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June 19, 2023

Fire Chief Sara Boone
Portland Fire & Rescue
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RE: STAFFING SUFFICIENCY ANALYSIS FOR PORTLAND FIRE & RESCUE

Dear Chief Boone:

Given our understanding of Portland Fire and Rescue (PF&R) from the May 2022 Service Delivery and Staffing Study, Citygate Associates, LLC (Citygate) was retained to review the number of sworn personnel in the ranks of firefighter through Deputy Chief and identify the number of personnel needed to maintain daily response staffing. Citygate's recommendations consider absences due to various types of leave, annual attrition, and entry-level hiring/training capacity, with the goal to reduce the overtime used to "backfill" daily response staffing vacancies.

1. EXECUTIVE SUMMARY

PF&R provides emergency services with three shifts of 169 personnel on-duty daily, including an average of 20 relief/traveler personnel each shift, staffing 48 response units from 31 fire stations. PF&R will increase the on-duty daily staffing to 171 in FY 2023–24. Additionally, PF&R maintains daily specialized staff assignments in the areas of marine operations, land-based marine operations, trainers, hazmat, technical rescue, and investigations. Response staffing absences occur due to the use of earned leave, time off for injury, and other leave types including occasional administrative assignments. Backfilling of these absences to maintain daily operational response capacity is first accomplished via the use of designated "relief/traveler" positions (the number fluctuates but was 67 at the time of this analysis), and then with off-duty personnel utilizing overtime (callback¹).

¹ Callback is the PF&R time recording term used when off duty personnel are assigned to fill a regular duty absence on overtime. This time is not when off duty personnel are called back to duty to staff up reserve apparatus for a catastrophic emergency.

Over the past four fiscal years (FY 18/19 through FY 21/22), leave absences for response personnel more than doubled—from 200,946 hours in FY 18/19 to 407,523² hours in FY 21/22. The use of relief/traveler positions generally provides a balanced approach to addressing leave vacancies by not requiring excessive overtime of a minimally staffed workforce. The 67 current relief/traveler positions backfill approximately 26 percent of all response leave hours, which is insufficient to significantly offset PF&R’s backfill overtime needs, often resulting in mandated overtime when no off-duty personnel voluntarily work shift vacancies.

Citygate modeled multiple scenarios using PF&R historical data and overtime projections based on the current 50.4-hour firefighter workweek in the collective bargaining agreement. To offset 50 percent of the current overtime used for replacement, the model indicates that a minimum of 75 additional relief/traveler positions are needed, exclusive of expected attrition. However, this is a large number of added employees that will strain the intake training process. Additionally, the model cannot exactly predict future patterns of vacation and other types of leave usage. Citygate suggests initially striving for a 44 percent overtime reduction totaling 66 new positions, which can be divided evenly into the three rotating shifts and phased over time:

1. In FY 23/24 and FY 24/25 budgets, authorize the creation and funding of 33 new firefighter FTEs each year to increase backfill capacity, thus providing 11 additional relief personnel on each of the three shifts to backfill vacancies in lieu of overtime, or
2. Add 21 FTEs incrementally over each of the next three fiscal years (seven per shift per year) totaling 63 FTE in all. PF&R will need to evaluate the impact on overtime usage annually to determine if a further decrease in overtime is desired.

For the period of increased hiring plus expected retirement attrition, PF&R will need to expand the physical capacity and staffing of its training program to provide the additional capacity needed to accommodate the number of new recruits. This equates to six FTEs needed for training. Once past the training academy, the program will need an increased capacity of two FTEs to monitor and test recruits in the stations.

Due to the projected number of retirements stemming from a firefighter hiring bubble 25 years ago, PF&R does not have the option to do nothing.

There are two factors to a workforce stabilizing solution, which include (1) adding more relief/traveler positions for absence backfill while also (2) increasing the capacity of the training program. PF&R must be able to hire and train additional firefighters at a rate faster than the rate of staff being lost to attrition. Doing so will slow, but not staunch, what is certain to be an increased

² Excluding Emergency Leave for COVID-19.

reliance on overtime over the next two to three years. ***To be clear, it will not lower overtime usage in the short term.***

It is certain that if there is no increase to the number of relief/traveler firefighters in FY 23/24 and beyond, the predictable result will be an emergency response staffing crisis.

2. INTRODUCTION AND BACKGROUND

PF&R provides emergency services with three shifts of 169 daily suppression personnel, including an average of 20 relief/traveler personnel each shift. The breakdown of current suppression sworn personnel is summarized in the following table.

Table 1—2023 Response Staffing Summary

Position	Total FTE
Battalion Chief	13
Captain	31
Lieutenant	105
Firefighter	348
Harbor Pilot	10
Total Shift Platoon	507

Absences occur due to the use of earned leave, time off for injury, and other leave types including occasional administrative assignments. “Backfilling” of absences to maintain daily operational response capacity is accomplished via two methods: 1) the use of designated relief/traveler positions, or 2) callback of off-duty personnel on overtime status.

Over the past four fiscal years (FY 18/19 through FY 21/22), leave absences for response personnel more than doubled—from 200,946 hours in FY 18/19 to 407,523³ hours in FY 21/22. While the 67 relief/traveler positions backfilled 106,819 (26.2 percent) of those leave hours in FY 21/22, the remaining 300,704 hours were backfilled using overtime, equating to an average of 824 hours, or 34 24-hour overtime shifts, daily. During the period of Citygate’s 2022 Service Delivery and Staffing Study, the Portland Firefighters Association IAFF Local 43 expressed concerns regarding the increased use of backfill overtime (including mandated overtime) and its impact on members’ work/life balance and ongoing job satisfaction.

³ For FY 2021-22, COVID-19 Emergency Leave was excluded while FFCRA leave was included.

3. STUDY APPROACH AND METHODOLOGY

To conduct this analysis, Citygate:

- ◆ Requested and reviewed all leave time earned and taken, and all overtime hours by position classification, over the four fiscal years.
- ◆ Reviewed relief/traveler position usage, annual attrition, potential additional near-term attrition, and training capacity for new hires.

Based on this analysis, Citygate then developed an algorithm (see **Attachment A**) to identify a recommended number of additional FTE needed to reduce callback overtime by 45–50 percent—a level that, in Citygate’s opinion, is appropriate to eliminate mandated overtime while minimizing occurrences of daily response staffing exceeding the desired daily operational staffing level. The algorithm utilizes multiple assumptions, including total annual productive work hours per employee, the total resultant annual work hours required to maintain daily response staffing levels, total annual leave hours used, total annual backfill overtime hours, and desired percent of backfill overtime reduction. Any of these assumptions can be modified as desired and the algorithm will produce an adjusted number of additional FTE needed.

Citygate’s analysis (1) assumed an intent to maintain the existing daily fire operations staffing level of on-duty personnel; (2) *excluded* anomalies including COVID-19 Emergency Leave hours granted and used in FY 21/22; and (3) modeled historical patterns by type of leave and overtime trends over the four fiscal years, considering all applicable Portland Firefighter’s Association (PFFA) labor contract terms, City personnel rules, and the complex firefighter shift staffing requirements under the federal Fair Labor Standards Act (FLSA).

4. FACTORS CONSIDERED

In analyzing FY 21/22 as the most recent year of earned leave, vacancy, and overtime use data, Citygate identified the following key elements.

- ◆ Leave use totaled 407,523 hours for sworn suppression positions (excluding COVID-19 hours).
- ◆ Backfill overtime totaled 300,703 hours for those same positions.
- ◆ The Bureau’s relief factor (67 historical average relief/traveler positions) absorbed 106,819 hours (26.2 percent) of the 407,523 leave hours used.

Fire departments generally maintain their desired daily response staffing level with a complex balance of overtime use and relief staffing. In no logical scenario would 100 percent of absences be filled by personnel on overtime as it would present an unhealthy and unreasonable impact to

the workforce, often requiring mandatory overtime to fill staffing vacancies. Achieving a more equitable balance of overtime and relief positions will not only reduce fatigue and injury, but will also increase employee wellbeing, health, and morale.

In FY 21/22, sworn suppression personnel worked an average of 22 callback overtime shifts (24-hour shifts). However, due to cyclical factors (e.g., vacation seasons, regional emergencies, sworn rank vacancies) and spikes in employee leave, some months can result in callback personnel working as much as 72–96 consecutive hours of regular duty and callback time.

5. ANALYSIS

5.1 Leave Use

The leave data provided by PF&R was separated into six categories including Kelly Day,⁴ vacation, sick, workers’ compensation, COVID-19, and other/miscellaneous leave. COVID-19 hours were only separately accounted for in the FY 21/22 data, thus Citygate was only able to exclude COVID-19 data for this review for that fiscal year. Over the four-year period of data reviewed, primary leave use (excluding COVID-19 Emergency Leave) consisted of vacation (38 percent), Kelly Days (30 percent), and sickness (15 percent).

The following table summarizes total annual leave usage over the four-year period for the ranks identified in this review. Additional detail related to the types of overtime used for each rank is included in the staffing algorithm.

Table 2—Total Annual Leave Hour Use by Position

Position	FY 18/19	FY 19/20	FY 20/21	FY 21/22 ¹
Battalion Chief	4,765.00	8,766.00	8,579.75	10,153.00
Captain	14,269.25	22,516.50	23,627.25	26,094.92
Lieutenant	41,401.27	73,248.75	77,143.33	84,245.23
Firefighter	136,882.25	229,269.83	246,795.17	279,343.70
Boat Pilot	3,628.00	5,785.00	7,320.00	7,686.25
Total	200,945.77	339,586.08	363,465.50	407,523.10

¹ Excluding COVID-19 Emergency Leave

As the table shows, total leave use *more than doubled* over the four-year period. Leave use increased 69 percent in FY 19/20 over the prior year, increased 7 percent in FY 20/21 over the prior year, and increased 12 percent in FY 21/22 over prior year, irrespective of City-issued

⁴ A Kelly Day refers to time off to balance the hours worked within an FLSA overtime calculation cycle.

COVID-19 Emergency Leave, which was excluded from the leave hour calculations. Per City staff, it should be noted that fire suppression shift members were given 103.38 hours each in FY 20/21 as a part of the Families First Corona Virus Response Act, which totaled approximately 11,371 total hours.

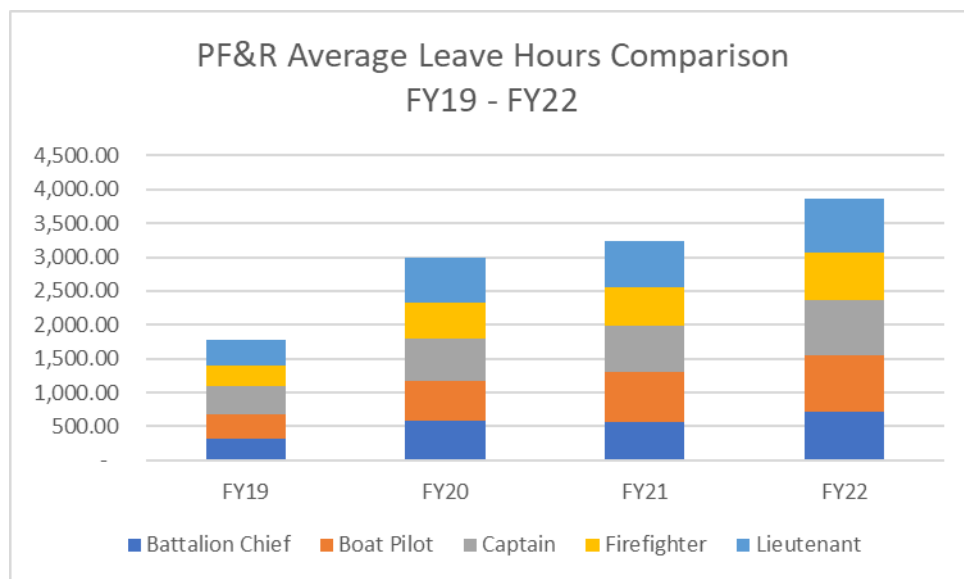
The following table and figure summarize average annual leave hours used per employee by position.

Table 3—Average Annual Leave Hours Used per Employee by Position

Position	FY 18/19	FY 19/20	FY 20/21	FY 21/22 ¹
Battalion Chief	317.67	584.40	571.98	676.87
Captain	432.40	682.32	715.98	790.76
Lieutenant	376.38	665.90	701.30	765.87
Firefighter	387.77	649.49	699.14	791.34
Boat Pilot	362.80	578.50	732.00	768.63
Total	1,877.01	3,160.61	3,420.40	3,793.45

¹ Excluding COVID-19 Emergency Leave

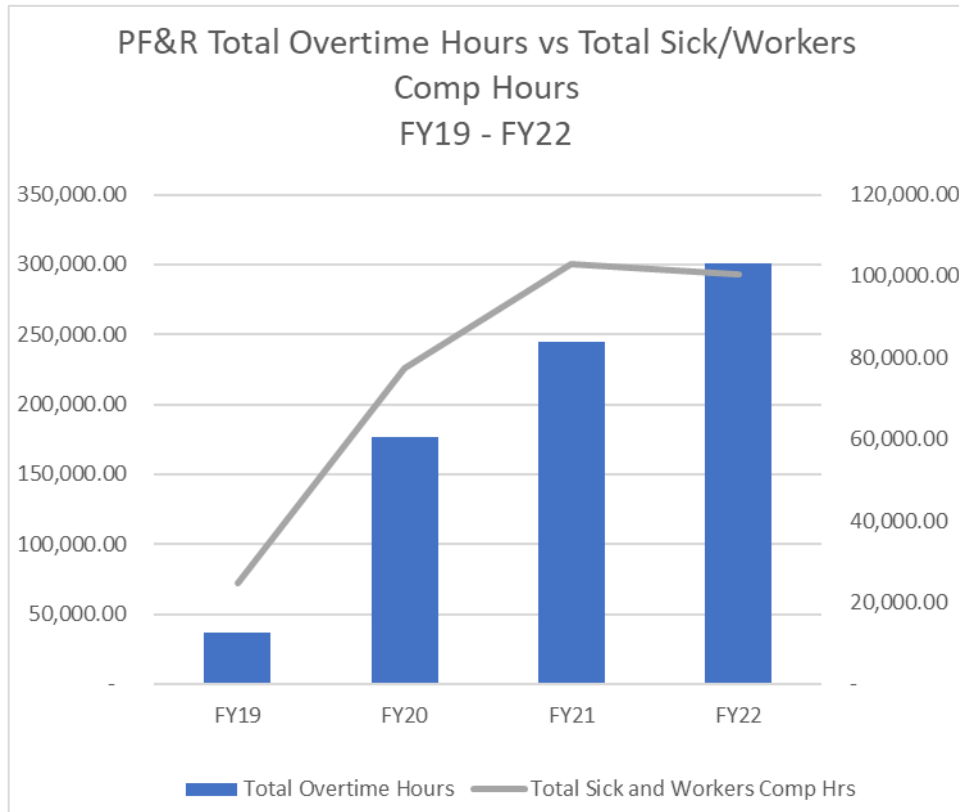
Figure 1—Average Annual Leave Hours Used per Employee by Position



Typically, unplanned leave such as sick time and workers' compensation drive increased overtime usage to the extent that relief/traveler personnel are not available for backfill. However, as the following figure shows, total combined sick leave and workers' compensation hours *declined*

slightly between FY 20/21 and FY 21/22, whereas overtime hours *increased* by almost 23 percent. This indicates a higher level of unplanned vacation and/or other leave time hours.

Figure 2—Total Overtime Hours versus Total Sick/Workers' Compensation Hours



5.2 Relief/Traveler Personnel

Citygate’s review of relief/traveler data shows that, for the four-year period, designated relief/traveler personnel were used exclusively to reduce backfill overtime due to absences, and in no instance did the number of relief/traveler personnel exceed daily response staffing needs. This indicates 100 percent effective utilization of these positions for their intended purpose.

5.3 Overtime Use

Overtime data was separated into three categories:

- ◆ Callback
- ◆ Acting above rank
- ◆ Other/miscellaneous.

Callback represented the largest category of overtime usage, averaging 95 percent of total overtime use over the four-year period reviewed. The following table summarizes total overtime hours over the four-year period for the ranks identified in this review. Additional detail related to the types of overtime usage for each rank is included in the staffing algorithm.

Table 4—Total Annual Overtime Hours by Position

Position	FY 18/19	FY 19/20	FY 20/21	FY 21/22
Battalion Chief	1,385.00	7,545.00	8,343.82	9,339.88
Captain	4,108.00	15,401.87	18,443.64	23,345.08
Lieutenant	9,504.75	45,157.08	58,223.16	71,055.23
Firefighter	20,429.19	104,817.89	153,773.41	190,837.37
Boat Pilot	883.00	3,873.67	6,140.00	6,126.33
Total	36,309.94	176,795.51	244,924.03	300,703.89

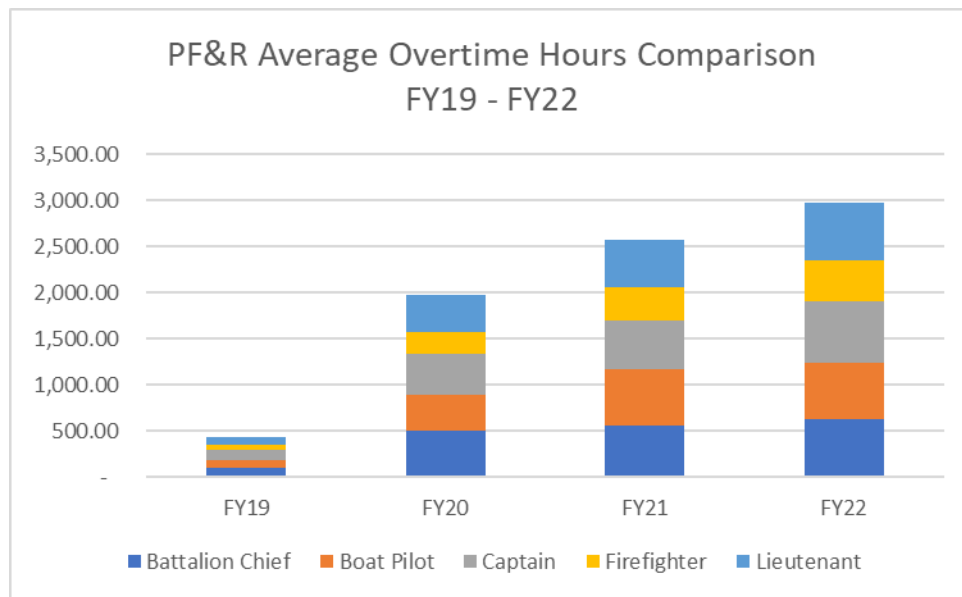
As the table indicates, overtime use increased more than eightfold over the most recent four years, with a nearly 400 percent increase in FY 19/20 from the previous year, followed by a 38.5 percent increase in FY 20/21 and a 22.8 percent increase in FY 21/22. Some of the increase in FY 19/20 and subsequent fiscal years is undoubtedly due to the COVID-19 pandemic, as evidenced by the declining rate of increase in FY 20/21 and FY 21/22 as the most severe impacts of COVID-19 subsided. A significant contributing factor to the increase in overtime over this period was the PFFA contract impacts related to additional leave hours and a reduced suppression workweek.

The following table and figure reflect the average annual overtime hours per employee use by position.

Table 5—Average Annual Overtime Hours per Employee by Position

Position	FY 18/19	FY 19/20	FY 20/21	FY 21/22
Battalion Chief	92.33	503.00	556.25	622.66
Captain	124.48	466.72	558.90	707.43
Lieutenant	86.42	410.52	529.30	645.95
Firefighter	57.87	296.93	435.62	540.62
Boat Pilot	88.30	387.37	614.00	612.63
Total	449.40	2,064.54	2,694.07	3,129.29

Figure 3—Average Annual Overtime Hours by Position



5.4 Staffing Algorithm

Utilizing leave and overtime data provided by PF&R, Citygate developed an algorithm in Microsoft Excel (**Attachment A**) to identify the number of *additional* FTE relief/traveler personnel needed to reduce backfill overtime by a desired percentage of baseline.

For this calculation, Citygate used the following assumptions:

- ◆ Daily operational response staffing consisting of 169 personnel, noting that the bureau intends to adjust daily on-duty staffing to 171 in FY 23/24.
- ◆ 2,621 total annual work hours per sworn suppression employee (52 weeks at 50.4 hours per week).
- ◆ 581 average annual leave hours used per sworn suppression employee (318 hours vacation, 130 hours sick leave, 133 other leave hours—excluding City-issued COVID-19 Emergency Leave based on FY 21/22 leave use data).
- ◆ 2,040 net annual productive work hours per sworn suppression employee (2,621 hours minus 581 hours).
- ◆ 45–50 percent backfill overtime reduction goal using FY 21/22 overtime use as baseline (Table 4).

Following is a description and purpose of the various Excel spreadsheet tabs provided in **Attachment A**.

Original Data

This tab contains the original overtime and leave hour information provided by PF&R for fiscal years 19/20, 20/21, and 21/22.

Amended Data for Pivot Table

This tab includes amendments to the original data to support the development of an applicable pivot table to develop comparative charts and graphs. The amendments included fiscal year and fiscal quarter designations.

Pivot Table

This tables shows detailed overtime and leave hours by type, fiscal year, and quarter within the applicable fiscal year for each position title included in the data.

Revised FTE – 2-28

This tab provides a comparison to the original suppression function-related FTE totals provided by City staff to the FY 22/23 budget document. In this comparison, it was found that the FY 22/23 budget document contained two fewer firefighter positions than were reported by City staff. The number of FTEs reflected in the FY 22/23 budget document is point-in-time data and was used in the staffing model to calculate average overtime and leave hours by position classification. The number of FTEs will be different in FY 23/24 and future years.

Summarized Data

This tab is the primary component of the model, summarizing the pivot table information for the applicable job classes into a format to analyze and compare applicable data more easily. The tab compares the total specific overtime and leave hour types for each applicable job class for FY 19/20 through FY 21/22 by fiscal year. The model also reflects both (1) a conversion of the use data to shifts based on a 24-hour work shift and (2) the average use by total hours and shifts by applicable job class for FYs 19/20–21/22. To save time, the overtime and leave hour use averages were based on the FY 22/23 budgeted FTEs for all fiscal years compared. In the lower portion of this tab, various comparative graphs are presented based on the data and information provided. Beginning on row B-106 of this tab is the information determining the number of *additional* FTEs needed to reduce backfill overtime usage by a given percent such as 50. Cell D117 can be modified as desired to calculate any other targeted backfill overtime reduction percentage.

The Summarized Data 1A Revised tab reflects final assumptions and other revisions as compared to the original Summarized Data tab discussed above.

Observations

This tab presents various preliminary observations based on comparative information.

The three remaining tabs reflect individual graphs comparing different components of the applicable data.

5.5 Results

A 50 percent reduction compared to FY 21/22 backfill overtime hours would be 150,352 hours (300,704 total FY 21/22 suppression overtime hours divided in half), which Citygate considers an appropriate target. This target would require 75 *additional* relief/traveler FTEs (“Summarized Data” tab, cell D120). This result is calculated by dividing the goal reduction in backfill overtime hours (150,352) by the annual productive hours per FTE (2,040). The resultant 73.71 FTEs is then rounded up to 75 FTEs to provide equal shift coverage. Citygate’s alternative recommendation is to address approximately 45 percent of the backfill overtime hours, which amounts to 63–66 additional FTEs that can be added incrementally over a two- or three-year period.

Input parameters such as the overtime reduction goal or non-productive hours can be changed in the model and the resultant additional FTE needed will be automatically calculated accordingly.

6. RECRUIT FIREFIGHTER TRAINING CAPACITY

Citygate also considered the capacity of the PF&R training program for new firefighters. The current PF&R training program can accommodate one class of a maximum 20 recruit firefighters every five months. An unprecedented number of potential retirements are projected over the next three years due to a hiring bubble 25 years ago; therefore, PF&R’s attention to—and capacity for—recruitment, hiring, and training must be given serious attention now. If current projections are substantiated, and 45–60 firefighters retire (over a more typical 10–15 per year) before July 2024, not enough line personnel will remain to fill the resulting staffing gaps, and overtime will exceed current levels just to fill routine daily staffing vacancies. Any unforeseen demands (storms, heatwaves, social crises, wildfires) will exacerbate the staffing crisis unless immediate action is taken to address the staffing deficiency.

7. SUMMARY

Response personnel absences occur due to the use of earned leave, injury time off, other leaves, and occasional administrative time uses. Backfilling of these absences to maintain daily response capacity is accomplished with relief/traveler personnel and off-duty personnel utilizing overtime. These relief/traveler positions generally provide a balanced approach to not requiring excessive overtime of a minimally staffed workforce.

The current number of relief/traveler personnel backfill approximately 26 percent of all response leave hours, which is insufficient to significantly offset PF&R’s overtime needs, often resulting in mandated overtime when no off-duty personnel voluntarily work shift vacancies.

Citygate modeled multiple scenarios using PF&R historical data and overtime projection models. Our results suggest a minimum of 75 additional relief/traveler positions could be needed to offset just 50 percent of projected backfill overtime—exclusive of expected attrition. An alternative recommendation is to address approximately 45 percent of the projected backfill overtime, creating 63–66 additional positions, which will allow for a phased implementation:

1. In FY 23/24 and FY 24/25 budgets, authorize the creation and funding of 33 new firefighter FTEs each year to increase backfill capacity, thus providing 11 additional relief personnel on each of the three shifts to backfill vacancies in lieu of overtime, or
2. Add 21 FTEs incrementally over each of the next three fiscal years (seven per shift per year) totaling 63 FTE in all. PF&R will need to evaluate the impact on overtime usage annually to determine if a further decrease in overtime is desired.

For the period of increased hiring plus expected retirement attrition, PF&R will need to expand the physical capacity and staffing of its training program to provide the additional capacity needed to accommodate the number of new recruits. This equates to six FTEs needed for training. Once past the training academy, the program will need an increased capacity of two FTEs to monitor and test recruits in the stations.

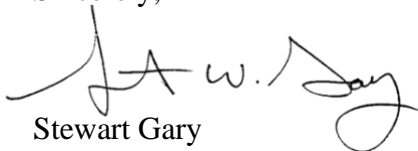
Due to the projected number of retirements stemming from a firefighter hiring bubble 25 years ago, PF&R does not have the option to do nothing.

There are two factors to a workforce stabilizing solution, which include (1) adding more relief/traveler positions for absence backfill while also (2) increasing the capacity of the training program. PF&R must be able to hire and train additional firefighters at a rate faster than the rate of staff being lost to attrition. Doing so will slow, but not staunch, what is certain to be an increased reliance on overtime over the next two to three years. ***To be clear, it will not lower overtime usage in the short term.***

It is certain that if there is no increase to the number of relief/traveler firefighters in FY 23/24 and beyond, the predictable result will be an emergency response staffing crisis.

Citygate recognizes and commends your dedication to assessing, forecasting, and addressing future staffing challenges so that mitigation measures can be implemented.

Sincerely,



Stewart Gary
Public Safety Principal

Attachment A—PF&R Overtime and Leave Data Model