

Resource Analysis: **Portland Police Bureau** **Staffing Trends** **2016–2021**

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Executive Summary

There is a national trend of mass officer retirements and difficulty recruiting replacement officers. Despite Portland Police Bureau's budget increasing significantly, staffing trends are negative: the size of the Portland Police Bureau's budget does not show any association with staffing levels. Further, our analysis finds that in Portland there is no significant linear correlation between the number of crimes reported and the number of Portland Police Officers. Using data acquired through Portland Police Bureau Record Request and open data dashboards, additional officers do not correlate with a decrease in crimes. The recent, significant spike in 911 response times began during ongoing protests against police brutality and in a politically charged time frame wherein the Bureau budget was reduced from \$238M to \$226M for the following year. Shortly after, Police were barred from collaborating with the Trump administration's Federal officers on protests, and a week later Portland City Council referred Measure 26-217 to the ballot, which 82% of voters approved to create a new police oversight board. Finally, there is a significant, albeit low, positive correlation between the number of crimes reported and PPB response times to 911 calls, which is to be expected. This data suggests that increases in the police force have not led to a decrease in crime; thus, increased funding and staffing levels is unlikely to result in less crime or more effective law enforcement.

Background

On multiple occasions, Portland Police Bureau (PPB) have reported a critical shortage of staffing numbers of police officers on the force. In the past fiscal year, PPB has reported record low staffing (March, 2021), slower responses due to "fewer police officers than ever" (Lt. Greg Pashley, (April 2021). According to a 2019 report by the city auditor, PPB spent nearly \$16,000,000 in overtime in FY17-18. Portland Police Bureau stated that this is due to staffing shortages but no evidence has been provided to verify this claim. The city auditor responded stating, "some common-sense policies and procedures to limit overtime have fallen by the wayside or were never used in the first place". On November 3, Mayor Ted Wheeler announced he had the votes to give the Portland Police Bureau an additional \$5.2 Million for signing bonuses to new officers, spend \$2.7 million on body-worn cameras, and to hire 200 additional sworn officers and 100 unarmed community safety specialists by 2024.

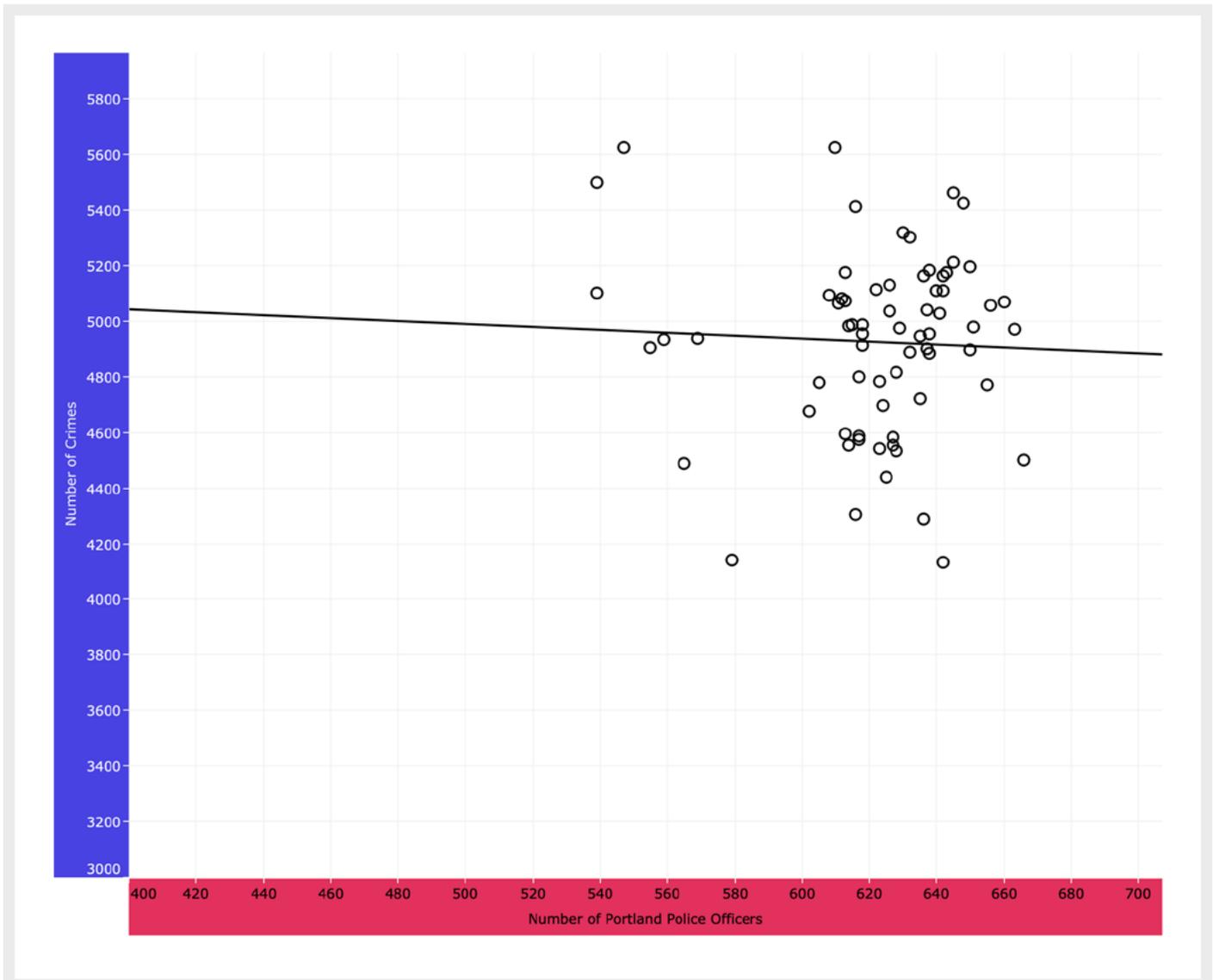
Methods

This report is composed of data from Portland Police Bureau's budgets, overtime hours, crime rates, 911 call times, and monthly employment numbers sourced from Police General Records Request :: S187257-072221 from 2016 through October 2021. Analysis was conducted using R statistical software and visualizations were made with Tableau. Correlation in simple linear regression analysis was defined as an R-squared value.

Findings

Staffing and Crimes

Number crimes (y) and number of Portland Police Officers (x) detailed monthly over January 2016–October 2021 were visualized using a scatter plot with a simple linear regression analysis. According to this analysis of just under 6 years of data points, increases in officer staffing does not predict a decrease in crime; there is no correlation between crime levels in Portland and officer staffing levels (R2=0.002)

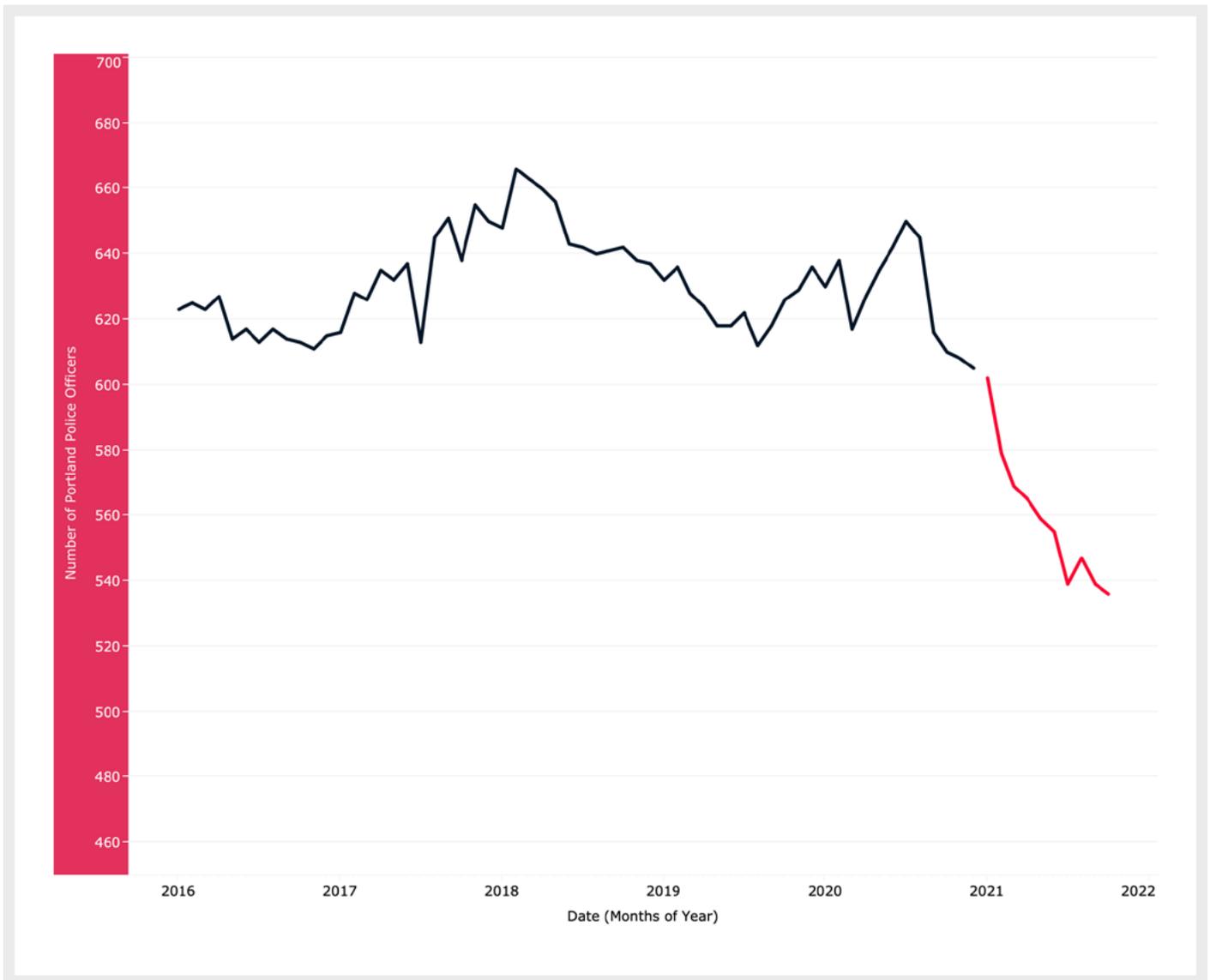


Points: Represent a month in January 2016–October 2021;
Axi: Portland Police Officer staff numbers (x) and Number of Crimes (y) per month
Number of Crimes = $-0.5245 * \text{Number of Portland Police Officers} + 5252.37$
R2 0.0020723 | p-value 0.7103
No significant correlation between Number of Crimes and Number of Portland Police Officers.

Findings

Month-Over-Month Staffing Trends

Trends of the number of Portland Police Officers (y) over months of 2016–2021 (x) was described using a linear plot.



Portland Police Officer staffing levels were relatively steady 2016-2020 with a subsequent negative trend in 2021.

After a year of record overtime expenditures, officers' final average salary would be at a rate wherein their pension would result in a substantial payout. PERS calculates lifetime monthly pension benefits using a formula that uses your final average salary. In general, this salary figure is calculated as either the average of your highest salaries from three consecutive years or 1/3 of your total salary in the last 36 months of employment.¹

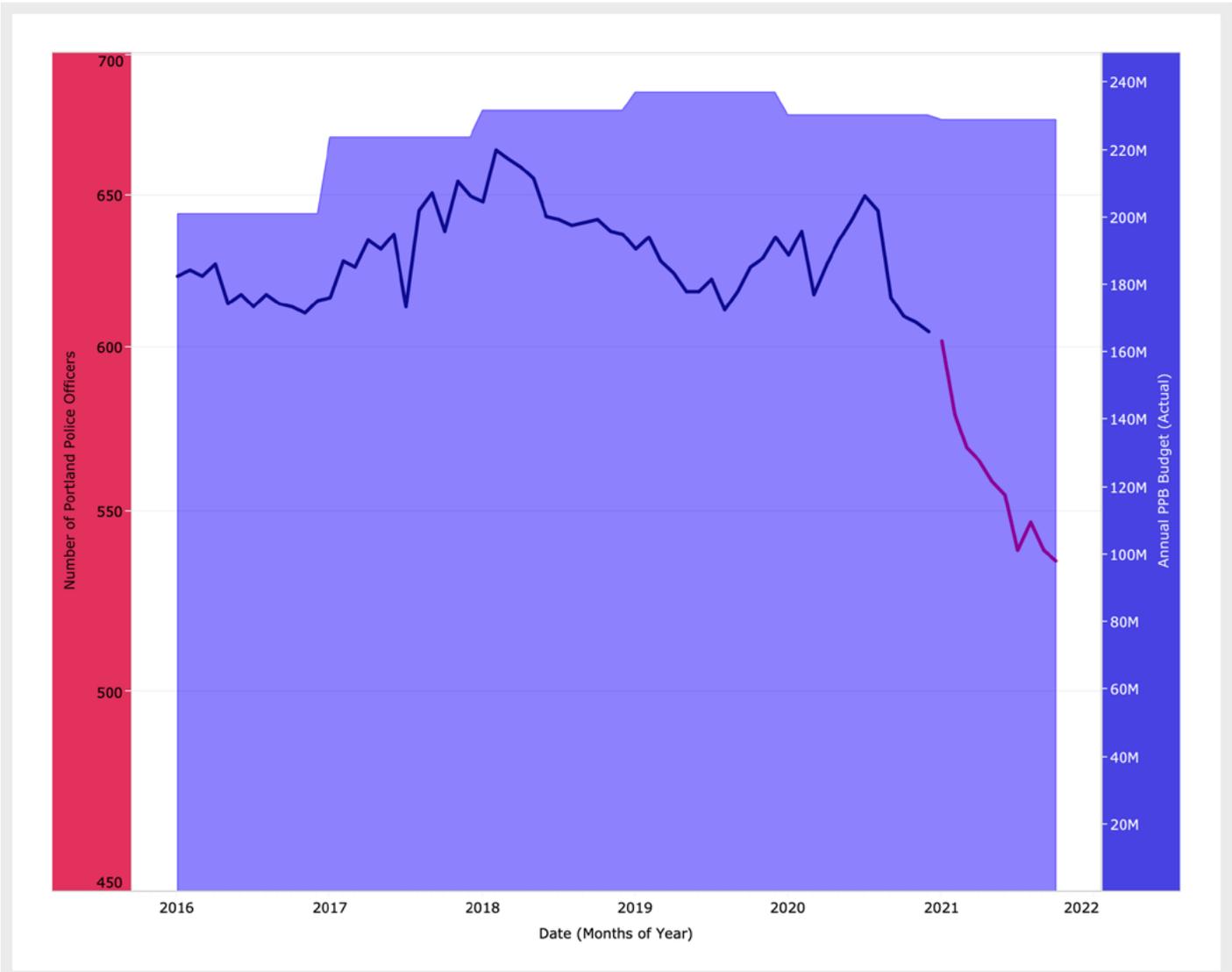
Formula: $1.8\% \times \text{years of total retirement credit} \times \text{final average salary}$
Example: Final average salary: \$45,000, Retirement credit: 25 years:
 $0.018 \times 25 \times \$45,000 = \$20,250$ per year
 $\$20,250 \div 12 \text{ months} = \$1,687.50$ per month in pension income

¹<https://www.oregon.gov/pers/MEM/Pages/OPSRP-Overview.aspx>

Findings

Relationship Between Budget and Staffing Levels

The relationship between number of Portland Police Officers (y¹) and annual PPB budgets (y²) over months of 2016–2021 (x) are described using an overlapping linear and area plot.



Despite steady increase in finances, PPB has failed to recruit and retain; this suggests a review of internal retention and recruitment strategies, rather than additional funding.

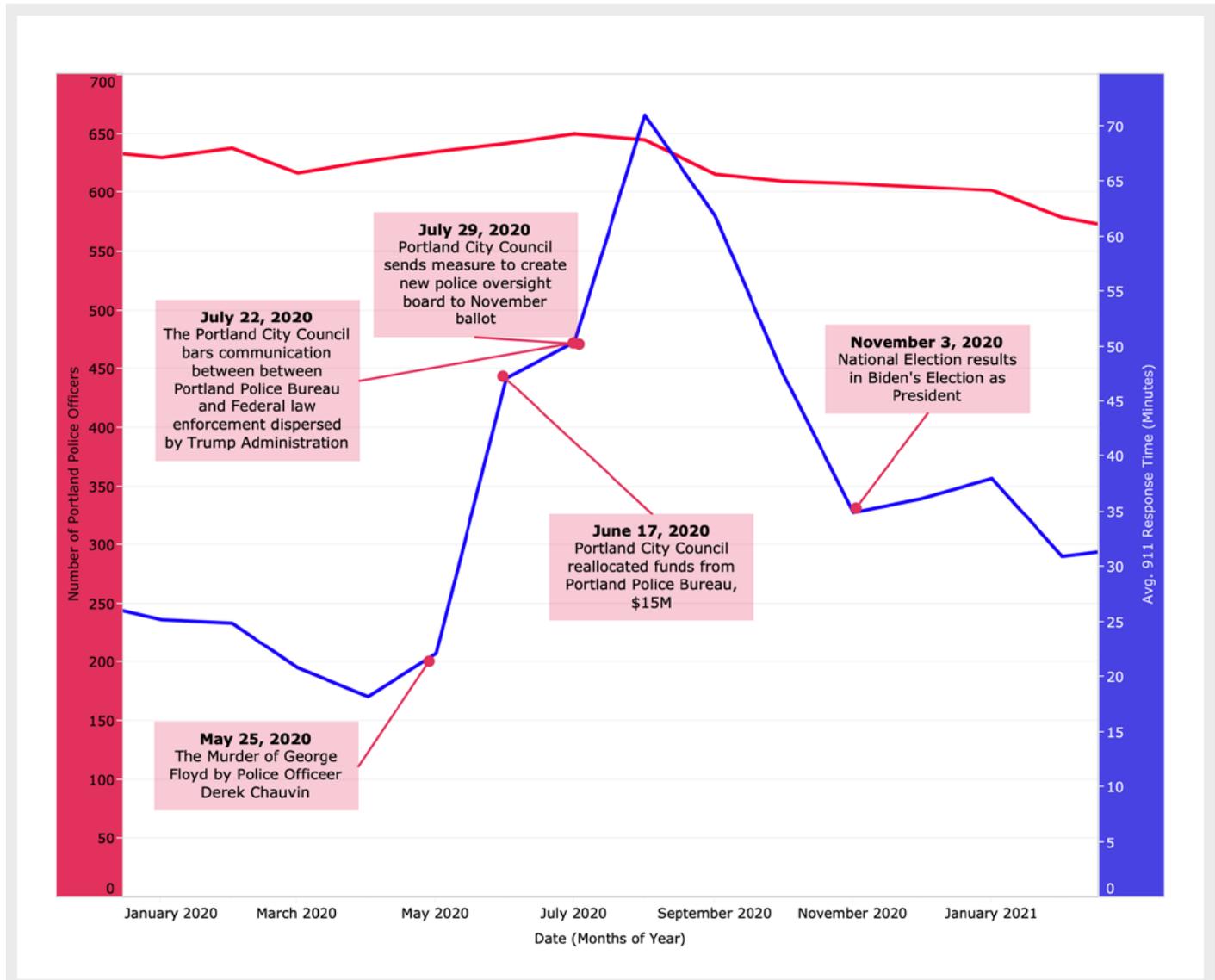
Fiscal Year	PPB Operating Budget	% Change	Officers	Average Officers per year
16-17 FY	\$201,125,579	2% increase	651 FTE	618
17-18 FY	\$211,271,126	1.7% increase	647 FTE	636
18-19 FY	\$226,807,496	2.7% increase	702 FTE	648
19-20 FY	\$238,030,326	1.9% increase	701 FTE	625
20-21 FY	\$226,491,742	7% decrease	623 FTE	627
21-22 FY	\$230,043,026	1.5% increase	N/A	559 (through Oct '21)

Findings

Staffing and 911 Response Times

The relationship between number of Portland Police Officers (y^1) and average 911 response time (y^2) over months of 2016–2021 (x) were described with an overlapping linear plot. Key events were annotated regarding the significant spike in overtime usage May–November 2020

a. 2020 911 Response Times Summary



An outlier spike in drastically increased 911 response times may be politically motivated

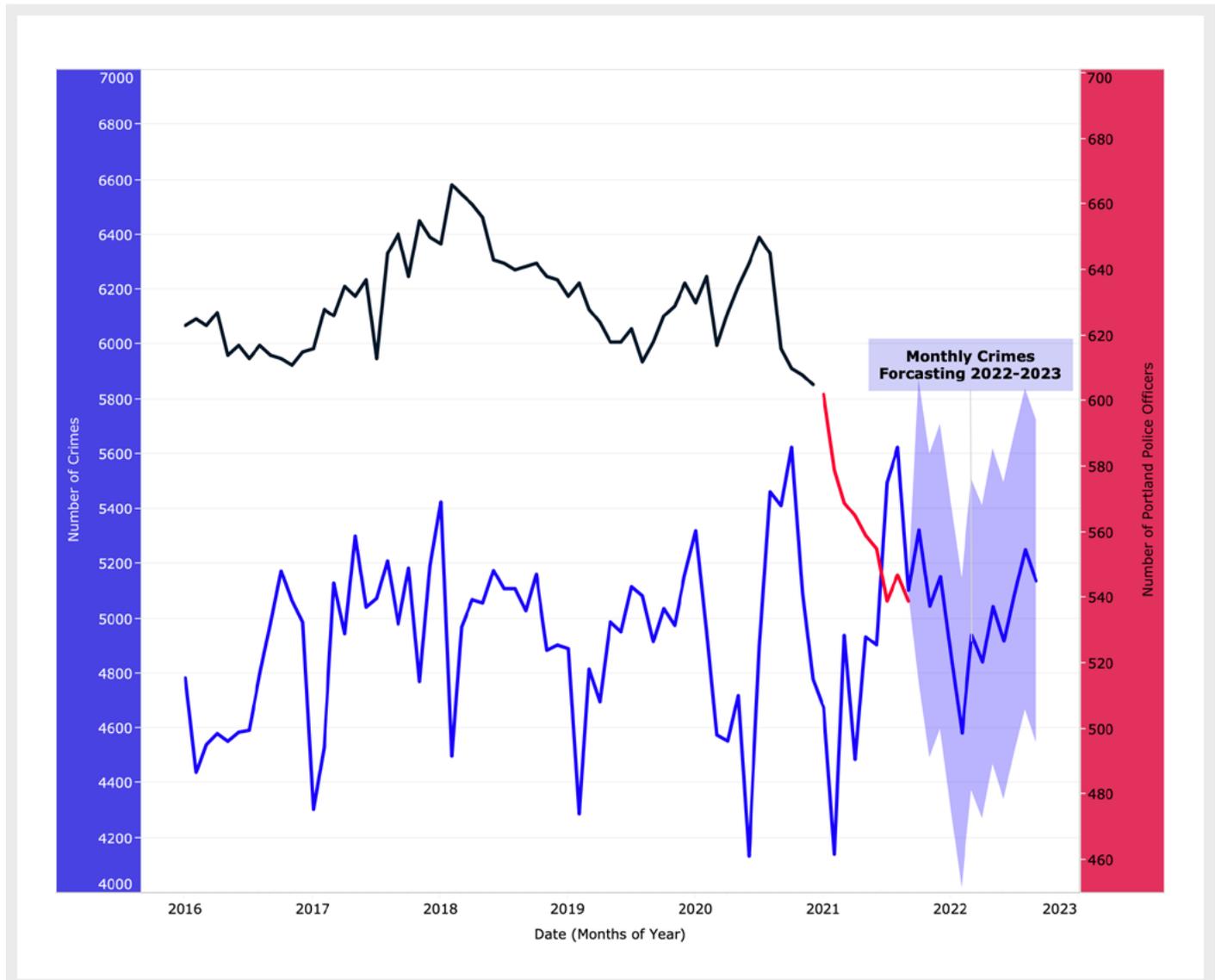
- www.opb.org/news/article/portland-police-sweeps-homeless-cleanups/
- www.kgw.com/article/news/local/protests/defunding-portland-police-city-council-budget-15-million-cuts/
- www.opb.org/article/2020/07/29/portland-police-oversight-city-council-voters-measure
- www.opb.org/news/article/portland-votes-wall-off-police-federal-law-enforcement
- www.washingtonpost.com/nation/2020/08/09/portland-police-union-fire/

Findings

Staffing and 911 Response Times

The relationship between number of crimes (y^1) and number of Portland Police Officers (y^2) over months of 2016–2021 (x) were described with an overlapping linear plot. Data show no unusual increase in crime rates between May–November 2020 to explain the spike in 911 response times. Reported crime rates include offenses that occurred during declared riots.

b. Crimes and Staffing Levels

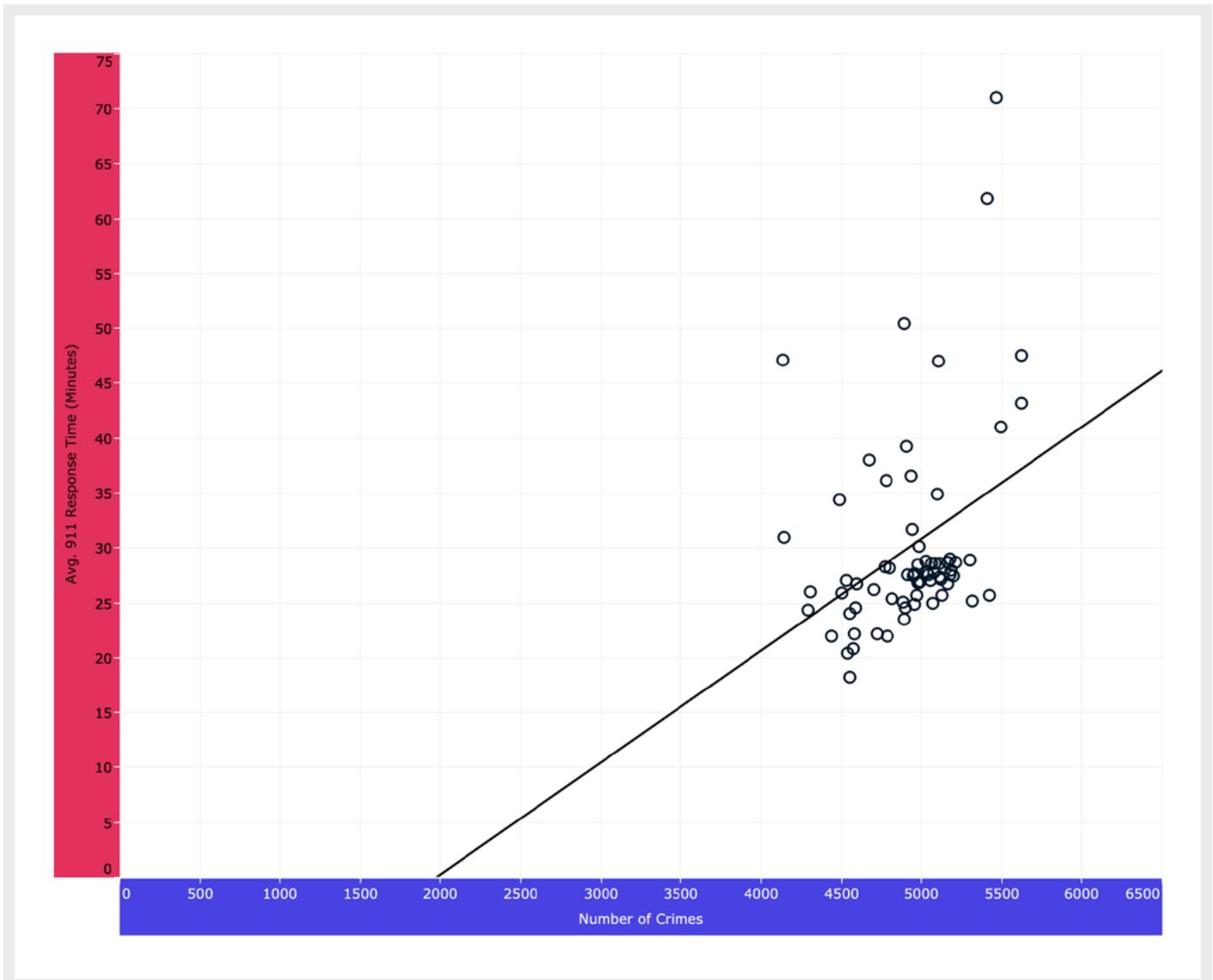


Peaks and valleys in crime numbers can be attributed to seasonality. Forecasting computed using exponential smoothing, seasonal additive.

Findings

Crimes and 911 Response Times

A scatter plot of average 911 response times in minutes (y) and number of crimes (x) detailed monthly over January 2016–October 2021 is described with a scatterplot and analyzed using simple linear regression. There is a significant but low correlation between the average response time to 911 calls and the number of monthly crimes. This suggests an increase in crime would lead to an increase in 911 response times. A low R^2 (0.130), results from a high variability in available data, meaning correlation is low. This suggests the possibility of imprecise predictions based on this model.



Points: Represent a month in January 2016–October 2021
Axi: Average 911 Response Times (x) and Number of Crimes (y) monthly
Average Response Time = 0.0101928 * Number of Crimes - 20.1216
R2: 0.130269 | p-value: 0.0023134**
Significant positive correlation between Average Response Times in Minutes and Number of Crimes Monthly