

To: Anne McEnerney-Ogle, Mayor
City Council

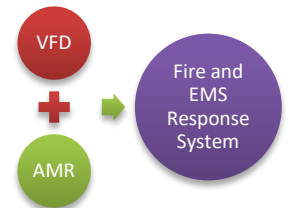
From: Eric Holmes, City Manager
Brennan Blue, Fire Chief

Date: September 28, 2021

RE: **Fire and Emergency Medical Service Standard of Cover Options**

Executive Summary

Vancouver Fire Department (VFD) provides an all-hazard fire and rescue service to the citizens of Vancouver and Fire District 5. VFD does this through a combination of direct City resources (personnel, stations and apparatus) and the contract with a private emergency medical transport provider (AMR). Together this System of resources (VFD + AMR) delivers response times for priority 1 and 2 calls that exceed the City's adopted level of service standard, responding to 92.7% of calls in 7:59 or less. However, *the results delivered by the VFD aspect of this system do not meet the City's adopted standard for priority 1 and 2 calls*, including a full alarm fire assignment, resulting in an increase in community risk.



There are three key contributing factors to this service level gap:

- Increased population, call volume and frequency of calls requiring a full alarm assignment
- Increased transportation congestion on the City's street system, slowing response time
- Change in call type and location that influenced the geography of call demand

This analysis focuses on the VFD aspect of the system, with particular emphasis on the resources needed to improve service levels and reliability for VFD's response to priority 1 and 2 calls and full alarm fire responses.

The recommended approach to closing identified gaps focus on expanding geographic coverage and increasing station reliability by adding the following resources:

- 1 new and two existing squad apparatus move from "peak" to 24/7 coverage (23 FTEs)
- 1 ladder truck apparatus staffed with four (4) FTEs for 24/7 coverage (17 FTEs)
- Incremental administrative capacity to support department mission: Three (3) FTEs

- Continue fully staffing Fire Station 11 with professional fire fighters beginning in 2025

Costs and Fire District #5 Partnership:

COV Annual Operating Costs	2025
Staffing and other operating costs	\$ 8,992,000
Vehicle- related annual costs	\$ 285,000
Debt Service to fund Equipment and Facility Remodel	\$ 692,000
Capital Costs (to be financed with debt)	
Squad vehicle (1 new)	\$ 302,000
Ladder truck company (1 new)	\$ 2,156,000
Station 8 remodel	\$ 3,151,000
On-Going Funding to Sustain FS 11 beginning in 2025	\$ 2,823,000
Total annual cost	\$ 12,792,000
<i>Total costs represent all-inclusive costs to the system, using 2025 as an example of a full year</i>	

The City has a long-standing partnership with Fire District #5, under which the City provides fire and EMS services for their geographic area in addition to that within the City limits and District #5 pays a share of the overall fire department costs. The terms of the agreement call for 22.8% of overall costs to be paid by District #5, with occasional unique cost sharing arrangements for special projects or programs outside the standard terms of the agreement, such as the recent addition of Fire Station #11. The result is an efficiently served and cost-effective shared service area that serves more than half of the population of Clark County. The increase in resourcing to VFD described herein would increase the share of costs to be paid by District #5. As of this writing, it is not clear that District #5 has the current or forecasted financial capacity to pay their share under the standard terms of the current interlocal agreement. If there is a different cost sharing model used to support these resources, it should consider equitable distribution of costs and benefits.

This proposal *does not* include capital investments in station replacement and retrofits that were contemplated in the Stronger Vancouver effort. Those investments, which include replacement and relocation of stations 3 and 6 and seismic retrofit of stations 4, 5 and 8, would increase the capital investment costs by more than \$40-50 million, depending on the scope and climate action objectives associated with these building projects.

Revenue Options:

There are several voted property tax revenue options the Council may consider to fund these investments. Should Council wish to move forward, these would be detailed for future discussion.

In addition to voted options, state law authorizes establishing a Fire Impact Fee (similar to other impact fees adopted by the City) that could apply to new development to pay for a portion of the capital costs needed to serve that development. As of this writing, the potential fee rate and associated revenue has not been developed. If Council was interested in pursuing this policy option, staff could commence additional analysis around program development and outcomes.

Other Councilmanic sources that would generate sufficient revenue are generally limited to the business and occupation tax which, based on prior council direction, is not expected to be part of the discussion.

Implementation:

The additional resources detailed here are anticipated to close current identified gaps in service. If funding for these resources were made available, it would take approximately 18-24 months to fully implement (including hiring, apparatus procurement and station remodels) after the funding source is approved either by the Council, or by the voters, depending on the particulars of revenue tools used.

Introduction

Vancouver Fire Department (VFD) provides all-hazard fire and rescue service to the citizens of the City of Vancouver and Fire District 5. RCW 35.103 “Standards of reporting and accountability of fire department’s”, established a requirement that all fire departments must create written levels of service performance. City Council resolution M-3791 adopted written service performance standards in April of 2013 which we are still operating under today. (Figure 1)

The City of Vancouver Service Levels and Performance Measures

Type of Service	Level of Service
Arrival of First Response Unit:	Time
Priority 1 and 2 calls (except marine)	7:59
Priority 3 and 4 calls (except marine)	10:59
Priority 5 Non-Medical calls	15:59
Priority 5 Emergency Medical calls (Ambulance only)	15:59
Marine – all calls	19:59
Arrival of Full First Alarm Assignment:	Time
Fire Suppression	15:59
Aircraft Rescue and Firefighting	15:59
Technical Rescue	60:00
Hazardous Materials	60:00

Figure 1: Performance Standards Adopted April 2013 by City Council

All time measures are reported at the 90% fractal. This time measure represents the time for the units to arrive at 90% or less of the emergencies.

VFD is not meeting the established standard in two key areas: Priority 1 and 2 Emergency Medical Calls for Service and Fire Suppression Full Alarm Assignments. The main factor resulting in the current service level gaps is the steady decline of station effectiveness. The proposed solution to this increasing issue, is the strategic addition of fire service companies into existing fire stations.

The Vancouver Fire Department relies on a range of factors to determine appropriate response capability. These include the unique characteristics of our current and forecasted built environment, the geographic configuration of the community, data analytics of historic call dynamics, NFPA guidance and the expertise and experience of department personnel and the leadership. This analysis and resulting recommendation reflects consideration of all these factors.

Summary of Current System Performance

System Performance (VFD + AMR) - ALL Priority 1 & 2 EMS Incidents:

Vancouver Fire Department & Ambulance Service Provider EMS (Figure 2)

Standard	07:59		
Year	Response Time 90 th Percentile	% Met Standard	Number of Incidents
2020	07:26	92.67%	14,435
2019	07:14	93.42%	15,059
2018	07:10	93.93%	14,593
2017	07:10	93.75%	14,260
2016	06:59	95.00%	12,667
2015	06:40	95.96%	12,515

Figure 2: Priority 1 and 2 EMS Response Time Based on First Arriving Agency

Vancouver Fire Department (VFD) Performance:

Arrival of First Response Unit Priority 1 & 2 Emergency Medical Service (EMS) (Figure 3)

Standard	07:59		
Year	Response Time 90 th Percentile	% Met Standard	Number of Incidents
2020	08:23	87.22%	12,160
2019	08:15	88.40%	12,161
2018	08:18	88.30%	11,909
2017	08:25	87.49%	11,847
2016	08:00	89.94%	11,045
2015	07:45	91.16%	11,052

Figure 3: Vancouver Fire Department Priority 1 and 2 EMS Response Time and Percent of Responses which Met the Standard.

Structure Fire Full Alarm Assignment – Three Engines, One Truck & One Battalion Chief (Figure 4)

Standard	15:59		
Year	Response Time 90 th Percentile	% Met Standard	Number of Incidents
2020	18:45	85.39%	89
2019	16:19	86.90%	61
2018	21:43	75.00%	72
2017	17:53	75.64%	78
2016	17:47	81.63%	49
2015	14:42	98.12%	54

Figure 4: Vancouver Fire Department Structure Fire Full Alarm Response Time and Percent of Responses which Met the Standard.

Summary of Key Gaps

Response time:

Response time is measured in minutes and integer seconds from the moment a unit is dispatched until the unit arrives at scene location. Further, response time is calculated in two components. 1) Turnout time is measured from the moment a unit is dispatched until the unit is in route to the scene and 2) Travel time is measured from the moment a unit is in route until the unit arrives at the scene location.

Since 2015, VFD has not achieved council established service levels for full alarm structure fire, 15:59 and EMS Priority 1 and 2 Incidents, 07:59. As of June 4th, 2021, a full alarm structure fire assignment requires four engines, one truck and one battalion chief. The addition of one engine company to this response type has the potential to erode our response times

even further in this category. More than half of the EMS call volume is dispatched as Priority 1 or 2. At present, VFD is not achieving the standard of 07:59; however, the EMS “system” is over performing for Priority 1 and 2 EMS incidents.

Geographic coverage:

A ladder truck is required for all full alarm fire responses. Two ladder trucks are required for a full alarm commercial or multi-family fire response. Each ladder truck covers a 2.5 road-mile radius from its station. VFD has one ladder truck at Station 1 and one at Station 5. Planned multi-family and commercial/industrial build out on the east side of the VFD service area leaves a gap in ladder truck coverage in Station areas 6, 8, 9, and 10 (Figure 5).

Squads are rapid response vehicles deployed for EMS and fire support. These units increase response coverage for the areas in which they are deployed.

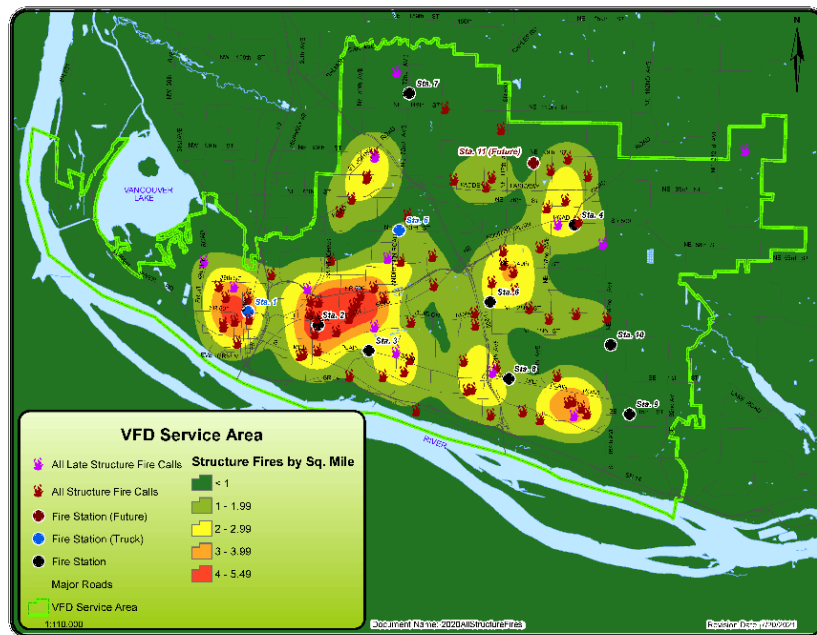


Figure 5: Full Alarm Structure Fire Responses 2020

Station effectiveness:

There are two metrics VFD utilizes to calculate station effectiveness – reliability and call concurrency. Reliability measures the percent of instances where the first unit to arrive at the scene is a unit assigned to that station area. The target for reliability is 90%. VFD is not meeting this reliability target in five station areas – 2, 3, 6, 7, and 9.

Call concurrency measures the number of times there is an active incident in a station area when another incident is dispatched in that same station area. This is typically represented as a percent of the total calls within a station area. Best practice suggests when call concurrency reaches 10 percent of total call volume in a station area, an additional resource should be added within that station area. Call concurrency is over 10 percent in eight station areas – 1, 2, 3, 4, 5, 6, 8, and 9.

Causes

Population & call volume:

- Vancouver Fire Department has seen a steady increase in both emergency call volume and in population served over the past 10 years. This is a major contributor to the response reliability gaps that VFD is experiencing today. Generally, as populations grow, calls for emergency response will grow as well. Population growth through planned economic development should coincide with requisite increase in capacity in emergency services resources to maintain the same service levels for the community.
- 16.3% Total Call Volume Increase from 2015 (Figure 6)
- 8.8% Population increase since 2015
- Only 1 additional emergency response vehicle has been added to VFD Fleet since 2008 – 10 Hour Rescue Unit
- Absorption of additional call volume due to population density increase has added stress to the system.

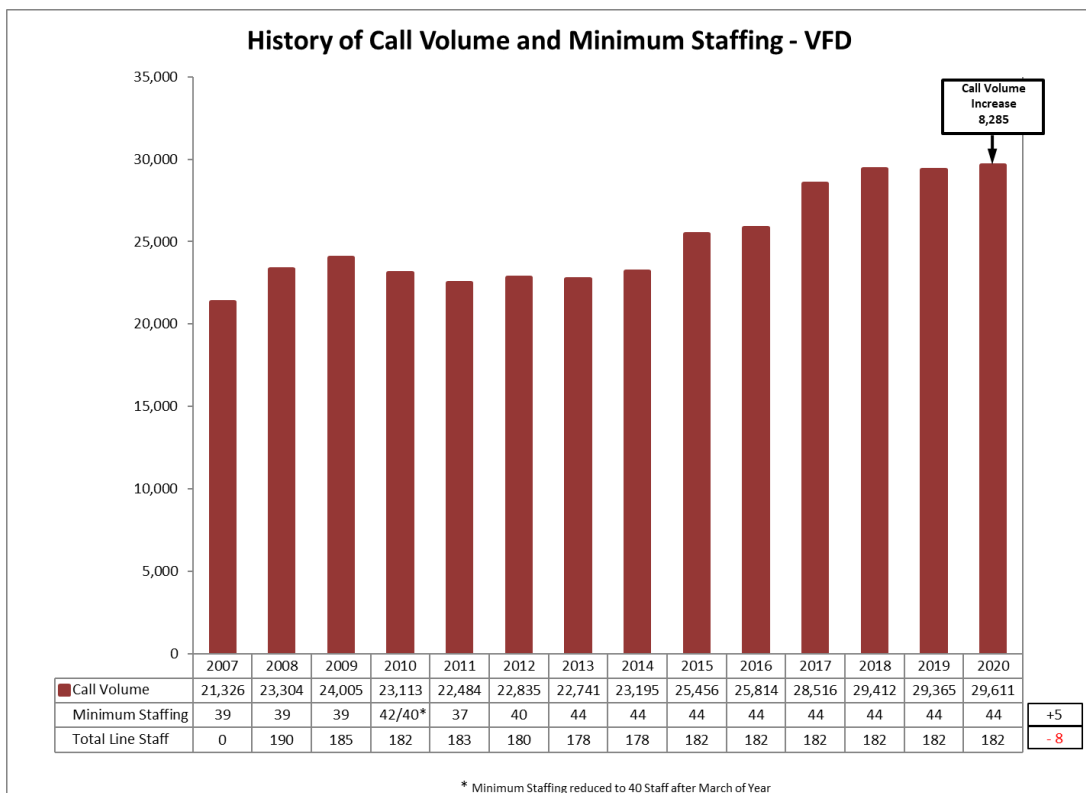


Figure 6: History of Call Volume v Minimum Staffing

Call type and nature of development

The City of Vancouver’s future planned development will have a significant impact on the associated call types and probable risks to which the fire department will need to respond. With over 200 multifamily residential projects, and approximately 200 commercial/industrial projects currently planned, the risk of high hazard fire incidents will increase. (Figure 7) These projects represent 6,500 proposed new dwelling units not inclusive of the 5,697 units that have been completed over the last 5 years. The anticipated increase in potential fire incidents associated with this growth will require more VFD fire resources to manage them effectively. Structure fires in commercial, industrial, or multifamily occupancies require two ladder trucks to address some of the special challenges these fire pose. These special challenges are things such as: upper floor rescue problems, elevated water streams for fire control, and roof access for ventilation operations. Currently there is no ladder truck positioned on the east side of the jurisdiction, and there are only two total trucks available in VFD. The City of Vancouver’s goal of higher density development will continue to drive the need for more specialized resources for the Vancouver Fire Department

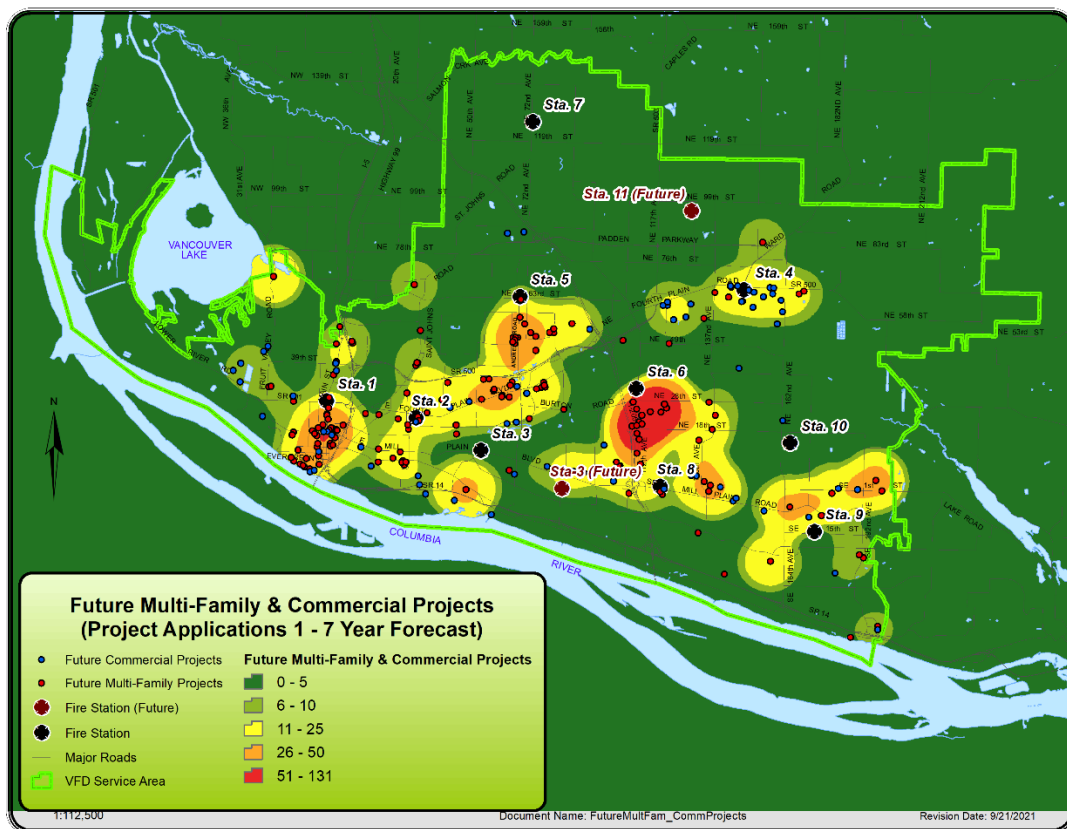


Figure 7: Known Multi-Family and Commercial Development Projects Next 7 years

Transportation system implications

Southwest Washington Regional Transportation Council annual reports clearly indicate a decrease in travel speed during peak hours. (6:30-8:30 AM Peak and 4:00-6:00 PM Peak) This has a direct impact on emergency response travel time to Priority 1 and 2 incidents. (Figure 8)

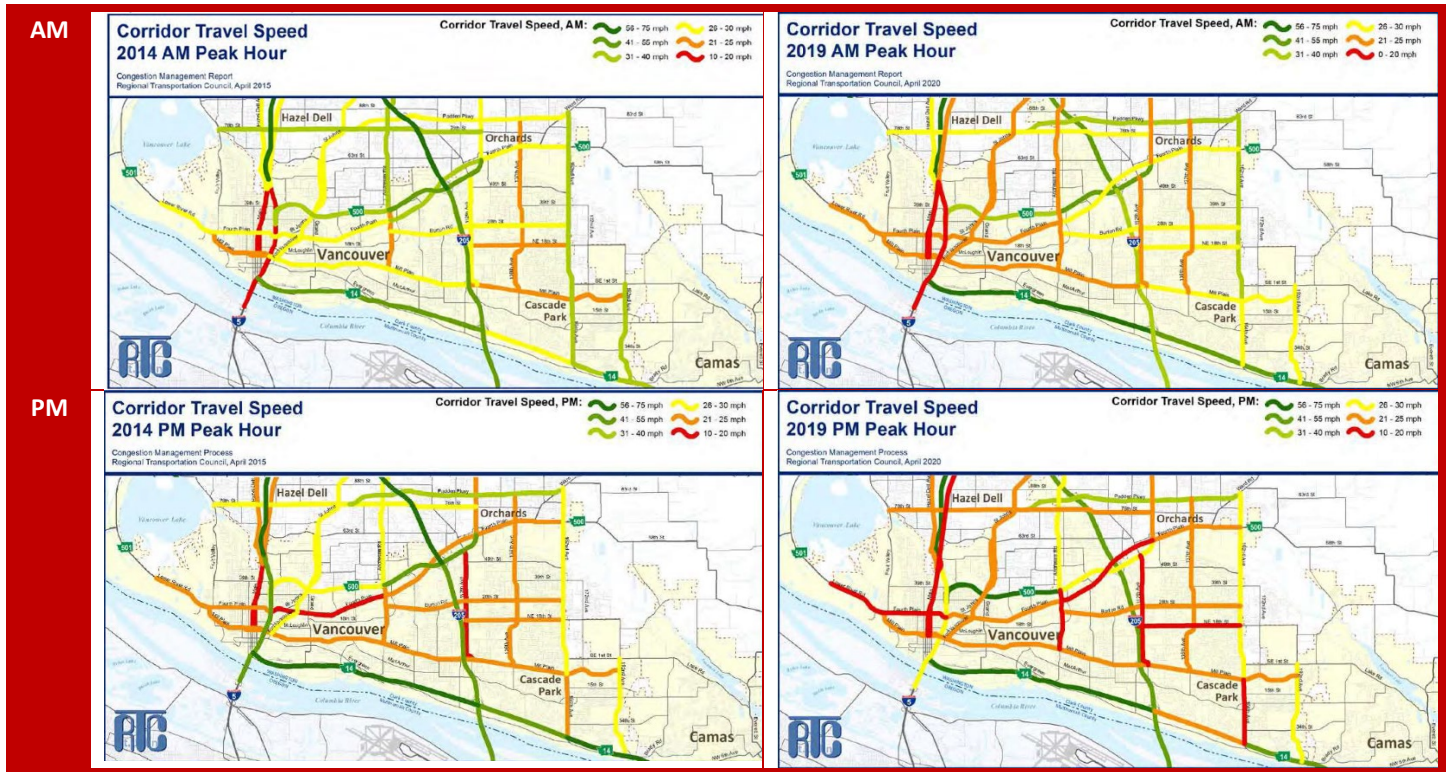


Figure 8: Peak Hour Travel Speeds 2014 v 2019

While the City and regional partners and agencies continue to seek increases in congestion mitigation and efficiency of the transportation system, it is not anticipated that these efforts will materially impact emergency vehicle travel times.

Solutions: Options & Recommendations

Response Time:

Turnout Time

In 2020, VFD turnout time for Priority 1 & 2 incidents was 2:01, or, 31 seconds over the target of 90 seconds. Internally, VFD has implemented measures to reduce turnout time such as crew readiness policies and personnel awareness of turnout time performance by sharing turnout time data bifurcating by shift and apparatus. Additional system improvements are in the early stages of implementation utilizing third party alerting programs to give pre-alerts to fire personnel to further reduce turnout times as well as reduce overall response times.

Standard	01:30
Year	Turnout Time 90th Percentile
2020	02:01
2019	01:58
2018	01:57
2017	01:56
2016	01:52
2015	02:01

Figure 9: Vancouver Fire Department Turnout Time Priority 1 and 2 Incidents

Countdown timers count backwards from the turnout time target, 90 seconds beginning at the point of dispatch. These timers provide personnel with a visual indicator of time passed up to the point their unit is in route. Countdown timers are a standard installation in new VFD Fire Stations. Countdown timers are installed at Stations 1 and 2 and will be installed in Station 11. The Department is in the process of purchasing eight additional countdown timers for Stations 3, 4, 5, 6, 7, 8, 9, and 10.

Turnout times should improve with the above stated initiatives and internally driven cultural changes. Continued diligence with system enhancements, personnel awareness and accountability must be monitored and maintained to ensure reasonable turnout time compliance in the future.

Travel Time

There are a multitude of variables that can affect travel time performance. In addition to the recent replacement and relocation of Stations 1 and 2, VFD has several internal initiatives currently underway to help reduce travel times, including: mapping enhancements, enhancements to closest unit dispatching through the automatic vehicle location (AVL) system, changes to the emergency response matrix, changes to the move up and cover resource management plan, ensuring Opticom performance, and enhanced internal coordination among VFD and the City's transportation planning and operations.

This proposal includes adjustments to the existing rescue program. This proposal will transition the one 10-hour rescue unit to a 24-hour squad and add two additional squad units that will be deployed 24 hours each day. These squad units, in addition to providing faster response capability, will have move up and cover responsibilities to aid with call concurrency and reliability. The addition of a truck company at fire station 8 will address a large service level gap on the east side of the Vancouver fire service area. Currently travel times for trucks to the east side of Vancouver averages between 13-16 minutes. Critical truck company fire ground tasks may be delayed during this period.

Geographic Coverage:

Placing a ladder truck at Station 8 addresses the ladder truck coverage gap identified in Figure 5. (Figure 9)

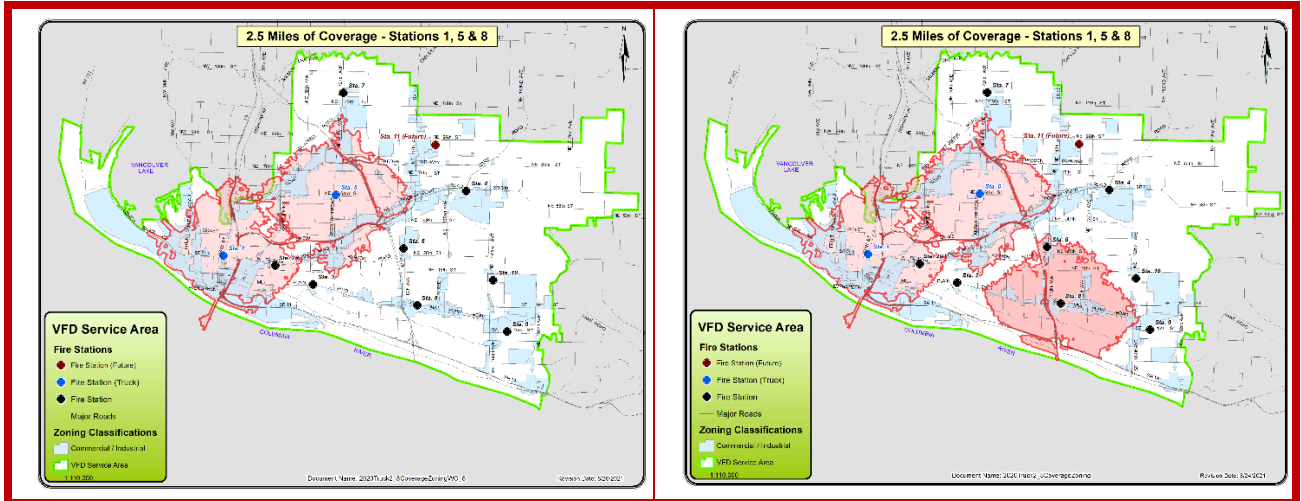


Figure 10: Ladder Truck Coverage Before and After Including Commercial/Industrial

Station Effectiveness:

Stations, 1, 2 and 5 have two deployable units assigned. One additional resource is needed for each of Stations 3, 6, 8, 4, and 9. There is insufficient space at the current Station 3 and 6 locations to house a second unit(squad). The City is in the land acquisition phase of relocating Station 3 and the planning stage for relocating Station 6. Station 5 borders Stations 3 and 6 and has sufficient space to accommodate a squad until the Station 3 and 6 relocations are complete. This proposal requests a ladder truck for Station 8. The completion of Station 11 will offset some of the call concurrency burden on Station 4. A third squad is proposed for Station 9 (Figure 11).

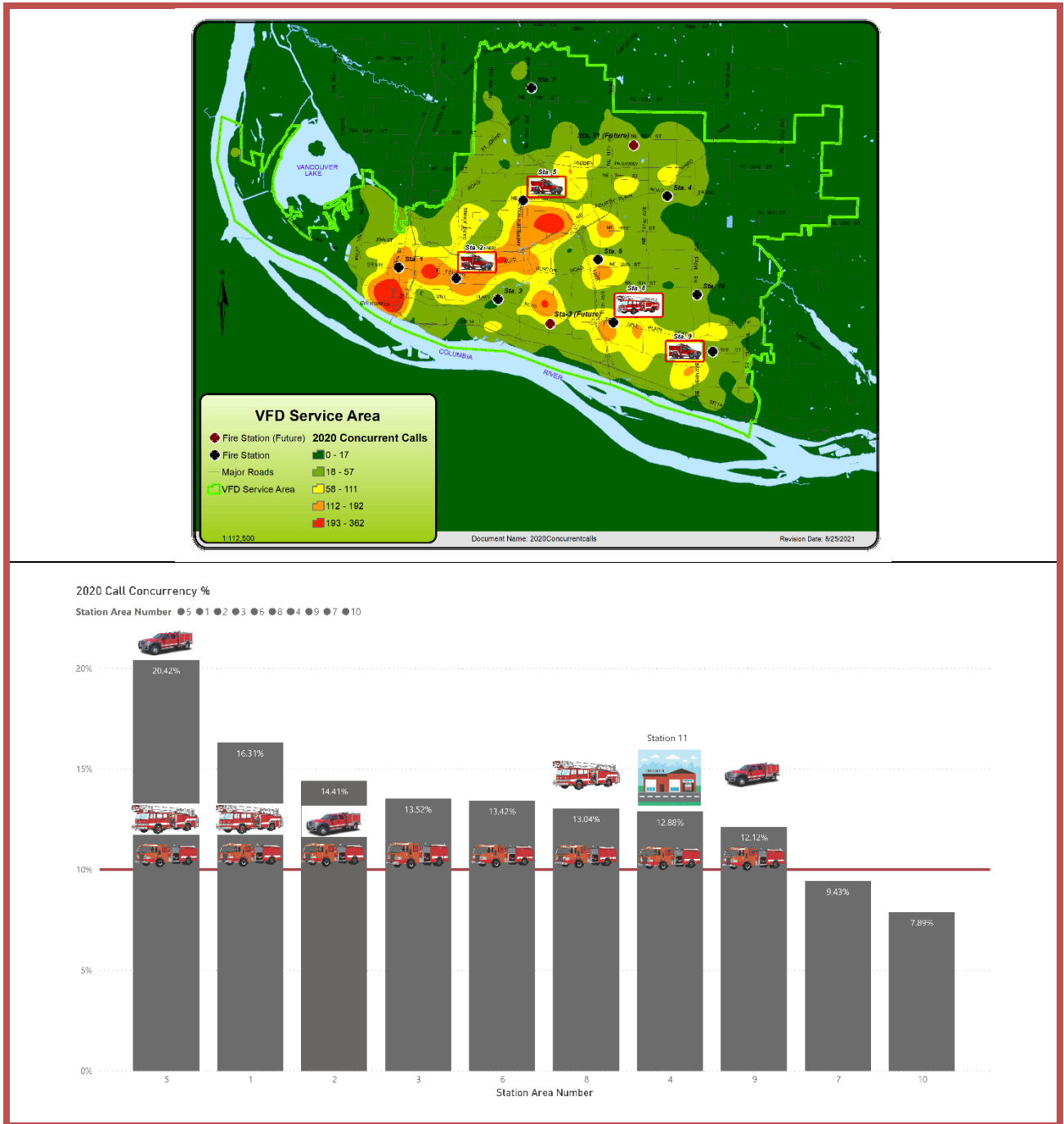


Figure 12: 2020 Concurrent Call Heat Map & Percent of Concurrent Calls by Station Area

Ambulance Service Provider

The role of the ambulance service provider is to augment ALS Response and provide transport within the contracted service area.

Ambulance contract performance requires an ALS ambulance arrive within 09:59 ninety percent of the time. This ambulance standard is two minutes greater than the Vancouver Fire Department standard which leaves the system Priority 1 and 2 EMS response times vulnerable to fluctuation.

Longer term needs & implications

The additional resources detailed here are anticipated to close current identified gaps in service. However, the City continues to grow at a relatively high and sustained pace. Additional resources are likely to be needed in the future to meet demand from a growing and changing community. Those would be addressed at that time and are anticipated to be part of a future package of investments. That package may include:

- Complete the relocation of Station 3 and Station 6
- Schedule and complete remodel at Stations 4, 8 and 9
- Addition of 2 more Squads (5 total)
- Addition of One more Truck (4 total)
- Addition of Station 12 to cover downtown waterfront expansion

Conclusion

The Vancouver Fire Department is experiencing a persistent decrease of service delivery to the citizens in a few key areas. VFD is currently not meeting the city council adopted response standard in: Priority 1 and 2 calls; and Fire Suppression Full Alarm Assignment. The factors contributing to this degradation of service are varied. However, the primary causes stem from the fact that Fire Department staffing levels have not seen an increase in over 13 years, and during that time only 2 two-person peak- hour staffed rescue unit has been added to the system to serve the public and a new engine that will be staffed for the opening of the City's newest fire station 11. The opening of fire station 11 in late 2022 will have a positive impact on response times and station reliability particularly in the FD#5 county area north of Padden Parkway. This area generally has the poorest performance in meeting the P1 and P2 response goals. While this investment will help add depth to the overall emergency service delivery system, it will have a marginal impact in the central and eastern portions on the City

In the past 10 years VFD call volume has increased by 24%, and the population served has increase by 22%. The result is a fire service delivery system that is undersized and underfunded for a community of over 288,000 residents.

Vancouver Fire is proposing these supplemental resources to address the service delivery gaps. The most effective way to bring VFD into compliance with council adopted standards is to add additional fire resources into the system at existing fire station locations. Therefore, it is recommended that 3 squads and 1 truck company be added, as well as all associated facility upgrades, staffing, and support increases. The addition of these units will be a good first step to filling the current service gaps that exist, as well as creating some system resiliency for the immediate future.