



VPFFA MASTER FIRE PLAN ANALYSIS

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As a key stakeholder in the safety of Vaughan’s citizens and its firefighters, the Vaughan Professional Firefighters Association (VPFFA) has undertaken an extensive review of the service provided by Vaughan Fire & Rescue Service (VFRS) under its current Master Fire Plan (MFP). The detailed plan and risk assessment, authored by Dillon Consulting in 2018, provides an outline for the development and growth of Vaughan’s fire department through 2027. The goal of this review was to evaluate current VFRS service delivery in comparison to industry standards and best practices, as well as identify any deviations from the current MFP and how best to remedy them.

The city of Vaughan is one of Canada’s fastest growing municipalities, with a projected population of over 400,000 by the year 2031. Within the same timeframe, employment within the city borders is projected to increase 54%, creating an even greater strain on Vaughan’s infrastructure¹. To meet the ever-changing landscape and service needs of its citizens, VFRS should strive for the following goals:

1. Development of a Technical Rescue program
2. The opening of three new fire stations
3. Providing efficient emergency response, fire protection, prevention, safety and education to those who live, work and visit the city

As the city grows, so too does the number of hazards a fire department can experience. Numerous high rises, an active subway/train network, and a torrid pace of construction to prepare for future growth are all woven into the fabric of the city. While in its infancy, the comprehensive VFRS Technical Rescue program needs the training time and resources to appropriately prepare our members for anything and everything they could potentially encounter.

Along with city development, comes the need for additional fire station coverage, primarily in the city’s north end. The “Future Development” scenarios in the MFP outline the need for 60 additional firefighters to staff these stations, even before accounting for attrition and turnover. And finally, simply maintaining the MFP as proposed, to provide optimal service to the citizens of Vaughan.

Removing trucks from service via dynamic staffing practices has become too frequent over the past years. This option was supposed to be exercised due to “extraordinary” staffing challenges. We are currently in the fourth year of removing trucks from service as our primary solution. This is a clear indication that these are no longer “extraordinary” circumstances. Down staffing the daily complement of apparatus not only reduces VFRS resources available to citizens, but it hinders the training opportunities of our Technical Rescue teams, hinders our Dispatchers ability to allocate resources, and directly contradicts industry best practices.



Current State

Operating on a rotating four platoon system, the MFP references VFRS staffing in 2017 *prior to* the opening of Station 7-4 as followsⁱ:

- two platoons with 74, two platoons with 75
- 298 operations firefighters, 9 stations, 15 apparatus (13 front-line, 2 chief - minimum of 54 operational staff)

In keeping with similar staffing arrangements, hiring for a new station would require 20 new firefighters, resulting in the following staffing picture:

- two platoons with 79, two platoons with 80
- 318 operations firefighters, 10 stations, 16 apparatus (14 front-line, 2 chief - minimum of 58 operational staff)

Instead, following two retirements at the end of May 2021, our current complement of firefighters sits at:

- Platoons: (A) 76, (B) 75, (C) 74, (D) 77
- 302 operations firefighters – virtually unchanged from our 2017 levels and *at least 16 less than needed*

The MFP clearly states that the minimum staffing with the addition of Station 7-4 is 58ⁱⁱ, a number which still leaves minimal buffer room for injuries or extended absences from the workplace.

The MFP states that an additional aerial was slated to replace a current in-service truck in 2021 and placed at Station 7-2ⁱⁱⁱ to address the incredible number of high-rise buildings that have already been approved by the city to be built in that district. Additionally, its placement at Station 7-2 would have ensured a more adequate depth of response for aerial coverage for the entire north end of the city^{iv}. Inexplicably, this aerial was instead placed at Station 7-6. In a city growing vertically, this apparatus is vital for the protection of both life and property, and its placement should have been in accordance with the recommendations in the MFP as they were based on several factors.

The MFP also discusses the requirement of two cohorts each composed of the ten additional firefighters, hired in 2021 and 2022 respectively; this is cited to maintain apparatus coverage and staffing. Currently 2021 and 2022 municipal budgets have not allocated for this need.



For simplicity's sake, rough projections have been created below to forecast what staffing budget overages might look like from June-September, when the full complement of vacation/lieu time is historically selected:

Platoon	A	B	C	D	Total
Staffing	76	77	74	77	304
WSIB/Vacant (as of June 2021)	2	5*	3**	3	13
Parental (as of June 2021)	1	0	0	3	4
Vacations	15	15	15	15	
Modified***	2	2	2	2	8
Sick/Critical/Bereavement****	2	2	2	2	8
Daily Staffing	54	53	52	52	

Figure 1: Current Snapshot of Staffing (June-Sept. 2021)

*Two retirements on B platoon, which will add to the 3 already off on WSIB

**1 FF in WSIB absence for now - currently on Modified day shifts and should not be considered as staff on a front-line apparatus yet

*** As of April 2021, there are currently 4 members on "Modified" work across the 4 Platoons (A = 1, B = 1, C = 2, D = 0)

****This is a conservative estimation. Example below shows that historical short-term illness/critical/modified will generally be higher than this. See Figure 3

This scenario **reduces fire department service levels 75% of the time** from June-September.



The above example utilizes conservative estimations of potential “short-term” absences on any given day. We would recommend a more detailed estimation utilizing historical data processed by the current Administration to forecast projected “short-term” absences.

Below, utilizing a small sample size of short term illness/bereavement/critical leave compiled from “Saturday” shifts across all four Platoons for a 16-week period from June to September 2020 (Fig. 3). We are able to note that the average number of short-term absences for a Saturday shift from June to September, should be anticipated to be **7.81 per day**.

Saturday Shifts 2020	A	B	C	D
June	7 4 Sick, 2 Other, 1 Bereavement)	4 (4 Sick)	8 (6 Sick, 3 Modified)	4 (3 Sick, 1 Other)
July	8 (5 Sick, 1 Critical, 2 Other)	8 (8 Sick)	9 (6 Sick, 2 Modified, 1 Bereavement)	8 5 Sick, 1 Modified, 1 Bereavement, 1 Other)
Aug	14 (11 Sick, 1 Critical, 2 Other) 6 (3 Sick, 1 Mod, 1 Critical, 1 Other)	7 (5 Sick, 2 Modified)	8 (6 Sick, 2 Modified)	7 (6 Sick, 1 Other)
Sept	N/A Did not include September “Saturday” as this Platoon had 2 Saturday shifts in August	8 (5 Sick, 2 Modified, 1 Critical)	11 (7 Sick, 2 Modified, 1 Critical, 1 Bereavement)	8 (5 Sick, 1 Critical, 2 Bereavement)

Figure 2: Short Term Absences Snapshot (June-Sept. 2020 - Saturdays)



Using this information with reference to Figures 1 & 2, now estimating 8 short term absences (rounded from 7.81), this drops the Daily Staffing numbers to:

Platoon	A	B	C	D	Total
Staffing	76	77	74	77	304
WSIB/Vacant (as of June 2021)	2	5*	3**	3	13
Parental (as of Apr 2021)	1	0	0	3	4
Vacations	15	15	15	15	
Modified***	2	2	2	2	
Sick/Critical/Bereavement****	8	8	8	8	
Daily Staffing	48	47	46	46	

Figure 3: Actual Anticipated Staffing (June-Sept. 2021)

Platoon	A	B	C	D	Total
Daily Staffing	48	47	46	46	
OT Required	4	5	6	6	
Overtime Pay/24hr Shift *	\$6804.68	\$8505.85	\$10207.02	\$10207.02	
Number of Shifts (Jun-Sep)	31	31	29	31	
Total Overtime	\$210,945.08	\$263,681.35	\$296,003.58	\$316,417.62	\$1,087,047.63
Truck in Service?	NO	NO	NO	NO	

Figure 4: Actual Anticipated Overtime Costs (June-Sept. 2021)

*Hourly overtime rate for a 1st Class FF calculated: = \$70.88/hr x 24hrs = \$1701.17 per FF/per day

THIS AMOUNT OF OVERTIME STILL HAS ONE FIRE TRUCK PERMANENTLY REMOVED FROM SERVICE!



Absolute Red Flags with Staffing Projection

1. Before any overtime is paid, there is potentially two full fire trucks removed from service
2. That is a 15% reduction in the service levels promised to taxpayers
3. After spending over \$1,087,047.63 in overtime, you still have one fire truck removed from service from June-September
4. That is 7% reduction in the service levels promised to taxpayers while grossly overspending the staffing budget.
5. **Overtime accumulated from Jan-Apr. has not been factored into to any calculations yet**

These estimations have not taken Covid-19 considerations into account at all. With possible lengthy self-isolation periods or close contact exposures, as witnessed on multiple occasions already, it is abundantly clear that the city could be in a much more dire situation in the coming months. Ever evolving Public Health requirements are becoming more restrictive regarding requirements for entire households to be in self isolation until receiving negative test results or potentially full 14-day self-isolation periods if deemed a high-risk close contact. With these factors considered, the faster we can get a recruit class of 5th Class Firefighters hired, the better.

Following our research, the VPFFA is seeking the following explanations:

- What was the justification for deviating from the Master Fire Plan?
- What data did the former Fire Chief base the "confidential" 2018-2028 Master Fire Plan Implementation Strategy? It was stated to Council that the Implementation Strategy was derived from the recommendations in the MFP, yet there are significant deviations that have inexplicably taken place^v
- Why was Station 7-4 not adequately budgeted or staffed appropriately?
- Why does VFRS run the risk of taking two trucks out of service in the coming months if an adequate number of firefighters are not able to work in excess of their regularly scheduled shifts?



VFRS Staffing Needs

Following the analysis of the current state of our department, the breakdown below aims to improve the hiring practices of the Vaughan Fire & Rescue Service. Although some calculations may seem rudimentary and estimates are rough, there is a strong case to be made that previous staffing forecasts were misguided as to the amount of time employees are in/out of the workplace, therefore masking the true number of staff required to appropriately operate this fire service.

According to the CBA, every position on a fire apparatus is scheduled to work approximately **2184 hours**, which translates to **8736 hours** of coverage across four platoons.

Apparatus	Staff Required	Annual Man Hours
14 Front-Line	56	489,216
C74	1	8736
C75	1	8736
	58	506,688

Figure 5: Minimum Staff Required to Run All Front-Line Vehicles

With 14 fire apparatus (four firefighters each) and two chief officers, there is a minimum of 58 staff required to operate all VFRS front-line vehicles. Multiplied by the annual hours of work to be covered, there is a grand total of **506,688 minimum man-hours** required to staff these vehicles.



Using rough estimates of vacation and lieu time (4 weeks, 13 days respectively) and the Corporation-calculated sick credit average usage (10 days), it is estimated that the average employee is out of the workplace approximately **444 hours**. Subtracting that from the scheduled **2184 hours** per employee, the average employee *actually* works **1740 hours**.

Average Leave Used Per Employee (Hours)	Current
Average Vacation Leave	168
Average Lieu Leave	156
Average Sick Leave	120
Average Training Leave	0
On-Duty-Injury Leave	0
Average Bereavement Leave	0
Average Other Leave	0
Total Average Leave Per Employee	444
Hours Actually Worked by Average Employee	1740

Figure 6: Projected Leave Utilized/Employee in Hours

Dividing the total annual hours of work required by the number of hours *actually* worked per position, it is necessary to hire **5.02 firefighters/position** to appropriately staff all of the front-line vehicles of the VFRS.

Staffing Factor Calculation	
Total annual hours of work	8736
Hours <i>actually</i> worked by average employee	1740
STAFFING FACTOR	5.02

Figure 7: Number of Staff Required/Position



What this current system fails to account for are any other collectively bargained leaves of absence from the workplace – parental, bereavement, critical leaves, etc. This underestimation has failed to provide the appropriate staff to buffer our service from the unavoidable “human” aspects of firefighting – employees starting families, attending funerals, and hopefully less frequently, occupational cancers and mental health issues.

Average Leave Used Per Employee (Hours)	Current	Actual
Average Vacation Leave	168	168
Average Lieu Leave	156	156
Average Sick Leave	120	120
Average On-Duty-Injury Leave	0	12
Average Training Leave	0	12
Average Bereavement Leave	0	24
Average Other Leave	0	24
Total Average Leave Per Employee	444	516
Hours Actually Worked by Average Employee	1740	1668

Figure 8: Actual Average Leave Utilized/Employee in Hours

Utilizing even conservative estimates, a more realistic picture can be painted of the staffing shortage our department is experiencing. Adding in a completely likely annual scenario of a day shift training secondment, experiencing a death in the family, a critical day and an injury, it increases the total average leave per employee from 444 to **516 hours**. Once again, subtracting from the scheduled **2184 hours** needed to staff all apparatus, there are **1668 hours** *actually* worked by the average employee – **72 less than initially accounted for**.



Staffing Factor Calculation	Current	Actual
Total annual hours of work	8736	8736
Hours <i>actually</i> worked by average employee	1740	1668
STAFFING FACTOR	5.02	5.24

Figure 9: Actual Number of Staff Required/Position

Dividing the total annual hours of work required by the number of hours *actually* worked utilizing a more realistic projection, it is necessary to hire **5.24 firefighters/position** to appropriately staff all of the front-line vehicles of the VFRS.



How Many Staff Does VFRS Need?

Current VFRS staffing meets the above-mentioned staffing rationale – on paper.

58 x 5.24 = 303.24 Suppression Firefighters

(Minimum Staff x Staffing Factor)

Current Roster = 304 Suppression Firefighters

What the current roster fails to reflect are the 17 members out of the workplace on extended absences, leaving VFRS current staffing levels well below what is **needed** – far from safe and responsible. At a minimum, long term absences such as WSIB/Parental Leave need to be projected out of the front-line numbers for the duration they are going to be off. As Schedule 2 employers, other services across the province have taken a proactive approach with the WSIB Presumptive Legislation for PTSD by budgeting monies aside in anticipation of future absence costs. Unfortunately, Vaughan has not taken a similar approach.

Staffing meets the bare minimum of a more realistic and progressive forecasting framework. As previously referenced, conservative estimates were used to reach the final staffing factor. Additional factors that would further exacerbate the situation are listed below:

1. WSIB-Approved Workplace Injuries
2. Attrition, both planned and unplanned
3. Covid-19 Precautions/Quarantines

Suggestion:

- Collect historical data from the past 5 years of the number/length of WSIB absences due to PTSD
- Collaborate with other similarly sized agencies to get an idea of their WSIB PTSD cases
- Develop projections for future years as our service grows.

In reference to the staffing factor above, 5.5 is probably a more appropriate factor to cover for all leaves listed, which would bring VFRS Operations staffing to 319, in line with the initially referenced 318 firefighters required after opening station 7-4. To implement this drastic influx of staff would be too grave an economic impact to implement now all at once; 5.24 is a conservative mitigation number.



In the interim, a solution is needed to cover for these absences ahead of time on the frontline apparatus. The longer we continue to be understaffed and morale depreciates by removing trucks from service, the more likely that we will experience employee burnout. Whether prescheduled overtime for these long-term absences or creatively scheduling recruit classes to line up with anticipated long-term absences, these long-term absences should not be included in our daily Duty Roster.

While there is no singular best method for deploying resources and Fire Administration/City Council maintain the autonomy to establish service-level objectives and deployment strategies, it is the opinion of the VPFPA that the deviations from the current MFP create unnecessary risk to life safety and property in the city.

The MFP is the pre-determined service level accepted by City Council. Any reductions in this plan immediately reduces both public and firefighter safety. Over the past few years, VFRS has backfilled staffing gaps with overtime, and while sustainable in the short term, it will lead to systemic increases in sick time, injuries, and firefighter burnout.

The VPFPA remains steadfast in its dedication to the safety of Vaughan's citizens and its firefighters – we hope our assessment of the department's current situation offers insight into both progressive staffing projections and creates an opportunity for constructive dialogue surrounding the future success of VFRS.



References

1. *City of Vaughan Master Fire Plan and City Wide-Risk Assessment – Final Report*. Dillon Consulting, 2018.

ⁱ Master Fire Plan, Page 115

ⁱⁱ Master Fire Plan, Page 157

ⁱⁱⁱ Master Fire Plan, Page 196

^{iv} Master Fire Plan, See Figure 47, Page 183 and Figure 54, Page 197