

## **Report. Firearm Violations and Shots Fired on City Parks and/or Community Centers, 2019-2024.**

### **Executive Summary**

The purpose of this report is to assess if the incidence of firearm violations and shots-fired events is higher at parks and community centers (or within 100 ft.) in comparison to other City sites. Two analyses were performed:

- 1. **Incident Frequency**: How many monthly incidents occurred per month near parks and/or community centers over the past 5 years?
- 2. **Comparative Analysis**: Are there more firearms-related criminal incidents around public parks and community centers compared to the rest of the city?

#### **Key Findings:**

- 1. Overall Crime Trends: There is no statistically significant difference between percentage changes in city-wide crime versus crime at or near parks and community centers.
  - Approximately 13% of all reported crime incidents in the city from 2019 to 2024 were associated with parks and/or community centers.
  - The percentage change in all-crime reported in areas other than parks and community centers is statistically equivalent to that of all-crime reported at parks and community centers during the same period. Furthermore, observed changes in all crime reports at parks and community centers generally aligns with citywide changes.
- 2. Firearm Violations: The proportion of firearm violations reported in parks and community centers is statistically larger than the proportion of firearm violations citywide.
  - 1. Firearm Violations are a subset of the NIBRS offence "Weapon Law Violations"— The violation of laws or ordinances prohibiting the manufacture, sale, purchase, transportation, possession, concealment, or use of firearms. For more details see the FBI's website, <u>link to NIBRS definitions</u>.
  - 2. On average, there were approximately 8 firearm violations reported per month at parks and/or community centers during this period, a 100 ft buffer zone was included around parks and community centers to capture incidents at the sidewalk around parks and community centers.
  - 3. Interestingly, less than 1% of all reported citywide crime (both within parks/community centers and citywide) is related to firearm violations.
  - 4. The monthly proportion of firearm violations reported at parks and community centers (0.96%) exceeds the overall citywide proportion (0.69%), from a total of 2,562 citywide firearm violations and 478 in parks and community centers, from January 2019 to April 2024.



## 3. Shots Fired Incidents: The proportion of shots fired at parks or community centers are statistically greater than those citywide.

- The average monthly incidents of shots fired near parks and/or community centers were approximately 10.
- The proportion of shots fired incidents reported at parks and community centers (1.2%) is higher than the citywide proportion (0.93%), from a total of 3,179 shots fired incidents reported citywide and 649 in parks and community centers from January 2019 to April 2024.
- 4. Firearm Violations and Shots Fired at Parks and Community Centers By Location: Both firearm violations and shots fired were reported in approximately 180 of the parks. Similarly, 80% of all instances of firearm violations and shots being fired were reported in less than 20% of the parks.
  - 1. There are 476 public parks in Seattle.
  - 2. Firearm violations were reported in 37% (or 176) of these parks, while 38% (or 182) of the parks had instances of shots being fired.
  - 3. 80% of all firearm violations were concentrated in just 19% (or 92) of the city's parks. Similarly, 80% of all instances of shots being fired were reported in only 17% (or 83) of the parks

#### Methodological Notes:

[1] Crime report totals are based on distinct count of Reporting Event Number by offense and do not represent the number of victims. All offense sort orders and UCR approved reports are included. Counts exclude Out of Jurisdiction and unfounded offenses. Offense data is dynamic and will change based on reporting and/or investigative updates.

[2] Crime data in this report is from 2019 through 06/22/2024.

[3] Parks and community centers are identified through City's GIS shapefile, and 100-feet radius of the address is applied. Community Centers may be abbreviated as CC in the report.



## Analysis

# Crime Incidents Reported Citywide and at Parks & Community Centers, 2019 - June 2024

From January 2019 to December 2023 there have been an average of 10,053 crime incidents reported at Parks and Community Centers while there were 75,763 incidents in average citywide (see Table 1).

|   | 2019   | 2020   | 2021   | 2022   | 2023   | Yearly<br>Average |
|---|--------|--------|--------|--------|--------|-------------------|
| Crime Incidents Reported, Count at<br>Parks and Community Centers | 10,134 | 10,510 | 10,353 | 9,771  | 9,579  | 1053              |
| Crime Reported, Count Citywide                                    | 84,717 | 77,051 | 71,375 | 74,935 | 70,735 | 75,763            |
| % of Crime at Parks and Community<br>Centers Among All Crime      | 12%    | 14%    | 15%    | 13%    | 14%    | 13.8%             |

Table 1. Overall Crime at Parks and Community Centers, 2019 to 2023.

From 2019 to June 2024, approximately 13% of all crime incidents reported in the city were associated with a park and/or a community center (see figure 1). \*\*Incomplete year

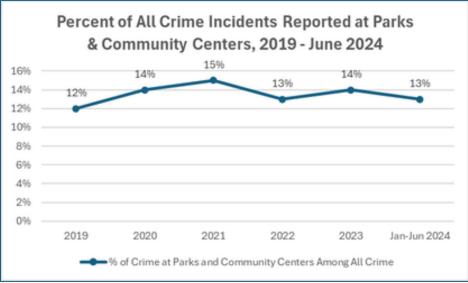


Figure 1. Percentage of All-Crimes Reported at Parks and Community Centers, 2019 to 2024.



Generally, crime incidents reported at parks and community centers follow similar seasonal and longitudinal trends as citywide crime, Figure 2 and Figure 3 below show those similarities. Later in this section we will use a difference-on-difference method to prove that the percentage change in all-crime reported citywide and in areas other than parks and community centers is statistically equivalent.

Between May 29 of 2020 and July of the same year, the City of Seattle experienced mass demonstrations and the Seattle Police Department, in coordination with other public safety organizations, made multiple arrests around city parks where demonstrators gathered (i.e. Cal Anderson Park and Westlake Park).

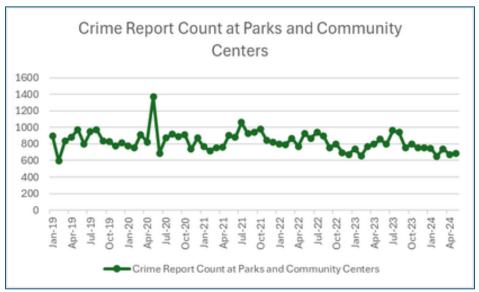


Figure 2. Monthly Report Count at Parks and Community Centers and Crime Report.

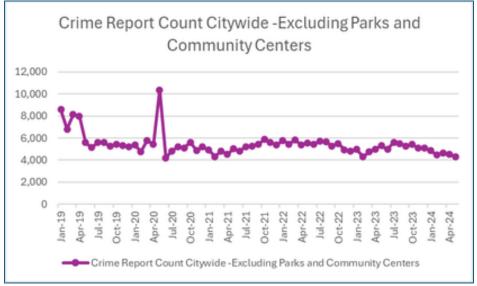


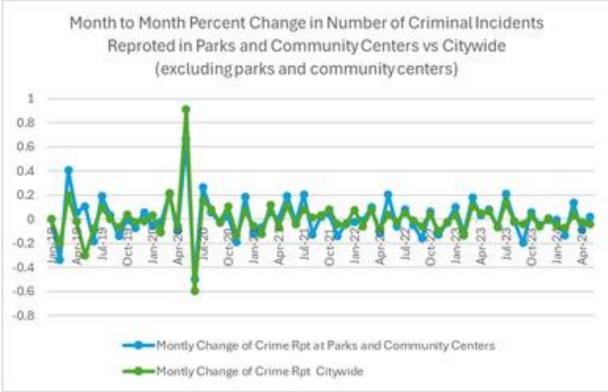
Figure 3. Monthly Crime Report Count Citywide, Excluding Parks and Community Centers.



### Conclusion 1: The monthly percentage changes in crime reports citywide and in parks & community centers are not statistically different from each other. Both percentages move in the same direction and in the same proportion.

Figure 4 below compares the monthly change (increase or decrease) in the number of criminal incidents reported in Parks and Community Centers compared to the monthly change (increase or decrease) in the number of criminal incidents reported citywide.

**There is no statistically significant difference between percentage changes in city-wide crime versus crime at or near parks and community centers** during the same period. Furthermore, the monthly observed change in all-crime reports at parks and community centers generally aligns with citywide changes (see hypothesis tested below).



*Figure 4. Figure 4. Month to Month Percent Change in Number of Crime Reported Citywide (Excluding Parks and Community Centers) and Percent change in Number of Crimes Reported at Parks and Community Centers, January 2019 to April 2024.* 

As explained earlier, between May 29 and the end of June of 2020 Seattle experienced mass demonstrations protesting for the murder of George Floyd in Minneapolis, many of those protests concentrated thousands of people at some public parks where multiple arrests took place.



# **Hypothesis tested:** Are the monthly percentage changes in crime reports citywide and in parks & community centers statistically different from each other?

This hypothesis was tested using a paired sample T-Test, comparing the monthly percentage change in citywide crime incidents reported with the percentage change in crimes reported at parks & community center.

**Test used:** Paired sample test.

Variables:

- (1) monthly percentage change in crime reports citywide
- (2) monthly percentage changes in crime reports in parks & community centers

**Conditions:** Both variables show high correlation (.846) and follow a normal distribution (see table 3).

**Hypothesis tested:** the differences between the monthly percent change in criminal incidents reported citywide and the percent change in criminal incidents reported in parks and community centers are not significantly different.

**Results:** The p-value for the difference between the two variables is greater than 0.05, specifically 0.294 for one-sided and 0.589 for two-sided, indicating that the mean difference of both monthly percentage changes is not statistically significant (see table 2).

In other words, the percentage change in crime reported in areas other than parks and community centers did not increase or decrease more or less than the crime reported at parks and community centers during the same period.



Table 2. Paired Sample Test. Hypothesis tested: Are the differences between the monthly percent change in criminal incidents reported citywide and the percent change in criminal incidents reported in parks and community centers statistically different?

| Paired Samples Test |  |  |      |    |               |               |  |  |  |
|---------------------|--|--|------|----|---------------|---------------|--|--|--|
|                     |  | Paired Differences                           |      |    | Significance  |               |  |  |  |
|                     |  | 95% Confidence Interval<br>of the Difference |      | df | One-<br>Sided | Two-<br>Sided |  |  |  |
|                     |  | Upper  |      |    | р             | р             |  |  |  |
| Pair                | Change Crime Reported Count at<br>Parks and Community Centers -<br>Change Crime Reported Count<br>Citywide - No Parks and CC | .02969                                       | .544 | 65 | .294          | .589          |  |  |  |

| Table 3. Paired san | ples correlation test, | significant at | p-value < 0.001. |
|---------------------|------------------------|----------------|------------------|
|---------------------|------------------------|----------------|------------------|

| Paired Samples Correlations |   |         |             |                |                |  |  |  |  |  |
|-----------------------------|---|---------|-------------|----------------|----------------|--|--|--|--|--|
|                             |   | Signifi |             | Significance   | nce            |  |  |  |  |  |
|                             |   | Ν       | Correlation | One-Sided<br>p | Two-Sided<br>p |  |  |  |  |  |
| Pair<br>1                   | Change Crime Reported Count at Parks and<br>Community Centers & Change Crime<br>Reported Count Citywide - No Parks and CC | 66      | .846        | <.001          | <.001          |  |  |  |  |  |



# Firearm violations, citywide and at parks and community centers.

From 2019 to 2024, the average number of firearm violations reported at parks and/or community centers is approximately 8 incidents per month (see table 4).

It is important noting that less than one percent of all crime reported either citywide or at parks and community centers is associated with firearm violations. The proportion of firearm violations reported at parks and/or community centers (0.96%) is larger than the proportion of firearm violations as part of the overall citywide crime (0.69%) (see table 8).

Table 4. Firearm violation by year and by month, January 2019 to June 2024. Table 5. Firearm violation by code, January 2019 to June 2024. \*\*June of 2024 is incomplete, 2024 has been annotated with an orange box to notice the year is incomplete.

| Firearm  | violatio  | n by ye  | ar   |  |   |                       |                              |                               |          |                                    |                                      |   |  |
|--|---|--|--|--|---|-----------------------|------------------------------|-------------------------------|----------|------------------------------------|--------------------------------------|---|--|
|  | Jan   | Feb  | Mar  | Apr  | May   | Jun                   | Jul                          | Aug                           | Sep      | Oct                                | Nov                                  | Dec                                     | Monthly<br>Avg                                 |
| 2019   |   |  |  |  | 3   | 5                     | 2                            | 5                             | 1        | 3                                  | 4                                    | 3                                       | 3  |
| 2020   | 2   | 1  | 4  | 8  | 7   | з                     | 7                            | 5                             | 8        | 6                                  | 4                                    | 7                                       | 5  |
| 2021   | 8   | 6  | 5  | 5  | 10  | 6                     | 12                           | 9                             | 7        | 5                                  | 10                                   | 10                                      | 8  |
| 2022   | 8   | 4  | 5  | 9  | 9   | 11                    | 6                            | 8                             | 11       | 15                                 | 10                                   | 6                                       | 9  |
| 2023   | 9   | 6  | 10   | 10   | 12  | 10                    | 12                           | 17                            | 9        | 15                                 | 15                                   | 6                                       | 11   |
| 2024   | 15  | 6  | 12   | 7  | 11  | 9                     |                              |                               |          |                                    |                                      |   | 10   |
| Monthly<br>Avg   | 8   | 5  | 7  | 8  | 9   | 7                     | 8                            | 9                             | 7        | 9                                  | 9                                    | 6                                       | 8  |
| Firearm  | violatio  | n by co  | de   |  |   |                       |                              |                               |          |                                    |                                      |   |  |
| Offense Code   | e Name  |  |  |  | Ŧ   | 2019                  | 2020                         | 2021                          |          | 2022                               | 2023                                 | 2024                                    | Grand  |
| SMC - 12A.14   | .071   AIMI   | NG/DISCH   | ARGE OF F  | DEADM  | 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - |                       |                              |                               |          |                                    |                                      |   | Total  |
| RCW - 9A.56.   | 300   THEFT   |  | SMC - 12A.14.071   AIMING/DISCHARGE OF FIREARM<br>RCW - 9A.56.300   THEFT OF FIREARM             |  |   |                       |                              |                               |          | 32                                 | 47                                   | 24                                      | Total  |
|  | RM  | INCEARCH I   |  | 5  | 15<br>13  | 22                    |                              | 32<br>19                      | 47<br>27 |                                    |                                      |   |  |
| RCW-9.41.2   | 30 AIMING   |  |  |  | L   |                       |                              |                               |          |                                    |                                      | 24                                      | 145  |
| RCW - 9.41.2<br>RCW - 9.41.0   |   | OR DISCH   | HARGING A  | FIREARM  |   | 5                     | 13                           | 27<br>18                      |          | 19                                 | 27                                   | 24<br>10                                | 145<br>101                                     |
|  | 40.1A   FIRE  | OR DISCH   | IARGING A  | FIREARM  |   | 5<br>8                | 13<br>9                      | 27<br>18                      |          | 19<br>24                           | 27<br>21                             | 24<br>10<br>11                          | 145<br>101<br>91                               |
| RCW - 9.41.0   | 40.1A   FIRE<br>40.2A   FIRE  | OR DISCH<br>ARM POS<br>ARM POS   | HARGING A<br>S UNLAWF<br>S UNLAWF  | FIREARM<br>UL 1<br>UL 2                                      | L   | 5<br>8<br>6           | 13<br>9<br>18                | 27<br>18<br>19<br>8           |          | 19<br>24<br>16                     | 27<br>21<br>20                       | 24<br>10<br>11<br>5                     | 145<br>101<br>91<br>84                         |
| RCW - 9.41.0<br>RCW - 9.41.0<br>RCW - 9A.56.   | 40.1A   FIRE<br>40.2A   FIRE<br>310   POSSE   | OR DISCH<br>ARM POS<br>ARM POS<br>SSING ST                                     | IARGING A<br>S UNLAWF<br>S UNLAWF<br>OLEN FIRE   | FIREARM<br>UL 1<br>UL 2<br>ARM                               | L.  | 5<br>8<br>6<br>1      | 13<br>9<br>18<br>6           | 27<br>18<br>19<br>8<br>4      |          | 19<br>24<br>16<br>7                | 27<br>21<br>20<br>12                 | 24<br>10<br>11<br>5<br>5                | 145<br>101<br>91<br>84<br>39                   |
| RCW - 9.41.0<br>RCW - 9.41.0<br>RCW - 9A.56.   | 40.1A   FIRE<br>40.2A   FIRE<br>310   POSSE<br>90   POSSES  | OR DISCH<br>ARM POS<br>ARM POS<br>SSING ST<br>S UNLAW                          | IARGING A<br>S UNLAWF<br>S UNLAWF<br>OLEN FIRE<br>FUL FIREA                                      | FIREARM<br>UL 1<br>UL 2<br>ARM<br>RM                         |   | 5<br>8<br>6<br>1<br>2 | 13<br>9<br>18<br>6<br>3      | 27<br>18<br>19<br>8<br>4      |          | 19<br>24<br>16<br>7<br>4           | 27<br>21<br>20<br>12<br>11           | 24<br>10<br>11<br>5<br>5<br>2           | 145<br>101<br>91<br>84<br>39<br>26             |
| RCW - 9.41.0<br>RCW - 9.41.0<br>RCW - 9A.56.<br>RCW - 9.41.1                                 | 40.1A   FIRE<br>40.2A   FIRE<br>310   POSSE<br>90   POSSES<br>80   DEL OF                               | OR DISCH<br>ARM POS<br>ARM POS<br>SSING ST<br>S UNLAW                          | IARGING A<br>S UNLAWF<br>S UNLAWF<br>OLEN FIRE<br>FUL FIREA<br>TO INELEG                         | FIREARM<br>UL 1<br>UL 2<br>ARM<br>RM<br>IBLE PER             |   | 5<br>8<br>6<br>1<br>2 | 13<br>9<br>18<br>6<br>3      | 27<br>18<br>19<br>8<br>4      |          | 19<br>24<br>16<br>7<br>4           | 27<br>21<br>20<br>12<br>11           | 24<br>10<br>11<br>5<br>5<br>2<br>5<br>5 | 145<br>101<br>91<br>84<br>39<br>26<br>11       |
| RCW - 9.41.0<br>RCW - 9.41.0<br>RCW - 9A.56.<br>RCW - 9.41.1<br>RCW - 9.41.0                 | 40.1A   FIRE<br>40.2A   FIRE<br>310   POSSE<br>90   POSSES<br>80   DEL OF  <br>460.2   SHO              | OR DISCH<br>ARM POS<br>ARM POS<br>SSING ST<br>S UNLAW<br>FIREARM<br>OT FIREAR  | HARGING A<br>S UNLAWF<br>OLEN FIRE<br>FUL FIREA<br>TO INELEG                                     | FIREARM<br>UL 1<br>UL 2<br>ARM<br>RM<br>IBLE PER<br>ACROSS P |   | 5<br>8<br>6<br>1<br>2 | 13<br>9<br>18<br>6<br>3      | 27<br>18<br>19<br>8<br>4<br>0 |          | 19<br>24<br>16<br>7<br>4<br>2      | 27<br>21<br>20<br>12<br>11<br>2      | 24<br>10<br>11<br>5<br>5<br>2<br>5<br>5 | 145<br>101<br>91<br>84<br>39<br>26<br>11       |
| RCW - 9.41.0<br>RCW - 9.41.0<br>RCW - 9A.56.<br>RCW - 9.41.1<br>RCW - 9.41.0<br>RCW - 77.15. | 40.1A   FIRE<br>40.2A   FIRE<br>310   POSSE<br>90   POSSES<br>80   DEL OF<br>460.2   SHO<br>40   USE OF | OR DISCH<br>ARM POS<br>ARM POS<br>SSING ST<br>S UNLAW<br>FIREARM<br>OT FIREARM | IARGING A<br>S UNLAWF<br>S UNLAWF<br>OLEN FIRE<br>FUL FIREA<br>TO INELEG<br>RM FROM/<br>BY MINOR | FIREARM<br>UL 1<br>UL 2<br>ARM<br>RM<br>IBLE PER<br>ACROSS P |   | 5<br>8<br>6<br>1<br>2 | 13<br>9<br>18<br>6<br>3<br>1 | 27<br>18<br>19<br>8<br>4<br>0 |          | 19<br>24<br>16<br>7<br>4<br>2<br>0 | 27<br>21<br>20<br>12<br>11<br>2<br>0 | 24<br>10<br>11<br>5<br>5<br>2<br>5<br>1 | 145<br>101<br>91<br>84<br>39<br>26<br>11<br>11 |



### **Conclusion 2:** The proportion of firearm violations reported citywide is statistically smaller than the proportion of firearm violations reported in parks & community centers. While both proportions are statistically different from each other, both percentages move in the same direction.

Figure 2 below compares the monthly proportions of firearm violations with respect to all criminal incidents reported in Parks and Community Centers and the monthly proportions of firearm violations with respect to all criminal incidents reported citywide.

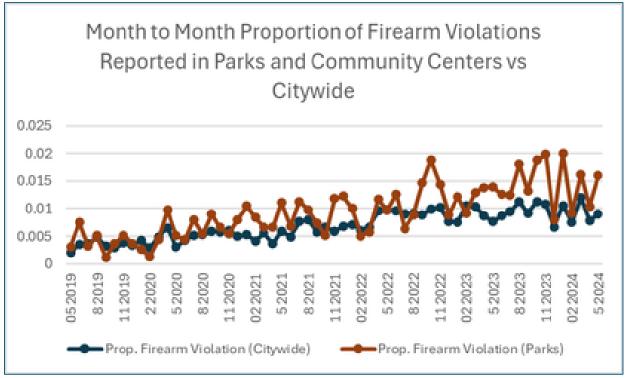


Figure 5. Month to Month Proportion of Firearm Violations Reported Citywide and in Parks & Community Centers, May 2019 to May 2024.



# **Hypothesis tested:** Are the monthly proportions in firearm violations citywide and in parks & community centers statistically different from each other?

This hypothesis was tested using a paired sample T-Test, comparing the monthly proportion of firearm violations reported citywide with the monthly proportion of firearm violations reported at parks & community centers.

**Test used:** Paired sample test.

#### Variables:

(1) monthly proportion of firearm violations with respect to all crime incidents reported citywide

(2) monthly proportion of firearm violations with respect to all crime incidents reported in parks community centers

**Conditions:** Both variables show high correlation (.85) and follow a normal distribution (see table 7).

**Hypothesis tested:** the differences between the monthly proportion of firearm violations reported citywide and the percent change in criminal incidents reported in parks and community centers is not significantly different.

**Results:** The p-value for the difference between the two variables is smaller than 0.05, specifically < 0.01 for one-sided-p for two-sided-p, indicating that the mean difference of both monthly proportions is statistically significant, furthermore the proportion of firearm violations reported citywide is statistically smaller than the proportion of firearm violations reported in parks & community centers, see table 6.

In other words, the proportion of firearm violations reported in areas other than parks and community centers are statistically less than the firearm violations reported at parks and community centers during the same period.

The paired sample test shown on Table 6 next page, test the hypothesis: Are the differences between the monthly percent change in criminal incidents reported citywide and the proportion of firearm violations reported in parks community centers is statistically different? Is the citywide proportion of firearm violations smaller than the proportion of firearm violations reported at parks & community centers?



Table 6. Paired Sample Test for Proportion of Firearm Violations Citywide vs. Parks and Community Centers.

| Paire     | Paired Samples Test  |   |            |    |                 |                 |  |  |  |  |
|-----------|--|---|------------|----|-----------------|-----------------|--|--|--|--|
|           |  | Paired Differences                              |            |    | Significance    |                 |  |  |  |  |
|           |  | 95% Confidence<br>Interval of the<br>Difference | t          |    | One-<br>Sided p | Two-<br>Sided p |  |  |  |  |
|           |  | Upper   |            |    | _               |                 |  |  |  |  |
| Pair<br>1 | Prop. Firearm Violation<br>(Citywide) &<br>Prop. Firearm Violation<br>(Parks & Community<br>Centers) | 001880138                                       | -<br>6.859 | 61 | <u>&lt;.001</u> | <.001           |  |  |  |  |

Table 7. Paired samples correlation test, significant at p-value < 0.001.

| Paired Samples Correlations |                                      |    |             |              |             |  |  |  |  |
|-----------------------------|--------------------------------------|----|-------------|--------------|-------------|--|--|--|--|
|                             |                                      | NT | Correlation | Significance |             |  |  |  |  |
|                             |                                      | IN | Correlation | One-Sided p  | Two-Sided p |  |  |  |  |
| Pair 1                      | Prop. Firearm Violation (Citywide) & | 66 | .85         | <.001        | <.001       |  |  |  |  |
|                             | Prop. Firearm Violation Ren (Parks)  |    |             |              |             |  |  |  |  |

Table 8. Paired samples statistics, May 2019 to May 2024.

| Paired Samples Statistics |   |           |    |                   |                    |  |  |  |  |
|---------------------------|---|-----------|----|-------------------|--------------------|--|--|--|--|
|                           |   | Mean      | N  | Std.<br>Deviation | Std. Error<br>Mean |  |  |  |  |
| Pair                      | Prop. Firearm Violation Ren<br>(CITYWIDE) | .00697082 | 62 | .002647182        | .000336192         |  |  |  |  |
| 1                         | Prop. Firearm Violation Ren (Parks)       | .00962467 | 62 | .004957639        | .000629621         |  |  |  |  |



### Shots fired, citywide and at parks and community centers.

From 2019 to 2024, the average number of shots fired reported at parks and/or community centers is approximately 10 incidents per month (see table 9).

The proportion of shots fired reported at parks and/or community centers is (1.2%) is larger than the proportion of firearm violations as part of the overall citywide crime (0.93%) (see table 12).

Table 9. The count of shots fired reported by year and by month at parks and/or community centers. January 2019 to May 2024.

|             | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Monthly Avg |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|
| 2019        | 7   | 5   | 7   | 4   | 9   | 4   | 4   | 5   | 2   | 6   | 4   | 7   | 5           |
| 2020        | 5   | 5   | 2   | 8   | 6   | 8   | 15  | 11  | 13  | 9   | 4   | 6   | 8           |
| 2021        | 9   | 3   | 6   | 14  | 13  | 16  | 22  | 18  | 7   | 10  | 7   | 8   | 11          |
| 2022        | 8   | 7   | 9   | 11  | 14  | 10  | 11  | 15  | 9   | 21  | 6   | 8   | 11          |
| 2023        | 8   | 9   | 8   | 12  | 22  | 11  | 17  | 14  | 7   | 10  | 9   | 8   | 11          |
| 2024        | 15  | 8   | 13  | 13  | 14  |     |     |     |     |     |     |     | 13          |
| Monthly Avg | 9   | 6   | 8   | 10  | 13  | 11  | 14  | 13  | 8   | 11  | 6   | 7   | 10          |



### Conclusion 3: The proportion of Shots fired reported citywide are statistically smaller than the proportion of shots fired reported in parks & community centers. While both proportions are statistically different from each other, both percentages move in the same direction.

Figure 6 below compares the monthly proportion of reported shots fired with respect to all criminal incidents reported in Parks and Community Centers and the monthly proportion of reported shots fired with respect all criminal incidents reported citywide.

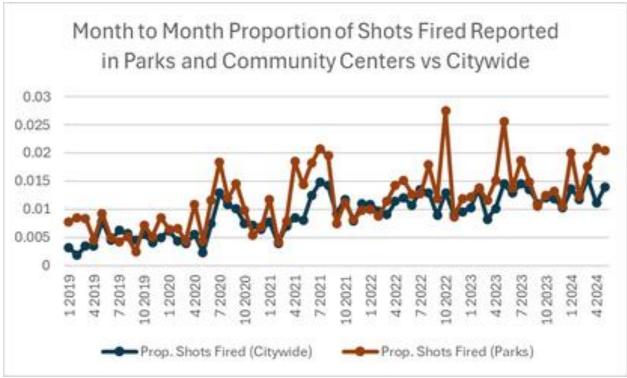


Figure 6. Month to Month Proportion of Shots Fired Reported Citywide and in Parks & Community Centers, Jan 2019 to May 2024.



# **Hypothesis tested:** Are the monthly proportion of shots fired reported citywide and the proportion of those reported in parks & community centers statistically different from each other?

This hypothesis was tested using a paired sample T-Test, comparing the monthly proportion of shots fired reported citywide with the monthly proportion of shots fired reported at parks & community center. The p-value for the difference between the two variables is smaller than 0.05, specifically < 0.01 for one-sided-p for two-sided-p, indicating that the mean difference of both monthly proportions is statistically significant, furthermore the proportion of shots fired reported citywide is statistically smaller than the proportion of shots fired reported in parks & community centers, see table 10.

In other words, the proportion of shots fired reported in areas other than parks and community centers are statistically less than the shots fired reported at parks and community centers during the same period.

Test used: Paired sample test.

#### Variables:

(1) monthly proportion of shots fired with respect to all crime incidents reported citywide

(2) monthly proportion of shots fired with respect to all crime incidents reported in parks community centers

**Conditions:** Both variables show high correlation (0.823) and follow a normal distribution (see table 11).

**Hypothesis tested:** the differences between the monthly proportion of shots fired reported citywide and the percent change in criminal incidents reported in parks and community centers is not significantly different.

The paired sample test shown on Table 10 next page, test the hypothesis: Are the differences between the monthly percent change in criminal incidents reported citywide and the proportion of shots fired reported in parks community centers is statistically different? Is the citywide proportion of shots fired smaller than the proportion of shots fired reported at parks & community centers?



Table 10. Paired Sample Test for Proportion of shots fired Citywide vs. Parks and Community Centers.

| Paire     | Paired Samples Test   |   |            |    |                 |                 |  |  |  |  |
|-----------|---|---|------------|----|-----------------|-----------------|--|--|--|--|
|           |   | Paired Differences                        |            |    | Significance    |                 |  |  |  |  |
|           |   | 95% Confidence Interval of the Difference |            | df | One-<br>Sided p | Two-<br>Sided p |  |  |  |  |
|           | Upper   |   |            |    | Sided p         | sided p         |  |  |  |  |
| Pair<br>1 | Prop. shots fired (Citywide)<br>&<br>Prop. shots fired (Parks &<br>Community Centers) | 001907634                                 | -<br>5.754 | 65 | <u>&lt;.001</u> | <.001           |  |  |  |  |

Table 11. Paired samples correlation test, significant at p-value < 0.001.

| Paired Samples Correlations |                               |    |             |              |             |  |  |  |  |  |
|-----------------------------|-------------------------------|----|-------------|--------------|-------------|--|--|--|--|--|
|                             |                               | Ν  | Correlation | Significance |             |  |  |  |  |  |
|                             |                               |    | Correlation | One-Sided p  | Two-Sided p |  |  |  |  |  |
| Prop. shots fired (Citywid  |                               | 66 | .823        | <.001        | <.001       |  |  |  |  |  |
|                             | Prop. shots fired Ren (Parks) |    |             |              |             |  |  |  |  |  |

Table 12. Paired samples statistics, May 2019 to May 2024.

| Paired Samples Statistics |                                  |           |    |                |                 |  |  |  |  |
|---------------------------|----------------------------------|-----------|----|----------------|-----------------|--|--|--|--|
|                           |                                  | Mean      | N  | Std. Deviation | Std. Error Mean |  |  |  |  |
| Dain 1                    | Prop. shots fired Ren (CITYWIDE) | .00934587 | 66 | .003862176     | .000475401      |  |  |  |  |
| Pair 1                    | Prop. shots fired Ren (Parks)    | .01226771 | 66 | .006669452     | .000820953      |  |  |  |  |



### Conclusion 4: There are 476 public parks in Seattle, firearm violations were reported in 37% (or 176) of these parks, while 38% (or 182) of the parks had instances of shots being fired. Interestingly, 80% of all firearm violations were concentrated in just 19% (or 92) of the city's parks. Similarly, 80% of all instances of shots being fired were reported in only 17% (or 83) of the parks

This study also identified a number of community centers in Seattle, all of which are located within or near a public park.

**Firearm Violations:** From January 2019 to May 31, 2024, 176 parks (37%) reported firearm violations, leaving 300 parks (63%) with no such incidents. An 80% of all firearm violations during this period were reported in just 19% (or 92) of the parks. For more details, refer to Appendix 2 and table 13 below.

Table 13. List of parks with the top 10 counts of firearm violations from January 2019 to May 31, 2024. Note: Some of these parks had not had a firearm violation up to May 31 in 2024 and those are marked with an \*\*.

| Park Name  | Rank |
|--|------|
| Prefontaine Place  | 1    |
| Jim Ellis Freeway Park   | 2    |
| Alki Beach Park  | 3    |
| Bell Street Park Boulevard, Cal Anderson Park, Cheasty Greenspace, Seward Park   | 4    |
| Beer Sheva Park **, West Duwamish Greenbelt **                                   | 5    |
| Amy Yee Tennis Center, Westcrest Park, Yesler Terrace Park **                    | 6    |
| Frink Park, Westlake Park  | 7    |
| Alaskan Way Boulevard **, Cayton Corner Park **, Garfield Playfield, Lake        | 8    |
| Washington Boulevard, Warren G. Magnuson Park                                    |      |
| Burke-Gilman Trail, Colman Park **, East Duwamish Greenbelt **, Green Lake Park, | 9    |
| Id/Chinatown Community Center, Sam Smith Park **, Spruce Street Mini Park**, Van |      |
| Asselt Playground  |      |
| Camp Long, Kinnear Park**, Lakeridge Park, Leschi Park**, Pioneer Square**, Walt | 10   |
| Hundley Playfield, West Seattle Golf Course                                      |      |



**Shots fired:** During the same period, shots were fired in 182 parks (38%), leaving 294 parks (62%) without any such incidents. Notably, 80% of all shots fired were reported in just 17% (or 83) of the parks. For more details, refer to Appendix 3 and table 14 below.

Table 14 below shows a list of parks with the top 10 counts of shots fired from January 2019 to May 31, 2024. Note: Some of these parks had not had shots fired up to May 31 in 2024 and those are marked with an \*\*.

| Rank |
|------|
| 1    |
| 2    |
| 3    |
| 4    |
| 5    |
| 6    |
| 7    |
| 8    |
| 9    |
|      |
| 10   |
|      |

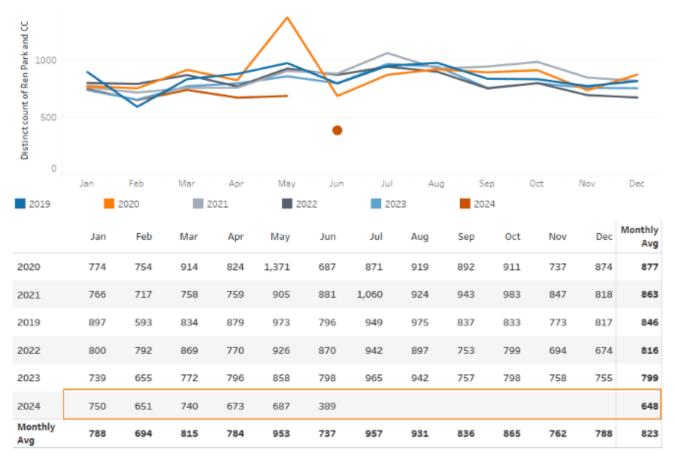


# **Appendix 1. Overall Crime at Parks and Community Centers**

#### **Overall Crime at Parks and Community Centers**

|   | 2019   | 2020   | 2021   | 2022   | 2023   | 2024   | Grand<br>Total |
|---|--------|--------|--------|--------|--------|--------|----------------|
| Crime Rpt Count at Parks and<br>Community Centers | 10,134 | 10,510 | 10,353 | 9,771  | 9,579  | 3,886  | 54,209         |
| Crime Report Count Citywide                       | 84,717 | 77,051 | 71,375 | 74,935 | 70,735 | 29,205 | 407,800        |
| % of Crime at Parks/CC's among<br>All Crime       | 12%    | 14%    | 15%    | 13%    | 1496   | 13%    | 13%            |

#### **Crime at Parks and Community Centers**





# Appendix 2. List of parks that concentrate 80% of all firearm violations between January 2019 to May 2024.

Prefontaine Place, Jim Ellis Freeway Park, Alki Beach Park, Bell Street Park Boulevard, Cal Anderson Park, Cheasty Greenspace, Seward Park, Beer Sheva Park, West Duwamish Greenbelt, Amy Yee Tennis Center, Westcrest Park, Yesler Terrace Park, Frink Park, Westlake Park, Alaskan Way Boulevard, Cayton Corner Park, Garfield Playfield, Lake Washington Boulevard, Warren G. Magnuson Park, Burke-Gilman Trail, Colman Park, East Duwamish Greenbelt, Green Lake Park, Id/Chinatown Community Center, Sam Smith Park, Spruce Street Mini Park, Van Asselt Playground, Camp Long, Kinnear Park, Lakeridge Park, Leschi Park, Pioneer Square, Walt Hundley Playfield, West Seattle Golf Course, Belltown Cottage Park, Boren Place, Cheasty Boulevard, Cheasty Greenspace: Mt View, Chinatown/Id Hub Urban Village, Denny Park, Discovery Park, Donnie Chin International Children's Park, Duwamish Head Greenbelt, Lincoln Park, Madison Park, Mount Baker Park, Othello Park, Pratt Park, S Charlestown & 35th Ave S, South Day Street Park, Union Station Square, Volunteer Park, 17th Avenue Ne Center Strip, 48th Ave Sw/Sw Charlestown St, Atlantic City Boat Ramp, Bitter Lake Playfield, Carkeek Park, Cascade Playground, Chinook Beach Park, Colman Playground, Delridge Playfield, Dr. Blanche Lavizzo Park, Dr. Jose Rizal Park Fred Hutchinson Playground Gerber Park Golden Gardens Park Greg Davis Park Hing Hay Park Hubbard Homestead Park Jackson Park Golf Course John C. Little, Sr. Park Junction Plaza Park Kerry Park And Viewpoint Kubota Gardens Lake City Park Lake City Urban Hub Village Lakeridge Playground Leschi Park And South Moorage Lewis Park Licton Springs Park Longfellow Creek Greenspace Maple School Ravine Martin Luther King Jr Memorial Mineral Springs Park Morgan Junction Park Mount Baker Boulevard Occidental Square Plymouth Pillars Park Rainier Beach Community Center Rainier Playfield Ravenna Woods Riverview Playfield

# Appendix 3. List of parks that concentrate 80% of all shots fired between January 2019 to May 2024.

Cheasty Greenspace, Beer Sheva Park, Prefontaine Place, Cal Anderson Park, Seward Park, Yesler Terrace Park, Alki Beach Park, Bell Street Park Boulevard, Garfield Playfield, Othello Park, East Duwamish Greenbelt, West Seattle Golf Course, Burke-Gilman Trail, Frink Park, Lakeridge Park, Pioneer Square, Powell Barnett Park, Warren G. Magnuson Park, Hamilton Viewpoint Park, Id/Chinatown Community Center, Roxhill Park, Sam Smith Park, West Duwamish Greenbelt, Westcrest Park, Colman Park, Lake Washington Boulevard, Longfellow Creek Greenspace, S Charlestown & 35th Ave S, Van Asselt Playground, Waterway 19, Westlake Park, Dr. Jose Rizal Park, Lakeridge Playground, Leschi Park, Mount Baker Boulevard, Mount Baker Park, Plymouth Pillars Park, Amy Yee Tennis Center, Camp Long, Cheasty Boulevard, Cheasty Greenspace: Mt View, Don Armeni Park, Dr. Blanche Lavizzo Park, Duwamish Head Greenbelt, Garfield Teen Life Center, Greg Davis Park, Jim Ellis Freeway Park, John C. Little, Sr. Park, Judkins Park And Playfield, Kubota Gardens, Lake City Urban Hub Village, Lincoln Park, Sturtevant Ravine, Union Station Square, 48th Ave Sw/Sw Charlestown St, Alaskan Way Boulevard, Albert Davis Park, Delridge Playfield, Discovery Park, East Portal Viewpoint, Fletcher Place, Flo Ware Park Golden Gardens Park Hing Hay Park



Horiuchi Park Jackson Park Golf Course Kinnear Park Kobe Terrace Leschi Park And South Moorage Madison Park Occidental Square Pratt Park Rainier Playfield Ravenna Boulevard Riverview Playfield S.W. Community Center And Pool University Heights Volunteer Park Walt Hundley Playfield Woodland Park