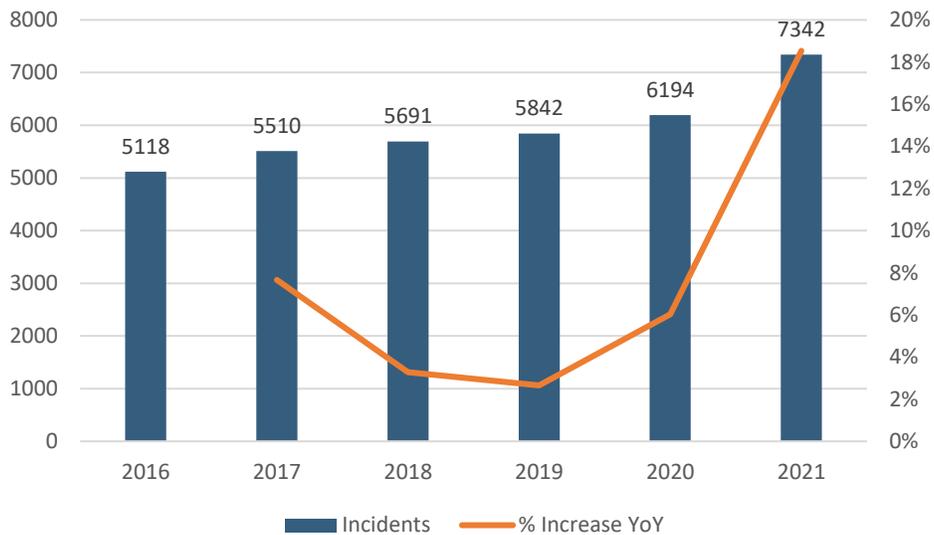
Service Delivery and Performance

This section is the heart of the master plan as it relates to the prime mission of the Pasco Fire Department. It reflects the current environment PFD operates in, specifically, the community’s emergency demand for service (by time and geography); the distribution of resources (apparatus, personnel, and facilities); the concentration of these resources (delivery of an appropriate complement of personnel and equipment in a timely manner); reliability of resources (availability to respond to their first due assignments); and actual response performance (response times). The remaining elements compare automatic and mutual aid balance and evaluate incident control methods.

Service Demand

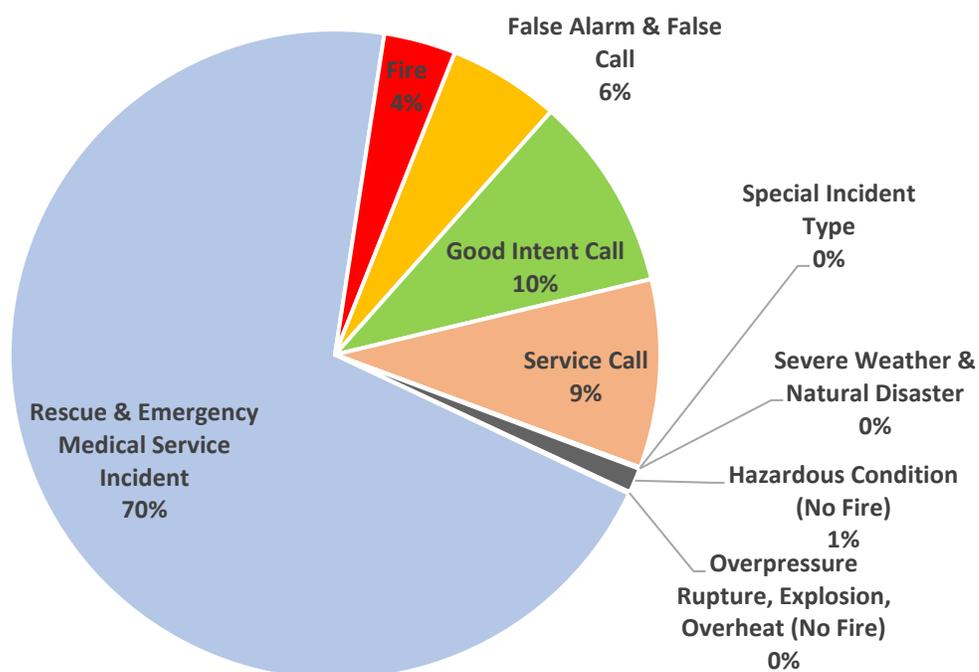
The following figure illustrates the Pasco Fire Department service demand for the past six calendar years. The annual incidents displayed in the following figure represent all incident types, including mutual/automatic aid given to neighboring fire jurisdictions.

Figure 26: Service Demand, 2016–2021



As the previous figure illustrates, PFD service demand increased by over 43.45 percent from 2016 through 2021, with the largest jump in the last year (2021) of 18.53% over 2020. The following figure uses National Fire Incident Records System (NFIRS) incident type definitions to categorize incidents as “Fires” (structures, vehicle, brush, any responses categorized as a 100 series incident in NFIRS), “EMS” (all calls for medical service including motor vehicle accidents [MVAs] and rescues, any responses categorized as a 300 series incident in NFIRS), and “Other” (false alarms, hazmat incidents, service calls, all other NFIRS incident series).

Figure 27: Incidents by Type, 2021



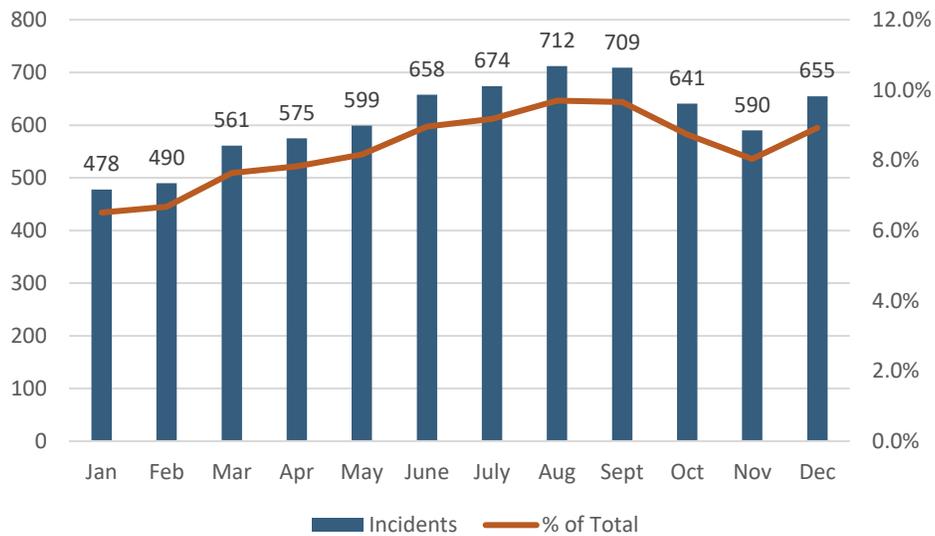
The above figure illustrates that EMS incidents represent most of the service demand in the PFD service area at 70%. This represents a nine percent reduction of the ratio of EMS incidents to overall incidents since the 2016 master plan. Incidents coded as a fire represent four percent of service demand. This is a 1.4 percent reduction of the ratio of fires to overall incidents as compared to the 2016 master plan. All other incident types make up nearly 26 percent of PFD service demand, which is a 10.3 percent reduction of the ratio of other call types to overall incidents as compared to the 2016 master plan.

The significant difference between 2016 and 2021 for EMS and Other call types (as a ratio of the total) is due to the emphasis the PFD Community Risk Reduction program has placed on correct coding of responses by firefighters. There has been a concerted effort to have calls categorized correctly, and proper coding is occurring at a higher rate than ever before.

TEMPORAL DEMAND

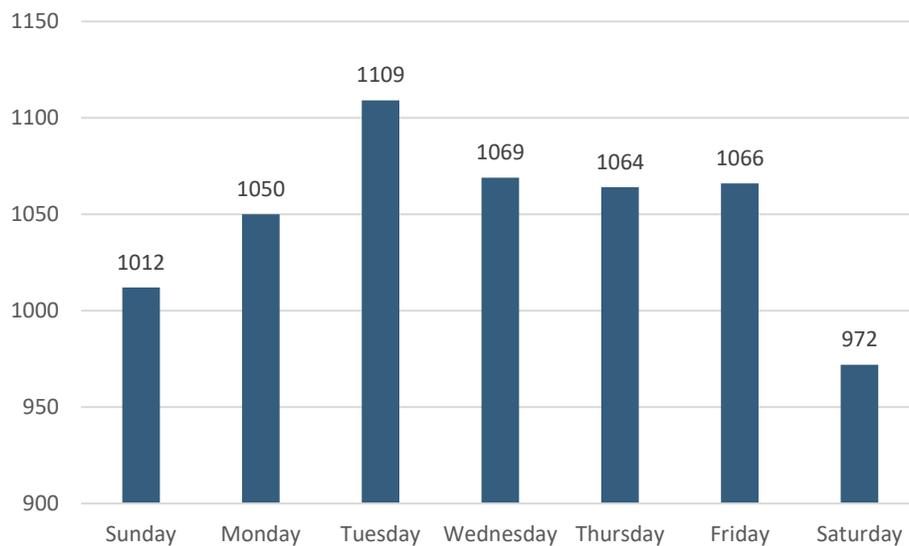
It is also useful to evaluate service demand from a time perspective (temporally) to determine specific trends during certain periods where staffing can be modified to better fit the demand. The following illustrates total service demand during 2021, summarized by month of year, day of week, and hour of day.

Figure 28: Incidents by Month, 2021



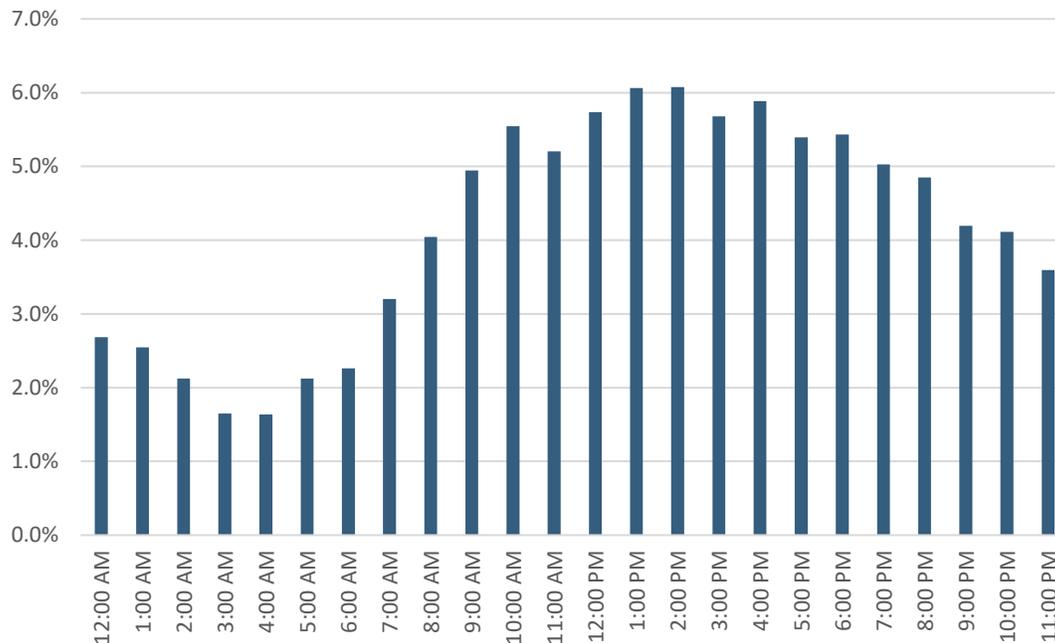
Service demand varies monthly within a range of 3.2 percent throughout the year. In general, the lowest service demand occurs during January (6.5% or 478 calls) and February (6.7% or 490 calls). Both August (9.7% or 712 calls) and September (9.7% or 709 calls) demonstrate the greatest service demand for the year.

Figure 29: Incidents by Day of Week, 2021



As with monthly service demand, service demand varies throughout the week. Again, the range is relatively narrow (1.86% variance between slowest and busiest days of the week).

Figure 30: Incidents by Time of Day, 2021



PFD service demand correlates with the activity of people, with workload increasing during daytime hours and decreasing during nighttime hours, as shown in this figure. Incident activity is at its highest between 10:00 a.m. and 6:00 p.m., which is the identical peak identified in the 2016 master plan. Almost 70 percent (69.9%) of calls for service occurred between 8:00 a.m. and 8:00 p.m., which is six percent higher than the 2016 master plan identified for the same time frame.

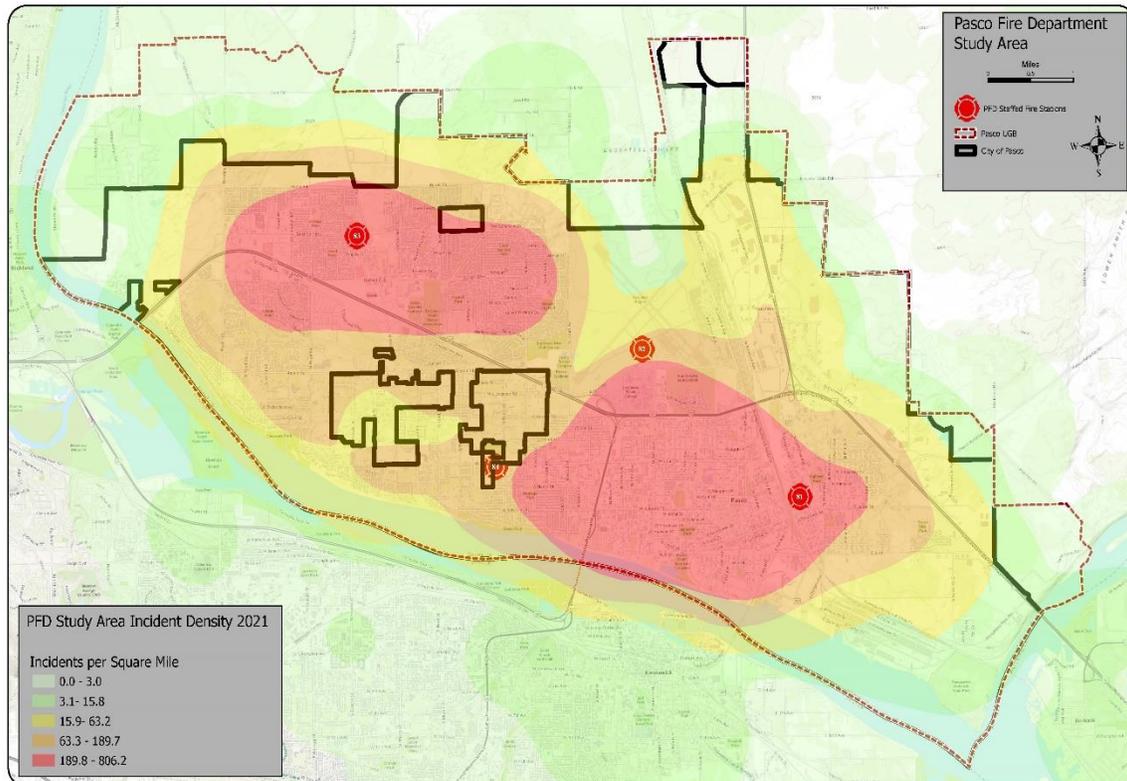
There is a significant and predictable increase in service demand during the day. This provides an opportunity for PFD to anticipate increased workload and improve response performance by deploying additional apparatus during periods of peak activity.

GEOGRAPHIC SERVICE DEMAND

In addition to the temporal analysis, it is useful to examine the geographic distribution of service demand. Using incident location data provided by PFD, Pasco GIS personnel plots incident locations and calculates the mathematical density of 2021 service demand in the PFD service area.

The expansion of hot spots in PFD between 2016 and 2021 is significant. Figure 31 below illustrates the 2021 heat map.

Figure 31: Geographic Service Demand, 2021

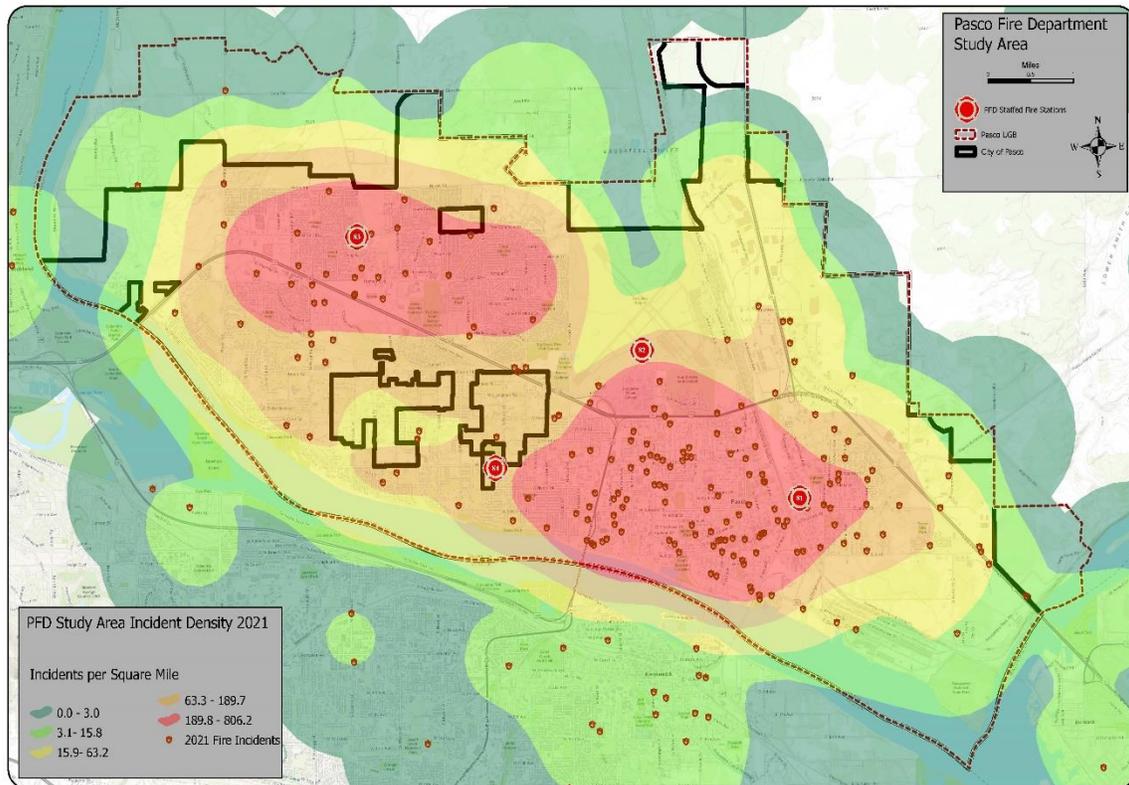


Since the 2016 master plan, PFD service demand has expanded the concentration of responses in two ways. The 2016 hot spot was located in the Station 81 area east of SR 395 and south of I-182. That hot spot has expanded in 2021 to extend substantially west of Highway 395 and north of Interstate 182, and a second large hot spot now surrounds the new Station 83 stretching to both sides of Interstate 182. It is approximately the same size as the Station 81 hot spot.

The Station 83 hot spot was anticipated in the 2016 master plan, although not as quickly as has occurred. Station 83 was relocated in the middle of the hot spot pursuant to the 2016 master plan because call volume was expected to significantly grow north of I-182. Incident distribution north and south of I-182 is currently occurring on a 3:1 ratio (north versus south of the interstate). In 2021, 1,597 (74%) calls occurred north of I-182, while 569 (26%) of the calls occurred south of I-182.

Combined, a significant majority of the city is within a hot spot. Most of the incidents displayed in this figure are EMS incidents (69.8%). The following figure displays 2021 fire incidents.

Figure 32: Geographic Service Demand, Fire Incidents, 2021

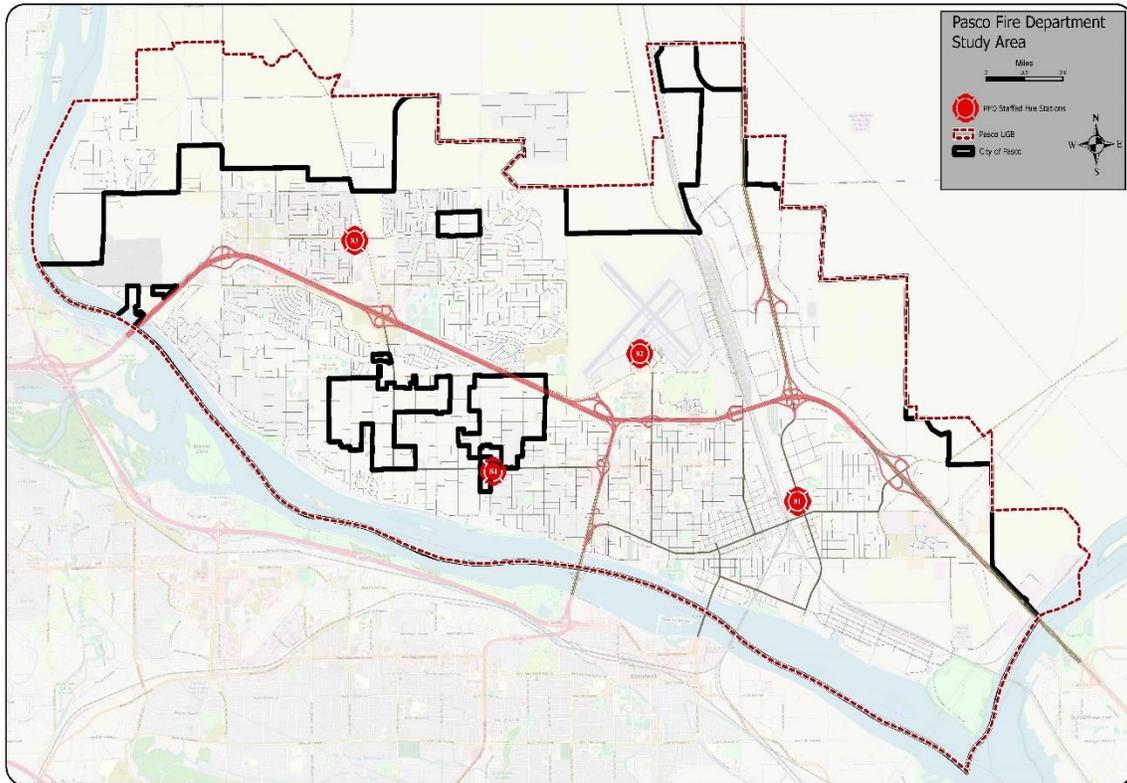


Fire incidents are the least frequent incident type in the data set. However, incidents categorized as fires are distributed throughout the study area in a pattern similar to the overall incident data. The most significant concentration of fires is within the Station 81 hot spot.

Distribution of Resources

The distribution analysis presents an overview of the current deployment of facilities, apparatus, and personnel within the Pasco Fire Department service area.

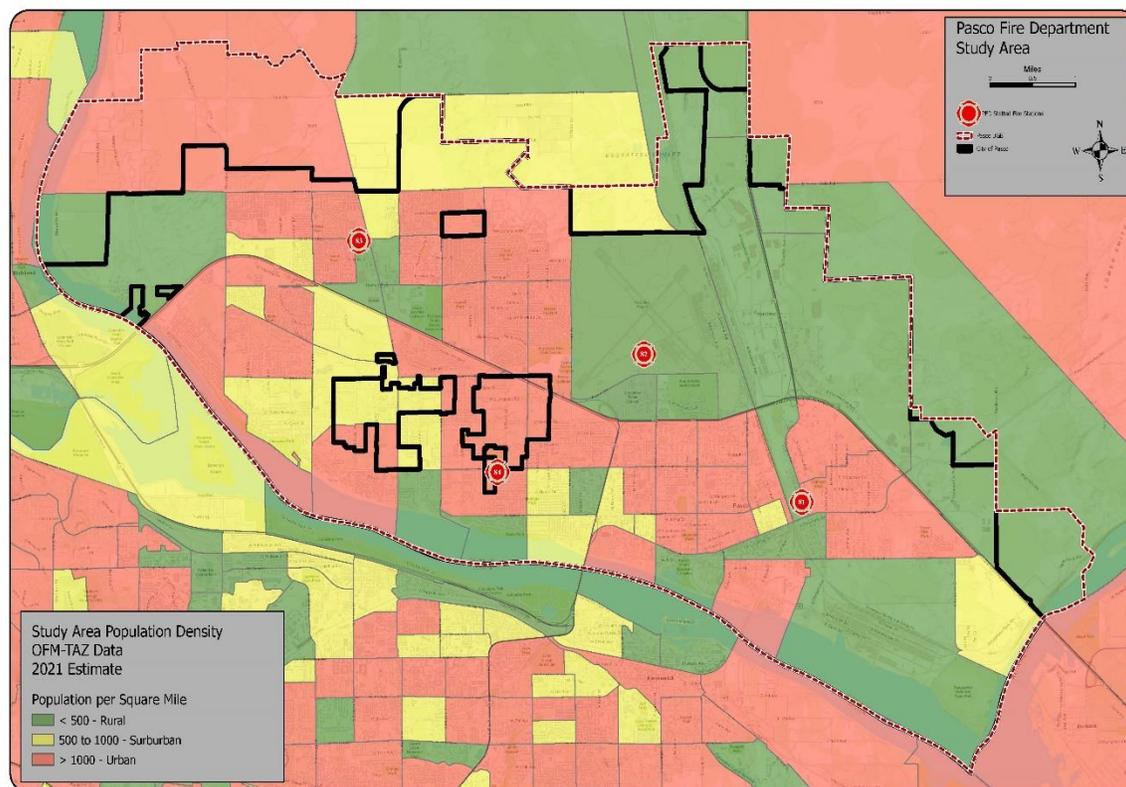
Figure 33: Study Area, 2021



PFD currently provides fire protection, EMS first response and transport (ALS and BLS), hazmat, and rescue service within the City of Pasco. In addition, PFD operates Aircraft Rescue and Fire Fighting (ARFF) apparatus at the Tri-Cities Airport. The City of Pasco encompasses approximately 37.5 square miles. There are islands of unincorporated Franklin County inside the City of Pasco. An inter-local agreement (ILA) on automatic aid between PFD and Franklin County Fire District #3 (FCFD#3) ensures that the closest available resource is dispatched to emergency incidents in these island areas.

In the following figure, the Washington Office of Financial Management (OFM) population (2021 estimate) and traffic analysis zone (TAZ) data are used to display population density for the Pasco area. Using National Fire Protection Association (NFPA) population classifications, population density is categorized as urban (density over 1,000 population per square mile), suburban (density between 500–1,000 population per square mile), and rural (density less than 500 population per square mile).

Figure 34: Density, Office of Financial Management (OFM) - Traffic Analysis Zone (TAZ), 2021 Population Estimate

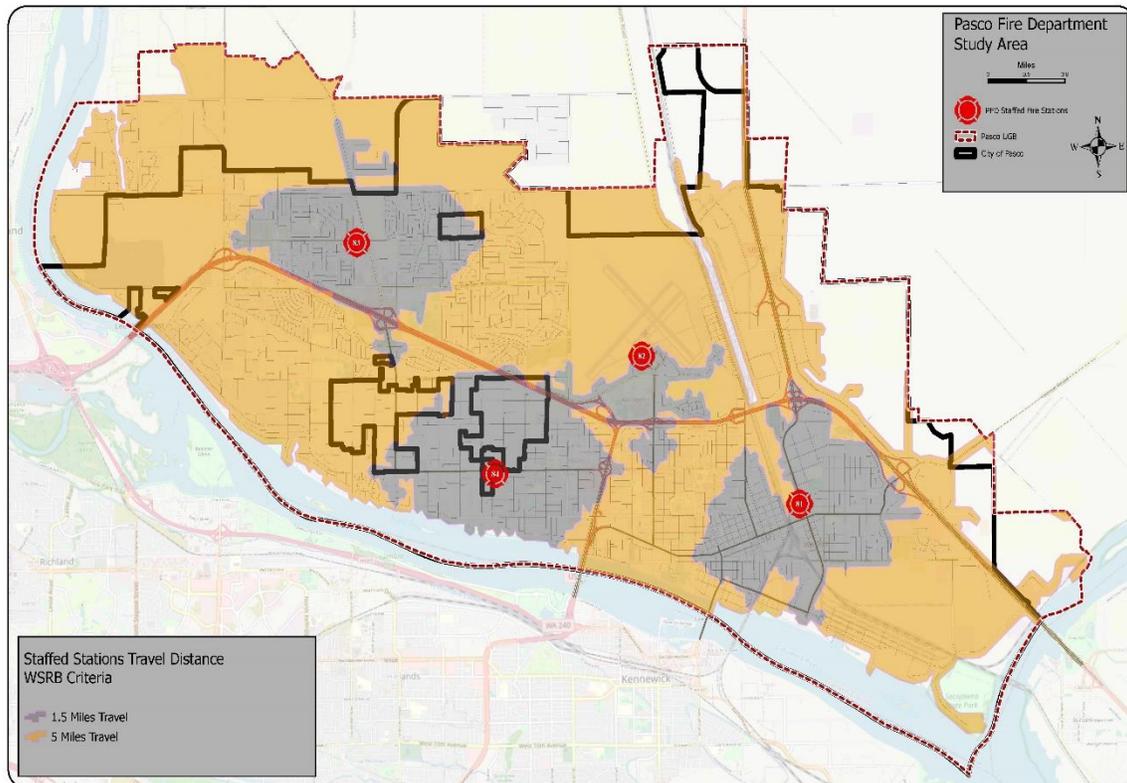


The population density inside Pasco is largely urban in nature. The majority of area categorized as rural or low density (less than 500 per square mile) inside the Pasco Urban Growth Boundary (UGB) is zoned for industrial or commercial land uses, or currently undeveloped land slated for future development and population growth. The overall population density inside of Pasco is approximately 2,099 per square mile, which is an increase of 255 people per square mile from 2016 (1,844).

The Washington Surveying and Rating Bureau (WSRB) is a statewide insurance industry organization that evaluates fire protection for communities across Washington. A jurisdiction's WSRB rating is an important factor when considering fire station and apparatus distribution since it can affect the cost of fire insurance for Pasco residents and businesses.

To receive maximum credit for station and apparatus distribution, WSRB recommends that all "built upon" areas in a community be within 1.5 road miles of an engine company. Additionally, a structure should be within five miles of a fire station to receive any fire protection rating for insurance purposes. The following figures examine PFD fire facility distribution by WSRB distance criteria over the existing road network.

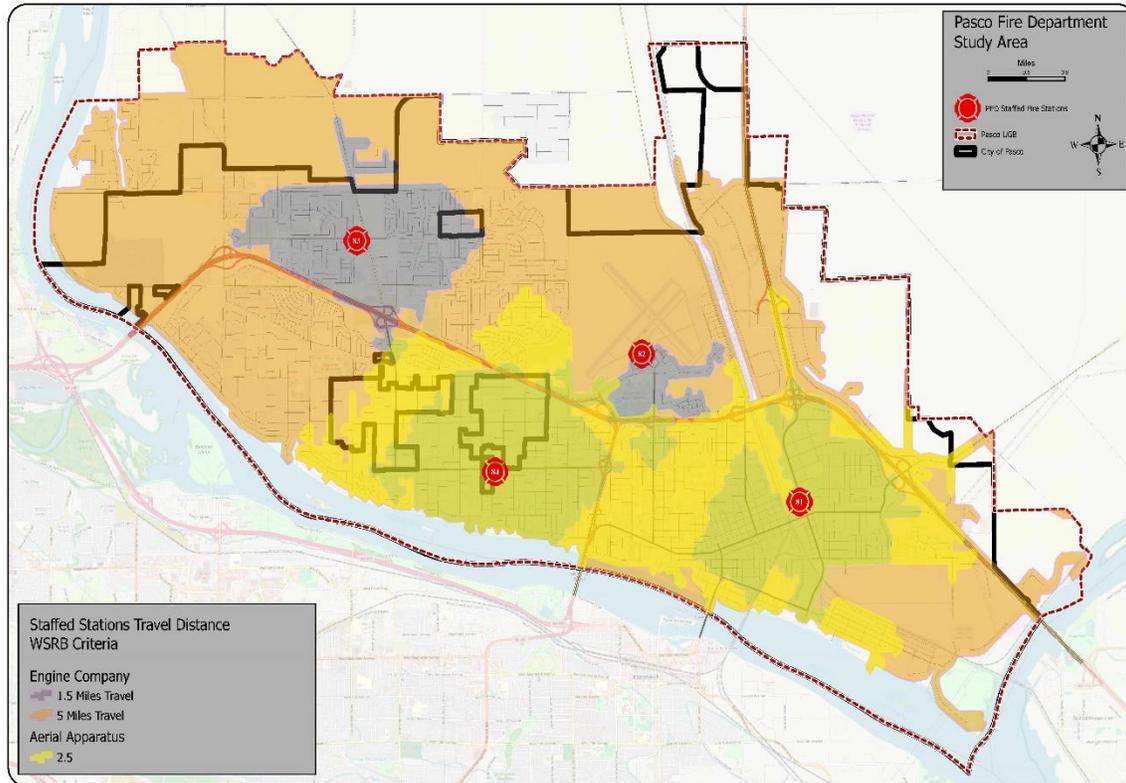
Figure 35: Station Distribution 2021, WSRB Criteria



Approximately 43.4 percent of Pasco's entire road network is within 1.5 miles of a PFD station. This includes only the current city limits (not in the urban growth boundary) but does include private roads, state routes, and federal highways. Almost all (99+%) of Pasco's entire road network is within 5 miles of a PFD station. The City of Pasco currently has a Class 3 Community rating.

Similar to engine company criteria, WSRB recommends that ladder companies (aerial apparatus) be placed at 2.5-mile intervals in areas with buildings over three stories in height.

Figure 36: Aerial Apparatus Distribution 2021, WSRB Criteria

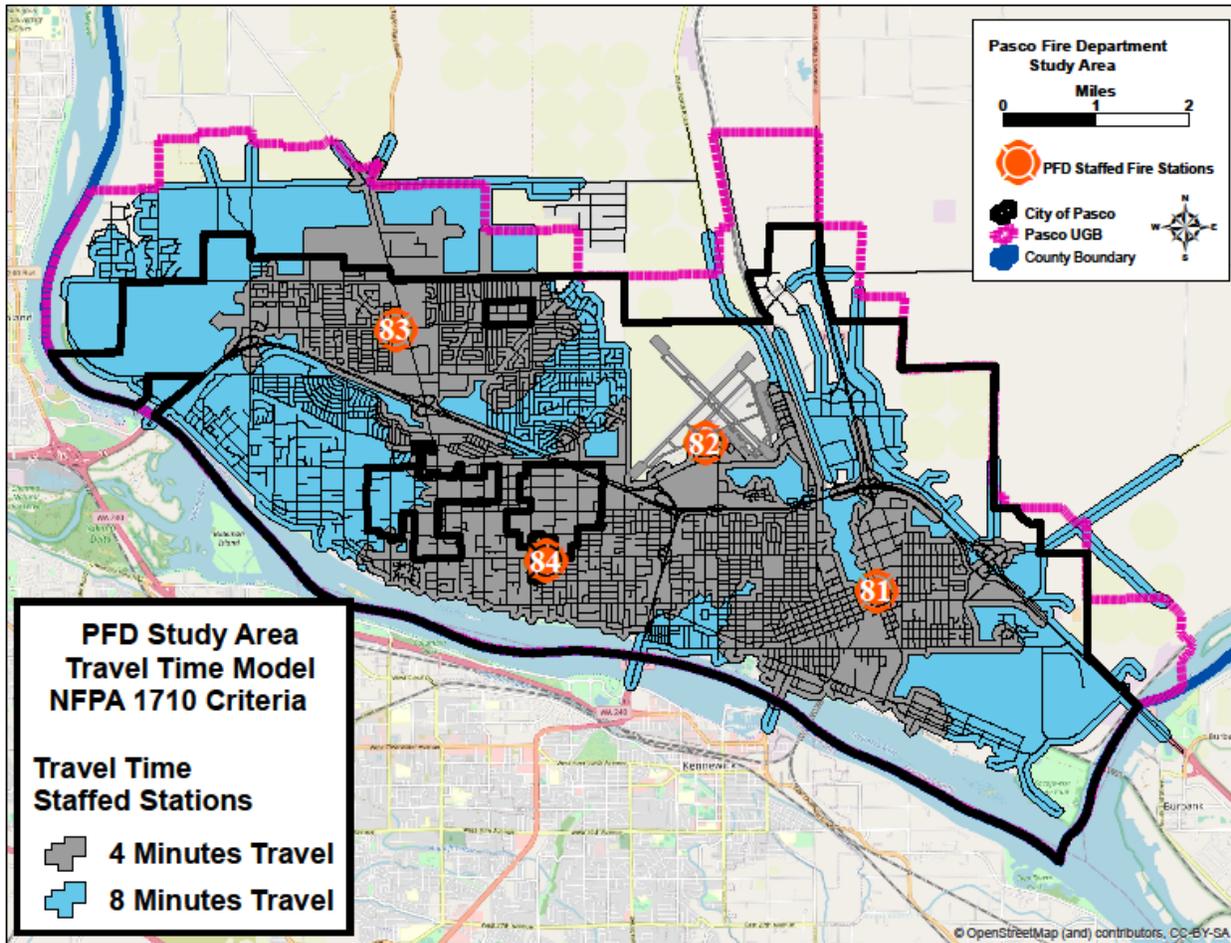


The PFD aerial apparatus placed at Station 84 and Station 81 are well positioned to respond throughout the PFD service area to cover buildings greater than three stories in height.

The WSRB Public Protection Classification program only addresses fire suppression activities and is primarily concerned with the geographic coverage of property. For jurisdictions such as PFD that respond to all types of emergencies, the travel time required to respond from a fire station to any type of emergency call for service is of equal importance.

The following figures demonstrate travel time over the existing road network. Travel time is calculated using the posted speed limit and adjusted for negotiating turns and intersections.

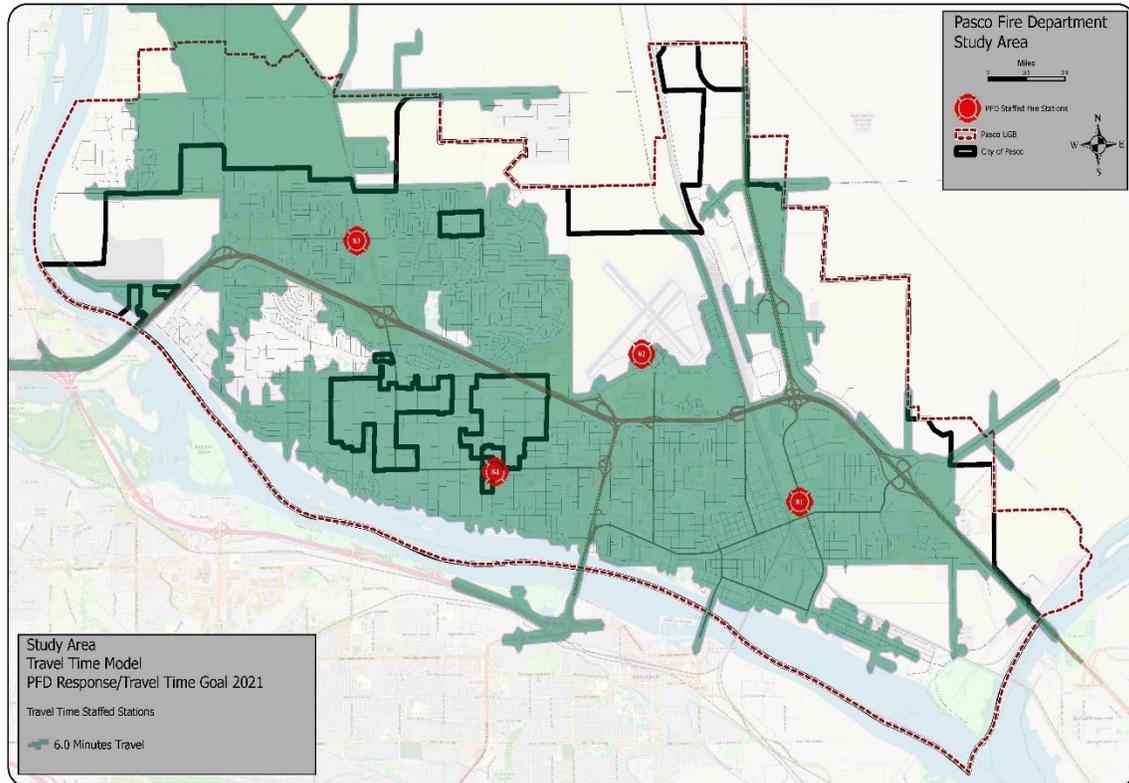
Figure 37: Travel Time Model 2021, NFPA Criteria



The previous figure demonstrates PFD travel time capabilities from the PFD fire stations. NFPA 1710, which is a national consensus standard, specifies that career staffed, urban fire departments should deploy resources such that 90 percent of emergency service demand can be reached in 4 minutes or less travel time. The City of Pasco has adopted a travel time standard of 6 minutes travel time for the arrival of the first apparatus on the scene.

The following figure displays the portions of the PFD service area within 6 minutes or less travel time of a staffed fire station. Note that the road network data provided to model travel time does not include data for the Tri-Cities Airport. However, an examination of aerial photos reveal that the entire airport complex is well within 4 minutes of travel of Station 82.

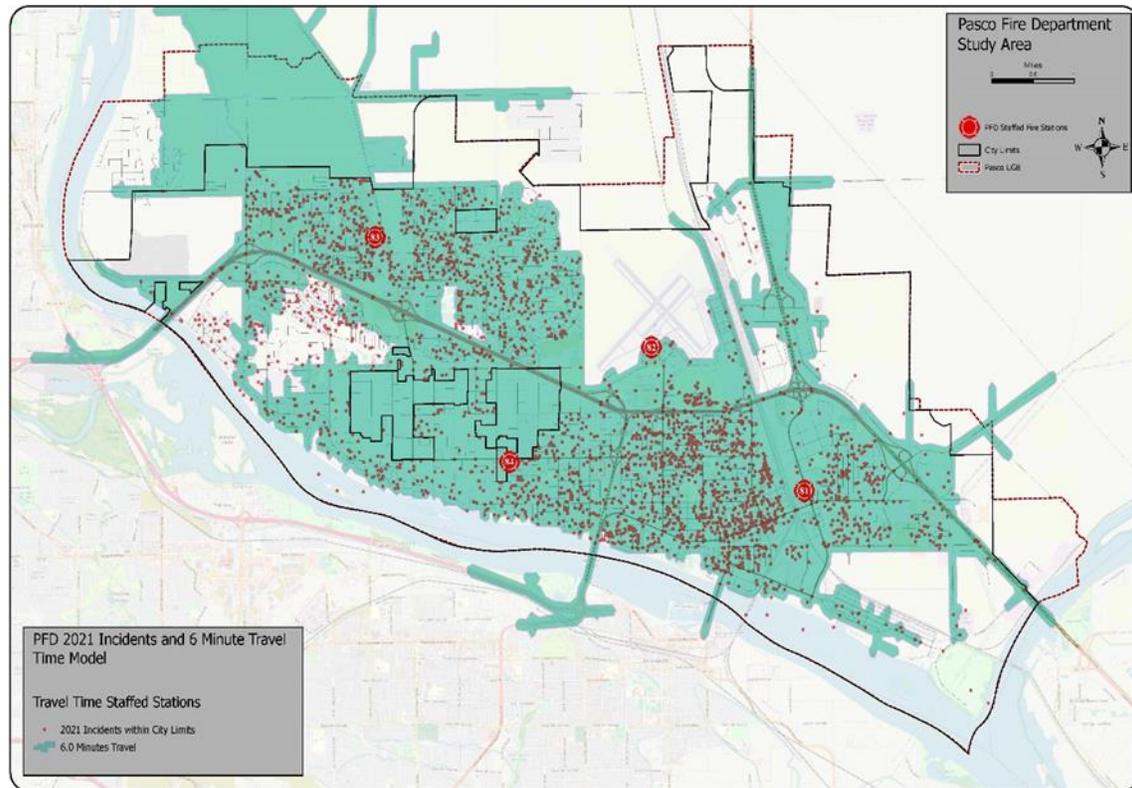
Figure 38: Potential Travel Time Model, PFD Response/Travel Time Model, 2021



As illustrated in the previous figure, 97.4% of the road network within the city is within the 6 minute travel time for the existing fire stations.

More importantly, the following figure demonstrates the percentage of service demand in 2021 that occurred within 6 minutes or less travel time of a PFD staffed fire station.

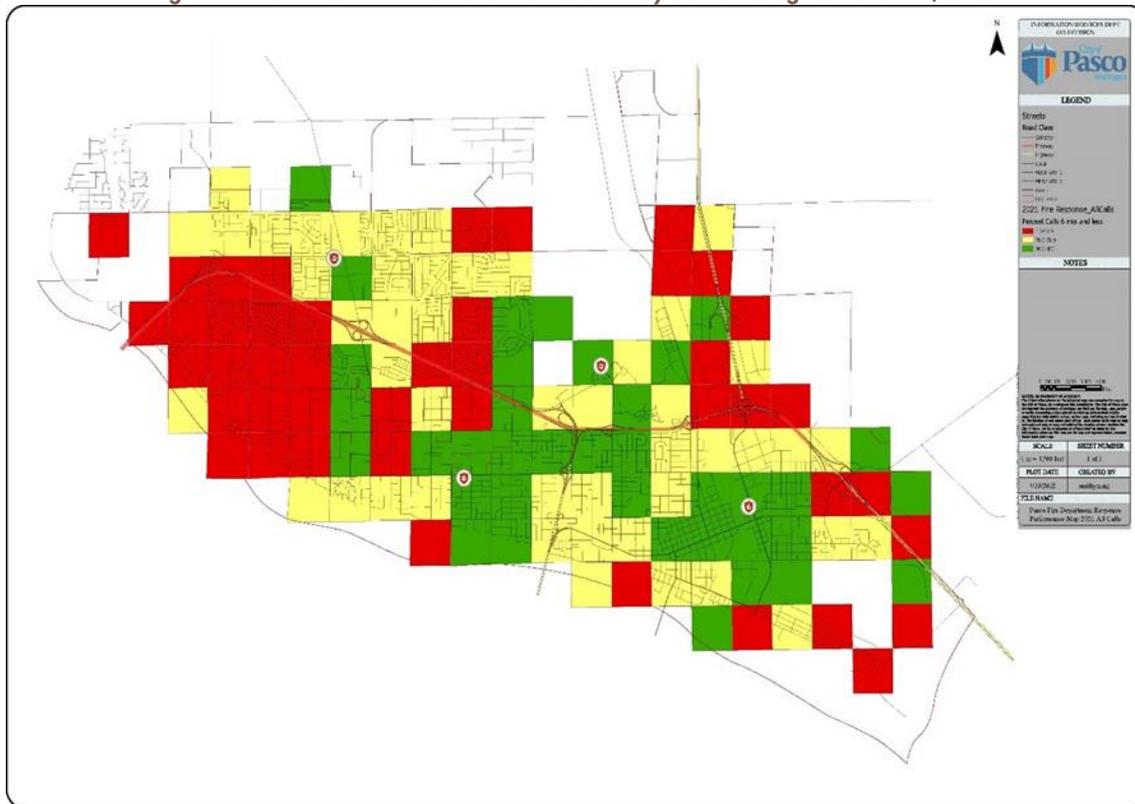
Figure 39: Service Demand and 6-Minute Travel Time Model, 2021



Approximately 96 percent of the 2021 incidents displayed in this figure occurred within 6 minutes travel time of a staffed fire station. The travel time model in this figure displays potential travel time capability, assuming all apparatus are in quarters and available to respond.

The following figure uses GIS data provided by PFD to display actual travel time performance in 2021 and compared to 2015 summarized by the PFD geographic fire management zones (FMZ).

Figure 40: Actual Travel Time Performance by Fire Management Zone, 2021



Using an approximately half-square-mile grid, PFD has established fire management zones (FMZs) for the PFD service area. PFD is able to track the distribution of incidents and actual travel time performance within each FMZ. As opposed to the previous travel time models, which model potential travel time capability, the previous figure demonstrates actual travel time performance within a distinct geographic area. Demand for service is ***not*** evenly distributed between zones.

The previous figure also compares travel time compliance in 2021 to the 2015 travel time compliance using the same criteria. PFD met the travel time standard of 6 minutes approximately 69.9 percent of the time in PFD's service area (short of the 90% goal). This compares favorably to 2015, which met the PFD travel time standard of 6 minutes approximately 56 percent of the time in PFD's service area (also short of the 90% goal). However, there are challenges geographically, as the map depicts.

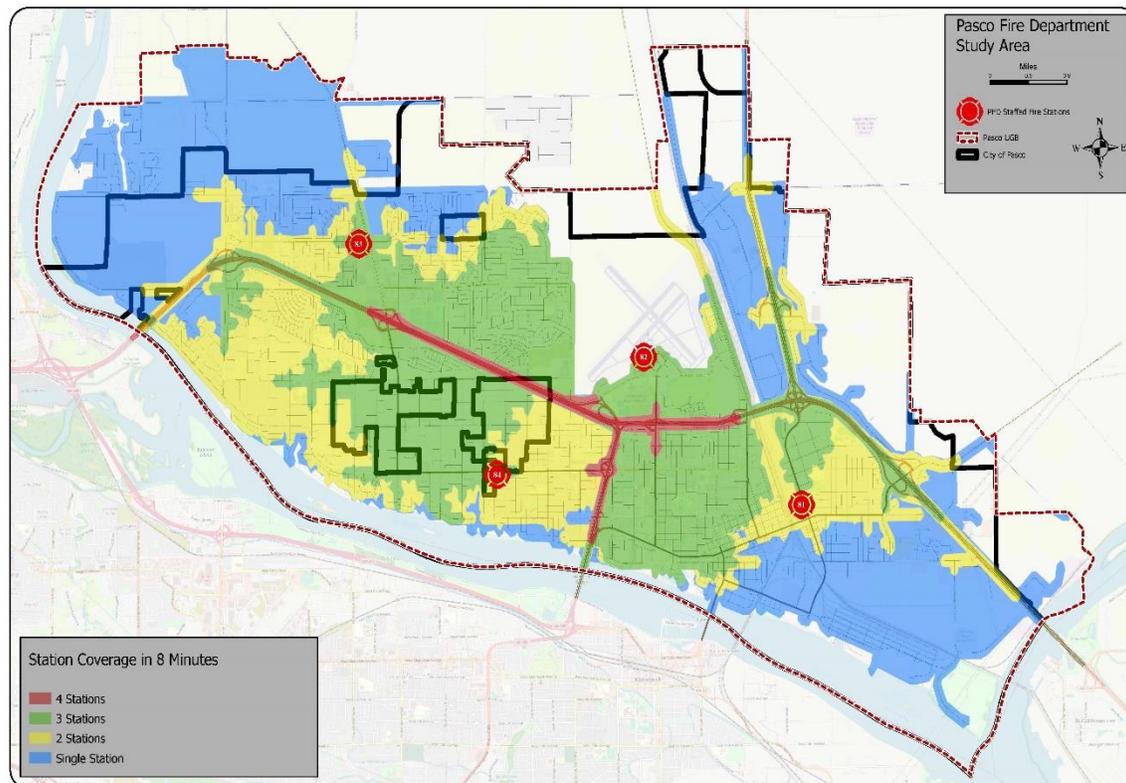
The use of geographic FMZ's is an effective tool to pinpoint areas where traffic delays, lack of street network connectivity, or responses from a more distant station (due to concurrent incidents) negatively affect actual response performance. All three factors are at play here, with call concurrency being the most impactful challenge.

Concentration of Resources

The resource concentration analysis examines PFD's ability to assemble multiple resources (both apparatus and people) in a timely manner.

The following figure displays the concentration of PFD stations in the study area in 8 minutes or less travel time. The 8-minute travel time goal is intended to ensure that enough people and equipment arrive soon enough to safely control a fire or mitigate any emergency before there is substantial damage or injury. The 8-minute travel time criteria is based on NFPA 1710. The NFPA 1710 Standard specifies that the full first alarm assignment for a moderate risk structure fire (single family residential structure) should arrive within 8 minutes travel time, 90 percent of the time (90th percentile).

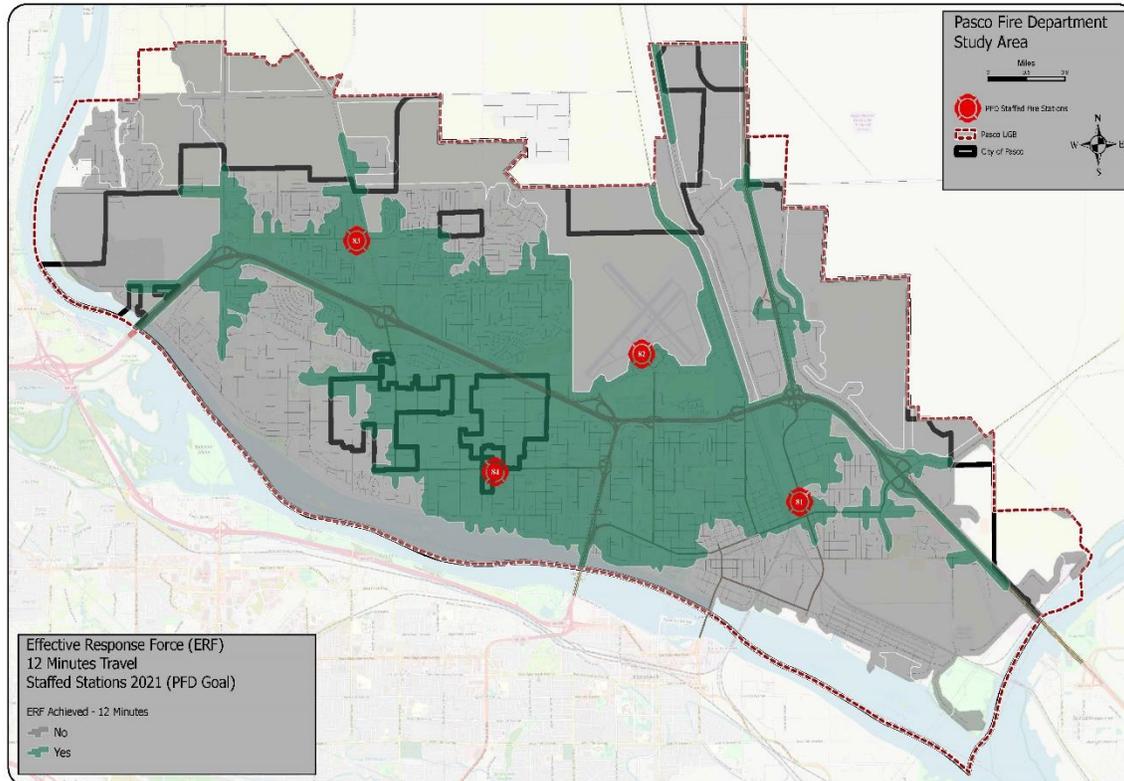
Figure 41: Station Concentration, 2021



The staffing required to deliver the PFD full first alarm assignment for a residential (moderate risk) structure fire calls for all four stations to be sent (three engine companies, one ladder truck, one medic unit, and one Command Officer). An agreement with Franklin County Fire District #3 also provides a breathing support unit with one operator. This may also include mutual aid resources as appropriate. This provides a total of 16 personnel, which meets the Pasco standard as currently written in terms of delivering the staffing required. The previous figure demonstrates that only a small portion of the core area of Pasco near Interstate 182 is within 8 minutes or less travel time of all four of the PFD stations (red highlighted areas).

Pasco City Council has adopted a travel time goal of 12 minutes for the arrival of the full first alarm assignment to a fire suppression event (measured at the 90th percentile). The following figure demonstrates the portions of the PFD service area that are within 12 minutes or less travel time of all four staffed fire stations.

Figure 42: Full First Alarm (ERF), 12 Minutes Travel Time (PFD Travel Time Goal), 2021



The current city council-adopted standard for PFD’s full first alarm assignment (Effective Response Force, or ERF) for a residential (moderate risk) structure fire is 11 or more personnel arriving on the scene in 12 minutes or less, 90% of the time. The actual practice for PFD staffing on these incidents is 16 personnel, including automatic aid resources. PFD is only able to achieve the council-adopted travel time goal of twelve minutes or less in the center of the service area, as depicted in the previous illustration.

Reliability of Response Units

The workload of emergency response units can be a factor in response time performance. The busier a given unit, the less likely that unit is available for the next emergency. If a response unit is unavailable, then a unit from a more distant station (or mutual/automatic aid department) must respond, increasing overall response time. Although fire stations and response units may be distributed to provide quick response, that level of performance can only be obtained when the response unit is available in its primary service area.

Simultaneous or concurrent incidents can also affect a fire department’s ability to muster sufficient resources to respond to additional emergencies. A concurrent call is defined as an incident dispatched in the same station area as another call within 30 minutes of each other in the same station area.

These concurrent calls are illustrated on a station-by-station basis in the following figure.

Figure 43: Concurrent Incidents by Station Area, 2021

| Location | Concurrent Events | % of Sta Calls | % in 2015 |
|------------|-------------------|----------------|-----------|
| Station 81 | 327 | 16.18% | 15.4% |
| Station 82 | 162 | 11.18% | 13.2% |
| Station 83 | 442 | 19.53% | 12.3% |
| Station 84 | 96 | 8.81% | N/A |

In 2021, the total number of concurrent calls for service occurred 1,027 times. This is significantly lower than the 2015 numbers cited in the 2016 master plan (1,843). The decline is likely primarily due to a fourth station (84) being staffed, which spread the demand across units out of four rather than three stations. The notable exception is Station 83, which had the highest concurrent call rate of the four stations, and was the only station to see their concurrent call rate increase despite the addition of a fourth station.

Unit workload is another factor that helps determine how reliable a unit is to respond to its own calls in a timely manner. Unit hour utilization (UHU) measures the amount of time a unit is committed to an incident (workload). The larger the number, the greater the unit's utilization and the less available it is for assignment to subsequent calls for service. The following chart depicts unit hour utilization for each response unit that is staffed.

Figure 44: Unit Hour Utilization (UHU), 2021

| Apparatus | Average Time Committed | Total Time Committed | UHU Rate 2021 | UHU 2015 Baseline |
|--------------|------------------------|----------------------|---------------|-------------------|
| AR281 | 0:24:26 | 11:48:35 | 0.13% | 0.09% |
| AR282 | 0:14:12 | 1:39:21 | 0.02% | 0.04% |
| B2841 | 0:54:26 | 29:01:58 | 0.33% | |
| BC281 | 0:18:49 | 471:29:54 | 5.38% | 3.54% |
| BC282 | 0:20:34 | 4:47:58 | 0.05% | |
| CH281 | 0:47:26 | 7:06:52 | 0.08% | |
| CH282 | 0:32:48 | 12:34:18 | 0.14% | |
| CH283 | 0:45:56 | 21:26:16 | 0.24% | |
| E2811 | 0:20:04 | 629:14:24 | 7.18% | 5.73% |
| E2812 | 0:19:38 | 156:04:23 | 1.78% | |
| E2813 | 0:19:43 | 680:20:21 | 7.77% | 5.68% |
| E2814 | 0:21:34 | 348:59:42 | 3.98% | |
| E2818 | 0:27:43 | 6:00:21 | 0.07% | |
| E2819 | 0:19:58 | 31:57:28 | 0.36% | 0.68% |
| E2861 | 0:25:10 | 19:18:02 | 0.22% | 0.97% |
| E2863 | 0:44:29 | 45:57:36 | 0.52% | 0.40% |
| L2811 | 0:18:55 | 90:48:44 | 1.04% | 5.31% |
| L2814 | 0:20:23 | 37:43:00 | 0.43% | |
| M2821 | 0:30:03 | 1002:19:09 | 11.44% | 11.60% |
| M2822 | 0:29:24 | 955:43:25 | 10.91% | 12.09% |
| M2823 | 0:34:18 | 1155:32:51 | 13.19% | 10.99% |
| M2824 | 0:31:25 | 819:24:04 | 9.35% | |
| M2828 | 1:19:29 | 6:37:24 | 0.08% | |
| M2829 | 1:05:42 | 4:22:48 | 0.05% | 0.28% |
| MO281 | 0:50:35 | 14:20:01 | 0.16% | 0.51% |
| MO282 | 0:56:08 | 10:17:33 | 0.12% | |
| MO283 | 0:25:19 | 58:39:40 | 0.67% | |
| PIO281 | 0:42:58 | 59:26:04 | 0.68% | |
| R2832 | 0:19:07 | 290:59:32 | 3.32% | |
| R2834 | 0:19:31 | 85:11:54 | 0.97% | |
| T2822 | 0:32:12 | 2:08:47 | 0.02% | |
| TO281 | 0:40:10 | 8:42:13 | 0.10% | 0.66% |
| UT282 | 0:47:09 | 1:34:19 | 0.02% | |

In the previous figure, the busiest units are highlighted in red. When engine companies approach ten percent UHU, their ability to meet their travel time objective to their first due calls decreases, and their failure rate (the rate at which a unit is not available to handle its own calls for service) potentially drops below 90 percent, which is the industry minimum standard and the Pasco objective. High failure rates (low unit reliability) results in slower response times and generally poorer outcomes on incidents requiring an Effective Response Force (ERF). In PFD's case, the engines have not reached 10% UHU, so this is not an immediate risk. Station 83's engine (E2813) surpassed Station 81's engine (E2811) in total time committed to incidents and total unit hour utilization. In short, Station 83's engine is now the busiest in the Pasco Fire Department.

EMS units are much busier than their engine counterparts, which is typical. All four Pasco medic units are at or above the ten percent threshold for achieving their response performance objective, since they are at or beyond 10% UHU. Station 83's medic unit (M2823) is the most taxed unit of the four with a UHU of 13.19%. They are committed to an incident an average of 34:18 minutes, which is the longest of the four medic units, but not substantially so.

Pasco Fire Department added a fourth medic unit since the 2016 master plan was published. The impact of that added unit is clear in that it bent the growth curve of UHU downward (improved) for two of the three medic units that have been in service since being deployed. The addition of the medic unit at Station 84 (M2824) not only had a positive effect on its first due area, but also reduced the UHU for the medic units out of Stations 81 and 82 (M2821 and M2822 respectively). The medic unit from Station 83 undoubtedly also benefitted from the addition of a fourth medic unit, but not enough to offset the increase in its UHU growth over the 2015 baseline.

Due to high reliance upon EMS response units in Pasco (and most communities in the United States), medic units have significantly higher UHU's than their engine counterparts. Medic units with high UHU are more susceptible to paramedic burnout and overuse, burden-shifting to either engine companies or secondary medic unit response. Burden-shifting causes the problem to spread to other units. This was studied by Henrico County (VA) Division of Fire in 2016, which published their findings in what became an industry best practice.⁸ The study demonstrated that UHU rates for individual medical units in the range of 25 to 30 percent can lead to employee burnout issues and can negatively affect station and unit reliability.

The study's "Commitment Factors" table is illustrated in the following figure.

Figure 45: Medic Unit Commitment Factors as Developed by Henrico County (VA) Division of Fire, 2016

| Factor | Indication | Description |
|-----------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.16–0.24 | Ideal Commitment Range | Personnel can maintain training requirements and physical fitness and can consistently achieve response time benchmarks. Units are available to the community more than 75 percent of the day. |
| 0.25 | System Stress | Community availability and unit sustainability are not questioned. First-due units are responding to their assigned community 75 percent of the time, and response benchmarks are rarely missed. |
| 0.26–0.29 | Evaluation Range | The community served will experience delayed incident responses. Just under 30 percent of the day, first-due ambulances are unavailable; thus, neighboring responders will likely exceed goals. |
| 0.30 | "Line in the Sand" | Not Sustainable: Commitment Threshold—community has less than a 70 percent chance of timely emergency service and immediate relief is vital. Personnel assigned to units at or exceeding 0.3 may show signs of fatigue and burnout and may be at increased risk of errors. Required training and physical fitness sessions are not consistently completed. |

⁸ *How Busy Is Busy?* Retrieved from <https://www.fireengineering.com/articles/print/volume-169/issue-5/departments/fireems/how-busy-is-busy.html>.

Currently, UHU rates in the study area for EMS or fire units are not approaching concerning levels and are not in danger of reaching extreme levels in the near term. However, Pasco is experiencing tremendous growth. PFD should calculate UHU annually and monitor unit hour utilization on a unit-by-unit basis. Particular emphasis should be placed on the impact of COVID-19 on UHU during the height of the pandemic. The pandemic's impact on UHU could be an anomaly, but it is unclear at this time.

If individual units approach high UHU rates, ensure that response performance and other duties are not negatively affected. A deeper analysis into the causal factors would be prudent as medic units approach 25 percent UHU and as engine companies approach 10 percent UHU. Potential solutions to managing high UHU include adjustments to the resources assigned to a high UHU area or the addition of a peak demand unit to share the load.

Response Performance Summary

In the Response Performance Summary, we reviewed the current PFD response performance. The department provided 2021 incident and apparatus response data, which was recorded and stored in the PFD records management system software program. As required by the Revised Code of Washington, the Pasco City Council has established response performance goals (Resolution 2938) and provides a report documenting response performance annually.⁹

In addition to the above-referenced RCW, the national consensus standard established in NFPA 1710 recommends that fire departments track and report all of the components of total response time listed as follows:¹⁰

- **Call Processing Time.** The amount of time between when a dispatcher answers the 911 call and resources are dispatched.
- **Turnout Time.** The time interval between when units are notified of the incident and when the apparatus are en route.
- **Travel Time.** The amount of time the responding unit actually spends traveling to the incident.
- **Total Response Time.** Total Response Time equals the combination of "Processing Time," "Turnout Time," and "Travel Time."

The following figure displays the performance recommendations from the NFPA 1710 standard.

⁹ RCW 35.103: Fire Departments-Performance Measures.

¹⁰ NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (National Fire Protection Association 2020).

Figure 46: NFPA 1710 Response Performance Recommendations

| Response Element | NFPA Recommendation |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Call Processing | 64 Seconds @ 90 th Percentile |
| Turnout Time | 60 Seconds @ 90 th Percentile for EMS 80 Seconds @ 90 th Percentile for Fire |
| Travel Time (First unit on scene-Fire or EMS) | 4 Minutes @ 90 th Percentile |
| Travel Time (First arriving ALS unit) | 8 Minutes @ 90 th Percentile |
| Travel Time-Full First Alarm (Moderate risk-structure fire) | 8 Minutes @ 90 th Percentile |

The following figure displays the current PFD response performance goals and the department's actual response performance in 2021.

Figure 47: Current PFD Response Performance Goals & Actual Performance, 2021

| Response Type | Turnout Obj. (mm:ss) | 2021 Actual (mm:ss) | Travel Obj. (mm:ss) | 2021 Actual (mm:ss) |
|--------------------------------------------|----------------------|---------------------|---------------------|---------------------|
| Fire Suppression Response | 2:00 | 2:14 | 6:00 | 8:27 |
| Full First Alarm—Fire Suppression Response | N/A | N/A | 12:00 | 12:35 |
| First Arriving Medical Unit (BLS or ALS) | 2:00 | 2:14 | 6:00 | 6:44 |
| First Arriving ALS Unit | 2:00 | 2:14 | 6:00 | 6:40 |
| Hazardous Material | 2:00 | 2:14 | 6:00 | 7:51 |
| Technical Rescue | 2:00 | 2:14 | 6:00 | 15:11 |
| ARFF | N/A | N/A | 3:00 | 3:37 |
| Wildland | 2:00 | 2:14 | 6:00 | 8:29 |

To meet the performance objectives for the incident types above, the Pasco Fire Department plans to continue to evaluate its response data to determine if relocating resources, improving personnel reliability, or other organizational changes may improve the ability to accomplish the response time standards. This includes working with Pasco Public Works on the development of transportation corridor improvements that will lessen travel time. The Pasco Fire Department intends to continue to engage the public, so they fully understand the level of service available is based on the resources provided.

ALARM PROCESSING TIME

In 2018, Pasco Fire Department switched dispatch centers from the Franklin County Communications Center to Southeast Communications Center (SECOMM). For 2021, SECOMM fire dispatch met the NFPA 1710 call processing performance objective (≤ 64 seconds 90% of the time). Alarms were processed in 27 seconds or less 90% of the time. This is a significant improvement over the previous call processing times reported by Franklin County Communications Center (compliant 53.3% of the time in 2015).

TURNOUT TIME

The Pasco Fire Department met its own Turnout Performance Objective (≤ 2 minutes) 84.7% of the time. The turnout time was 2 minutes, fourteen seconds or less 90% of the time in 2021. This is eight seconds slower than the 2016 master plan reported.

PFD command staff should bring this drop-off to the attention of crews as an area for focused improvement. An axiom in the fire service (and other services), is, "...that which is measured is treasured". By measuring and reporting out on turnout time performance on a crew by crew and shift-by-shift basis monthly, crews will typically redouble their efforts to improve.

TRAVEL TIME

Travel time is potentially the longest component of total response time and is a simple matter of physics. The distance between the fire station and the location of the emergency influences total response time the most. The quality and connectivity of streets, traffic congestion, and geography all play crucial roles in travel time performance. The use of traffic control technology (signal pre-emption devices), closest unit dispatch using automatic vehicle location (AVL), and mobile data terminals with vehicle routing software are examples of using modern technology to reduce the travel time and improve response performance. Note that PFD has implemented all of these technological means to some degree to improve response performance.

The Pasco Fire Department met its own Travel Time Performance Objective ($\leq 6:00$) 69.9% of the time in 2021. This is a significant improvement over 2015, which met the objective only 50 percent of the time. Travel time for the Pasco Fire Department by the 1st arriving unit was 8:27 minutes or less, 90 percent of the time in 2021. While an improvement, both the City of Pasco Travel Time Objective and the NFPA 1710 Standard were not achieved for travel time.

For full first alarm-fire suppression responses, PFDs current performance objective calls for 11 or more personnel arriving on the scene of a residential structure fire in twelve minutes or less, 90% of the time. In 2021, the 90th percentile arrival time for 11 or more personnel was 12:35 minutes (an improvement over 2020 performance of 14:29 minutes). PFD's first alarm personnel arrived on a residential structure fire 81.8% of the time (an improvement over 2020, which was 76.3%). However, 11 personnel sent to a structure fire is below NFPA standards (16, or 17 when an aerial device is used). The Pasco City Council should update its response performance goals (Resolution 2938) to align its first alarm staffing assignment with NFPA 1710.

RESPONSE TIME

NFPA 1710 does not establish a response time as a standard. They do establish the individual elements that make up what response time would be, and industry best practices recommend tracking and recording the individual components of total response time. By tracking the individual components of response time, fire jurisdictions are able to identify and correct specific deficiencies. PFD appropriately follows the provisions of RCW 35.103 *Fire Departments: Performance Measures*, in establishing the metrics of its performance. Response time is the aggregate of call processing, turnout, and travel times.

Recommendations:

- Update Resolution 2938 - Full First Alarm Assignment for moderate risk structure fires should increase to 17 personnel (includes an aerial apparatus) from the current 11.

Mutual and Automatic Aid Systems

There are numerous mutual aid agreements, both formal and informal, in place between fire, police, and emergency medical agencies in the Tri-Cities area. Mutual aid is typically employed on an “as needed” basis where units are called for and specified one by one by an incident commander.

Automatic aid agreements differ from mutual aid agreements in that under certain agreed-upon criteria, resources from the assisting agency are automatically dispatched as part of the initial response. These agreements facilitate closest unit dispatch to emergencies in boundary areas and allow for the dispatch of additional apparatus and personnel to specific predefined emergencies. Automatic aid agreements are often thoughtfully negotiated to try to strike a balance between the participating agencies to avoid the appearance of a subsidy.

Mutual aid is less predictable in that it is utilized when typical response resources are overwhelmed, requiring additional resources from other agencies. Mutual aid is often less frequently utilized either in the giving or receiving of it but is also typically less balanced since it is not foreseeable.

Pasco Fire Department participates in statewide mobilizations in other parts of the state and in Oregon, given its close proximity. These state mobilizations are requested through the Washington State Fire Marshal’s Office on behalf of the host agency.

The following figure displays PFD mutual and automatic aid activity and state mobilizations by frequency and by hours in 2021.

Figure 48: Mutual and Automatic Assistance, 2021

| Automatic Aid | | |
|----------------|--------|------------|
| Given/Received | Number | Total Time |
| PFD Given | 79 | 86:23:09 |
| PFD Rec'd | 56 | 104:21:19 |
| Mutual Aid | | |
| Given/Received | Number | Total Time |
| PFD Given | 176 | 204:22:17 |
| PFD Rec'd | 9 | 51:07:24 |
| Mobilizations | | |
| PFD Given | 17 | 1722:52:47 |

The frequency of automatic assistance PFD provides other departments and is provided by other departments is fairly balanced by the number of occurrences. But by hours spent, PFD receives more hours being assisted than assisting other agencies. The hours can be heavily skewed by an unusual incident or two, so the imbalance of hours may be an anomaly.

One primary purpose of mutual aid agreements is to improve the regional application of resources and staffing. Cooperative efforts between jurisdictions are an effective means to bolster a community's fire protection resources or to reduce unnecessary redundancy and overlap between communities. This is especially important in an area such as the Tri-Cities. As a metropolitan area with an estimated population of over 308,293¹¹, demand for emergency services is amplified in the individual communities that make up the Tri-Cities.

Incident Control and Management

PFD uses the Incident Command System (ICS) for tactical incident control and the National Incident Management System (NIMS) as its standard management protocol. These methodologies for managing emergency incidents are widely accepted industry standards and are incorporated appropriately into PFD emergency and daily operations.

The Department's SOG manual addresses the use of ICS on emergency scenes. ICS training is included in the annual training schedule. An emergency scene accountability system (Passport System) is utilized to ensure firefighter safety and accountability. PFD effectively utilizes the ICS and NIMS for emergency and non-emergency operations.

Recommendations:

- Revise Pasco Policy on Response Performance Objectives to reflect actual full first alarm assignments to structure fires.
- Analyze Unit Hour Utilization annually to ensure units and crews are not exceeding efficient and effective deployment ($\leq 10\%$ for engines and 25% for medic units). Conduct a deeper analysis into the causal factors for these units as they approach these thresholds and address as appropriate. Consider 25 percent UHU for medic units as a trigger point to increase staffing of the sister engine company.

¹¹ U.S. Census Bureau estimate, July 1, 2021.

Training Program

During the development of the 2020 Pasco Fire Department Strategic Plan, 20 citizens from various walks of life within the City of Pasco were polled to determine their top planning priorities for PFD. The number one priority of those attending was the technical competence of the personnel in the Pasco Fire Department. This is not a reflection of a perceived deficit, rather, it reflects a strong desire on the part of the public that they are able to rely on the knowledge, skills, and abilities of firefighters arriving at an emergency to resolve whatever emergency problems they face. This is core to the mission of the Training Division for the Pasco Fire Department.

In this section, PFD's training practices are analyzed and compared to industry standards and best practices, with recommendations as appropriate.

General Training Competencies

The basis for effective training is established standards. There exists a variety of training standards, including those from the National Fire Protection Association (NFPA), the International Fire Service Training Association (IFSTA), the International Fire Service Accreditation Congress (IFSAC), and applicable Washington Administrative Code (WAC) firefighter safety and training requirements. EMTs and paramedics must comply with the Washington State Department of Health (WADOH) Ongoing Training & Evaluation Program (OTEP) for continued certification as well.

The curriculum for training complies with WAC 296-305 Safety Standards for Fire Fighters and generally follows IFSTA plus agency-specific or region-specific curriculum developed in partnership with local agencies. Skill sheets have been developed and tie in with the curriculum.

PFD has an agency-specific apprenticeship program, similar in nature to the Washington State Council of Firefighters' apprenticeship program. Apprenticeship consists of accredited recruit academy training, hazardous materials training, and EMT training, followed by on-the-job training and academic instruction that supplements the craft of firefighting. This continues for three years following initial hiring.

Initial training of new hires begins with an indoctrination while assigned to day shift for sixteen weeks. During the first year (probation) of employment, task book assignments are completed. The most recent graduates of probation mentor recruits (new hires). This unique method of mentorship has been successful for several reasons. The mentor is familiar with the material, having recently completed it themselves, they can relate to what the probationary employee is experiencing, and they are approachable.

Following the probation period, personnel receive on-going training and skill maintenance. To this end, there must be a sufficient number of instructors, training grounds, and adequate training materials either internally or available from outside sources. Training sessions should be formal and follow a prescribed lesson plan that meets specific objectives. PFD provides these on a regularly scheduled basis using Target Solutions, a commercially available software program specifically for the fire service.

The first three years of training (after probation) is provided through the Pasco Fire Department Apprenticeship Program. Members during this period are evaluated on their apprenticeship skills jointly by the apprenticeship committee, company officers, and the training officer.

After the apprenticeship program is completed, training and ongoing skills maintenance is achieved following an annual calendar published in January of each year by the Training Officer. The training division has set up a quarterly training routine, where the Training Officer leads training one month, and station officers leading the training within their station for the other two months.

The Training Officer relies upon subject matter experts (SMEs) within the department to provide training instruction within their fields of expertise. These adjunct instructors are brought on days for a short period (typically six days) to assist the training division. This is an excellent and efficient mechanism to expand upon the internal expertise within the department. The subject matter expertise lies in the following disciplines:

- Large Area Search
- Forcible Entry
- Ventilation
- Firefighter Survival
- Community Risk Reduction
- Wildland Firefighting
- Fire Dynamics
- Aircraft Rescue & Firefighting
- Air Management
- Ladders
- Live Fire Instruction
- Elevators
- Extrication
- Active Shooter Response
- Pump Operations
- Technical Rescue (2 of 3 disciplines – ropes, trench, confined space)
- Hose Movement
- Rapid Intervention Teams
- Water Rescue
- Hazardous Materials
- High Rise Operations
- Rescue Boat Operator
- Truck Operations
- Emergency Vehicle Incident Prevention

Training Administration

The Training Officer is responsible for the training division. The incumbent has held the position for three years. The training division is primarily designed to facilitate training, not deliver it. The training officer is a division of one, with SMEs frequently augmenting the training delivery. In addition to the training program, the training officer is responsible for all training facility maintenance, landscape, repairs, purchasing, indemnification, coordination of internal training efforts, and contracting of outside sources. Much of the day-to-day training is the responsibility of on-duty company officers. Nonetheless, the training division is lightly staffed and needs additional regular assistance.

Recommendation:

- Create a full-time training lieutenant assigned to the training division to increase the output potential of the training division by managing facilities, recruit school, the ARFF program, and driving greater consistency throughout the training division. This releases the half time lieutenant, currently shared with EMS, to be assigned full time to the EMS division.

Training Facilities

Emergency responders must be equipped with a balance of knowledge and skills that are periodically exercised in a realistic but safe environment. Modern fire training centers continue to evolve with the blending of suitable space, durable yet adaptable structures, and current technology. Training center facilities must incorporate classroom resources, computer resources, incident simulation equipment, and individualized study resources.

Since the 2016 Master Plan for the Pasco Fire Department, the department has developed its own training center. This was necessary since previously, PFD had to contract with Walla Walla County Fire District #5 for the use of its training center in Burbank, pulling PFD resources out of the city. PFD had also relied upon Kennewick's training facilities on a case-by-case basis, but the grounds were frequently out of service and unavailable. The Pasco Training Center consists of shipping containers (Conex boxes) arranged in a manner that provides simulation of a multi-room structure. The training center has received two additional Conex boxes to add to the existing structure, and a live-fire training prop.

The Training Center for Pasco Fire Department is located at 1011 Ainsworth, adjacent to the Franklin County Emergency Management building in the Port of Pasco. The Training Division has expanded to use the office and classroom space vacated by PFD administrative staff. The plan is to continue to lease the facility from the Port of Pasco and host training activities at the location and explore opportunities to expand the training ground footprint.

The training classroom space accommodates 75 personnel, and a utility room accommodates an additional 75 personnel. The training facility hosts a Command Lab that allows incident management training using the main building. There is also an apparatus bay in the building. The combination of classroom space, offices, and the training props and drill grounds make an ideal training center.

Training Manual

A training manual is the playbook that firefighters use to practice and prepare to operate safely and efficiently. A playbook is used to standardize techniques and processes for individual companies, fire stations, and between shifts. Since Pasco is within a geographic region with interdependency for most fires and larger emergency incidents, it is appropriate that there be a regional training manual. PFD has collaborated with other agencies in the region to develop a standard training manual. That manual is currently in the process of being updated and converting it to a digital format.

Training Record Keeping

Individual training records are entered and archived on Target Solutions, which is the department's record management system. The records and files are computerized, and daily training records are maintained. Company training records are also maintained, and the training officer is responsible for ensuring the training records are complete.

In 2021, a total of 79 PFD personnel received a total of 24,047.65 hours of training for an average of 304 hours per person. Other training activities, technical, specialty team, and instruction outside the department were in addition to those totals. By comparison, in 2015, 56 PFD personnel received a total of 16,800 hours of training, for an average of 300 hours per person. This was a simple calculation (56 employees with ten hours per month of fire training and five hours per month for EMS), which is less reliable than an actual calculation of training hours from the existing training records, as was done for 2021. The training hours went up slightly on a per person basis between 2015 and 2021. However, the 2021 figure is likely more accurate than the 2015 figure.

Community Risk Assessment & Reduction Program

Community Risk Management has two major elements; risk assessment (determining the actual risk profile of a community) and risk reduction (reducing the risks identified in a community, primarily through education and empowerment of its residents). Grouped together under the umbrella term, “Community Risk Reduction,” the concept has gained national prominence in the fire service to address community risks related to the services provided by fire departments. It starts with a community risk assessment, which quantifies the risk a community faces in the built environment, from natural risks, and by human activity. Once these risks are assessed and quantified, a risk reduction strategy can be employed to reduce the rate of growth of emergency response demand for the fire department, increase community safety, and enhance community livability through increased safety.

Community Risk Assessment

In William Shakespeare’s, “The Tempest,” a quote from the 410-year-old play is just as valid today—“What’s past is prologue.” It implies that what has occurred in the past has set the stage for future events. To a large degree, this is true in community risk assessment. Historical emergency response demand, when analyzed closely, identifies risk trends within the community and, in some ways, is predictive of future emergency potential. However, there may be latent potential risks also posed in a community that have not surfaced historically. In this case, expanding the risk assessment to include potential risk as has been experienced by other communities regionally or nationally is a prudent step to take. Common risk categories may include the following:

| | | |
|-----------------------------------------------------|------------------------------------------|-------------------------------------------|
| Climate | Transportation Emergencies | Target Hazard Locations |
| Topography | Airplane Crash | Risk by Land Use Designation |
| Population & Demographics | Train Derailment | Risk by IBC Occupancy Group |
| Residential Structures | Pipeline Emergency | Structural Target Hazards |
| Commercial Occupancies | Vehicle Incident/Fire | Critical Infrastructure & Resources |
| Service Infrastructure | Infrastructure Failures | Water Distribution |
| Earthquake | Dam/Levee Failure | Communications Systems |
| Flooding | Power Failure | Energy Systems |
| Landslide/Mudslide | Hazmat Release | Government Facilities |
| Wildfire | Mining/Drilling Incident | Public Assembly |
| Severe Winds, including Thunderstorms and Tornadoes | Human-Caused Hazards and Vulnerabilities | Schools and Day Care Centers |
| Wildland-Urban Interface Areas | Medical Hazards | Hospital & Medical Care Facilities |
| Winter Storm | Structural Fire Hazards | Buildings Three or More Stories in Height |
| Other Natural Hazards | Technical Rescue Hazards | Large Square-Footage Buildings |
| Technological Hazards and Vulnerabilities | Deliberate Acts | Multi-Family Dwellings |

PFD’s CRA/CRR Plan uses many, but not all of these categories. Once all risks have been identified, they must be quantified. There are two primary methods for quantifying risk objectively. The first is a formulaic approach, referred to as Calculated Priority Risk Index (CPRI). The formula is expressed on the following page, supported by Figure 49, which define the score categories.

$$CPRI = [(0.45 \times P) + (0.3 \times S) + (0.15 \times W) + (0.1 \times D)]$$

Where:

P = Probability of the event

W = Warning availability, speed of onset

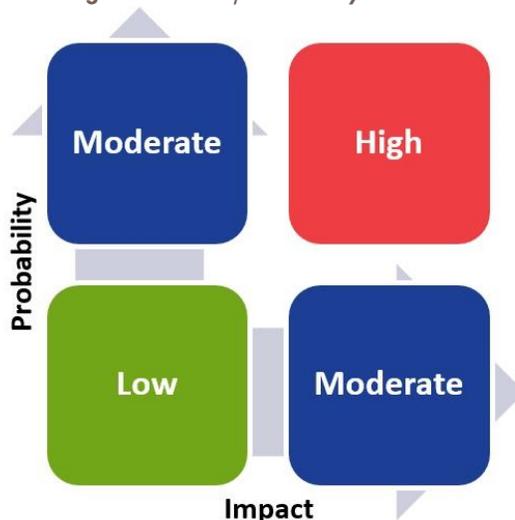
S = Severity or magnitude of the event

D = Duration

Figure 49: PRI Score Categories

| Risk Factor | Weighting Factor | Index Value | Level | Criteria |
|--------------------|------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Probability | 45% | 1 | Unlikely | < 0.1% annual |
| | | 2 | Possible | 0.1–1.0% annual |
| | | 3 | Likely | 1–10% annual |
| | | 4 | Highly Likely | > 10% annual |
| Magnitude Severity | 30% | 1 | Negligible | Negligible property damage, < 5% of critical facilities & infrastructure. Injuries or illnesses treatable with first aid, no deaths. Shut down of critical facilities for < 24 hours. |
| | | 2 | Limited | Slight property damage > 5% and < 25% of critical facilities & infrastructure. Injuries or illnesses, no permanent disability, no deaths. Shut down of critical facilities > 1 day and < 1 week. |
| | | 3 | Critical | Moderate property damage > 25% and < 50% of critical facilities & infrastructure. Injuries/illnesses result in permanent disability, 1 death. Shut down of critical facilities > 1 week and < 1 month. |
| | | 4 | Catastrophic | Severe property damage > 50% of critical facilities & infrastructure. Injuries or illnesses result in permanent disability and multiple deaths. Shut down of critical facilities > 1 month. |
| Warning Time | 15% | 1 | Long | More than 24 hours |
| | | 2 | Moderate | 12 to 24 hours |
| | | 3 | Short | 6 to 12 hours |
| | | 4 | Limited | Less than 6 hours |
| Duration | 10% | 1 | Limited | Less than 6 hours |
| | | 2 | Short | Less than 24 hours |
| | | 3 | Moderate | Less than 1 week |
| | | 4 | Long | More than 1 week |

The second process used to quantify risk objectively is grouping into clusters of probabilities. The risk/consequence or risk/probability matrix is illustrated in the following figure.

Figure 50: Risk/Probability Matrix¹²

As the risk is quantified generally into one of the four quadrants, a decision is made based on the level of risk. Communities cannot create a zero chance of a risk, which would indicate there is no risk. Likewise, there cannot be a 100 percent chance of a risk, since that would make it a certainty, not a risk. Every community must come to grips with an acceptable level of risk, recognizing that it is improbable, impractical, and unaffordable to eliminate risk in a community. It is also untenable to consider all risks acceptable. Using a matrix helps fire department officials determine approximately where the line is between an acceptable and unacceptable risk. It is important to note that for the individuals directly involved in an incident, it is never considered an acceptable risk. The quadrants in the previous figure may be defined as follows.

- **Low impact/low probability:** Risks in the bottom left corner are low level, with acceptable consequences if the incident occurs. These can often be considered acceptable risks and require no further action.
- **Low impact/high probability:** Risks in the top left corner are moderate level—if the incident happens, the fire department can usually handle it with existing resources. However, effort should be given to reduce the likelihood that these incidents occur. This is where community risk reduction strategies pay significant dividends to a community.
- **High impact/low probability:** Risks in the bottom right corner are high level if they do occur, but they are very unlikely to happen. Risks in this quadrant are prime candidates for training and contingency planning. A fire department may spend time and energy preparing for such an incident and may even acquire specialized equipment and other non-staff resources to prepare for this risk. These risks also lend themselves well to community risk reduction strategies, such as public education, community engagement, and code enforcement.
- **High impact/high probability:** Risks toward the top right corner are critical. These should be the highest priorities for the fire department and the community. Aggressive action is required, such as staffing for these risks, equipping for these risks, and engaging the community in risk reduction and preparedness.

¹² "Risk Impact/Probability Chart: Learning to Prioritize Risks." Risk Impact/Probability Chart. N.p., n.d. Web. 22 June 2016.

Regardless of the method used, once the community risks are identified and appropriately prioritized, plans of action are developed consistent with their category to reduce risk.

Recommendation:

- Consider using a formulaic approach to quantifying risk and thereby prioritizing risks.

Community Risk Reduction

Once the community risk is assessed and prioritized, strategies can be developed to address them. The risk reduction process follows an iterative process, as illustrated in the following figure.



PFD has completed a Community Risk Assessment and has developed a Community Risk Reduction plan. Written in 2017, the plan relies significantly on the Franklin County Comprehensive Emergency Management Plan, with additional focus on threats within the city. This is appropriate since Pasco and Franklin County are virtually inseparable when it comes to risk. The City of Pasco makes up the vast majority of Franklin County in the built environment and by population. Therefore, it has a substantial amount of Franklin County's risk.

The plan comments on all major risk categories within the CRA portion of the plan. The CRR portion of the plan prioritizes the top three risks Pasco faces as it relates to fire department responses. They are:

1. Cooking fires in the home
2. Injuries and deaths related to slips, trips, and falls
3. "Not-Applicable" EMS event type

None of the top three risks are surprising results. The first two, cooking fires and falls, are among the most common risk types in communities throughout the United States. The third risk, "not-applicable" EMS event types is less a risk and more a concern as it relates to accurate data collection and interpretation. The third risk can be reliably tied to concern over data inaccuracy due to poor categorizing of call types. This can indeed jeopardize the department's ability to accurately assess the community risk if the data collected on a response is not properly categorized. This is a common problem within the fire service, but few agencies seek to address this issue head-on as PFD has.

PFD has utilized a creative approach to addressing demand reduction due to system overuse or system abuse. Most communities have problems with repeat users of the 9-1-1 system for non-emergent purposes. It has been found nationally that such uses often reflect social issues or confusion about how to access non-emergent services from systems such as mental health, eldercare, or other social service agencies.

PFD has partnered with Consistent Care Services to provide a Resource Navigator. Users of the 9-1-1 system for non-9-1-1 purposes are the target audience. Those citizens are referred to the Resource Navigator by on duty crews that observe the need while on the call. The goals of the program are to reduce repeat users of 911, increase unit availability for 9-1-1 responses, and to put these citizens using 9-1-1 inappropriately in touch with the correct resources for the problems they are dealing with.

The Resource Navigator is not an employee of the Pasco Fire Department but conducts work on behalf of the Pasco Fire Department and has an office at the PFD administration building. The incumbent works for the CRR Specialist and the EMS Officer (since many of the crew referrals come from EMS responses). The position has resulted in substantially reduced inappropriate use of 9-1-1 services. This improves response performance indirectly within the PFD system.

It is important to quantify all the major risks in the community and prioritize them, even if some have no action plan to address them and are consciously subordinated to other, higher risks in the community. This provides a report card of sorts, facilitating a quick reference point to determine whether lower priority risks are growing and should be reassessed year-over-year, or should continue to remain a lower priority.

The Community Risk Reduction Specialist intends to update the CRA/CRR plan based in large part on recommendations made in this master plan. As the five-year anniversary of the inaugural plan has arrived in 2022, it is a good opportunity to review the five-year trend on the top three risks targeted for reduction. It is also a good point to update the plan, incorporating the recommendations contained in this report.

Recommendations:

- Review response data annually to identify emerging risk trends and modify the CRR plan accordingly.
- Evolve CRR program toward a station-based risk reduction strategy, managing geographically distinct risks at the station officer level.

Emergency Medical Services

An effective EMS system involves many different agencies, organizations, and the public working together to provide rapid recognition, notification, response, treatment, and transport to those in need of immediate medical attention. Generally, most EMS systems include at least system access and dispatch components, first response, ambulance transport, and definitive hospital care. The addition of a trained public component has improved patient outcomes.

Medical Direction & Control

Prehospital medical care systems include emergency assets (trained personnel on appropriate emergency vehicles with proper equipment), strategically deployed, arriving promptly to provide the most appropriate care for the sick and injured, with transportation to the nearest or most appropriate medical facility for further treatment. Often lost in this process is the role of medical control by physicians specifically trained in the management of prehospital medical care.

In Washington State, physicians are selected by the Washington State Department of Health upon recommendation for certification by the local medical community and local emergency medical services and trauma care council. The physician selected is referred to as the Medical Program Director (MPD) for their county and oversees the prehospital medical system within that county. In addition, the MPD provides supervision of medical personnel. This can be done online (paramedics have direct phone or radio access to an emergency physician in real-time for permission to conduct certain medical procedures) or offline (paramedics conduct certain medical procedures based on pre-established patient care protocols).

In Pasco, the Medical Program Director (Dr. Kevin Eric Hodges) for the Mid-Columbia region (Franklin and Benton Counties) has established offline medical control through standing orders and patient care protocols, most recently adopted in June 2019. Doctor Hodges also provides medical chart reviews, case reviews, and continuing medical education for field technicians. Dr. Hodges is Board Certified in Emergency Medicine and is assisted by an Administrative Assistant and an MPD Assistant/Paramedic Instructor who manages quality assurance programs on behalf of Dr. Hodges for the prehospital agencies in the county. The MPD conducts quarterly crew meetings to discuss contemporary issues, state-of-the-art procedures and practices, and generally maintain ongoing engagement with the field personnel.

EMS is the single most uniformly operating section of the Tri-Cities fire departments, primarily because they are combined under the Mid-Columbia Regional EMS & Trauma Care (EMS-TC) Council and under a single MPD for the region, which covers both counties. Joint protocols, a shared EMS Medical Program Director, and EMS training are all uniform to the fire departments in Franklin and Benton counties.

Organized as a private, non-profit organization, the Council works with the Washington State Department of Health, hospitals, pre-hospital EMS providers, airborne medical transport, and other regional healthcare partners to develop and enhance the EMS and trauma care system. The Mid-Columbia EMS-TC Council functions at a very high level of coordination and planning.

Quality Assurance & Quality Improvement

A Quality Assurance & Quality Improvement program exists in Pasco Fire Department. According to the Health Resources and Services Administration (HRSA), quality assurance (QA) measures compliance against certain necessary standards, typically focusing on individuals, whereas quality improvement (QI) is a continuous improvement process focused on systems. PFD's QA/QI process is coordinated by a QA/QI Committee of field personnel. The process includes a lessons-learned approach to post-incident analysis and medical case reviews. These are conducted monthly. Case reviews include the involvement of the QA/QI Committee, the MPD, and the two PFD medical officers. QA/QI results are published in regular reports, and in particular for certain cardiac arrhythmias (STEMI), cardiac arrest, and stroke.

Of the 5,560 EMS calls dispatched, 268 were canceled en route and 150 were redirected to the PRN (Pasco Resource Navigator). PFD transported 3,334 patients. There were 4,680 patients seen, with 1,146 patients not transported. Of those, 163 were released against medical advice (AMA), 127 required no treatment, and 856 were released under medical protocol G10, which includes a medical release being signed by the patient or a non-crewmember witness. Just over 24 percent of the total medical calls where a patient was contacted were not transported.

Crews providing transportation to an area hospital were out of service at the hospital for an average of just under 20 minutes. This includes patient care transition to the facility, report writing, restocking or cleaning the unit, and prepping for the next response.

Evidence of the success of the quality improvement effort exists with cardiac arrest survival rates. The Mid-Columbia region has cardiac arrest survival rates that are very high compared to agencies statewide and nationally. Pasco Fire Department belongs to the Cardiac Arrest Registry to Enhance Survival (CARES). According to CARES,

...approximately 90% of persons who experience an Out of Hospital Cardiac Arrest (OHCA) die. Despite decades of research, median reported rates of survival to hospital discharge are poor (10.4%) and have remained virtually unchanged for the past 30 years.

Outcome studies are conducted in CARES agencies for specific conditions (witnessed cardiac arrest, bystander initiated CPR attempted, a shockable rhythm once EMS arrives, and patient survival). In the Pasco Fire Department service area, of the 53 cardiac arrests that occurred in 2021, 22.7 percent were witnessed by bystanders. Thirty-three and a third percent (33.3%) met the Utstein criteria (including a shockable rhythm). Of those, 40% of the patients survived. This is a lower survival rate than was observed in the 2016 master plan, but both are small sample sizes, easily skewing outcomes year-to-year. Data from the CARES registry also showed increased delays to initiation of CPR for out of hospital cardiac arrests (OHCA) and reduced survival after OHCA coinciding with timing of the pandemic. There was a reduction in the frequency of shockable rhythms, OHCA in public locations, and bystander AED use. Despite this, there was no significant alteration in frequency of bystander CPR.

Clinical Skills & Continuing Education

Each member of the Pasco Fire Department participates in the Ongoing Training & Evaluation Program (OTEP) to maintain their certifications and keep skills at a high level throughout the year. These training opportunities are offered internally and some externally within the region. Members who participate present their record of attendance, which is filed electronically in the PFD reporting system. Higher-level skills required to be performed regularly, such as intubation, airway management, and intravenous access, are routinely performed by intermediate and advanced (paramedic) medical technicians. Success rates and multiple attempts are tracked, and remedial training or testing is provided if necessary.

Continuing education and OTEP are provided through Columbia Basin College. Paramedics are additionally required to attend Advanced Cardiac Life Support (ACLS), Pediatric Advanced Life Support (PALS), High Performance Cardio-Pulmonary Resuscitation (HPCPR), basic clinical skills assessment, intermediate- and advanced-skills assessment. In addition to all of the above, paramedics attend in-service training as directed by the MPD or as QA/QI and/or case review calls for. These are conducted and facilitated by the EMS officer.

EMS Staffing & Operations

Pasco Fire Department employs 30 Washington State-certified paramedics. Of these, four are nationally registered paramedics. Additionally, there are eight intermediate-level EMTs. These technicians can either administer intravenous fluids or intubate patients who have unprotected airways, depending on the type of intermediate certification these technicians have. Finally, there are 43 basic EMTs. This is the minimum level of medical training for all operational personnel.

Staffing for medical calls includes two personnel on an ambulance and two personnel on an engine for a total of four personnel. The EMS program is managed day-to-day by a Captain/Paramedic. A Lieutenant/Paramedic assists with the medical training workload. This position is currently shared with the Training Division. The medical equipment carried on these apparatus are state-of-the-art, including cardiac monitors/defibrillators/pacers with 12 lead capability, end-tidal CO₂ (ETCO₂) monitoring (the partial pressure of CO₂ at the end of an exhaled breath), and SpO₂ (oxygen saturation, which is a measure of the amount of oxygen-carrying hemoglobin in the blood relative to the amount of hemoglobin not carrying oxygen), metronome CPR prompts, and event recording for post-event review.

EMS Administration

The EMS Officer manages the EMS program day to day. One of the issues facing the program is that PFD is having difficulty keeping certified paramedics because they keep getting promoted out of the system (officers are assigned to the engines, taking them off of medic units). Further, as the appointed HIPAA Compliance Officer, the EMS Officer estimates that patient care and other medical records requests are taking between five to fifteen hours per week to process (such as redacting and ensuring the identity of the requester), which impacts active management of the system. The technology support needs and the amount of data analysis required to evaluate and adjust the program accordingly is substantial and ongoing. While there is an EMS Assistant, that position is shared with the Training Officer and primarily performs EMS training. The Information Technology technician assigned to PFD is shared with PPD and Municipal Court. Often, competing needs delay resolving these critical systems and processes.

EMS Logistics

Logistics and support services for EMS represent a labor-intensive process requiring good policies and attention to detail. The procurement and distribution of EMS supplies is also an important behind-the-scenes practice that needs hands-on work and meticulous record keeping. Filling the demand for logistical services is a constant necessity in any organization and vital to ensure the operational readiness of the agency. A significant amount of the PFD EMS officers' time is consumed with logistics duties. This process is repeated by EMS officers at each fire department in the Tri-Cities area.

A multi-agency purchasing program could improve the management of PFD's and partner agencies' supply chains. In theory, the agencies would collectively create or contract for a logistics center to manage the purchasing process of EMS supplies.

Medications and other medical supplies are in stock and on hand for quick replenishment, and controlled medications are secured. Medications and temperature-sensitive liquids are maintained in a temperature-controlled environment.

Three hospitals in the Tri-Cities area operate four EDs (emergency departments):

- Lourdes Medical Center
- Kadlec Regional Medical Center
- Trios Southridge Hospital
- Kadlec Emergency Room, Kennewick

Two of the receiving EDs are designated trauma centers. Kadlec Regional Medical Center is a Level 3 trauma center, and Trios Southridge Hospital is Level 3 and Pediatric Level 3. The three designated stroke centers are Lourdes Medical Center, Level 2; Trios Southridge Hospital, Level 2; and Kadlec Regional Medical Center, Level 2. Transporting EMS medic units receive on-line medical control from the receiving hospital. Paramedics can consult with receiving hospitals via cellular phone, the radio HEAR (Hospital Emergency Administrative Radio) system, and with 12-lead telemetry to Kadlec Regional and Lourdes Medical Centers.

Recommendations:

- Consider transitioning to a tiered response EMS system, with engine company/first response units handling low acuity calls (Alpha, Bravo, and potentially some Charlie priorities), reserving medic units for high acuity, truly life-threatening call types (most Charlie, Delta, and Echo priorities). This may reduce pressure on maintaining the paramedic ranks and will require MPD buy-off.
- Acquire a Management Analyst or Data Analyst to routinely pull data for the EMS system, the PFD management system, and other PFD divisional needs to make sound management decisions based on quality, contemporary data.
- Assign the EMS Assistant to the EMS Division full-time, discontinuing a shared role with Training Division.
- Reduce the IT technician sharing burden for PFD. Consider splitting the position with one lower-demand department than is currently the practice.

HAZMAT Services Support and Response Capability

Hazardous materials response capability had, for many years, been a military mission commonly called nuclear, biological, and chemical (NBC) defense. With the increased use of chemicals and chemical processes in communities and their shipment throughout the United States, municipal fire departments began adapting this military mission, coining the term “hazardous materials” and adding this capability to the list of services provided to primarily large urban cities in the 1980s.

Since 9/11, the possibility of intentional hazardous materials releases caused many fire departments to add this capability regardless of the size of the community served, mostly in concert with other regional partners. In turn, the terminology changed, with weapons of mass destruction (WMD), the threat of chemical hazards being expanded to include Chemical, Biological, Radiological, and Nuclear (CBRN), which replaced the former acronym NBC (nuclear, biological, chemical). In the military, an “e” was added for explosive devices; for standardization, the fire service has also expanded to include the “e.”

Informally, hazardous materials and CBRNE are essentially one and the same, with CBRNE typically used to describe possible acts of terror and hazardous materials used to describe accidental exposure to civilian populations. In 2007 and 2008, the Washington Fire Chief’s Association attempted to establish nine regional CBRNE teams dispersed throughout Washington State, along with a funding mechanism to ensure sustainability. The intent was to provide a regional response team with technical expertise and equipment.

The teams were to be selected from among applicant fire departments that were well-positioned for a response within their region and had already demonstrated some level of expertise or the commitment to achieve that level of expertise. Multiple funding mechanisms were identified to provide for these teams, but proposed legislation was held up in committee. The economic downturn during that same period also hobbled the effort as funds dried up nationally.

Virtually all fire departments in the United States have received hazardous materials—operations level training, but this does not constitute a hazardous materials team. A true hazardous materials or hazmat team is capable of offensive actions once a substance is identified and a proper course of action determined. Hazardous materials teams are made up of technicians certified in these various risk factors. The most advanced civilian hazardous materials team offensive capability is referred to as Level A.

Pasco Fire Department Infrastructure

All firefighters in Pasco are trained to at least the operations level, but Pasco Fire maintains a portion of the resources necessary to stand up a full activation of the highest risk hazmat incident. This is by design. Pasco is part of a Tri-County Regional Haz-Mat Response Team (Benton, Franklin, Walla Walla, and Yakima Counties) via an interlocal agreement. The philosophy behind the regional team is that the cost of standing up a fully independent, all-risk hazmat team is exorbitant. But if the costs and duties were shared across the four counties, along with the response burden, the capability becomes higher than any one agency can reasonably afford and the depth of capability is deeper than any one agency can achieve.

The Tri-County Regional HazMat Team is comprised of technician-level members distributed across the signatory agencies within the four counties. These members are assigned to regular engine companies with the support equipment necessary to conduct an initial assessment of a suspected hazmat incident. These assessment engines are equipped with 4-gas meters, pH paper, and Ray 2000 meters. The personal protective equipment they wear is standard firefighting gear, which is level B (intermediate) protection. An assessment response consists of three assessment engine companies. In Pasco's case, one Pasco assessment engine responds with two other assessment engines from neighboring agencies who are signatories to the Tri-County Regional Team. The assessment teams utilize HazMatIQ, a training and job aid process whereby personnel can quickly sort the relative risks and initial actions to be taken in the initial stages of the incident.

This type of response is expected to result in an assessment of the hazardous material within 15 minutes of arrival. If the incident does not require full hazmat team activation and level A personal protective equipment (the highest level of risk posed and necessitates wearing a fully encapsulated suit), the assessment teams transition to mitigation. This will require a hazmat certified incident commander (all PFD company officers and chief officers are certified HazMat ICs) and may also require additional assistance from decontamination teams from other agencies that are signatories to the Tri-County interlocal agreement. If the incident requires a full team activation and level A protection, the Yakima Fire Department responds with a unit that provides level A suits, additional assets, and capabilities. Response time for this additional capability exceeds 30 minutes.

The methodology described here is relatively new and is continuing to be developed. IFSAC Technician is the curriculum being used by all signatories to the Tri-County interlocal agreement. Not all agencies have achieved this, but the goal is to have everybody on the regional team certified at the technician level in 2022. The regional team concept has worked well; however, SUNCOMM (Yakima dispatch) and SECOMM (Tri-Cities dispatch) have had breakdowns in handing off information between each of the centers.

There are six hazmat technicians in the PFD. They are assigned two per shift, and the department maintains a minimum technician staffing for each shift. All other personnel in the department are operations level certified in hazmat. Training occurred quarterly for the full team (all technicians), department specific monthly, and multi-county (decon agencies) bi-monthly. Pasco Fire has a containment boom trailer, in addition to technology, small tools, and equipment to support the mission.

A Hazardous Materials Commodity Flow Study was conducted in 2016 by Burlington Northern-Santa Fe Railroad. The Pasco Fire Department also partnered with Franklin County Emergency Management to conduct a county-wide commodity flow study in 2017 in order to better define the potential for a hazardous materials mishap in the region.

Franklin County Emergency Management has equipment for plume modeling and spot weather analysis (CAMEO/ALOHA programs) stored on laptops in trailers and on Mobile Data Terminals. Pasco Fire Department has completed training of personnel in the operation of a recently acquired second boat, to be used for waterway spill response containment located in the Port of Pasco.

Specialized Response Services

Technical rescue is the term applied collectively to several rescue disciplines that require training and certifications more than those generally held by most firefighters.

Types of Technical Rescue

The PFD employs a suite of technical rescue disciplines, which are as follows:

Structural collapse - All operations staff are trained to awareness level. As the name suggests, structural collapse relates to the advanced ability to determine if a building is in danger of collapse (after a fire or an explosion for example) and training in the techniques used to stabilize a compromised structure so that other firefighting tasks (such as rescue or extinguishment) can be performed safely.

Trench rescue - Personnel trained in this area have special skills in the area of shoring up a collapsed trench or hole below grade.

Confined space rescue - Technicians are trained to rescue victims and support rescuers in oxygen deficient or hazardous atmospheres, which is a typical risk in confined spaces in industrial applications, such as vats, pressure vessels, tunnels and utility chases, rail-, truck-, and fixed tanks, or any location where air flow is limited, and escape is not readily available to occupants. Continuous monitoring of the atmosphere within the confined space is required to determine whether low oxygen levels, high explosive atmospheres, or toxic atmospheres are present while conducting rescue operations.

Water rescue - Swift water rescue, flood search & rescue, open water rescue, and surface water rescue are provided by PFD as a technical specialty. These skills are provided shoreside, in the water, and on a floating platform (boat) as appropriate. There are 18 members trained to the technician level distributed across all three shifts. There are 17 members certified for boat operations, with a minimum of one boat operator on each shift to ensure immediate launch capability. PFD does not perform dive rescue, but supports the Columbia Basin Dive Rescue (CBDR – a nonprofit organization) and law enforcement in their conducting dive rescue for body recovery, evidence recovery, and vehicle recovery.

High angle rope rescue - Utilizes rope systems, mechanical advantage, and leverage to lower rescuers and equipment; lift victims, rescuers, and equipment; or otherwise provide stability and safety to an emergency scene where gravity may be the primary opponent of the incident. There are 18 members trained to technician level distributed across all three shifts. This discipline is often combined with other technical rescue disciplines since rope systems are commonly used to support these other technical rescues.

Vehicle and machinery rescue - Commonly referred to as extrication or disentanglement, this specialty differentiates from routine extrication in that it may rely on almost surgical precision of tools, force, weight, and leverage, as opposed to brute strength. This includes incidents such as entrapment in industrial equipment (with or without traumatic amputation), impalement in a motor vehicle accident, or other complex circumstances where the life of the victim or their permanent disability is significantly at risk. There are nine members trained to the technician level distributed across all three shifts.

Technical Rescue Team Configuration

The Technical Rescue Team (TRT) is a Pasco Fire Department team, not a regional team. Breathing air support is provided by Franklin County Fire District #3 for some call types, but no other reliance from other agencies is expected.

All PFD firefighters receive training in basic technical rescue skills and are certified to the operations level. Additionally, members of the Technical Rescue Team are trained to the technician level in their individual areas of expertise. This is the highest level of certification achievable for these technical team members. Training is provided consistent with NFPA 1006: *Standard for Technical Rescue Personnel Professional Qualifications*, 2021 edition. Initial certification is through a recognized provider, while continuing education is provided both in-house and regionally. Pasco Fire Department meets or exceeds annual maintenance training standards.

The technicians train monthly in their respective stations and quarterly as an entire team. A TRT manual has been compiled for training all technicians. The team uses task books for key skills that must be demonstrated throughout the development of a technician. Standard Operating Guidelines (SOGs) are in place for each technical discipline, and PFD maintains accurate records for all life safety rope, as well as documenting annual confined space entries made per WAC 296-809 and 29 CFR 1910.146 for permit-required confined space work.

The PFD rescue boat is a 20-foot type 3 jet boat that holds four rescuers and two victims. A second boat was delivered in 2021. It is a 24-foot deep-hull vessel that can deliver 500 gallons per minute for floating platform firefighting and is also designed to deploy containment boom and conduct rescue operations. PFD intends to serve portions of the Columbia River, portions of the Snake River, and portions of the Yakima River when not flowing shallow. The administration is looking into the potential to acquire a rigid hull inflatable for shallow and flood operations.

Members of the Technical Rescue Team are evenly distributed across the three shifts, and a minimum staffing of two water rescue TRT members (at Station 81) and two land-based TRT members (at Station 84) per day. There is currently no contractual minimum staffing level for building collapse or vehicle machinery technicians per shift or per day.

Fixed site confined space risks have been identified within the PFD service area. Some industries in Pasco with these fixed-site confined spaces have approached PFD to consider developing an interlocal agreement to be the rescue agency of record for permit-required confined spaces. Caution should be exercised in implementing such an agreement, since every permit-required confined space entry at these industries will require PFD to assemble the team, deploy to the site, lock out and tag out utilities in the confined space, measure the atmosphere, develop a safety briefing, and develop a rescue plan in advance of industry workers entering the confined space. This happens frequently and generates an operational burden that is often underappreciated.

Recommendation:

- Consider all the ramifications before agreeing to be the permit-required confined space rescue team of record to private industry sites.

Fire Department Planning

The fire service nationally creates and gathers large volumes of data in the performance of its duties, both from emergency response activities and in preparation for and anticipation of large-scale disasters. However, many of these same organizations do not analyze the data sufficiently to evaluate the effectiveness and adjust as necessary to become more effective or efficient. Accurately analyzed data provides fire service leaders with information to make key decisions and develop effective plans. The fire service has many different plans and planning functions that should be included in any fire department but are often set aside for higher priority issues. This can lead to disastrous consequences.

There are many categories of planning fire departments should employ. Key planning efforts include:

- Response Performance Planning (Standards of Cover; RCW 35.103)
- Community Risk Assessment (CRA) Planning (Standards of Cover; stand-alone CRA)
- Community Risk Reduction (CRR) Planning (stand-alone CRR plan)
- Community Growth Planning (Master Plan; Growth Management Plan)
- Target Hazard Response Planning (Tactical Planning)
- Resource Planning
 - Staffing (Master Plan; Growth Management Plan; trigger points & projections for retirements, hiring, promotions)
 - Equipment (Master Plan; trigger points & projections for retirement, replacement, acquisition)
 - Facilities (Master Plan; Growth Management Plan; trigger points for land acquisition, construction, expansion)
 - Finances (Master Plan; revenue and expense projections)
- Succession Planning (Key leadership trait identification & development)
- Organizational Work Planning (Strategic Plan; goal & objective setting with timelines & assignments)

Response Performance Planning

This type of planning begins with developing a community profile, evaluating the resources available to the fire department and the transportation network used to respond to emergencies, and establishing a set of response performance objectives. The intent is to help the community understand what they can reasonably expect from its fire department during emergencies. It also provides the fire department an opportunity to educate and inform the elected officials and other key decision-makers about actual limitations to its capabilities. This allows policymakers and decision-makers to balance risk and cost for the community. While this can be done internally by many fire departments, it is a labor-intensive endeavor. RCW 35.103 identifies the key performance metrics a community should use but is not a substitute for local policymakers to make informed cost-benefit decisions.

A Standards of Cover is an industry best practice for the fire service nationally. It combines a community risk assessment with the elements of response performance planning. This ensures that components such as a critical task analysis, distribution and concentration of resources, and agency-specific service level objectives are combined to establish an effective response to emergencies. The purpose of completing such a document is to assist the agency in ensuring a safe and effective response force for fire suppression, emergency medical services, and specialty response situations.

In the absence of a Standards of Cover, Washington state has a statute that requires most fire departments to establish performance measures. RCW 35.103, *Fire Departments—Performance Measures* requires local policymakers for fire departments to establish response goals for turnout, response time, first alarm arrival time, ambulance arrival time, response performance by special type of incident, and that the performance be reported in a public meeting on an annual basis.

Pasco Fire Department Status: The Pasco Fire Department has a Standards of Cover, which was developed internally in 2017. It contains the major elements necessary for a Standards of Cover, but should be updated to reflect contemporary methodology as per the Commission on Fire Accreditation International (CFAI), Sixth Edition. Additionally, PFD has budgeted for a Tri-City (includes Kennewick and Richland) SOC to be conducted in 2023. PFD also complies fully with RCW 35.103 and reports performance to the city council annually.

Recommendation:

- Integrate the Community Risk Assessment and update the Standards of Cover following the CFAI, Sixth Edition Handbook.

Community Risk Assessment Planning

As emergency response agencies, fire departments must thoroughly understand their community risks. These risks must be quantified. There are numerous risk/consequence-or risk/probability matrices; but they usually fall into one of the quadrants identified earlier in this report or are numerically quantified.

Once an agency has quantified the risks or consequences and likelihood of occurrence, the agency and community must come to grips with an acceptable level of risk, balancing cost for mitigation with the consequences for failure to mitigate them.

Once that balance is identified, the risks should be prioritized, typically using local historical response data analysis and trends, but using a formulaic approach reduces bias toward given risks.

Pasco Fire Department Status: The Pasco Fire Department has created a Community Risk Assessment and a Community Risk Reduction (CRA/CRR) Plan in 2017. The risk assessment has identified all the known risks within the jurisdiction. The risk reduction portion is discussed under the next heading. The community risk assessment was conducted partly in reliance on the Franklin County Comprehensive Emergency Management Plan (2015) and partly on the Pasco Fire Department Standards of Cover (2017). The CRA/CRR document is well written and provides guidance to the agency on the continual assessment of risk. The next revision of the plan should consider including a formulaic approach to quantifying and prioritizing risk to remove subjectivity to the extent possible.

Community Risk Reduction Planning

CRR is defined as a process to identify and prioritize local risks, followed by the integrated and strategic investment of resources (emergency response, public education, and prevention) to reduce their occurrence and impact. Much of the current literature regarding Community Risk Reduction programs uses a six-step approach towards development as outlined earlier in this report.

Community risk reduction is not a new concept for the fire service. Fire departments have been actively involved in fire prevention for many years through public education, building inspections, and other activities. Although CRR plans are unique to each community within U.S. fire departments based on each community profile, there are some common and essential steps.

Not only will a CRR plan be different for each fire department but depending on the size of the agency, it will vary from station area to station area. The risks in one station's area may be vastly different from an adjoining station based on various factors, including demographics, type of residences (multi- or single-family homes), commercial areas, and transportation networks. Essentially, the fire service exists not only to respond to emergency incidents, but also to proactively prevent or mitigate the impact of such incidents within their communities. CRR provides a more focused approach to reducing specific risks.

A comprehensive CRR program that involves community partners, firefighters, and support staff can result in an organizational culture that recognizes the importance of reducing risks within a community. It is important that fire service leaders, its firefighters, and other staff begin to shift their thinking towards reducing and mitigating risks, as this will ultimately be expected by their communities and elected officials.

In its simplest form, a CRR plan utilizes the results of a community risk assessment to identify priorities within the community. Strategies are then developed to address the highest priority risks to mitigate risk or reduce the consequences of a risk manifesting itself within the community.

Pasco Fire Department Status: As described under the Community Risk Assessment heading preceding this section, Pasco Fire Department has a combined CRA/CRR Plan. It is well written and links the findings in the assessment to prioritized reduction strategies. Further, it utilizes the 5 "E's" (Education, Engineering, Enforcement, Economic Incentives, and Emergency Response) in focusing strategies to address the prioritized risks. The risk strategies are broken into short- (one year), mid- (3–5 years), and long-term (5–10 years) timelines. The top three risks are prioritized as 1) Cooking Fires; 2) Slips, Trips, and Falls; and 3) Not-Applicable" EMS event types. The latter risk has more to do with clarity/quality of data and maintenance of response assets for true emergencies.

The next evolution of the CRR program should consider identifying risk by geographical subareas (e.g., fire station response zones). A station-based risk reduction strategy provides for station officers to focus on "their" community risks (within their first due response area) and look for opportunities to educate, mitigate, or create community partnerships to address community problems. This expands the effort that might otherwise fall on one or two key people to implement risk reduction throughout the city.

Community Growth Planning

Community growth planning (master planning) for a fire department primarily focuses on three things: land use planning/zoning (including population distribution and projection), current fire department resource capability, and current and future emergency response demand by area. Washington State has enacted the Growth Management Act (GMA), a series of state statutes first adopted in 1990, that requires fast-growing cities and counties to develop a comprehensive plan to manage their population growth. Pasco complies with the provisions of the GMA; therefore, city development will be consistent with current zoning and land uses within the plan. Further, the population of future development can be anticipated and projected.

Pasco Fire Department Status: This report is a fire department master plan. Informed by the *Urban Growth Area & Comprehensive Plan, 2018–2038 Update* (adopted October 5, 2020, by the Pasco City Council), the Pasco Fire Department has fully addressed the need for Community Growth Planning.

Target Hazard Response Planning

In many instances, emergencies in high-risk facilities within a jurisdiction are anticipated and preplanned to address challenges early and head them off before reaching a critical stage. By focusing on these specific risks—or target hazards—fire personnel become very familiar with these facilities, understanding what risks each of these facilities poses and what features the building has that can be used to gain a tactical advantage, such as area separation walls or built-in deluge systems.

For those buildings that have been identified as target hazards, a pre-incident “site plan” that is easily accessible by crews at the scene should be established (a tactical worksheet specific to that building). Further, tactical worksheets should be used in training drills to get all personnel familiar with the target hazards and what considerations should be in play during an incident. Crews should spend any discretionary time conducting walk-throughs of these facilities and discussing hypothetical scenarios to avoid surprises during an actual incident.

In addition to the short-form tactical worksheets, more complex, detailed site-specific information can be compiled in advance of an incident and kept electronically, accessible by incident commanders during a sustained emergency incident, or accessible to training personnel for tabletop exercises.

Pasco Fire Department Status: The Pasco Fire Department has elements of a pre-fire planning process, but it is not complete and is not formalized. There is an inventory of extremely hazardous buildings that dictate defensive strategies in the event of fire involvement, but it too is not formal. The region is looking to match the National Fire Academy (NFA) quick action planning process.

Recommendations:

- Adopt and implement the NFA Quick Action Plan process as an agency.
- Alternatively, develop a formal pre-fire planning process for buildings or infrastructure that poses an unusual hazard consistent with NFPA 1620.

Resource Planning

Resource planning is a heading under which numerous subject areas fall. Those resources include staffing, apparatus and equipment, facilities, and finances.

STAFFING

As a city fire department, the staffing should be planned for in coordination with Human Resources. In order to conduct an effective staffing plan, PFD must address the following elements:

- Identify the minimum number of personnel by rank, by certification, and by location/unit for each shift. This is done to comply with response targets, critical task analyses, alarm assignments, and response performance goals, as well as any city policies or collective bargaining agreements. A Standards of Cover that includes a critical task analysis for each major risk type will help determine the number of resources necessary to mitigate foreseeable incidents. Adopted performance goals (in compliance with RCW 35.103) will also help identify minimum staffing levels. Finally, determine if collective bargaining agreements identify minimum staffing levels.

- Factor in leave usage (discretionary and unscheduled) staffing levels on each shift. Discretionary, or scheduled leave, should be balanced across the entire year to spread the exposure evenly and increase the consistency of staffing levels. Unscheduled leave (sick leave, disability leave, FMLA) should be viewed historically, identifying trends and average leave usage year-to-year. The mean unscheduled leave usage should be factored into the leave numbers to identify what additional leave factor should be calculated. Finally, by determining the total scheduled leave and unscheduled factor into the shift, scheduling can inform the proper number of employees to assign to a shift, thereby managing overtime exposure to the extent possible.
- Determine retirement eligibility for each member of the department on shift to anticipate large groups of turnover, which helps determine whether a recruit class will need to be hired or individual firefighters will need to be brought in. Asking retirement-eligible members to provide an informal, nonbinding expression of their intent should become a routine annual process, not one fraught with concern over being viewed as encouragement to retire. If done routinely and annually, everyone will know it is not an attempt to cause retirements, but an effort to plan ahead.

Pasco Fire Department Status: All three of these elements are in place at PFD. A staffing formula has been created and used to justify a SAFER grant for staffing increases in anticipation of the new Station 85. To maintain the minimum shift strength of 19 personnel on duty, 24.3 persons are needed to be assigned for each shift. This covers all types of leave except catastrophic leave. PFD administration routinely asks personnel to volunteer information regarding their intent to retire so that the department can lean forward in anticipation of the need for a recruit school.

APPARATUS & EQUIPMENT

Fire department apparatus must be reliably operated when a response is called for 100 percent of the time without fail. This requires a high level of maintenance and assurance that each unit will operate as intended every time. As can be appreciated, this is an expensive endeavor. NFPA 1911: *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles* provides guidance for the effective lifespan of apparatus that calls for apparatus to be maintained in front line service for no more than 15 years and should not be kept in reserve status for more than an additional ten years. According to Annex D of this standard, "Apparatus that were not manufactured to the applicable NFPA fire apparatus standards or that are over 25 years old should be replaced." Annex D of these standards should be adhered to as they relate to replacement schedules (or refurbishment) for heavy fire apparatus (engines, tenders, and ladder trucks). Lighter duty response vehicles, such as brush units, medic units, or support vehicles, are not required to meet the replacement criteria in Annex D.

Funding a replacement schedule is also key to an effective replacement plan. It provides little value to know when a unit must be replaced when there are no funds available to replace it. Therefore, a policy decision must be made. Are funds set aside from the fire department budget or the city general fund each year to adequately implement the replacement schedule as apparatus and equipment reach the end of their useful life? Does the agency intend to bond/finance the replacement of a large portion of the fleet? If so, can it or should it coincide with facility needs? A written policy should be in place to guide replacement, funding, and criteria used.

Anticipating the need for new types of apparatus is also key to effective apparatus and equipment planning. Knowing when such apparatus should be added to the fleet and how it will be staffed is critical. The Washington Surveying and Rating Bureau (WSRB) grading criteria is an excellent resource in this regard. Within the grading schedule of the WSRB, deficiency points are assigned for gaps in capability. The greater the need for certain apparatus, the more deficiency points are assigned. This can contribute to a decline in rating and, ultimately, an increase in commercial insurance premiums for businesses in the community.

Pasco Fire Department Status: The Pasco Fire Department has an apparatus replacement schedule in place. No policy is in place to formally replace apparatus according to the schedule, but the plan is adjusted based on replacement age. Expensive small equipment is also identified in a replacement plan. If funds are not available, replacement is pushed out. Currently, apparatus at Pasco Fire Department is newer and in very good condition.

FACILITIES

By using the results of the staffing and apparatus planning, an assessment of the facilities and their ability to handle any growth in those areas is an important step in planning consideration. Facility condition is another important factor, especially when the facilities are considered a critical infrastructure that helps ensure community resiliency after a disaster. Seismic upgrades should be considered when conducting a remodel or addition to an existing building.

Older stations do not always accommodate newer fire apparatus, so careful evaluation of width, height at the bay doors, the angle of departure onto the ramp, and depth into the bay should be considered. In addition to crew quarters, ADA accessibility, apparatus size, LEED building certification, and general condition of the stations, heavy maintenance should be considered. This includes HVAC system maintenance, roof analysis and repair, ramp concrete crack or pothole repair, energy efficiency audits, and bay drains.

New facilities should be planned for in response to Community Growth Planning (Comprehensive Plan and Master Plan). GIS mapping of travel times to proposed annexation areas or added thoroughfares will help identify proper locations for future fire stations. Securing land for such eventuality is less expensive when done before development occurs. The land can sit vacant until such time as call volumes begin to warrant the construction of a new station. Generally, call volume growth should be a primary trigger point for action. Triggering construction of a new station should be a year ahead of the demand threshold. New apparatus for a new station should also be ordered a year in advance. Finally, new personnel needed to staff new facilities should be hired in advance so that their training is complete and they are ready for assignment to shift work at a time coinciding with the opening of the new station and staffing the new apparatus.

Pasco Fire Department Status: This master plan and the City Comprehensive Plan are serving this purpose.

Financial Planning

Planning is crucial to funding for any planned needs, whether staffing (ongoing cost), apparatus and equipment (periodic), or facilities (infrequent). A Fire Chief who invests in detailed planning and partners with allied departments or agencies makes the need easy to identify. Collaborating with the Finance Director is key.

Developing the expense side of the financial plan is fairly straightforward but can be tedious. Staging the expenses so that the spikes and dips are limited can be an art form. Developing strategies to generate the revenue necessary to fund these new or added expenses normally consists of choices with which elected officials must grapple. If the financial plan for the fire department is thorough and well thought out, complete with details, contingencies, and predictable consequences for failure to act, the Fire Chief has significantly increased the likelihood that the elected officials will seek ways to fund the plans.

An industry best practice is to include the fire department's needs (indeed, all of public safety) in the city capital facilities plan and financial projections (revenue and expense) through the life of the plan. This helps the agency prepare for foreseeable growth challenges and identifies contingencies in the event funding mechanisms fail to adequately deliver. Establishing a healthy emergency reserve fund also hedges against unforeseen fiscal calamities, such as a deep recession.

Pasco Fire Department Status: The Pasco Fire Department develops proposed budgets for the two-fiscal years ahead. This is done with City Council guidance, City Manager direction, and Finance Director assistance. Proposed discretionary expenses may be presented to the City Manager and/or City Council as a decision package.

Succession Planning

The fire service nationally has been slow to address or implement succession planning in its fire departments. In the private sector, succession planning is expected where the knowledge, skills, and abilities of the Chief Executive Officer are critical to the success of the organization. It is equally true in the public sector. The following are key steps to developing a succession plan:

- Identify the agency's critical positions, functions, skills, processes, and systems
- Develop a list of critical success factors
- Identify past, current, and expected levels of performance
- Identify and categorize gaps (urgency, gravity, short-, medium-, or long-term)
- Develop an ideal candidate profile (given the results listed above)
- Determine if an internal candidate(s) has the potential to meet the criteria
- Develop a mentoring plan

It is important that the incumbent CEO (or other position) buys into the plan unless the organization intends to diverge from the current path. If a new path is desired, a member of the policymakers or an outside "loaned executive" may be required to act as a coach/mentor for an internal successor. It is also critical that the potential successor is informed whether ascension to the CEO position is a fait accompli or if candidates must compete.

Pasco Fire Department Status: Work between the Fire Chief and the City Manager has resulted in an effort to provide succession options in the event the Fire Chief vacates the position. The department has two Deputy Chiefs managing emergency operations and administration, respectively. Developing these two incumbents and exposing them to the executive's role in managing the fire department provides city leadership with the opportunity to evaluate potential replacements for the Fire Chief.

Recommendations:

- Develop a formal succession plan for the Fire Chief position.
- Consider extending the succession plan to include other leadership/supervisory positions in the department.

Organizational Work Planning

An organizational work plan is essentially a strategic plan. The strategic planning process results in a three-to-five-year work plan, intended to guide the work effort of the entire organization toward a common set of goals and objectives. The process includes representation from every major interest group in the organization. Each person in the department should feel that their interests are represented by someone in attendance on the planning team.

Typically, all members of the department are invited to submit responses to an electronic survey, which includes their individual, anonymous feedback on a SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis well in advance of a planning workshop. Each member completes the survey, with the results (summarized) are shared with the planning team prior to their work beginning.

If external stakeholders are given an opportunity to provide feedback (preferred), citizens are provided with an opportunity to participate in a facilitated session. This facilitated citizen forum should solicit their expectations of the fire department. The results of this forum are shared with the internal planning team to ground the participants in meeting the community's needs.

A planning meeting should then be convened to identify and develop the following elements:

- Mission, Vision, and Values
- SWOT Analysis trends
- Strategic Initiatives
- Goals and Objectives
- Timelines
- Personnel responsible for follow-through

It is important to avoid front-loading the timelines for completion of individual goals and objectives in the plan. Instead, the timelines should maintain a relatively balanced workload over the life of the plan. The plan, once adopted, must be briefed to all personnel and regularly reviewed for progress. Momentum must be maintained during the life of the plan, and the plan should be updated annually to keep it contemporary.

Pasco Fire Department Status: PFD has a current strategic plan in place and has demonstrated a commitment to this type of planning. The 2020 strategic plan just adopted replaces the 2017 strategic plan. As a five-year plan, PFD is to be lauded for its commitment to completing the plan early.

Airport Impacts

The Tri-Cities Airport (PSC) is the largest airport in the Southeastern Washington and Northeastern Oregon region and the fourth largest air carrier airport in the State of Washington. Enplanements have continued to grow, exceeding 400,000 in 2019. In 2020, PSC ranked 174th nationally in total enplanements with 210,681.¹³ While the enplanements sharply receded in 2020 starting in March, it was undoubtedly due to the COVID-19 pandemic, travel restrictions, and traveler hesitancy. In 2021, the enplanements have increased sharply to 314,381,¹⁴ but continue to lag behind pre-pandemic levels. There is every reason to believe enplanements will continue to grow at levels that meet or exceed pre-pandemic levels in 2022.

A historical view of passenger enplanements since 2006 is provided in the following figure, clearly showing the pandemic impact and the beginning of recovery.

Figure 52: Tri-Cities Airport Passenger Enplanements, 2006–2021



While the COVID-19 pandemic has clearly impacted numerous industries throughout the United States, and passenger air carriers significantly so, signs point to the expansion of airport activity at PSC. Indeed, the PSC Master Plan published in June 2020 forecasts enplanements to grow to 592,000 by 2032.¹⁵ A new airline (Avelo) started service from Pasco to Burbank, California, in April 2021. Avelo joins Allegiant, Delta, Alaska, and United to serve the airport and a sizable swath of the Western and Midwest regions of the United States.

Air cargo volume, however, is expected to decline through 2037 following the construction of logistics centers at the intersection of Interstates 82 and 84 near Hermiston, Oregon.¹⁶

¹³ FAA, Enplanements at Primary Airports (Rank Order) CY00, ACAIS (Air Carrier Activity Information System).

¹⁴ <https://www.flytricity.com/grow/airport-statistics>, obtained 5-31-2022.

¹⁵ Tri-Cities Airport PSC Master Plan 2020; accessed May 4, 2021.

¹⁶ Ibid.

PSC occupies 2,335 acres. Terminal improvements totaling \$41.9 million were initiated in 2014 and completed in 2017. The project resulted in the expansion of the boarding concourse and restaurant, increased space for security screenings, and updated ticketing and baggage areas. The size of the terminal was expanded to 110,000 square feet.

There are adjustments to taxiways being proposed within the PSC Master Plan, but none of the proposed improvements appear to have an effect on ARFF access to the apron, runways, or the terminal.

The City of Pasco and the Port of Pasco have entered into a 50-year interlocal agreement for the City to provide ARFF (Aircraft Rescue and Firefighting). Terms of the most recent iteration of the agreement prescribes each signatory's responsibility. Key elements of the agreement include:

- Port will provide full access to the airport fire station to the City.
- City will provide ARFF services.
- City provides equipment for firefighting, EMS, and hazardous materials.
- Port provides ARFF equipment.
- Shared payment of utilities, facility maintenance, training costs, and inspection services.
- Requirements for staffing and minimum skills qualifications.
- Port designates the City Fire Chief to be the Airport Fire Chief.

In consideration of the services provided by the City to the Port, the Port provided the fire station and pays the City the actual cost to maintain two firefighters per shift dedicated to the airport. There are additional incidental expenses agreed to, some of which are currently being explored for modification.

While ARFF services are required for airport operations, there are benefits to collocating ARFF, EMS, and fire services in an on-site facility. For the airport, collocation offers more emergency resources within a shorter response time. For the department, PFD personnel can gain insights that are critical to deconflict airport procedures during firefighting operations. For both the Port and City, there are cost-sharing benefits. Requests for ARFF services and response activity at the airport have remained relatively flat.

Adequacy of Current ARFF Response Capability at Tri-Cities Airport (PSC)

The ARFF facility is southwest of the passenger terminal building of the airport. The dual-use facility allows firefighters to serve PSC and the surrounding community. This is accomplished with three bays opening onto the airfield, and three bays opening onto the city street. Six PFD firefighters staff the ARFF station 24 hours a day. The facility has two ARFF dedicated trucks, each providing the necessary 500 pounds of dry-chem and 1,500 gallons of water required for an Index B response. The two ARFF units dedicated to the airport are a 2009 Oshkosh Stryker vehicle and a 1986 Oshkosh T1500. Due to its age, the latter serves as the backup vehicle.¹⁷

¹⁷ Tri-Cities Airport PSC Master Plan 2020; assessment of ARFF facilities and capabilities.

Fire hydrants are near the passenger terminal building, the Airport Control Tower Communications (ATCT), Station 82 (ARFF), and the Airport Business Park in the East Side Industrial Park. The City of Pasco Public Works Department operates and maintains the water system surrounding PSC on three sides: 24- and 36-inch water mains are adjacent to Road 36 west of PSC, an 18-inch water main is adjacent to Argent Road south of PSC, and a 12-inch water main is adjacent to Stearman Avenue east of PSC. A 12-inch water main extends into the passenger terminal area along 20th Avenue. Water pressure and fire flow rates within the area, as reported by the City Fire Marshal, are appropriate for the structures and are summarized in the following figure.

Figure 53: Hydrant Pressure & Fire Flow for PSC Commercial/Industrial Structures¹⁸

| Location | Static Pressure | Residual Pressure | Flow (GPM) | Flow at 20 psi (GPM) |
|----------------------------------|-----------------|-------------------|------------|----------------------|
| 3125 Rickenbacker Dr. | 92 | 80 | 1,300 | 3,420 |
| East End of Rickenbacker Dr. | 93 | 72 | 1,200 | 2,352 |
| NW Corner of Varney & Argent Rd. | 86 | 72 | 1,275 | 2,945 |
| 3406 Stearman Ave. | 80 | 67 | 1,190 | 2,718 |
| North end of Swallow Ave. | 84 | 62 | 1,160 | 2,065 |
| 4218 Stearman Ave. | 84 | 68 | 1,130 | 2,389 |
| Terminal Dr. northwest of FedEx | 94 | 82 | 1,250 | 3,339 |

Airport and PFD administrators describe a positive working relationship that is beneficial to both parties. A study of ARFF concluded that the Port and City are working together, and currently, the airport maintains all requirements for Federal Aviation Regulation (FAR) 139 in relation to the ARFF program.¹⁹ The Port of Pasco and the Pasco Fire Department have maintained an open dialogue throughout the life of the agreement. When interviewed for this report, the Deputy Chief of Operations for PFD stated that he would like to see more full-scale or tabletop exercises to ensure role clarification. The airport manager stated that payment of turnouts is an issue for which he would like further discussion. The port has also taken on annual ARFF vehicle pump and sodium bicarbonate testing and fluffing the Purple-K (a dry powder extinguishing agent). Both agencies speak highly of the other, with the airport manager expressing his belief that PFD is a sound ARFF agency that provides quality services.

PFD firefighters certified to perform aircraft rescue firefighting duties (National Fire Protection Association Standard 1003) must meet FAR 139 refresher burn requirements. Additionally, there are other knowledge and skill maintenance requirements in place to meet FAA regulations and job proficiency. They involve FAA rules and regulations, aircraft and airport familiarization, fire behavior, ARFF apparatus, PPE (Personal Protective Equipment), rescue and firefighting procedures, hazardous materials, incident command, and airfield communications. Practical skills include forcible entry and disentanglement; live fire truck operations; live wheel/brake; engine, galley, and cabin fires; and flammable liquids foam firefighting and tactics.

¹⁸ Ibid.

¹⁹ Aircraft Rescue Firefighting Study, SSI, Inc. and W.A.M.D.I. Aviation Consultants, LLC, 2013.

Current training of ARFF personnel is the responsibility of the PFD Training Officer. All ARFF personnel receive annual training that meets or exceeds FAR 139 and NFPA 1003: *Standard for Airport Fire Fighter Professional Qualifications*. PFD is the repository of training records. Initial ARFF certification training is conducted in house at Station 82. It involves 40 hours of basic ARFF training and live-fire burn exercises. Continuing education requirements involve in-house classes, a contractor delivering didactic ARFF specific training to PFD personnel on-site, and live fire burns using a contracted live fire training prop set up at the Pasco Airport.

It is beyond the capacity of any fire department to operate and maintain enough resources for every eventuality. For this reason, best practices are for fire and EMS agencies to enter into automatic and mutual aid agreements that are mutually beneficial to the participants. The City of Pasco maintains automatic and mutual aid agreements and contracts with other cities, fire districts, and the Tri-Cities Hazardous Materials Response Team for response to major incidents. FCEM (Franklin County Emergency Management) is responsible for coordinating, establishing, and maintaining the agreements and emergency response plans.

PSC Growth Impacts on PFD

Even with continued increases in aircraft activity, the analysis showed that Pasco's airport runway configuration is expected to be adequate through the foreseeable future, as identified in the PSC master plan. The potential for extension of runway 12 exists, but in the opinion of the airport manager, it is not likely. Nor is it likely that the airport will become Index C in the foreseeable future. While growth in utilization of the airport is expected to climb post-pandemic, none of the growth is expected to dramatically affect PFD in providing service to the airport, with the exception of a possible (but unlikely) increase to Index C.

PFD incident commanders and operations personnel need to have a working knowledge of the PSC Airport Emergency Plan (AEP). ARFF personnel require an in-depth understanding and should participate in regular (if not frequent) exercises of the AEP with scheduled tabletop exercises with airport management and their representatives.

Per the AEP, the Airport Director and Deputy Airport Director assume the role of agency administrator of incidents that occur on airport property. Customarily and appropriately, their presence at the airport is during regular business hours. Tri-Cities Airport law enforcement officers and ARFF personnel are the first responders for emergency incidents at the airport. This is true for times of scheduled commercial air operations, general aviation, and during the hours of non-scheduled airline activities. In this capacity, as first on the scene, and in keeping with the AEP and best practices, ARFF personnel would establish command of the incident or accident until rendered safe.

Recommendations:

- The Franklin County Emergency Management Plan should more specifically address risk at the airport.
- ARFF personnel, PFD, and PSC management staff should conduct tabletop exercises annually using the AEP for familiarization and role clarification.

Washington Surveying & Rating Bureau

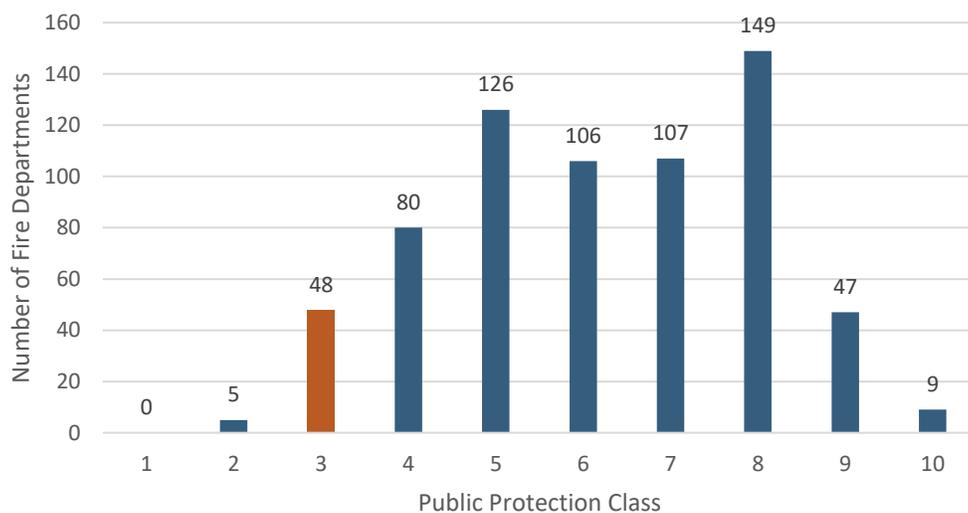
The Washington Surveying & Rating Bureau (WSRB), "...is an independent, not-for-profit organization operating in the public interest, and the criteria used to evaluate communities is approved by the Washington State Office of the Insurance Commissioner, the state's insurance regulator." The WSRB develops evaluations of community risks as it relates to property loss potential, resulting in a Public Protection Classification. The primary purpose of these evaluations is to provide insurance companies with a better understanding of property risk from fire and natural disasters. In addition, the intent is to help insurance consumers feel confident that their fire insurance premiums are fair. It also helps communities understand how they can improve their fire-defense capabilities and building code effectiveness.

There are four main areas the evaluation concentrates on. They include:

- **Fire department** (40% of rating) includes station distribution, staffing levels, equipment, and personnel training.
- **Water supply** (35% of rating) includes water flow capacity, fire hydrant location, and maintenance.
- **Emergency communications system** (16% of rating) includes dispatching system, staffing, and training.
- **Fire safety control** (9% of rating) includes fire code and building code enforcement, fire investigations, and public fire education programs.

The evaluation is conducted using a criteria schedule with point values assigned for consistency. To earn full credit for an item, a community must meet the criteria described in the schedule. If the community does not meet all the requirements, credit is deducted, depending on the importance of the item and the degree of deviation. Through this rating, each community is rated on a scale of 1 through 10, where 1 indicates exemplary fire protection capabilities, and 10 indicates the capabilities, if any, are insufficient for insurance credit. In other words, the lower the rating, the better the protection, resulting in lower insurance premiums for properties protected in the community. The following figure indicates the number of fire departments in the State of Washington with each Public Protection Class, including Pasco's Class 3 (in red).

Figure 54: Number of Washington State Fire Departments per Public Protection Class



WSRB & the Pasco Fire Department

PFD had received a Public Protection Class (PPC) 5 in 2015, with areas of deviation noted in each of the four major areas the WSRB evaluates. There were opportunities identified to improve in areas of the PPC that increased the likelihood of PFD receiving a Class 4 in its next rerate. The following specific areas represented opportunities for significant improvement:

- Continue conducting annual hydrant inspections, including operation and checking static pressure. Flow testing the system grids should occur every five years, which was not currently being performed.
- Positioning staffed fire apparatus in a strategic manner to extend an effective reach to the structures within the city. This preceded the 2016 master plan, which addressed this issue.
- Increasing the staffing on existing deployed fire apparatus. EMS units could be factored into overall staffing, depending on how often they were available to respond to fires.
- Continue conducting annual fire code inspections of commercial occupancies by certified fire code inspectors.

The resulting rerating, which occurred in 2018, resulted in a new Public Protection Class (PPC) 3. This is consistent with the PPC rating for Pasco's peer group as listed in the following figure.

Figure 55: Washington Surveying & Rating Bureau PPC Ratings for Comparable Agencies

| Pasco FD Comparable Agencies Benchmark Performance Data | | | | | | | |
|---------------------------------------------------------|------------------|-----------------------------------|----------------------------|----------------------------|--------------------------|----------------|----------------|
| Agency | Density Sq Mi | Incidents per 1,000 Pop. | Fires per 1,000 Pop. | Fire Loss Per Capita | EMS per 1,000 Pop. | Total Staff | WSRB Rating |
| Pasco FD | 2,056 | 80.34 | 3.5 | \$ 38.9 | 56.1 | 83 | 3 |
| Kennewick FD | 3,002 | 118.86 | 3.1 | \$ 28.5 | 83.9 | 98 | 3 |
| Bellingham FD | 1,910 | 205.45 | 5.0 | \$ 21.3 | 148.6 | 149 | 3 |
| Redmond FD | 1,553 | 151.60 | 2.0 | \$ 7.5 | 98.3 | 178 | 3 |
| Kirkland FD | 3,983 | 89.01 | 1.5 | \$ 15.4 | 60.0 | 112 | 3 |
| Yakima FD | 2,758 | 116.16 | 5.6 | \$ 45.4 | 79.7 | 99 | 3 |
| Richland FD | 1,408 | 122.92 | 4.0 | \$ 20.2 | 88.3 | 87 | 3 |
| Olympia FD | 2,552 | 237.95 | 6.0 | \$ 49.0 | 145.4 | 100 | 2 |

Protection Class Maintenance

Pasco Fire Department has met with the WSRB to understand the deficiencies noted in the 2018 rating process thoroughly. A plan has been developed to maintain or improve the most recent protection classification. Given that Pasco is at the upper range of the PPC 3 (2.92, rounded to three), it requires intention and a continuous improvement mindset to protect the current class 3 rating or even improve it. Further, the WSRB points out that if improvements are made to one category that outpaces the others, deficiency points are given. This method ensures that improvements are even across all four categories to the extent possible. The point system employed by the grading schedule is a deficiency point system with zero being the best score (100% credit).

Areas identified as being awarded less than 80% of the eligible credit are areas of deficiency that warrant focused evaluation. A cost-benefit analysis should be done for each of these areas. If the deficiency points to be reduced or eliminated in those circumstances are low relative to the cost of improvement, those areas may be intentionally set aside in favor of larger returns on the investment. Those areas awarded less than 80% of the eligible credit that warrant consideration are listed under each of the four areas of evaluation, which follows.

FIRE DEPARTMENT

- **Number of reserve ladder trucks.** One reserve is required for every five in service ladder trucks. PFD has two ladder trucks (1.5) and should have a reserve. This can be partially accomplished by an interlocal agreement with other agencies in the region to share a single reserve ladder truck. Twenty deficiency points can be eliminated (0% credit received).
- **Distribution of companies.** Structures should be within 1.5 road miles of an engine company and 2.5 road miles of a ladder truck. Automatic aid units are considered. Relocation of Station 83 and construction of Station 84 will improve this category (the station changes occurred after the last rating). Further, trigger points for future station construction when growth drives expansion are included in this master plan, thus, additional resources would be distributed once those triggers are reached. There are 107 deficiency points that can be eliminated (49% credit received).
- **Shift staffing.** Shift strength is slightly higher than the total number of personnel required to respond to a moderate risk structure fire (2,000 square foot, 2-story residence). Automatic aid companies can be included in the count, which improves the potential shift staffing levels. The addition of another company or two would raise the amount of credit received for shift strength day and night (see previous category). There are 117 deficiency points that can be eliminated (63% credit received).
- **Company training.** A minimum of 20 hours of structural firefighting training per firefighter per month is required, with reductions allowed in the number of hours based on the certification levels of firefighters. A concerted effort to increase training in structural firefighting hours per person per month or in certifying personnel to Firefighter II (reducing to 10 hours) will improve the credit awarded for training. This element is part of a group of elements that fit under the heading, "Training." There are 39 deficiency points that can be eliminated (57% credit received).
- **Pre-fire planning.** PFD has elements of a pre-fire planning process, but it is not complete and is not formal. Adopt and implement the NFA Quick Action Plan process as an agency or develop a formal pre-fire planning process for buildings or infrastructure that poses an unusual hazard consistent with NFPA 1620. While there are only 5 deficiency points that can be eliminated, this is an important program to implement and is a recommendation in the body of this report.
- **Fire operations.** This score is an average of the percentages awarded for shift staffing, engine and ladder company unit staffing, and training. Implementation of improvements in these areas will improve the score in this category. There are 104 deficiency points that can be eliminated (68% credit received).
- **Fuel.** Fuel must be available in sufficient quantities at fire stations. Suitable arrangements must be made for the delivery of fuel to apparatus at fires of long duration. Installing fueling supply capabilities at a central location(s) with 24/7 access to the city fleet is beneficial to the entire city, and establishing a mobile fuel supply capability, possibly with Public Works, also addresses this issue. There are 17 deficiency points that can be eliminated (15% credit received).

WATER SUPPLY

- **Hydrants – inspection and condition.** Hydrant inspections must occur annually, including proper operation. Flow tests must be conducted every five years. Hydrants should be marked for available flow and accessible. Incomplete records caused deficiency points in this area. The Pasco Water Department has begun tracking hydrant inspections on the Cartegraph System, which was not complete as of the last rating process. There are 26 deficiency points that can be eliminated (74% credit received).
- **Arrangement and operation.** Water system components should be distributed, tested, and maintained with redundancies in place as appropriate. Backup power was being tested monthly, but the WSRB requires weekly testing. Implementation of weekly testing of backup power should be performed and documented. There are 56 deficiency points that can be eliminated (44% credit received).

EMERGENCY COMMUNICATION

- **Security.** Communication center security includes restricted access, security of doors and windows, and the vulnerability of the areas surrounding the center. Concern was expressed about the security of staff and equipment, such as a lack of bulletproof windows. Discussion with SECOMM to encourage hardening of the facility would address this issue. This program is outside of Pasco's direct control, but this element received 50% credit.
- **Dispatch circuits.** The communication center must have separate primary and secondary dispatch circuits for transmitting alarms. Maximum credit is obtained when dual circuits are provided, circuits are supervised, there is an automatic switchover to a secondary circuit, and all components of the system are owned by the communications center. The secondary circuit that is employed is through IP (internet protocol), which sends dispatch information through internet-enabled station printers. This IP circuit is not owned by the communications center. Efforts should be made to develop a truly independent secondary dispatch circuit. This element received no credit.
- **Number of telecommunicators on duty.** The number of required telecommunicators on duty is based on the total number of calls received per year at the communication center. If the communication center is meeting the call-answering and dispatching times set forth by *NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, then full credit will be applied to this item. Based upon 2018 total call volume data provided by SECOMM, there should be 11 dispatchers and 1 supervisor on duty at all times (currently, there are 8 dispatchers and 1 supervisor on duty). This element received 56% credit.

FIRE SAFETY CONTROL

- **Fire Plan Review.** Review of plans for fire code compliance must be done by experienced, certified personnel. The plan reviewer shall have 5 or more years of plan review experience, be a registered design professional (licensed professional engineer), and receive at least 16 hours of plan review-related continuing education per year. The plan review department needs to have adequate staffing to ensure comprehensive plan reviews. The City of Pasco is meeting this requirement except for "adequate staffing to ensure comprehensive plan reviews." The City currently has 1 full-time fire plan reviewer. It is recommended that an additional fire plan reviewer be hired. There are 15 deficiency points that can be eliminated (70% credit received).

- **Inspection of fire code permits.** New and renovated occupancies requiring a fire code permit must be inspected prior to issuing a Certificate of Occupancy. Fire inspectors shall be certified with 5 or more years of experience in inspections and receive at least 16 hours of fire inspection-related continuing education per year. Adequate department staffing levels must be maintained to ensure comprehensive inspections. The City of Pasco is meeting this requirement with the exception of, "...adequate staffing to ensure comprehensive plan reviews." The City currently has 1 full-time and 1 contracted Plans Examiner, 1 full-time and 2–3 part-time building inspector contractors, 5 code enforcement officers, 2 permit technicians, and 1 fire-safety inspector. It is recommended that the City hire an additional building inspector to conduct 8–10 inspections per day. There are 13 deficiency points that can be eliminated (74% credit received).
- **Fire code inspections of existing occupancies.** Fire Code Inspections of existing occupancies shall be conducted. The frequency of inspections will be evaluated using Table 7 in the Protection Class Grading Schedule (currently the City inspects high hazard occupancies annually, and medium hazard occupancies every two years. Low hazard occupancies are not regularly inspected.) Fire code inspectors should be certified with 5 or more years of experience and receive a minimum of 16 hours of fire inspection-related continuing education per year. Staffing levels must be sufficient to ensure comprehensive inspections. Fire code inspectors must have 5 years of experience and receive 16 hours of continuing education per year. The City of Pasco is meeting this requirement except for years of experience. This problem remedies itself with time if employees are retained. There are 272 deficiency points that can be eliminated (32% credit received).
- **School & Adult programs.** School programs should include age-appropriate subjects for all students, preschool to the 12th grade. Adult education should include programs for all segments of the adult population in the community. The Pasco Fire Department is meeting this requirement except for years of experience. This problem remedies itself with time if employees are retained. There are 20 deficiency points that can be eliminated for the two programs (60% credit received for each of the two programs).
- **Fire investigations.** Fire investigations must be done to determine the cause and origin of all fires. Fire investigator shall have 5 or more years of experience, be a commissioned law officer, be certified as a fire investigator, and receive at least 16 hours of fire-investigation-related continuing education per year. In addition, sufficient staff levels are required to ensure adequate response to fires, and all fires should be reported to NFIRS. All reported fires within the City of Pasco are investigated at the company officer level as required by law. Those fires (such as structural) that meet damage or occupancy criteria are investigated by certified fire investigators within the fire department. The WSRB requires all fires to be investigated by a fire investigator. Negotiations are on-going to change these criteria. The Pasco Fire department is meeting this requirement except for years of experience. This problem remedies itself with time if employees are retained. There are 10 deficiency points that can be eliminated (50% credit received).
- **Building code enforcement.** Current building codes must be adopted and effectively enforced. The score for this item is based on the current Building Code Class of the community. For the WSRB to consider that building codes are effectively enforced, the City must be able to provide at least 1 full-time Fire Safety Inspector per 1,000 buildings that fall within the moderate to high hazard classification. The City needs to add 1 full-time code enforcement officer. There are 12 points available to gain. There are 12 deficiency points that can be eliminated (70% credit received).

Recommendations:

- Validate likely deficiency points eliminated for each element being considered with WSRB; discuss a plan to improve in these areas.
- Develop a budget and timelines for implementation of Protection Class Maintenance elements listed in this section.

Fiscal Review of Current Conditions

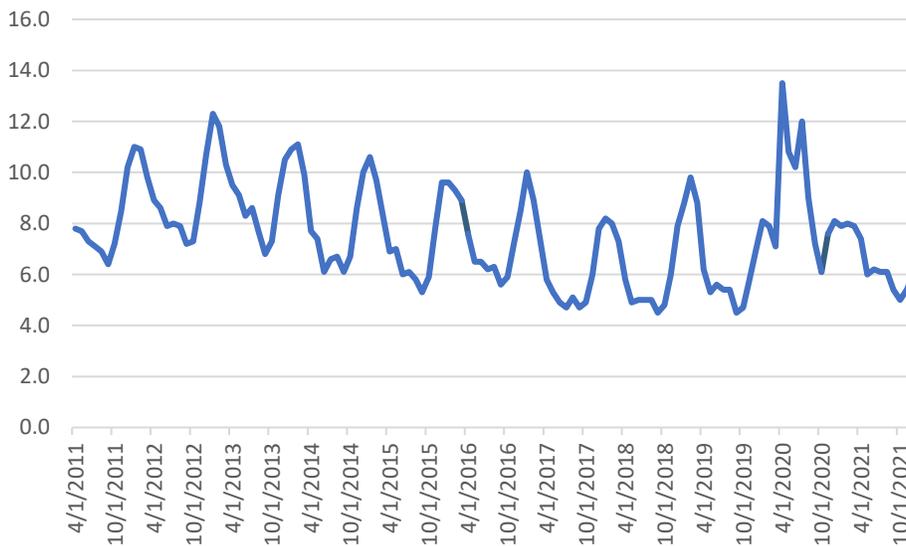
This section addresses the financial circumstances that directly bear on the level of service the Pasco Fire Department is able to provide. It starts with an overview of the City of Pasco fiscal position (the macro-economic climate), which includes all major City revenue streams. It then evaluates all Pasco Fire Department revenue streams and all major expenses of the fire department. This information is used to construct a projection of the funding position of the fire department as it relates to projected growth within the community.

City Economic Context

Economic data for Franklin County suggests the unemployment increases caused by the 2020–21 pandemic are in recovery; in some cases, making up for lost time (new construction). Economic activity, including levels of unemployment, home values, retail sales, and inflation trends are reflected in this subsection.

The following figure shows the trend in unemployment rates in Franklin County from April 2012 to April 2021. As shown, civilian unemployment is at its lowest level in August every year during this period (before the pandemic), with unemployment peaking to its highest level in around February of every year during this period (prior to the pandemic). This sawtooth pattern is consistent until the COVID-19 pandemic locked down the economy nationally between mid-March 2020 and April 2021. The unemployment rate is trending downward. The cyclical nature of the unemployment trends are likely a result of the significant agricultural (seasonal) employment in Franklin County.

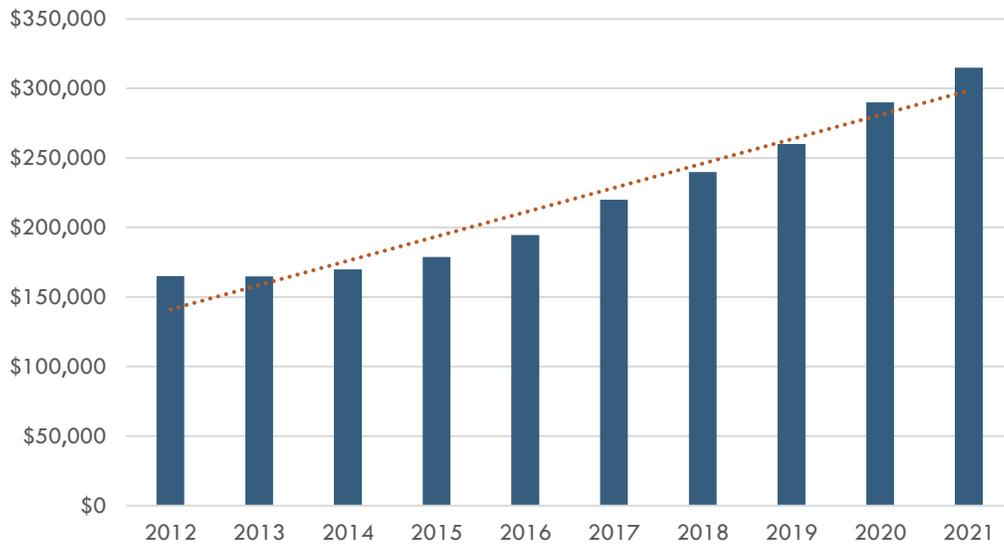
Figure 56: Franklin County Unemployment, Not Seasonally Adjusted, 2012–2021



Source: Federal Reserve Economic Data

In the following figure, median home sales are increasing at an impressive rate, nearly doubling in the ten years since 2011. The period during the COVID-19 pandemic has seen median home prices exceed the trendline over the last eleven years.

Figure 57: Franklin County Median Home Sales Price, 2012–2021

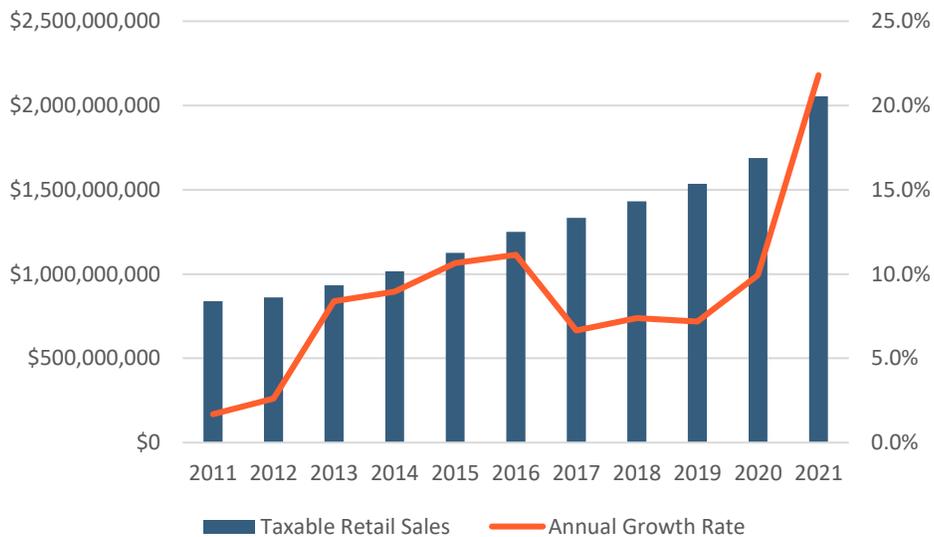


Source: GeoData Plus

The Washington State Department of Revenue compiles information on the taxable retail sales (TRS) in municipalities in the state. The relative amount of taxable retail sales is an indicator of the relative strength of the private sector in a community. The annual change in the level of TRS is an indicator of the trend in overall economic activity and tax base in the area. TRS data for the City of Pasco provides insight regarding the level of economic activity taking place.

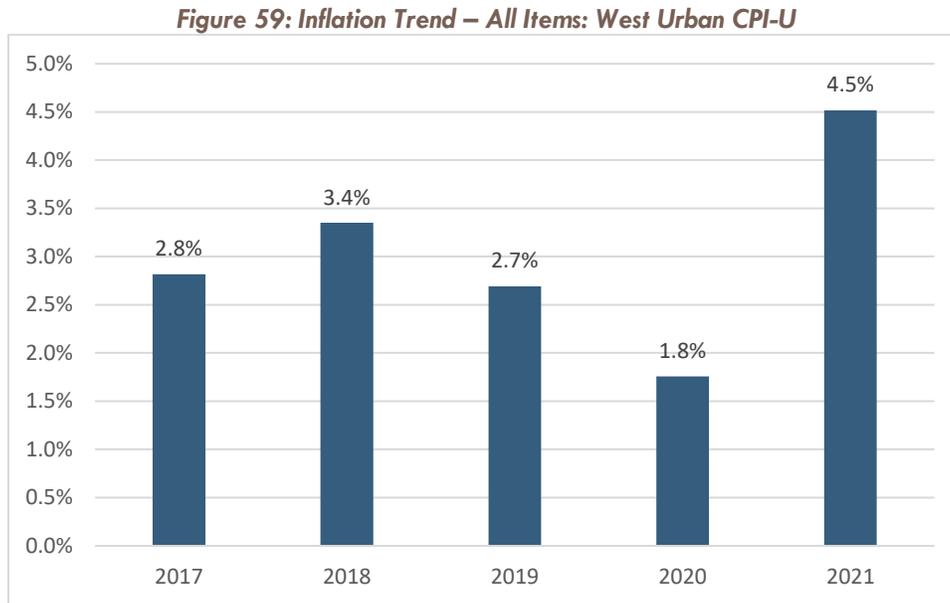
The next figure shows total TRS by full year between 2011–2021 (the most recent complete data available from the Washington Department of Revenue). The TRS grew in 2021 by 21.77% over 2020, which is the largest percent of year-over-year growth in the eleven year evaluation period.

Figure 58: Pasco Taxable Retail Sales & Annual Growth Rate



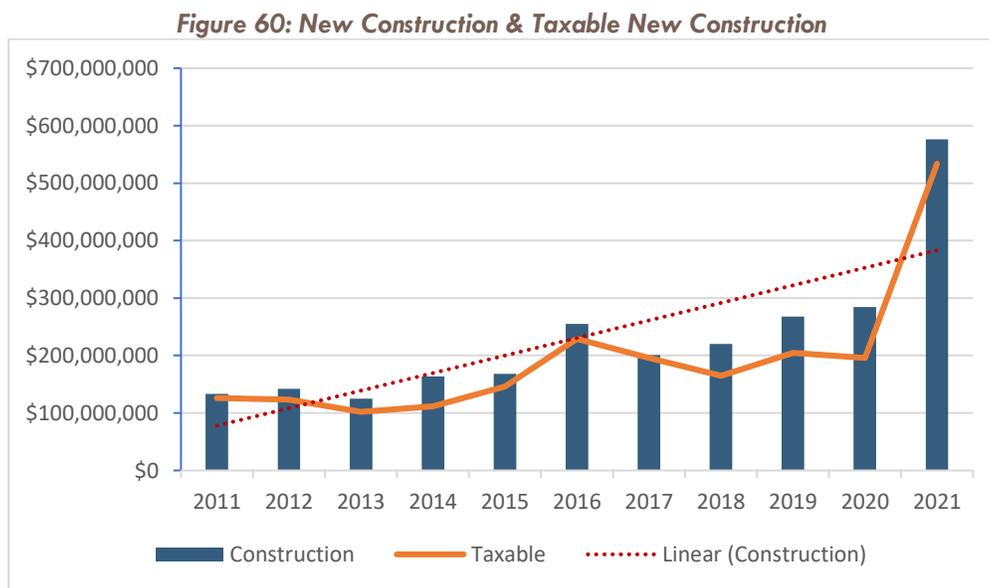
Source: Washington State Department of Revenue

The next figure shows the recent trend in the West Region Urban Consumer Price Index for All Urban Consumers (CPI-U). As shown, the annual inflation index has been positive for the period 2017–2021, with a significant increase in 2021 (which continues into the first half of 2022). The average annual inflation rate from 2017 through 2021 was 3.04 percent.



Source: U.S. Bureau of Labor Statistics

The following figure shows the new construction assessed value compared to the taxable new construction added to the property tax rolls. The new construction value in 2021 (\$575,943,281) has more than doubled since 2020 (\$284,637,685). The taxable value of new construction has even more significantly climbed over the same timeline (\$533,720,434 in 2021 and \$195,724,435 in 2020). From a fire department standpoint, all new construction, whether taxable or not, adds to the risk inventory of buildings to protect and increases call volume potential for the life of the buildings.



Historical Revenues and Expenses

The following is a review of historical revenues and expenses in the fire department to help identify relevant financial trends, strengths, and weaknesses, and to inform the financial footing of the PFD going forward. The historical review helps illustrate how PFD funds its services—where the money comes from and where it goes.

REVENUE TRENDS

The City of Pasco derives its revenue from the city general fund, which receives its revenue from a variety of sources, such as property taxes, sales taxes, and utility taxes. Pasco Fire Department further significantly augments revenue in the form of ambulance utility fees, the Ground Emergency Medical Transportation (GEMT) program, ambulance transport fees, and airport fire protection services contract funds. These combined PFD-specific revenue sources total \$12,165,790.48 for 2021, which is a slight decrease over the 2020 revenue, which was a five-year high.

The following figure provides information on revenues by type from 2016–2021 (actual).

Figure 61: PFD Associated Revenue

| Description | 2016 Actual | 2017 Actual | 2018 Actual | 2019 Actual | 2020 Actual | 2021 Actual |
|----------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|
| Amb Monthly Utility Fee | (3,534,388.44) | (4,088,643.37) | (4,504,961.47) | (5,104,589.51) | (5,404,705.01) | (5,518,349.29) |
| AR & Collection Interest | (2,202.40) | (1,461.48) | (2,878.59) | (570.64) | (798.63) | (1,015.99) |
| Capital Contribution (Cash) | | - | | | | |
| Co Fire Dist & Contract Amb Services | (26,097.68) | (26,449.98) | (28,599.26) | (29,377.97) | (28,299.10) | (29,820.78) |
| Donated Private Source Cash | | (9,100.00) | | | | |
| External Fire/Amb Training Recovery | (18,028.26) | (3,150.00) | (10,460.04) | (15,300.00) | (10,500.00) | (12,050.00) |
| Fed Direct DHHS- Dept of Health Human Svcs (O&M) | | | | | (40,235.88) | |
| Fed Indirect DHHS- Dept of Health & Human Services (O&M) | | - | | | | |
| Fed Indirect DOHS- Dept of Homeland Security (O&M) | | | (453,231.41) | (458,728.49) | (227,371.31) | (426,361.55) |
| Fed Indirect DOT- Depart of Treasury (O&M) | | | | | (1,678,052.73) | (914,474.51) |
| Fire Protect Service Airport | (642,059.00) | (750,441.69) | (761,034.92) | (866,797.51) | (906,126.00) | (937,612.08) |
| Fire Protection Service | (39,893.75) | (124,350.70) | (152,342.99) | (42,994.42) | (108,409.13) | (38,143.61) |
| GEMT Cost Recovery | | (1,093,185.00) | 1,093,185.00 | - | | |
| Ground Emergency Medical Transportation (GEMT) Discount | | | 993,564.89 | (248,512.91) | 560,916.20 | 935,183.35 |
| Ground Emergency Medical Transportation (GEMT) Payment Program | | | (2,116,400.00) | (2,002,394.91) | (4,524,842.19) | (3,241,129.00) |
| I/F Rescue Team Service | (14,000.00) | (21,356.22) | (14,000.00) | (15,400.00) | (16,016.00) | (16,016.00) |
| Insurance Recoveries-Capital Assets | | | | | (1,943.45) | |
| Insurance Recoveries-Personnel related | | | (936.24) | (4,771.90) | (45,341.06) | (11,112.75) |
| Internal Fire Training Recovery | | | | (1,000.00) | | |
| Investment Interest & FMV changes | | | | | | |
| Medicaid/DSHS Discounts | 514,976.81 | 534,348.94 | 515,838.19 | 571,820.77 | 250,258.89 | |
| Medicare Discounts | 265,601.99 | 317,079.43 | 309,326.73 | 436,229.87 | 736,408.71 | 1,078,162.04 |
| Mileage Fees | (156,499.51) | (153,317.15) | (152,788.34) | (162,710.45) | - | |
| Misc Amb Discounts | 11,640.40 | 17,118.58 | 11,999.06 | 12,302.74 | 13,669.43 | |
| Miscellaneous Rents | (4,623.33) | (39,508.63) | (38,433.85) | (36,523.73) | (24,316.68) | (7,447.86) |
| Miscellaneous Revenues Non Tax | | (25.00) | (5,150.00) | | | |
| Miscellaneous Revenues Taxable | | - | (25.00) | (150.00) | | (7,986.00) |
| NonTransport Med Service | (27,750.00) | (19,000.00) | (16,250.00) | (8,750.00) | - | |
| Private Contributions | (2,000.00) | | | | | |
| Refunds Reimbursement Rebates | | | (38,983.90) | (67,612.58) | (10,373.21) | (105,415.85) |
| State Grant- Dept of Health (O&M) | (1,290.00) | (1,270.00) | (1,222.00) | (1,266.00) | (1,260.00) | (1,260.00) |
| Transfer In Subsidy | (420,000.00) | (420,000.00) | (420,000.00) | (1,120,000.00) | (420,000.00) | (420,000.00) |
| Transport Fee - NonResident | (440,120.00) | (497,625.00) | (485,420.00) | (535,820.00) | 1,100.00 | |
| Transport Fee - Resident | (1,293,600.00) | (1,419,600.00) | (1,411,200.00) | (1,649,100.00) | (2,206,590.40) | (2,490,940.60) |
| Grand Total | (5,830,333.17) | (7,799,937.27) | (7,690,404.14) | (11,352,017.64) | (14,092,827.55) | (12,165,790.48) |

EXPENSE TRENDS

PFD’s largest operating expense is personnel costs, followed by supplies and services. The Fire Fund supports 38 personnel, while the Ambulance Fund supports 43.75 personnel, for a total of 81.75 personnel working at the Pasco Fire Department. When compared to revenue growth, PFD is offsetting a significant amount of its expenses with new or higher revenues over the course of the six-year period.

In 2021, personnel costs represented just over 70 percent of total budgeted operating expenses for the Pasco Fire Department. This is compared to the typical 80% of expenses attributable to personnel costs for full career fire departments across the state of Washington.

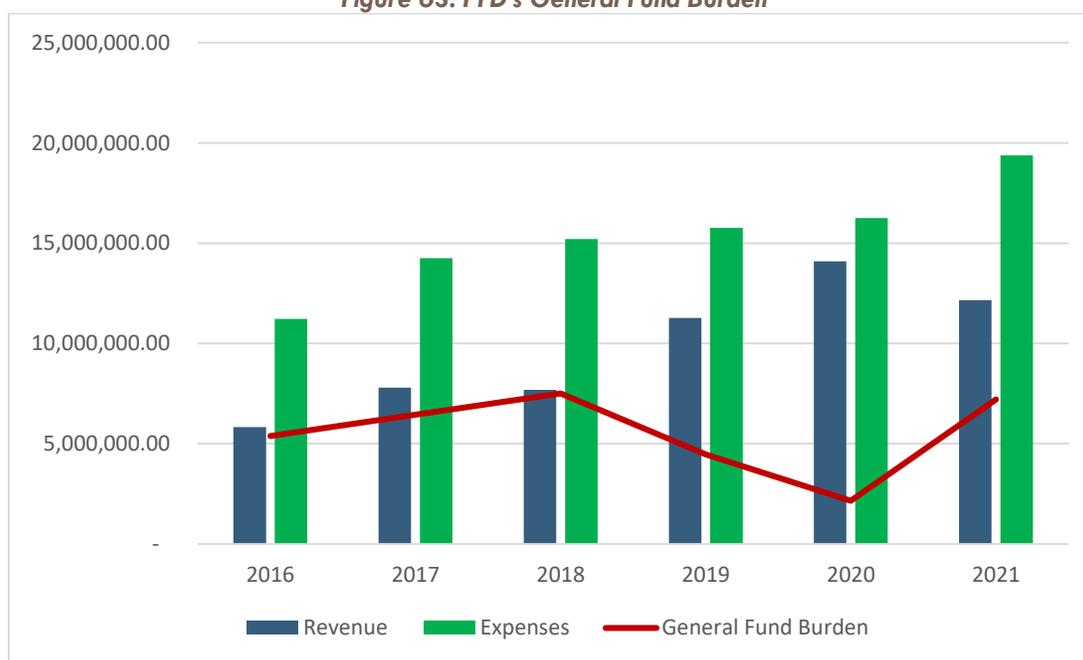
The following figure provides information on expenditures by type from 2016–2021 (actual).

Figure 62: PFD Associated Expenses

| Description | 2016 Actual | 2017 Actual | 2018 Actual | 2019 Actual | 2020 Actual | 2021 Actual |
|--------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| #51 - Wages, etc. | 6,866,142.96 | 7,720,316.47 | 9,105,269.68 | 9,479,239.97 | 9,889,731.42 | 10,639,131.44 |
| #52 - Benefits, etc. | 1,773,895.47 | 2,248,460.63 | 2,549,655.02 | 2,683,609.99 | 2,680,151.82 | 2,944,280.76 |
| #53 - Supplies, etc. | 409,077.44 | 562,630.72 | 505,877.98 | 494,067.73 | 537,340.33 | 779,491.45 |
| #54 - R&M, Services, etc. | 2,071,731.27 | 3,605,519.48 | 2,935,624.10 | 2,919,319.55 | 3,101,908.42 | 4,964,002.62 |
| #56 - Equipment, etc. | 97,775.47 | 118,353.11 | 69,386.71 | 131,793.44 | 44,651.25 | 47,313.89 |
| #57 - I/F Loan Principle Repay | | | | 2,000,000.00 | | |
| #58 - I/F Loan Interest Debt | | | 34,027.40 | 48,680.00 | | |
| #59 - I/F Loan Principle Repay | | | | (2,000,000.00) | | |
| Grand Total | 11,218,622.61 | 14,255,280.41 | 15,199,840.89 | 15,756,710.68 | 16,253,783.24 | 19,374,220.16 |

When deducting the revenue generated by PFD from its expenses, the remaining balance becomes the financial burden for the City of Pasco. The following figure illustrates the revenue offset from PFD’s expenses, with the City of Pasco shouldering the unfunded expense balance from the general fund. The trend shows a gradual growth in general fund reliance in 2016, 2017, and 2018, followed by a steady decline in reliance on the general fund in 2019 and 2020, then a significant increase in general fund reliance in 2021.

Figure 63: PFD’s General Fund Burden



In summary, the Pasco Fire Department has contributed a sizable share of the revenue it requires to operate. The City of Pasco will always be relied upon for general fund support, but PFD continues to leverage revenues it can generate to place a lighter burden on the city in general than might otherwise be required. Of course, if expenses go up disproportionately to the revenue PFD generates (as it has in 2021), the general fund burden becomes heavier for the city.

FUTURE SYSTEM DEMAND PROJECTIONS

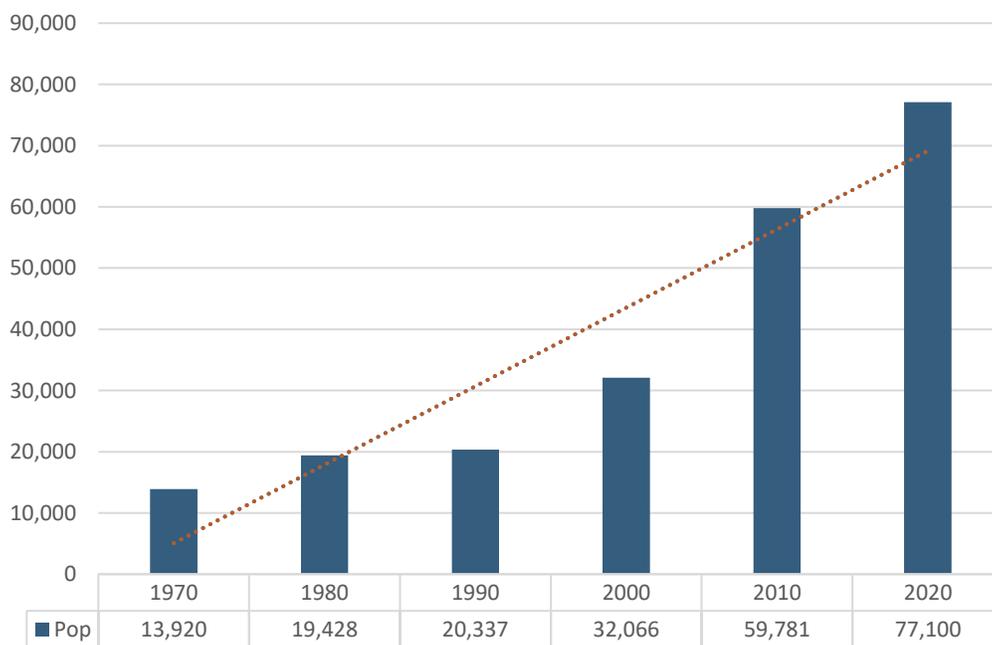
Since a roadmap for growth within the City of Pasco has been created in the Pasco Urban Growth Area & Comprehensive Plan – 2018–2038 Update (Comp Plan), the fire department and elected leaders have the information necessary to grow PFD’s resources wisely and incrementally to absorb the impact of community growth. PFD’s resource utilization is currently stretched (see Service Delivery & Performance section of this report), so growth will only exacerbate the challenges.

In the City of Pasco, recent history reflects a consistently high growth rate. The Urban Growth Area & Comprehensive Plan – 2018–2038 Update (Comp Plan) was adopted on October 5, 2020 by the Pasco City Council. The Comp Plan anticipates that Pasco will reach a population of 121,828 by the year 2038; the addition of almost 45,000 additional residents in the next eighteen years.

Population Growth History & Projection

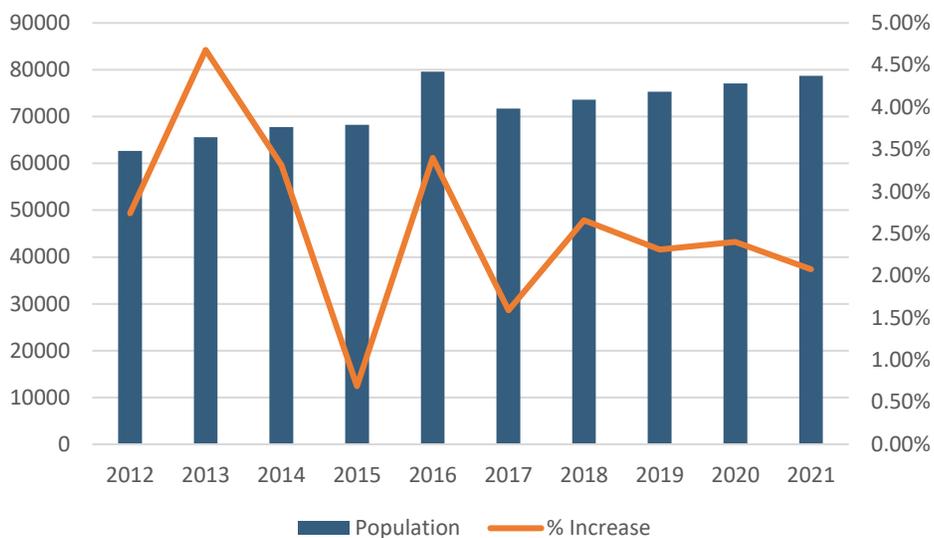
Recent history reflects a consistently high growth rate in the City of Pasco. The following figure reflects the decennial population growth over the last fifty years.

Figure 64: Pasco Decennial Population History, U.S. Census, 1970–2020 (50 years)



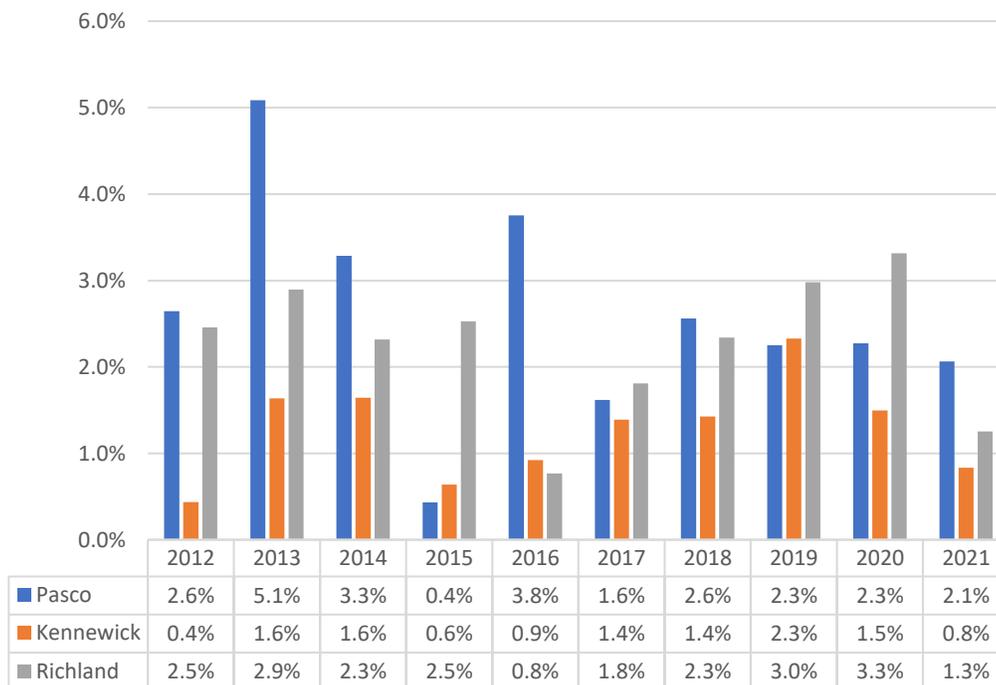
A closer look at each year in the last decade (2012–2021) reveals a steady progression of population growth continues. The following figure reflects Pasco’s annual population growth.

Figure 65: Pasco Annual Population History, OFM, 2012–2021



The year-over-year growth is steadily increasing, with an average annual growth rate of 2.59 percent. The city grew by over 25 percent over the last ten years. The rate of population growth throughout the Tri-Cities area is also growing, but Pasco’s growth rate exceeds the other two cities, as depicted in the following figure.

Figure 66: Tri-Cities Annual Population % Change by City, 2012–2021²⁰

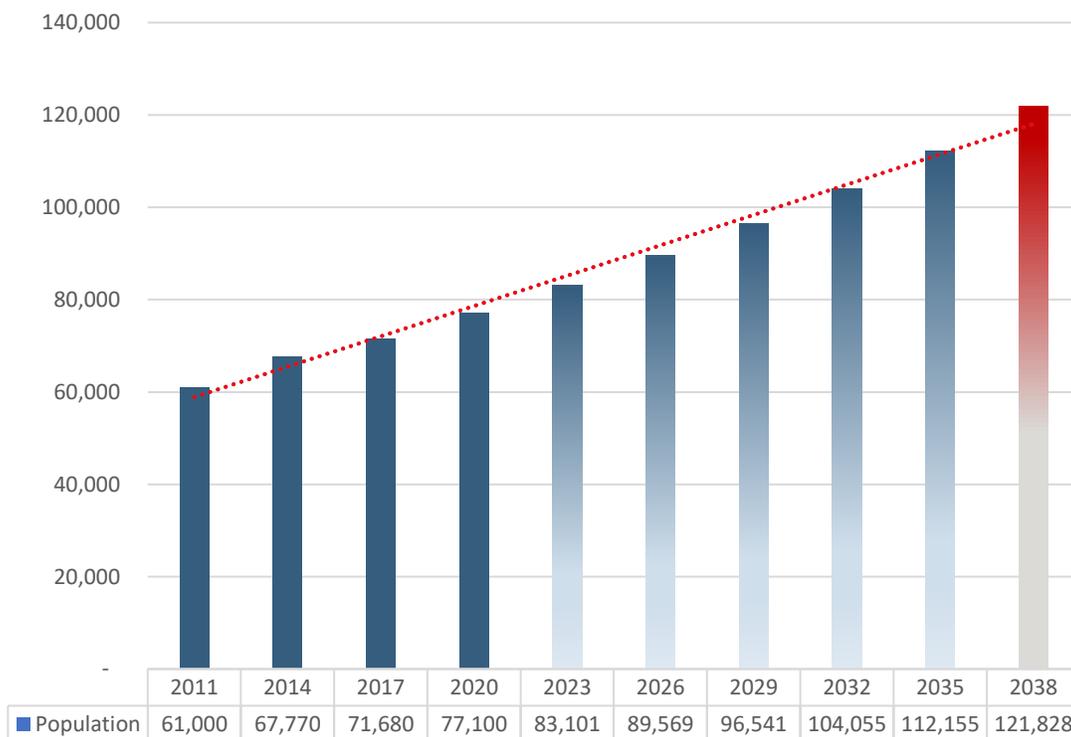


²⁰ https://ofm.wa.gov/sites/default/files/public/dataresearch/pop/april1/OFM_april1_intercensal_estimates_2010_2020. obtained 5-31-2021.

While Kennewick is larger by population than either of the other two cities that make up the Tri-Cities, Pasco (median annual growth rate of 2.59%) is rapidly catching up and its growth rate has been outpacing Kennewick (median annual growth rate of 1.3%) and Richland (median annual growth rate of 2.3%).

The Comp Plan anticipates that Pasco will reach a population of 121,828 by the year 2038; the addition of almost 45,000 additional residents in the next eighteen years. If the projected growth is linear, the following figure depicts an estimated progression of population using the last ten years and the projected 2038 population from the comprehensive plan in three-year increments. The incremental growth is based on the annual median growth over the last decade.

Figure 67: Pasco FD Service Area Population Projection, Through 2038



The above figure is a population projection in three-year increments. The solid blue bars are actual population numbers. The projections (2023–2035) are faded blue gradients. The final red gradient depicts the 2038 comprehensive plan estimate.

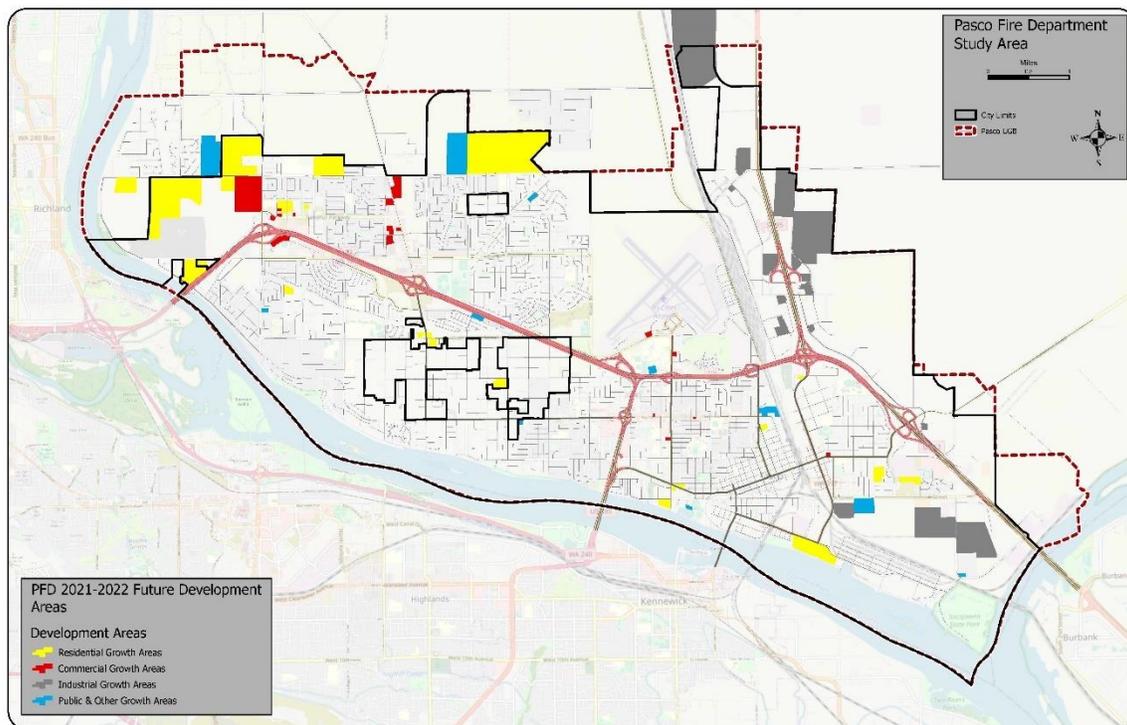
Comprehensive Plan and PFD

The amount of vacant or underutilized parcels within the city is insufficient to address this projected population growth. The vast majority of vacant or underutilized parcels are in west Pasco (south of Interstate I-182 and west of Highway 395), where remnant parcels are not at urban densities. One opportunity for Pasco is through the implementation of infill and redevelopment strategies. These strategies will allow either hard-to-develop parcels of land or existing structures to be updated or developed through changes in the zoning code.²¹

Even if the city maximized the use of vacant and underutilized parcels, the City of Pasco will need to accommodate an additional 17,866 city residents. This argues for the expansion of the urban growth boundaries of the City of Pasco to accommodate this additional population. If the urban growth boundaries are expanded to accommodate this projected new growth, it will also place an additional burden on direct service providers in the city, such as the Pasco Fire Department, to serve these new, more distant areas. Importantly, the Comp Plan also states that the transportation system in some areas is limited, with housing placed in the path of logical connections, impacting transportation access for fire and emergency responders.

The following figure depicts the projected future development areas in the City of Pasco.

Figure 68: Future Development in Pasco



The projected future development, according to the comprehensive plan, is concentrated primarily in the northwest corner of the city (commercial and residential) and on the east side (industrial). Additionally, an increasing amount of infill development is expected to occur throughout the city. Significant developments include the following.

²¹ Pasco Comprehensive Plan, Vol 2 – Supporting Analysis; Infill and Redevelopment, page 17. Accessed on 5-11-21.

- Affinity & Hydro at Broadmoor Apartments is a complex located at Burns Road and Rd 108. This multi-building facility includes 165,235 square feet of total building space, with 240 apartments and 170 senior living units. Only the 170 units are designated with an age restricted covenant. The other 240 units are unrestricted apartments.
- Reimann Industrial Park is the second industrial processing center for the Port of Pasco. The 300-acre park is located 1.9 miles north of the current Pasco Processing Center and 6.3 miles from Pasco Fire Departments closest station, Station 81 located at 310 North Oregon Ave.
- Darigold's new processing plant is located on 150 acres within the new Reimann Industrial Park. The 400,000 square foot plant will have 200 employees and indirectly add 1000 support services jobs to the area. The plant is scheduled to open in August 2023. Site specific hazards include confined spaces and large industrial equipment along with wastewater storage facilities.
- Columbia Shores Townhome development is located on Court Street and Harris Road. This project is still in review, so the following numbers are tentative:
 - Phase 1: 4/2022 - 4/2024, 106 townhouses + 3 single-family-detached homes
 - Phase 2: 1/2024 - 1/2026, 117 townhouses
 - Phase 3: 9/2025 - 9/2027, 125 townhouses
 - Phase 4: 6/2027 - 12/2029, 150 townhouses

Demographics

The largest racial or ethnic group in Pasco is Hispanic or Latino at 56%, followed by white alone (not Hispanic or Latino) at 37.2%, and a distant third is two or more races at 11.1%. This is important in that it underscores the need for members of the Pasco Fire Department to possess at least conversational Spanish speaking skills to interact with its residents in an emergency situation.

Ethnicity and population growth are not the only factors to consider when planning for future service provision. The effect of what is commonly referred to as the “silver tsunami,” a euphemism for baby boomers reaching retirement age, will likely exponentially increase demand for emergency medical services into the future.

As told by Dr. Thomas Gill of the Yale Center on Aging, “...by 2050, people over 65 will represent more than 20 percent of the [U.S.] population, up from 15 percent today. That shift may not sound significant, but it represents about 40 million additional Medicare-age patients flooding the already beleaguered U.S. healthcare system. This flood, the so-called ‘silver tsunami’ will be driven partially by advances in medicine that are helping people live longer, but also by the Baby Boomers, people born during the population spike after World War II who are reaching old age.”²²

The healthcare system in the United States is in flux and, depending upon its evolution, may have currently unforeseeable ramifications to pre-hospital care. However, the aging population, the growth of those over age 65 as a percent of the total population, and the increasing life expectancy all contribute to known, significant increases in demands for service.

²² Rx: The Quiet Revolution, What the ‘Silver Tsunami’ Means for U.S. Health Care: An Interview with Thomas Gill of the Yale Center on Aging. <https://rxfilm.org/problems/silver-tsunami-united-states-healthcare-thomas-gill-yale-center-on-aging-interview/> acquired from website 5-13-21.

A study conducted in North Carolina in 2010 evaluated the effect of an aging population on the pre-hospital EMS system as a predictor of future system demand. The salient point of the study is made in the abstract, which states, “Visits [to Emergency Departments] by individuals 65 years of age or older accounted for 14.7 percent of all visits and 38.3 percent of all EMS transports to the Emergency Department. For those patients aged 85 years and older, EMS was the most common mode of Emergency Department arrival (60.6%). We estimate that by 2030, total EMS transports to North Carolina Emergency Departments will increase by 47 percent. Patients 65 years of age and older are projected to account for 70 percent of this increase and to compose 49 percent of all EMS transports by 2030. The proportion of patients using EMS to reach North Carolina Emergency Departments increases steadily with age. By 2030, older patients will account for approximately half of EMS transports to North Carolina Emergency Departments.”²³

A similar study was conducted in Halifax, Canada, in 2015 and drew similar conclusions. Indeed, the abstract states, “We confirmed the increasingly high rate of EMS use with age to be consistent with other industrialized populations.”²⁴ Empirical evidence suggests that as society’s population ages, with baby boomers making up an increasing percentage of the total population, the EMS systems nationally will bear an increasing burden in EMS transportation. The large study in North Carolina (n = 2,743,221) is perhaps the best predictor of future EMS demand nationally. Given North Carolina’s findings, supported by studies in Halifax and observations by geriatric experts in the U.S., it is reasonable to expect that Pasco will experience similar growth in EMS demand by this demographic group.

In 2021, those residents of Pasco aged 65 or older represented 9.2 percent (7,240) of the population. By 2025, that same group is projected to represent 11.49 percent (9,961) of the population of Pasco.²⁵ If this trend continues, and there is no data to suggest otherwise, Pasco Fire Department will inevitably see the silver tsunami negatively impacting its service capability by driving the EMS call volume disproportionately higher as compared to other response types.

²³ Platts-Mills, Timothy F., et al. “Emergency Medical Services Use by the Elderly: Analysis of a Statewide Database.” *Prehospital Emergency Care*, vol. 14, no. 3, 2010, pp. 329–333., doi:10.3109/10903127.2010.481759.

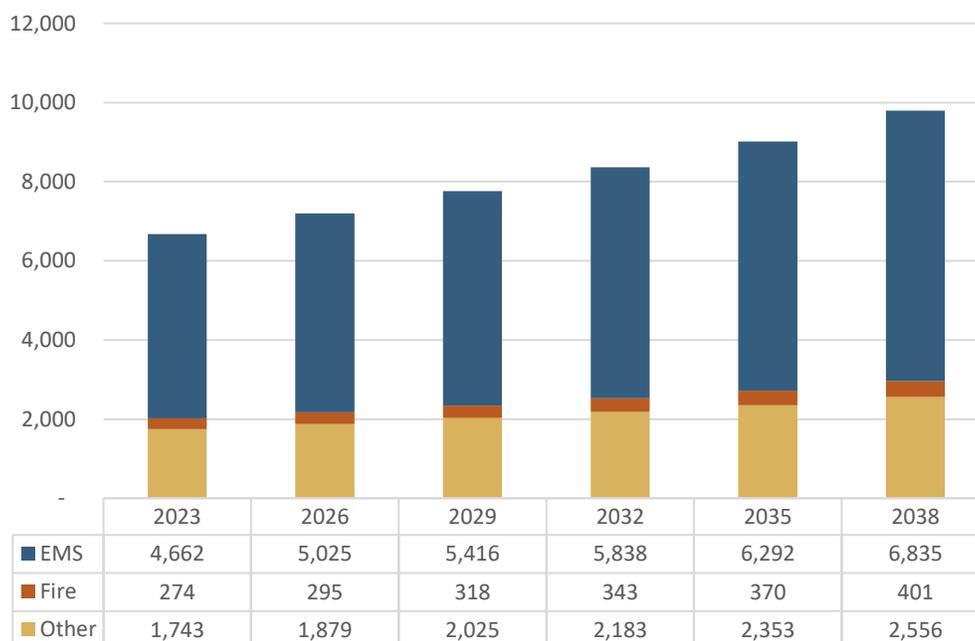
²⁴ Goldstein, Judah, et al. “The Epidemiology of Prehospital Emergency Responses for Older Adults in a Provincial EMS System.” *Cjem*, vol. 17, no. 5, 2015, pp. 491–496., doi:10.1017/cem.2015.20.

²⁵ Tri-City Development Council Demographics; acquired from website 6-09-2021.

Service Demand Projection

While the overall service area population had a median annual growth rate of nearly 2.6 percent over the last ten years (2012–2021), the median annual growth in service demand is 6.75 percent. In 2021, growth in demand was 18.53% higher than in 2020, which is an unprecedentedly increase. It remains to be seen whether this is an anomaly, a reflection of the pandemic, or a new normal. Based on the population growth identified in the previous paragraphs, PFD can expect to see service demand continue to increase. With 93.29 calls per 1,000 population in Pasco, a projection can be made according to the population estimate increases. The following figure illustrates the total call volume projections.

Figure 69: Projected Service Demand, 2023–2038



Fires (of all types) demonstrate the lowest rate of increase. This reflects a national trend and can be attributed to improvements in building codes and fire prevention over the last several decades. EMS is expected to continue to be the dominant factor affecting service demand. Other incidents (including alarm sounding and service calls) not involving actual fires or medical incidents are predicted to increase in part due to the use of automatic alarm systems and properly coded public assist calls.

While the projections follow a linear path of growth, community growth and its associated service demand rarely align with strict linear progression. However, it is reasonable to conclude that the path toward the Comp Plan population projection has a direct correlation to the growth in fire department service demand. PFD will remain challenged to keep up with increases in service demand as the city continues to grow.

FUTURE DELIVERY SYSTEM

Given the current conditions in which the Pasco Fire Department operates and the projections for services the Pasco Fire Department will be expected to provide in the future, this section concludes with strategies intended to place the organization in a position to serve its future demand and risk successfully. This section focuses on potential operational changes that provide the desired levels of service identified in the previous sections, with an emphasis on efficiency.

The recommendations contained in this report are significantly influenced by and consistent with the Pasco City Council budget goal for Community Safety, which is to “**Preserve past improvements and promote future gains.**” These recommendations are also informed by industry best practices and reflect a continuous improvement mindset.

Near-Term Improvements

This report has numerous recommendations which are intended to enhance the current practices of the Pasco Fire Department. The presence of these recommendations should not be construed to indicate that PFD has many problems. On the contrary, this agency was one of the top professional organizations this consultant has evaluated (115 agencies). The data the department maintains is excellent, and the practices are professional and skillful, despite facing explosive growth as a community and resources just now catching up to that growth.

The following is a summary of the near-term recommendations made within this report.

1. Establish a process to formally maintain the history of the PFD. (Org. Overview)
2. Review and update all regulatory documents on at least a three-year cycle. (Mgmt. Components)
3. Revise Pasco Policy on Response Performance Objectives to reflect actual full first alarm assignments to structure fires. (Service Delivery & Performance)
4. Analyze Unit Hour Utilization annually to ensure units and crews are not exceeding efficient and effective deployment (> 10% for engines and 25% for medic units). Conduct a deeper analysis into the causal factors for these units as they approach these thresholds and address, as appropriate. Consider 25% UHU for medic units as a trigger point to increase staffing of the sister engine company. (Service Delivery & Performance)
5. Update Resolution 2938 - Full First Alarm Assignment for moderate risk structure fires should increase to 17 personnel (includes an aerial apparatus) from the current 11. (Service Delivery & Performance)
6. Create a full-time training lieutenant assigned to the training division to increase the output potential of the training division by managing facilities, recruit school, the ARFF program, and driving greater consistency throughout the training division. This releases the half time lieutenant, currently shared with EMS, to be assigned full time to the EMS division. (Training Division)
7. Consider using a formulaic approach to quantifying risk and thereby prioritizing risks. (Community Risk Assessment & Reduction Program)
8. Review response data annually to identify emerging risk trends and modify the CRR plan accordingly. (Community Risk Assessment & Reduction Program)
9. Evolve CRR program toward a station-based risk reduction strategy, managing geographically distinct risks at the station officer level. (Community Risk Assessment & Reduction Program)

10. Establish and maintain a minimum staffing requirement for the haz-mat technicians. (HAZMAT Services Support and Response Capability)
11. Consider all the ramifications before agreeing to be the permit-required confined space rescue team of record to private industry. (Specialized Response Services)
12. Revise Resolution 2938 to reflect the current Mission Statement and adjust the response performance objectives to the 90th percentile. (Fire Department Planning)
13. Adopt and implement the NFA Quick Action Plan process as an agency. (Fire Department Planning)
 - a. Alternatively, develop a formal pre-fire planning process for buildings or infrastructure that poses an unusual hazard consistent with NFPA 1620.
14. Develop a formal succession plan for the Fire Chief position. (Fire Department Planning)
 - a. Consider extending the succession plan to include other leadership/supervisory positions in the department.
15. The Franklin County Emergency Management Plan should more specifically address risk at the airport. (Airport Impacts)
16. ARFF personnel, PFD, and PSC management staff should conduct tabletop exercises annually using the AEP for familiarization and role clarification. (Airport Impacts)
17. Consider transitioning to a tiered response EMS system, with engine company/first response units handling low acuity calls (Alpha, Bravo, and potentially some Charlie priorities), reserving medic units for high acuity, truly life-threatening call types (most Charlie, Delta, and Echo priorities). This may reduce pressure on maintaining the paramedic ranks and will require MPD buy-off. (EMS)
18. Acquire a Management Analyst or Data Analyst to routinely pull data for the EMS system, the PFD management system, and other PFD divisional needs to make sound management decisions based on quality, contemporary data. (EMS)
19. Assign the EMS Assistant to the EMS Division full-time, discontinuing a shared role with Training Division. (EMS)
20. Reduce the IT technician sharing burden for PFD. Consider splitting the position with one lower-demand department than is currently the practice. (EMS)
21. Integrate the Community Risk Assessment and update the Standards of Cover following the CFAI, Sixth Edition Handbook. (Fire Dept. Planning)
22. Research and identify a consistent mechanism to provide a flexible and easy-to-implement Spanish for emergency workers curriculum. (Staffing & Personnel)
23. Validate likely deficiency points eliminated for each element being considered with WSRB; discuss a plan to improve in these areas. (Washington Surveying & Rating Bureau)
24. Develop a budget and timelines for the implementation of Protection Class Maintenance elements listed in this section. (Washington Surveying & Rating Bureau)

Mid-Term Improvements

The mid-term strategies are progressive enhancements of the current conditions and net improvements to the status quo. They will likely require policy consideration and budget allocation. Where appropriate, trigger points are identified which should initiate implementation action.

Regional Training Manual

Fire department trainers use manuals based on national, state, and local standards as a resource to develop lesson plans for didactic and hands-on skills training. Training sessions provide firefighters with the knowledge, skills, and abilities to perform in emergency and non-emergency situations in an effective, efficient, and safe method. Recently, the Tri-Cities fire departments have discussed developing a training manual for adoption by all the agencies. With efforts being made to develop operational alignment between the agencies, there should be a single training manual for all fire agencies in Benton and Franklin counties.

Care should be exercised to prevent the development process from being drawn out or languishing on the back burner. To expedite the process, material from accredited existing model training manuals, hose evolutions, and standard operating guidelines, with modifications for local conditions, should be adopted as the foundation. Meeting to discuss any need for exceptions to that foundation, or carving out individual agency exceptions, should be the next step. Efforts should be made, however, to limit individual agency exceptions as opposed to a regional standard. This requires difficult discussions and debate but focusing on the benefits of standardization should drive the agencies toward consistency.

The creation and application of a single standardized training manual will provide more consistent training, better on-scene coordination, and improved firefighter safety. With firefighters of Benton and Franklin County fire departments trained in the same techniques, responders to emergency incidents can have the confidence that they will be prepared to work effectively and seamlessly as a team. The cost for this endeavor is staff time to attend meetings, draft training manual sections, and implement the regional training manual.

Peak Demand Units

Staffing is typically a fire agency's single most expensive resource. A significant factor that drives cost is the 24-hour nature of the fire service demand. The rationale for staffing and deploying in this manner is the unpredictable nature of emergencies. Once a base emergency response capability is achieved throughout the 24-hour cycle, however, additional capacity can be gained with a more flexibly staffed and deployed model. This efficient and effective model includes resources that augment the traditional deployment of response resources. This flexible unit follows the observable trends in emergency calls for service (demand) which dictates to a significant degree the distribution of that flexible resource. Implementing this flexible unit reduces response times where demand is high or when prescheduled vacancies (i.e., training) occur. These flexible resources are referred to as Peak Demand Units (PDUs) and they are deployed in a manner that mirrors the ebb and flow of emergency demand. A PDU has four major configuration variables: the unit itself, the crew make-up/size, the deployment purpose/philosophy, and deployment hours/geography.

PDUs are typically staffed and deployed during the most statistically busy times of the day and week, which makes the unit less costly and more flexibly deployed, both by time of day and geography. These units can be a fire engine that is a Type 1 (a so-called structure fire engine) or a Type 6 (also-called wildland fire engine) configuration, a medical unit (ambulance), or a multi-purpose squad. Regardless of the type of vehicle, what makes a PDU unique is the way it is deployed and staffed. PDUs can be staffed with a medical crew if that is its primary purpose, with a fire suppression crew, or both. It can be deployed during wildland fire season with a wildland fire crew. Regardless of staff capability, the staff can be obtained by hiring new personnel or by using callback crews on overtime. Staffing a PDU should not be completed by cross-staffing (thereby taking a critical resource out of service), as it depletes the core resources and reduces agency capability. These concepts normally require bargaining the hours and working conditions under which the unit is staffed when a collective bargaining unit is affected.

PDUs are not only assigned as an additional resource based on statistically busy times and locations. They can also be used to manage gaps in coverage for units participating in training and could even be cooperatively staffed with a neighboring agency(s). A PDU could be only occasionally staffed for activities such as a scheduled event or routinely staffed for periods of peak demand. In any usage of this concept, it is important to understand that the value is added when the unit is deployed as an *adjunct* to existing staffing patterns. Otherwise, it compromises overall response capability.

For Pasco, deployment of a PDU during the busiest times of the day (between 8 or 9 a.m. to 8 p.m.) would also help reduce deficiency points assigned by the Washington Surveying and Rating Bureau for staffing levels during the day (currently 74 deficiency points).

Working with neighboring agencies to implement a regional PDU is also a possibility. It reduces the per agency cost, but it also reduces the per agency benefit derived from such a unit. The cost of a medical unit as a PDU would be approximately \$530,000 for the unit fully equipped (one-time capital cost). The staffing would run approximately \$1,000,000 fully loaded annually, less if run five days a week.

Staffing Increases

Administrative support would be extremely helpful in the form of a Management Analyst being added to the management team at PFD. This position can routinely run response statistics, calculate alternative response scenarios, and generally provide the management team with exceptional, real-time data to make sound management decisions. Currently, this burden falls upon the executive staff of the department individually. While the executive team is a competent, skilled group, their efforts are better spent focusing on making sound decisions based on sound analysis. Having an Analyst conduct that analysis would allow the executive team to consider options and alternative decisions more efficiently using their time and skills. The cost for this position is approximately \$65,000 annually and would be a civilian position.

The Pasco Fire Department has one Administrative Assistant for the entire fire department. With a Fire Chief and two Deputy Chiefs, plus administratively assigned line personnel (EMS Officer, Training Officer, Community Risk Reduction Specialist), the clerical support is insufficient to support these activities. The department needs one, possibly two additional clerical support positions. To the extent clerical support is not available, it requires managers and technicians to perform their own support work. This takes away from the effectiveness of managers and technicians doing their primary jobs. While this is acceptable from time to time, it is an inefficient use of higher salaried personnel who are not adequately trained or do not possess the skills necessary to conduct the support work that a clerical person would easily and routinely perform. The cost of a clerical support position is approximately \$55,000 (fully loaded).

The line staffing does not meet national standards and does not meet state or local norms. Two-person engine companies place a substantial burden on responders during the scene of emergencies. While the ambulances augment the staffing on structure fires, they are the most likely unit type to be unavailable when a structure fire occurs. The City of Pasco should follow a plan of ramping up staffing in the fire department over successive years. This improves incident safety, reduces worker fatigue, and increases the likelihood of PFD maintaining its Class 3 rating from the Washington Surveying and Rating Bureau.

It should be the goal of PFD to achieve three-person engine companies and two-person ambulances. The Fire Chief has established an informal trigger point for additional staffing for any ambulance achieving a unit hour utilization of .25 to prompt the consideration of an additional firefighter on the sister engine company. While not a negotiated agreement, the philosophy is sound. The ambulances are not in danger of achieving the .25 UHU in the immediate near term. When it does, the cost for the extra position on that engine company every day for a year (fully loaded) is approximately \$500,000.

Logistics Center

At the heart of any fire department are the activities and functions that support the delivery of emergency services. A logistics center keeps agency assets in operational readiness and ensures that enough supplies, tools, and equipment are available for emergency workers to mitigate the emergency. PFD sits in an urbanized core area where inefficient duplication undoubtedly exists as each of the cities which make up the Tri-Cities are independent, siloed systems that would otherwise lend themselves to a regional approach.

Although emergency services providers, the fire agencies in the area are also businesses that collectively spend hundreds of thousands of dollars each year to ensure mission critical readiness. Like all businesses, fire departments need to maximize the effectiveness of budget dollars and develop efficient practices. Such practices may take the form of economies of scale, administrative efficiencies, paperwork reduction, technological advances, and innovative cost-saving concepts.

The procurement and distribution of routine supplies is an important behind-the-scenes process that needs hands-on work and meticulous record keeping. These support services are currently provided by a variety of personnel in the region, some are line personnel, some are support, and some are management. Filling the demand for logistical support is a constant necessity in any organization and vital to ensuring the operational readiness of the agency. Key elements of a combined logistical center are:

- Assessment of current assets to be managed.
- Assessment of current levels of support service activities.
- Standardization of apparatus, equipment, and supplies.
- Standardization of preventative maintenance programs and recordkeeping.
- Centralization of supply and equipment acquisition, warehousing, and distribution.

Standardizing specifications for the purchase, repair, and maintenance of apparatus, self-contained breathing apparatus (SCBA), communication devices, Personal Protective Equipment (PPE), uniforms, replenishable supplies, and miscellaneous equipment often equates to less out-of-service time. Support personnel setting up a requisition and delivery system is a key efficiency of this type of approach. These economies of scale accrue to the benefit of each participating agency.

Distribution can be managed internally or through agreements with suppliers to gain the advantages of collective purchasing and supply, such as:

- Administering a larger collective bid process for supplies can achieve lower unit prices and attract additional competitors.
- Negotiating terms of the conditions of a purchase that might not be available to smaller purchasing centers.
- Conducting collective bidding processes that are applicable to all participating agencies.

The agencies can jointly determine the proper level of inventory to maintain within the system. The use of system-wide inventory planning ensures that the most cost-effective inventory management can be established for the system participants. This is referred to as “Just-In-Time” inventory. To a great degree, a just-in-time inventory process relies on the efficient monitoring of the usage of materials and ordering replacement goods that arrive shortly before they are needed. This simple strategy helps to prevent incurring the costs associated with carrying large inventories of raw materials at any given point. The net cost of such an endeavor (supplies for each agency are already being purchased separately, likely at a higher unit cost) is in the logistician and the warehouse. The logistician would cost approximately \$95,000 fully loaded, divided equally among the participating agencies. An Inventory Delivery Specialist can be added to this function for just-in-time delivery of replenishable supplies for approximately an additional \$45,000 fully loaded, plus vehicle. An existing surplus fire station for any of the participating agencies could serve as a supply warehouse and office for this function.

Station Additions

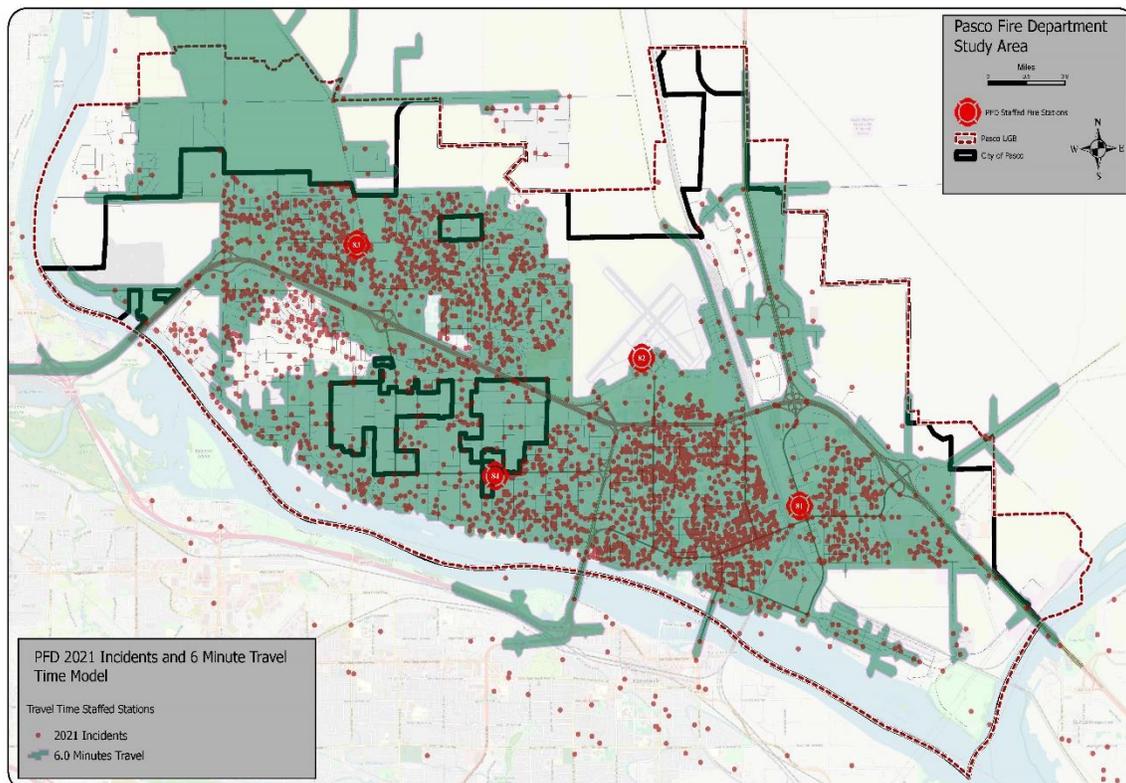
While PFD has done amazing work, it is clearly straining to keep up. The service level and capability are not sustainable without commensurate growth of resources to match the unprecedented growth of emergency demand and of the city itself. Actions have been taken to implement recommendations made in the 2016 master plan, but station construction has lagged behind the growth that required the construction. Heat maps in this report indicate that while new Station 83 is properly located within the center of the largest hot spot, the station opened at least a year late (it opened in January 2021). Station 84 opened in September 2021 but is only a block away from its original location, so the negative impact of delay is low.

There are indications of the system declining in the following ways:

- PFD is at the **minimum** performance for its own goal of the first apparatus on the scene (89.4%), which is a slight decline from the 2016 master plan performance of 89.7 percent. Said another way, 39 of the fire management zones were noncompliant with the 6-minute travel time standard in 2015, but 81 of the management zones were noncompliant with the 6-minute travel time standard in 2020 (double the area in 2015).
- PFD is currently able to assemble a full first alarm in 12 minutes or less travel time (its self-imposed performance goal) at 76.3 percent of fire suppression events. The goal is 90 percent.
- The population within the service area has increased by 9.56% since the last master plan (2016).
- Call volume (demand for service) has increased by 18.53% just in the last year (2021 compared to 2020). This is an unprecedented growth in service demand.
- New development and population growth are projected to continue increasing, both in the near future and long term.
- Service demand has steadily increased and is projected to continue increasing an additional 25.21 percent by 2029.

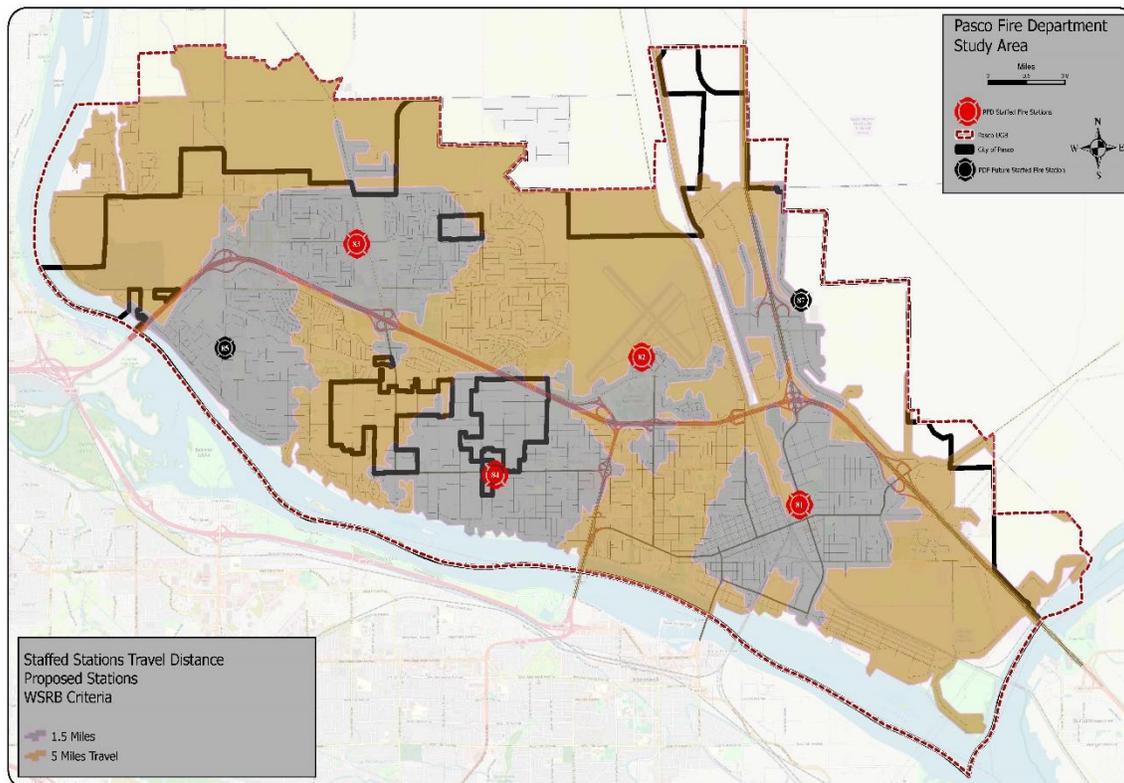
Currently, the four staffed PFD stations are within 6 minutes or less travel time to approximately 95 percent of current service demand inside the Pasco UGB. However, the fact that PFD achieves this travel time 46 percent of the time is an indication that growth and concurrent calls are negatively impacting service.

Figure 70: Current Staffed Station Deployment



The deployment of stations is currently situated nearest the highest demand for services.

Figure 71: Proposed Six Staffed Station Deployment



The previous figure depicts two proposed new fire stations; Station 85, located at 3624 Road 100, and Station 87, at the end of Kartchner Street near the Auto Zone Distribution Center, east of State Route 395. These two properties are already owned by the city and are planned for use as future fire station sites. The gray areas on the map depict areas within 1.5 miles served by the stations. Note that proposed Station 87 has a small area it reaches within 1.5 miles. That is due to the lack of a road network. Once development causes a road network to be built, the reach of a new Station 87 will also increase (out to 1.5 road miles from the station).

A proposed new Station 85 addresses infill, residential and commercial growth in the west portion of the city. A proposed new Station 87 addresses industrial growth in the east portion of the city and bolsters response to the east end generally. These two proposed stations each have different trigger points to begin construction.

STATION 85

For Station 85, when the first due area around the proposed station (the area Station 85's units are expected to arrive first at an emergency) experiences 500 calls for service, the process should begin to design and construct the station, develop specifications for new apparatus that will be assigned there, and develop a plan to hire the personnel expected to operate out of the station. In 2021, the first due area for Station 85 had already exceeded 500 calls for service. This means Station 85 has reached the trigger point for construction to begin, apparatus to be put out to bid, and plans to be developed to hire sufficient personnel to staff the unit(s) assigned there.

Upon opening, Station 85 should be equipped with a staffed engine company. The need for an ambulance in the station (as has been the model for the other four stations) is mitigated by the close proximity of ambulances from the urban core of the city (Stations 81, 82, 83, and 84 – Unit Hour Utilization indicates there is sufficient capacity for additional call volume). The need for an ambulance at Station 85 would be further negated with the implementation of a Peak Demand Unit. If the engine is a stand-alone engine, it is recommended that the station be staffed with three firefighters. The station design should mirror the other new stations just added to the PFD system, and the cost is expected to be similar to the other new stations, approximately \$7 million in 2021 dollars. Fire stations (indeed, any public works project) are expensive to construct because they must be hardened as an element of the critical infrastructure in the city and because Washington state law requires that public works projects pay prevailing wages. The engine assigned there would cost approximately \$1.1 million fully equipped. The firefighters would cost \$102,000 per person annually, fully loaded.

STATION 87

For Station 87, the trigger point is different. There are four elements that drive demand for this station.

- This area has a significant industry presence, and more being developed (a second Resers facility and a large Darigold facility, for example), which is important to the local economy—jobs and tax revenue.
- The eastern portion of the city is reliant almost exclusively on Station 81. While demand for service there does not rise to the level of the other stations, there is a considerable population living within the service area, warranting greater depth of response capability. This was a significant concern expressed by citizens during the Pasco Fire Department Strategic Plan development.
- The Colville Tribal Casino and other tribal economic development projects being proposed near this station will bring a significant (although transient) population to the area.
- The industrial development in eastern Pasco, the Colville Tribal Casino, and the resource constraints on the east side of the city undoubtedly add to the WSRB deficiency points PFD has received unless addressed. By opening and staffing a station here, response performance improves, and staffing levels increase, thereby reducing the number of deficiency points assigned by WSRB and protecting or improving the relative strength of the Public Protection Class 3 that PFD currently enjoys.

Development and opening of the Colville Tribal Casino will be a tipping point for moving forward to construct Station 87. Short of other large industrial development, at such time as the land the Colville Tribe owns is converted to Tribal Trust property and the casino is approved to begin construction, construction should also begin for Station 87. The station should be modeled after the other new stations. As construction is under way, apparatus should be put out to bid, and plans developed to hire sufficient personnel to staff the unit(s) assigned there.

Station 87 should be equipped with a staffed Telesquirt (or boom Squirt). This is an engine that also has an elevated master stream to deliver a fire stream from an elevated position (typically 50 feet). This apparatus adds to the ladder credit Pasco receives, but also matches the relative risk Station 87's first due area poses. As an area populated with industrial and large area structures, elevation is often needed. But the unit also performs all of the essential functions of a fire engine. In fact, the WSRB gives full credit to a Telesquirt as an engine and an additional half-credit as a ladder truck.

As with Station 85, there may not be a need for an ambulance in Station 87. This may be dependent upon the call volume and call types posed by the casino once it is constructed and operational. As with Station 85, the need for an ambulance at Station 87 may be further negated with the implementation of a Peak Demand Unit. If the Telesquirt is a stand-alone unit, it should be staffed with three instead of two firefighters. Close monitoring of the call types and response performance of Station 87 is warranted. If demand taxes the Telesquirt, an ambulance may need to be added in the future.

The station design should mirror the other new stations just added to the PFD system, and the cost is expected to be similar to the other new stations, approximately \$7 million in current costs. The Telesquirt assigned there would cost approximately \$1.7 million fully equipped. The firefighters would cost \$102,000 per person annually, fully loaded.

Long-Term Improvements

Long-term improvements are anticipated enhancements of the current infrastructure but are more difficult to establish a timeline for. They, too, will likely require policy consideration and budget allocation. Where appropriate, trigger points are identified which should initiate implementation action. Annexation of the northwest corner of the urban growth area is likely to occur in the foreseeable future. Should this become a reality, fire service coverage should be designed to address this new area of the city.

STATION 86

A future Station 86 should be planned for in the far northwest corner within the urban growth expansion area. This area is outside of the city currently but is likely to be annexed into the city as part of the comprehensive plan implementation (assuming approval by the county and/or state). This area is expected to see significant development according to the Pasco Comprehensive Plan. It is difficult to identify the ideal location for a fire station since the area currently lacks a robust transportation network. Once plans to develop the area are put forth and the road network is laid out, travel time calculations should be conducted to determine the ideal location for a future fire station and property acquired. As this area starts increasing its density and the demand for service also increases, close attention should be paid to annual demand growth there.

This station area should also have a trigger point of 500 calls for service in a given year as an indication that design and construction should begin. This is also the point at which apparatus should be put out to bid, and plans developed to hire sufficient personnel to staff the unit(s) assigned there. The station should have an engine assigned to it. An ambulance should not be required. If the engine is a stand-alone engine, it should be staffed with three firefighters. The engine assigned there would cost approximately \$1.1 million fully equipped. The firefighters would cost \$102,000 per person annually, fully loaded. These costs will increase with inflation until such time as the trigger point is reached.

This page intentionally left blank.

APPENDIX A: TABLE OF FIGURES

| | |
|------------------------------------------------------------------------------------------------------------------------|----|
| Figure 1: Pasco Fire Department Service Area Map, 2021 | 2 |
| Figure 2: Pasco Fire Department Organization Chart | 3 |
| Figure 3: Functional Program Management Structure..... | 4 |
| Figure 4: Population Served Comparison (2020)..... | 5 |
| Figure 5: Service Area Comparison, Square Miles (2020)..... | 6 |
| Figure 6: Population Density Comparison, per Square Mile (2020)..... | 6 |
| Figure 7: Total Incidents per 1,000 Population Comparison (2020) | 7 |
| Figure 8: Fires per 1,000 Population Comparison (2020)..... | 8 |
| Figure 9: Fire Loss per Capita Comparison (2020)..... | 8 |
| Figure 10: EMS Incidents per 1,000 Population Comparison (2020)..... | 9 |
| Figure 11: Critical Issues | 11 |
| Figure 12: Station 81 | 13 |
| Figure 13: Station 82 | 14 |
| Figure 14: Station 83 | 15 |
| Figure 15: Old Station 84 (Replaced in September 2021) | 16 |
| Figure 16: Station 84 (new as of September 2021) | 17 |
| Figure 17: Vehicle Storage Building (Station 84 adjacent)..... | 18 |
| Figure 18: Future Station 85 Site | 19 |
| Figure 19: Future Station 87 Site | 20 |
| Figure 20: Pasco Fire Department Training Center | 21 |
| Figure 21: Apparatus & Major Equipment Replacement Schedule | 23 |
| Figure 22: Resources Deployed by Type Comparison (2020)..... | 24 |
| Figure 23: Comparable Agency Staffing Levels (2020)*..... | 25 |
| Figure 24: Emergency Response Staffing per Shift..... | 26 |
| Figure 25: Committees, Workgroups, or Teams..... | 28 |
| Figure 26: Service Demand, 2016–2021 | 30 |
| Figure 27: Incidents by Type, 2021 | 31 |
| Figure 28: Incidents by Month, 2021 | 32 |
| Figure 29: Incidents by Day of Week, 2021 | 32 |
| Figure 30: Incidents by Time of Day, 2021 | 33 |
| Figure 31: Geographic Service Demand, 2021 | 34 |
| Figure 32: Geographic Service Demand, Fire Incidents, 2021 | 35 |
| Figure 33: Study Area, 2021 | 36 |
| Figure 34: Density, Office of Financial Management (OFM) - Traffic Analysis Zone (TAZ), 2021 Population Estimate | 37 |
| Figure 35: Station Distribution 2021, WSRB Criteria | 38 |
| Figure 36: Aerial Apparatus Distribution 2021, WSRB Criteria | 39 |
| Figure 37: Travel Time Model 2021, NFPA Criteria..... | 40 |
| Figure 38: Potential Travel Time Model, PFD Response/Travel Time Model, 2021 | 41 |
| Figure 39: Service Demand and 6-Minute Travel Time Model, 2021 | 42 |
| Figure 40: Actual Travel Time Performance by Fire Management Zone, 2021 | 43 |
| Figure 41: Station Concentration, 2021 | 44 |
| Figure 42: Full First Alarm (ERF), 12 Minutes Travel Time (PFD Travel Time Goal), 2021 | 45 |

| | |
|----------------------------------------------------------------------------------------------------------|-----------|
| Figure 43: Concurrent Incidents by Station Area, 2021 | 46 |
| Figure 44: Unit Hour Utilization (UHU), 2021 | 47 |
| Figure 45: Medic Unit Commitment Factors as Developed by Henrico County (VA) Division of Fire, 2016..... | 48 |
| Figure 46: NFPA 1710 Response Performance Recommendations | 50 |
| Figure 47: Current PFD Response Performance Goals & Actual Performance, 2021 | 50 |
| Figure 48: Mutual and Automatic Assistance, 2021 | 52 |
| Figure 49: PRI Score Categories..... | 58 |
| Figure 50: Risk/Probability Matrix..... | 59 |
| Figure 51: Six Steps of Community Risk Reduction..... | 60 |
| Figure 52: Tri-Cities Airport Passenger Enplanements, 2006–2021 | 78 |
| Figure 53: Hydrant Pressure & Fire Flow for PSC Commercial/Industrial Structures | 80 |
| Figure 54: Number of Washington State Fire Departments per Public Protection Class..... | 82 |
| Figure 55: Washington Surveying & Rating Bureau PPC Ratings for Comparable Agencies | 83 |
| Figure 56: Franklin County Unemployment, Not Seasonally Adjusted, 2012–2021 | 88 |
| Figure 57: Franklin County Median Home Sales Price, 2012–2021 | 89 |
| Figure 58: Pasco Taxable Retail Sales & Annual Growth Rate..... | 89 |
| Figure 59: Inflation Trend – All Items: West Urban CPI-U..... | 90 |
| Figure 60: New Construction & Taxable New Construction..... | 90 |
| Figure 61: PFD Associated Revenue | 91 |
| Figure 62: PFD Associated Expenses..... | 92 |
| Figure 63: PFD’s General Fund Burden..... | 92 |
| Figure 64: Pasco Decennial Population History, U.S. Census, 1970–2020 (50 years) | 94 |
| Figure 65: Pasco Annual Population History, OFM, 2012–2021 | 95 |
| Figure 66: Tri-Cities Annual Population % Change by City, 2012–2021 | 95 |
| Figure 67: Pasco FD Service Area Population Projection, Through 2038 | 96 |
| Figure 68: Future Development in Pasco | 97 |
| Figure 69: Projected Service Demand, 2023–2038..... | 100 |
| Figure 70: Current Staffed Station Deployment | 108 |
| Figure 71: Proposed Six Staffed Station Deployment | 109 |