

# Seattle Downtown Public Safety and Economic Revitalization

City of Seattle | City Budget Office

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## Keywords:

data analysis, dashboard building, public safety, geospatial data

## Summary:

To address the challenges of downtown Seattle's safety and economic revitalization, we developed an integrated dashboard using **Python and Tableau** for cross-functional, collaborative analysis. The dashboard handles **geospatial data** and includes features like time-based analysis, offering both high-level and granular insights. It also provides early warnings of systemic changes in specific neighborhoods. Throughout the process, we worked closely with stakeholders, collecting feedback to continuously refine and enhance the dashboard.

# SEATTLE PUBLIC SAFETY AND ECONOMIC REVITALIZATION

**Innovation and Performance Team**

**City of Seattle, WA**

**Steve Barham - Chief Analytics Officer**

coding it forward >



**Seattle**

FANSHUHAN (VICKY) XU  
Northwestern University  
Computer Science & Art History

# Problem



## Downtown Recovery

The total number of visitors to Seattle in March 2024 is 87% of the pre-pandemic volume; the daily office worker foot traffic is 52% of 2019 level.

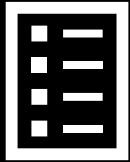


## Public Safety

73% of people visit downtown less often, with 40% attributing this to concerns about crime, danger, and safety.<sup>1</sup>

<sup>1</sup> Survey by Downtown Seattle Association (2023)

# Approach



**Develop an integrated dashboard for cross-functional, collaborative analysis.**



**Generate insights and early warnings when systemic changes occur, and create a system to apprise staff for potential actionable response.**

# Data Collection

- Find relevant datasets
- Meet with stakeholders
- Conduct preliminary data analysis

## Data Cleaning

- Convert data to “long format”
- Analyze patterns and get insights



## Build Dashboard

- Create a dashboard prototype
- Enable daily refresh automation



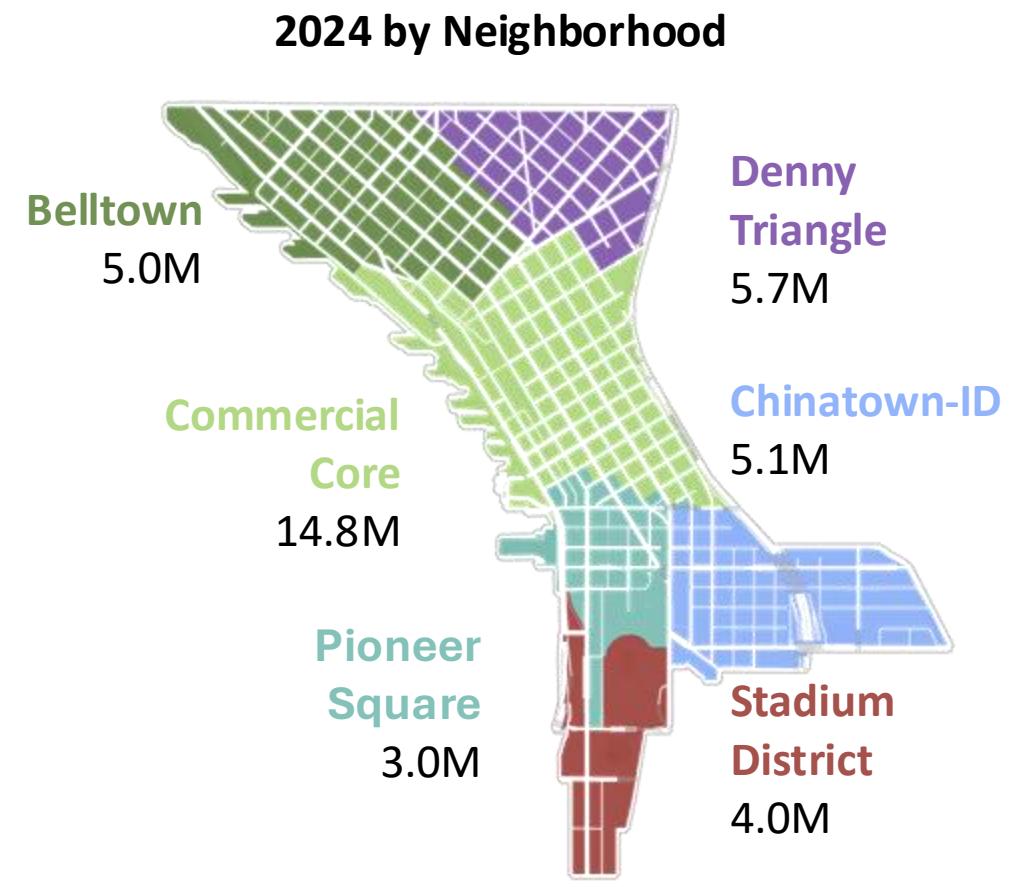
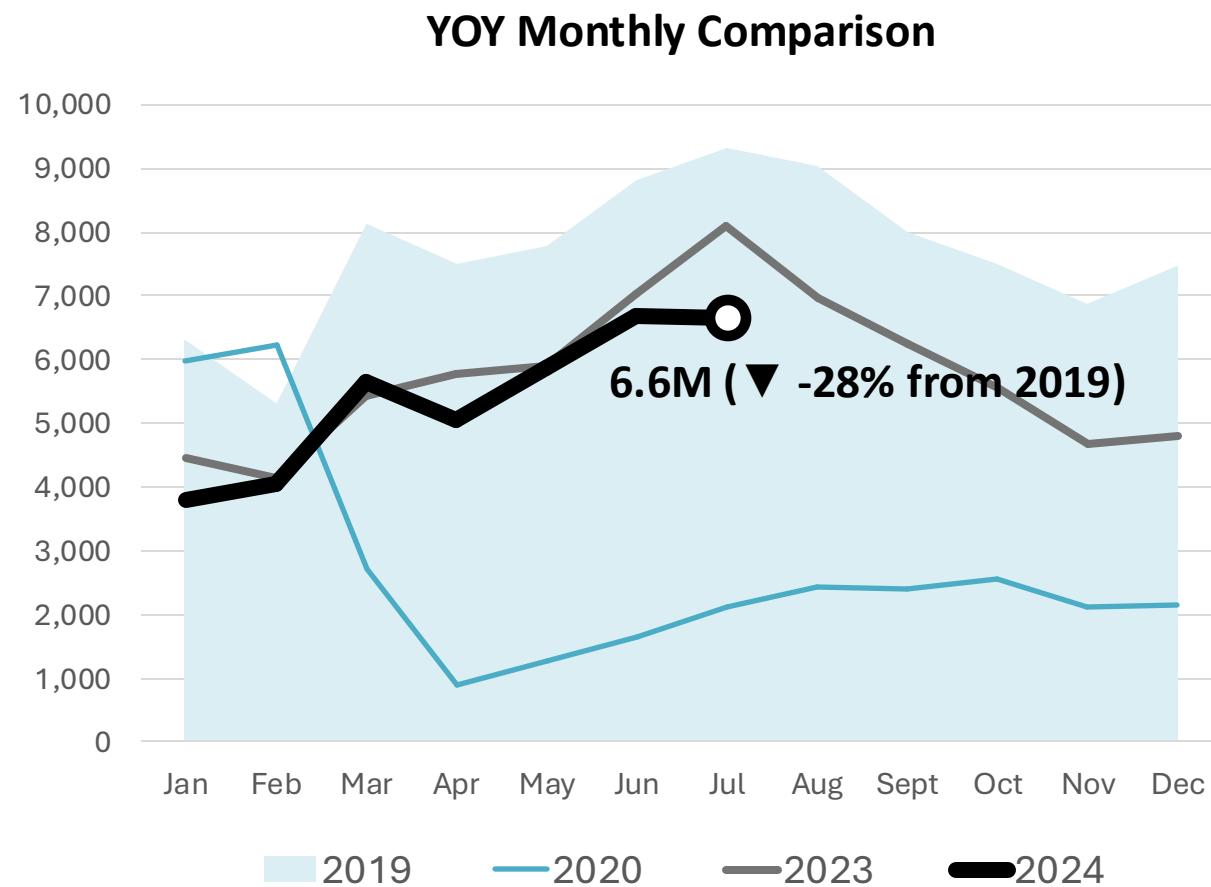
## Refinement

- Gather and list feedback
- Implement changes based on feedback

# Foot Traffic

Foot traffic in millions estimated by Placer with visits > 10 minutes

Source: Placer AI

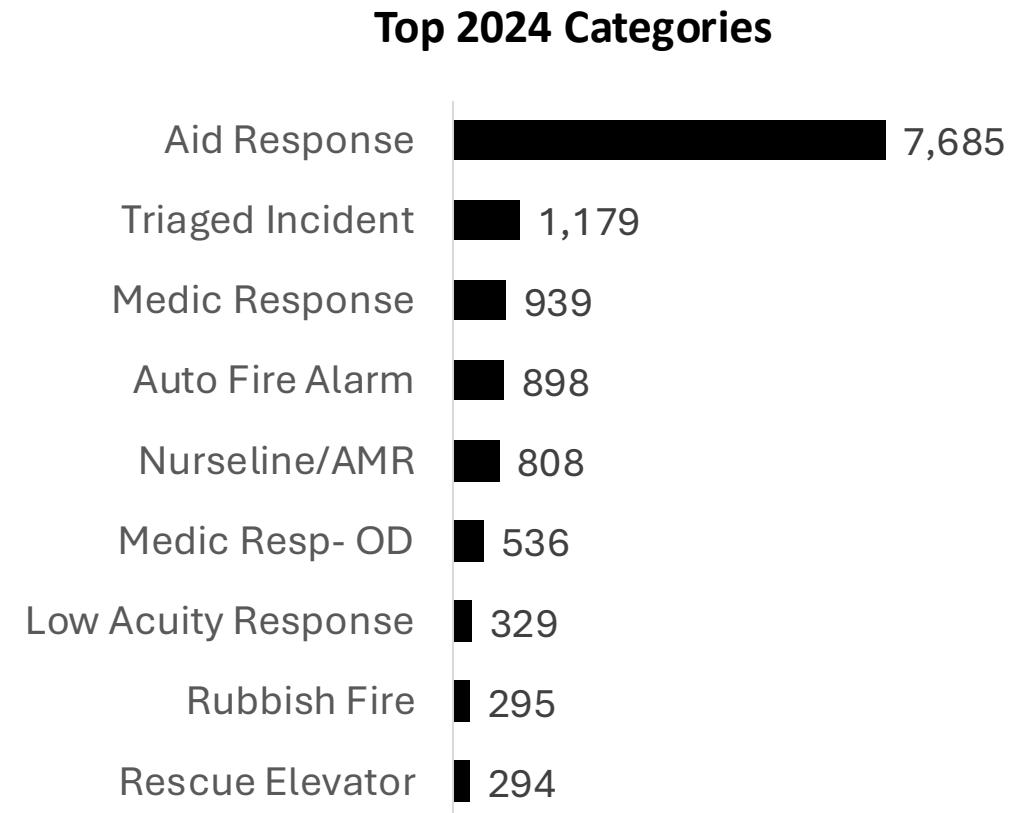
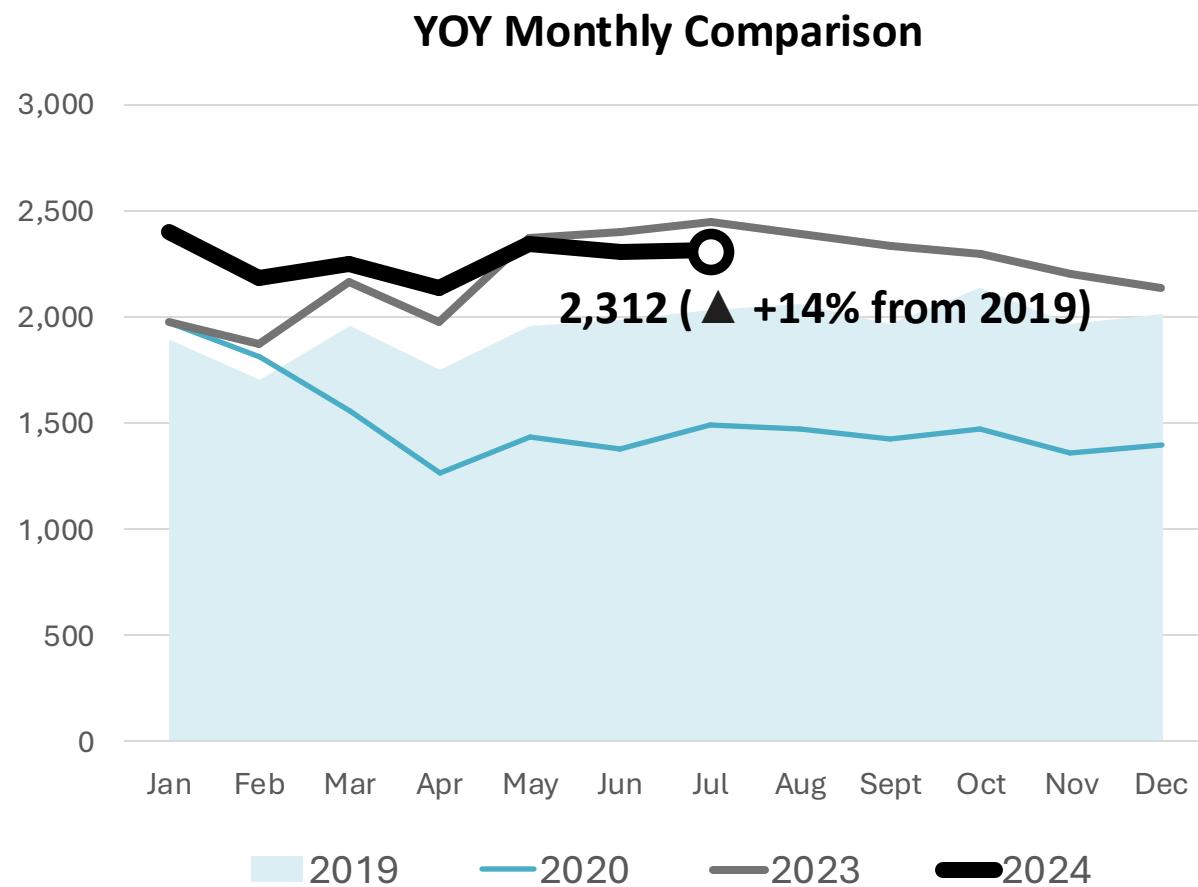


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# SFD 911 Incidents

911 dispatches from the Seattle Fire Department.

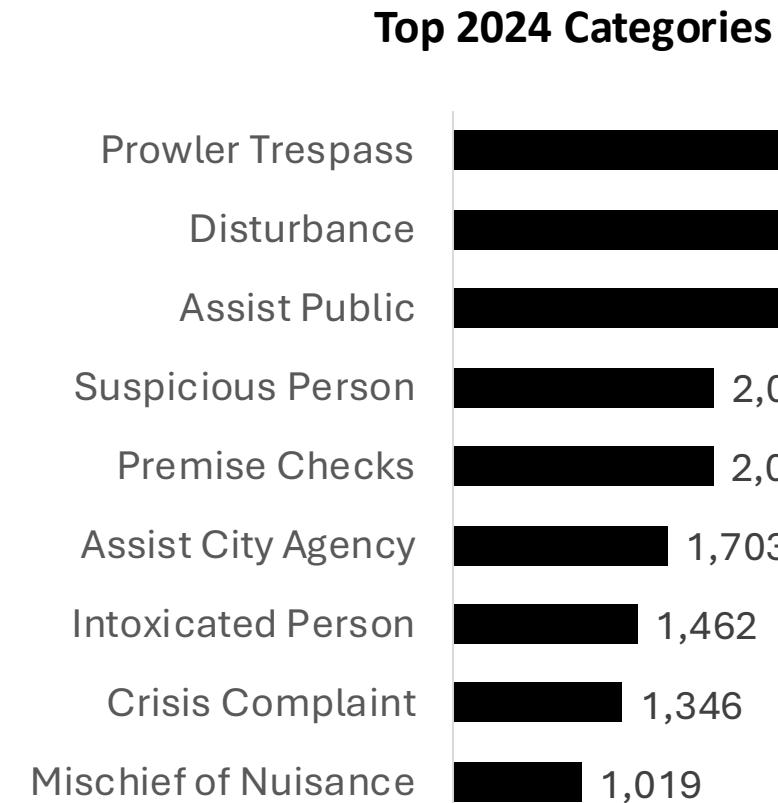
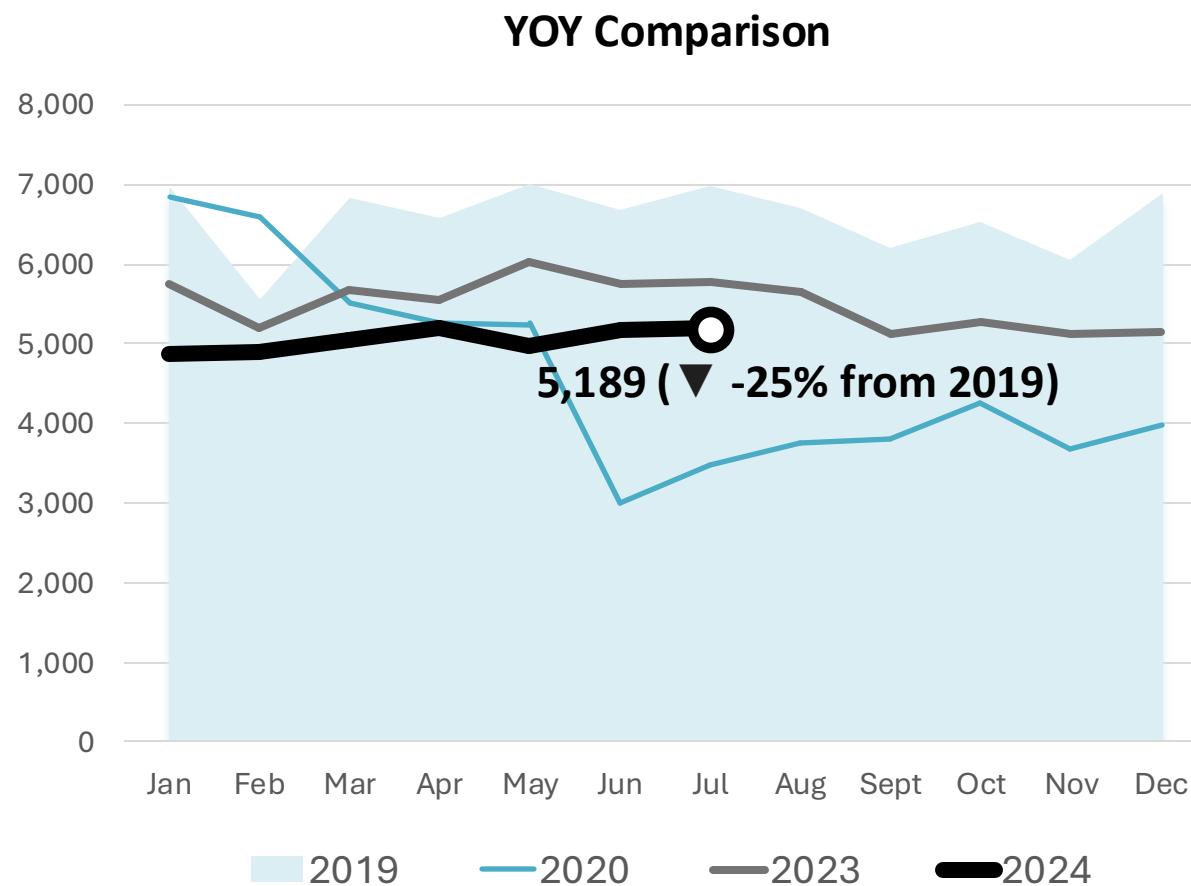
Source: Open Data



# SPD 911 Calls

Source: Open Data

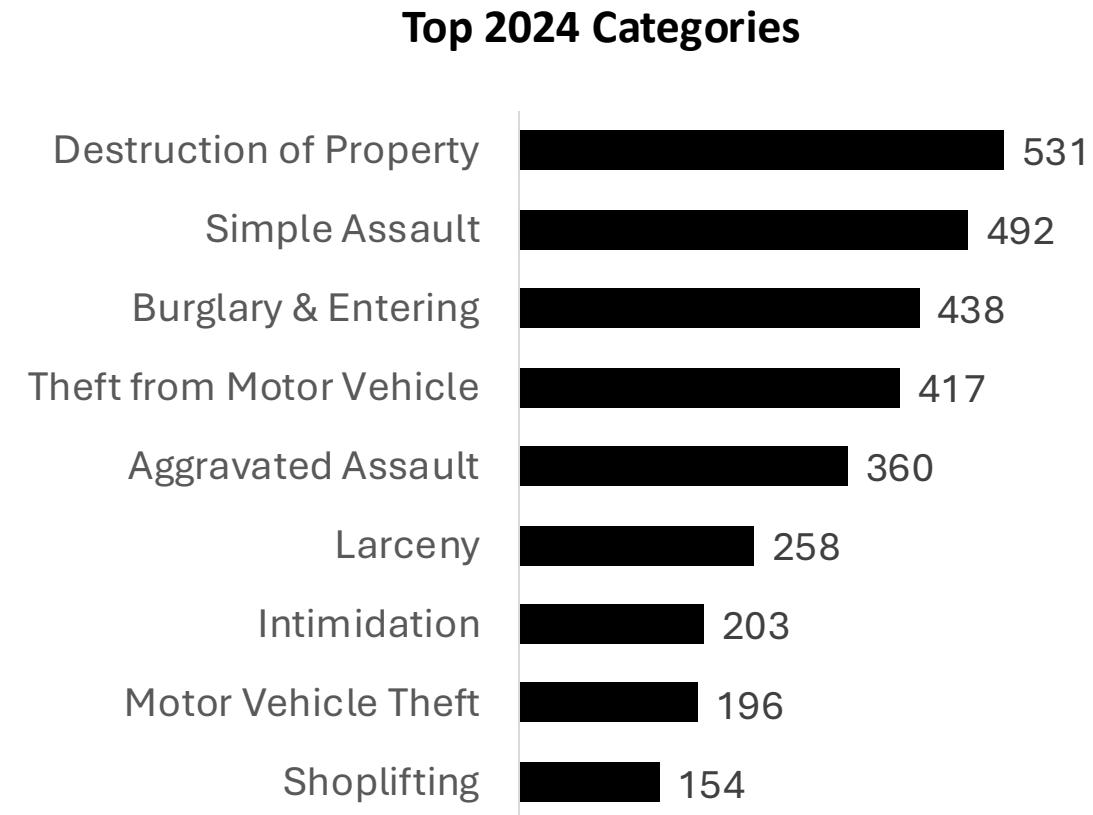
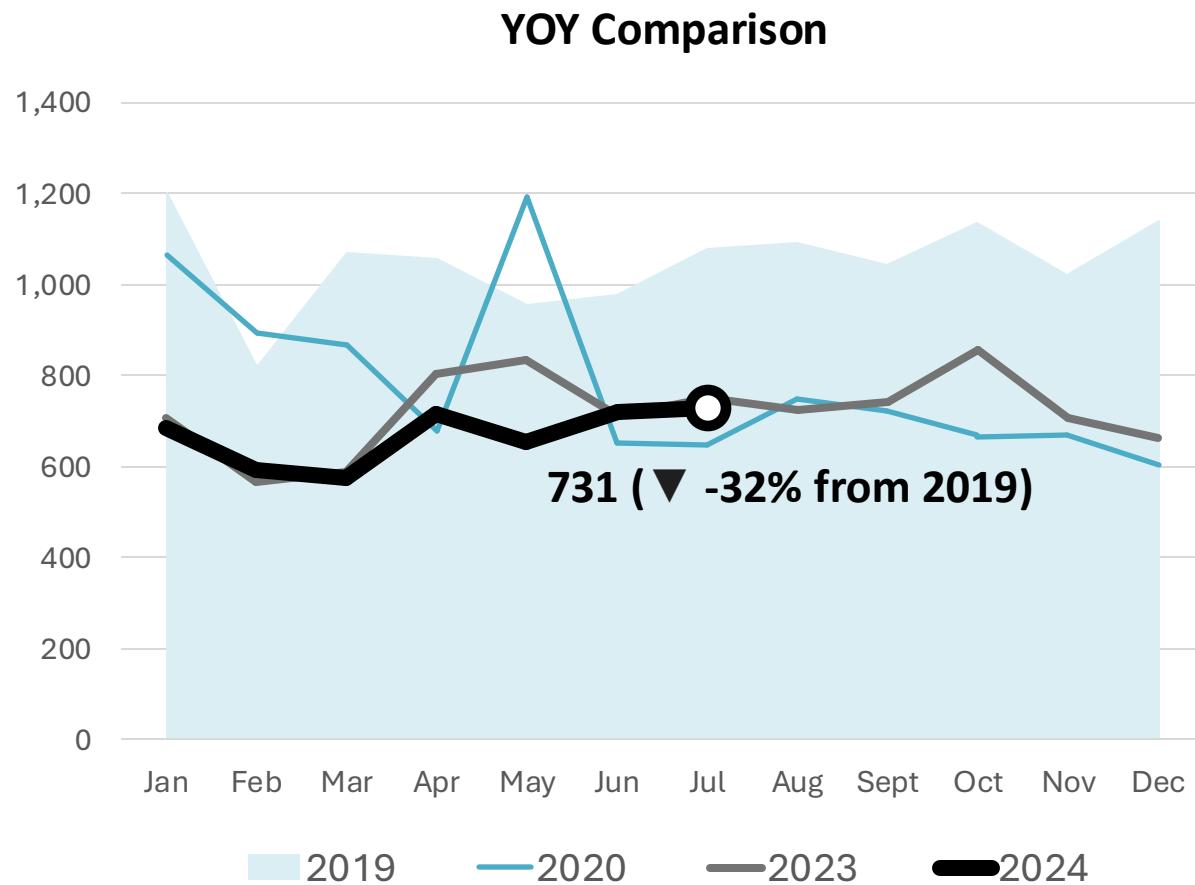
911 dispatches from the Seattle Police Department.  
[https://data.seattle.gov/Public-Safety/Call-Data/33kz-ixgy/about\\_data](https://data.seattle.gov/Public-Safety/Call-Data/33kz-ixgy/about_data)



# SPD Crime

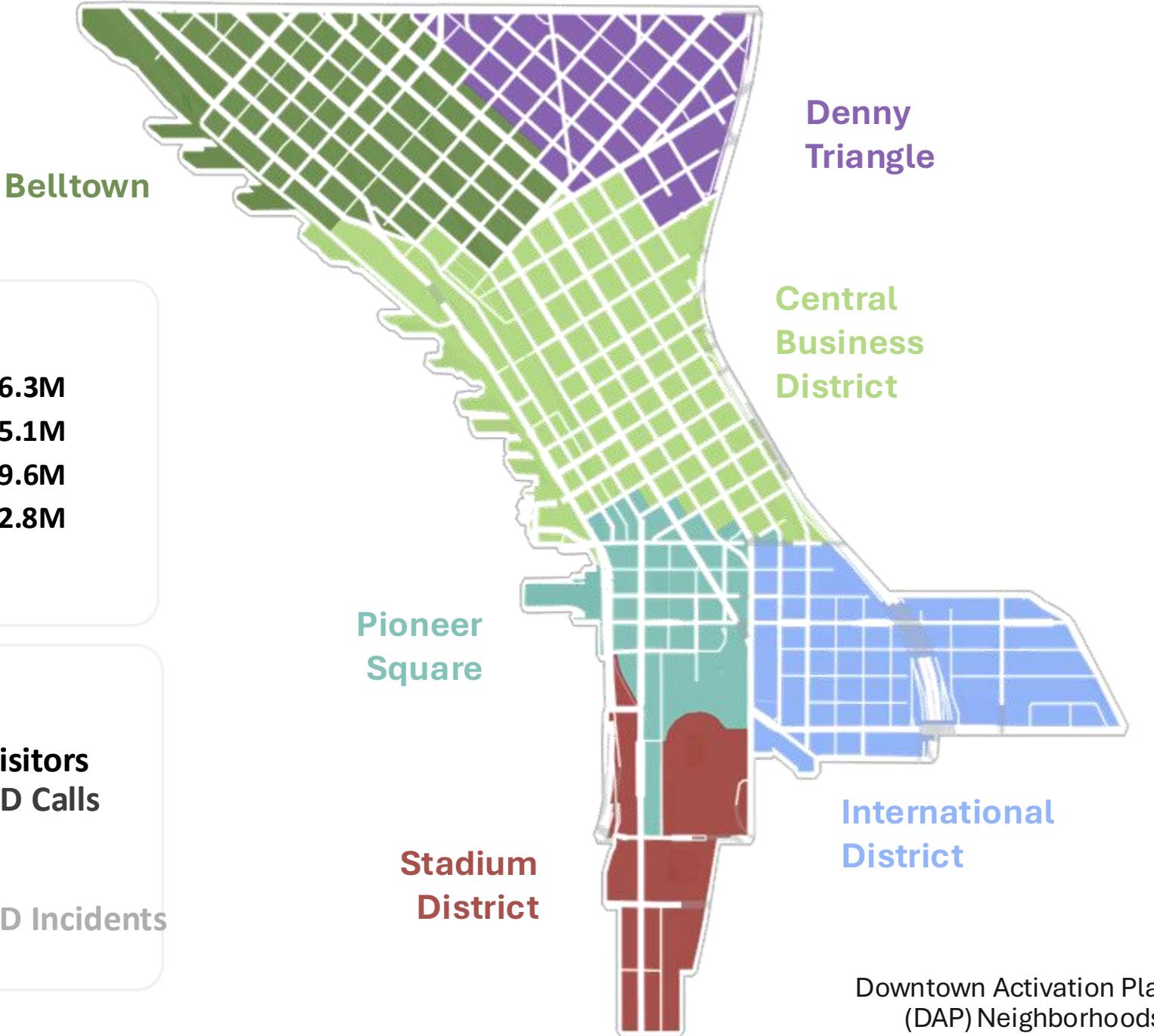
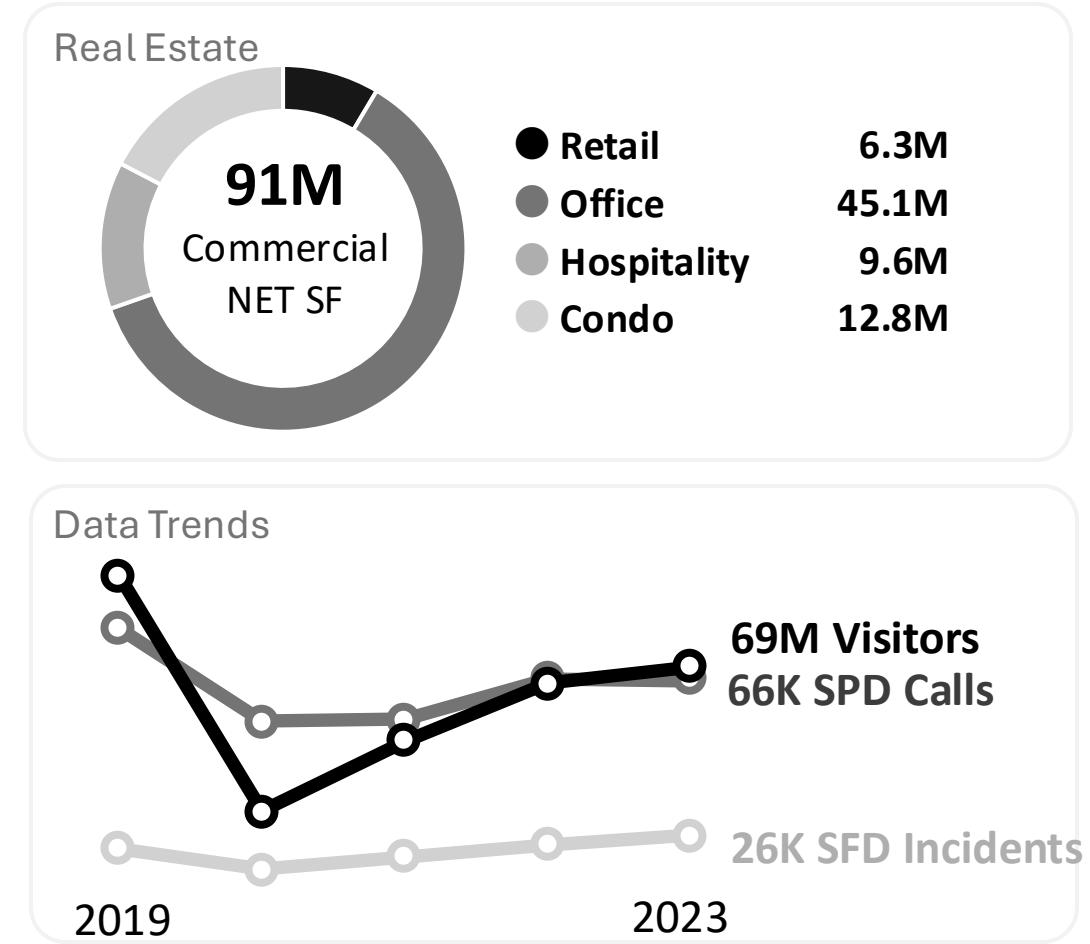
Source: Open Data

Crime records from the Seattle Police Department.  
[https://data.seattle.gov/Public-Safety/SPD-Crime-Data-2008-Present/tazs-3rd5/about\\_data](https://data.seattle.gov/Public-Safety/SPD-Crime-Data-2008-Present/tazs-3rd5/about_data)



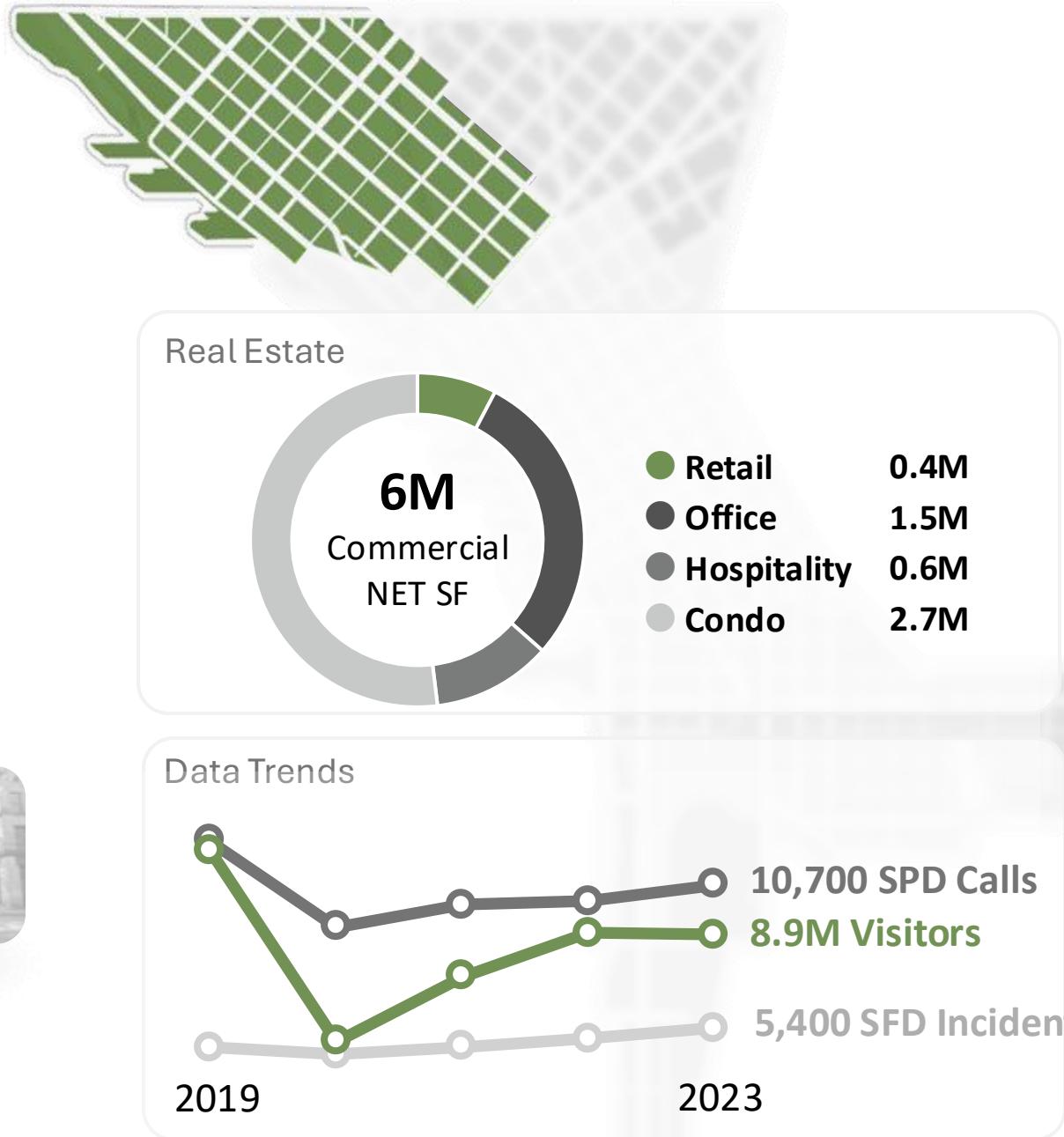
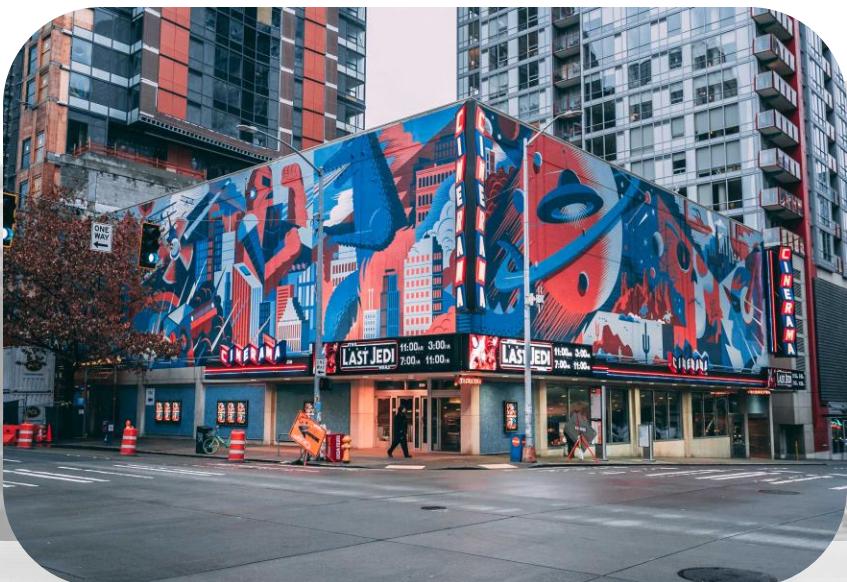
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# Downtown Seattle



# Belltown

A dense, urban neighborhood that is home to nightlife, local restaurants, and entertainment venues. Belltown is also home of the Olympic Sculpture Park and a large selection of human services that support people living in this neighborhood.

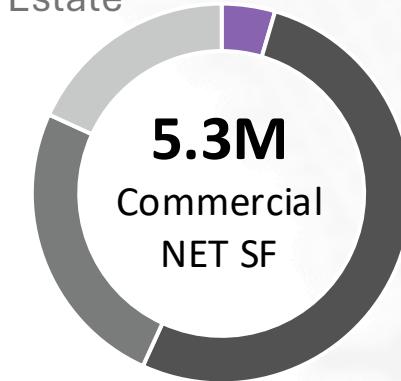


# Denny Triangle

Stretches from the edge of the Downtown core to Seattle Center, next to the Pacific Science Center and Space Needle. Has many new high-rise residential buildings, hotels, and corporate offices that cater to residents and visitors.

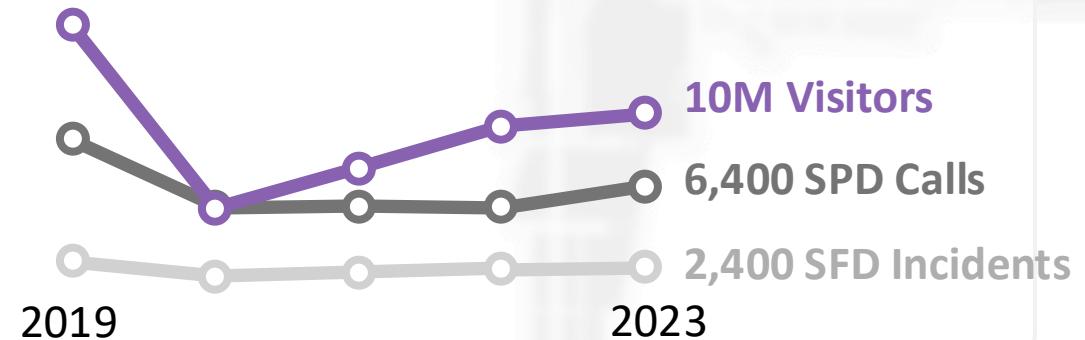


## Real Estate



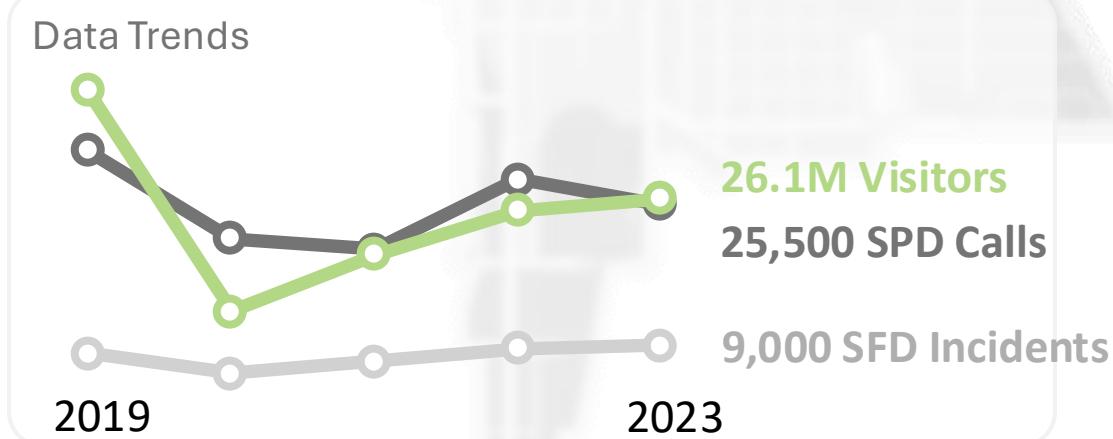
Retail	0.2M
Office	2.3M
Hospitality	1.1M
Condo	0.8M

## Data Trends



# Central Business District

Central area of Downtown, hosting much of the city's economic and civic activities. It features Pike Place Market, the central waterfront, Seattle Art Museum, Benaroya Hall, Seattle Central Library, and Westlake Center.

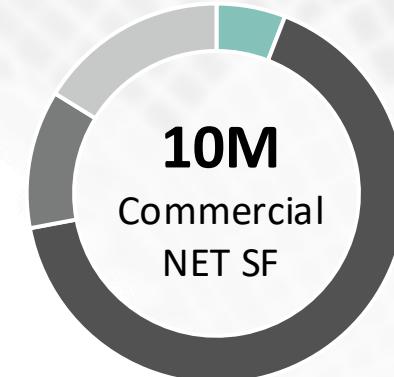


# Pioneer Square

Known as Seattle's "first neighborhood" is a draw for many with its historic architecture, King Street Station and events like the First Thursday Art Walk. Filled with art studios, galleries, bars, cafes, restaurants, and Occidental Park.

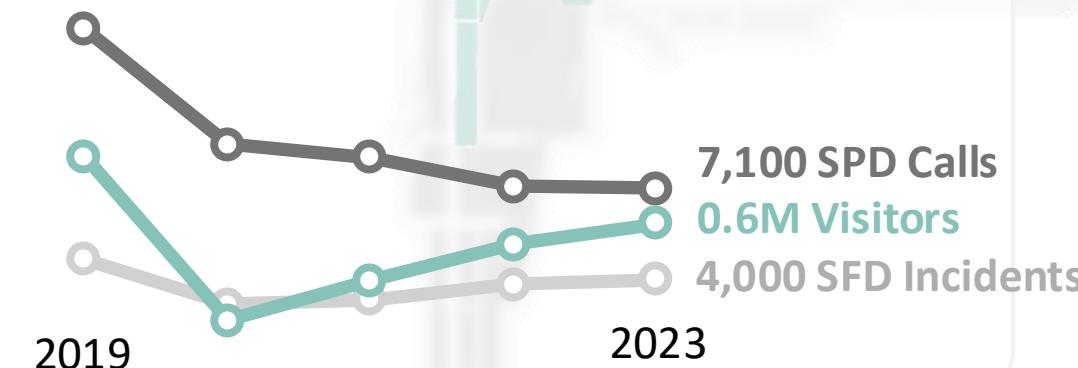


## Real Estate



Retail	0.4M
Office	4.5M
Hospitality	0.8M
Condo	1.1M

## Data Trends



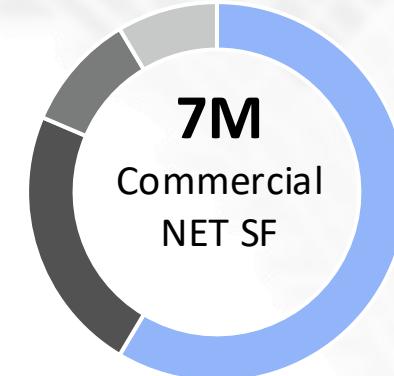
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# International District

Anchor of Seattle's Asian community for more than 100 years, thrives as both a residential and business space. Rich in history and culture, committed to self-determination despite the continuing impacts of development, public policies, and other structural inequities.

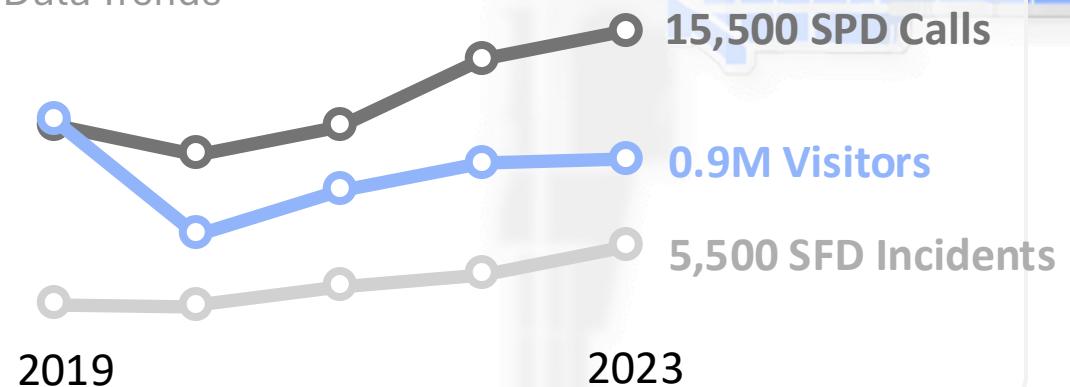


## Real Estate



Retail	0.7M
Office	1.7M
Hospitality	0.6M
Condo	2.1M

## Data Trends

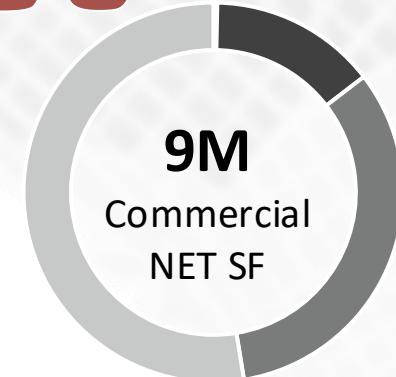


# Stadium District

Supports major sports, entertainment, retail gatherings, and events while maintaining the surrounding bustling industrial and maritime functions that are critical to our local and regional economy.



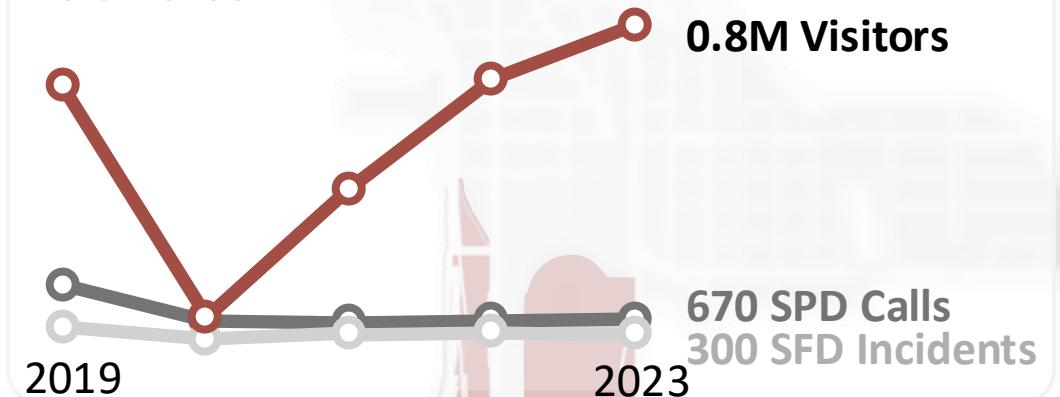
Real Estate



- Retail
- Office
- Parking
- Other

0.03M  
1.3M  
3M  
4.8M

Data Trends



0.8M Visitors

670 SPD Calls  
300 SFD Incidents

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# Visual Analytics Approach and Dashboard Features

		Downtown Activation Plan Dashboard	Downtown Seattle Association Recovery Dashboard	External Seattle Police Department Crime Dashboard	2024 Downtown Public Safety Revitalization Dashboard <sup>6</sup>
Data Source	Safety Data	✗	✓	✓	✓
	Foot Traffic	✓	✓	✗	✓
	Downtown Occupancy	✓	✗	✗	Pending ✓
	Commercial Net Square Footage	✗	✗	✗	✓
	Transit stops	✗	✗	✗	✓
Analytical Tools	Overview and Trend analysis	✓	✓	✓	✓
	Granular level analysis (By Neighborhood)	✗	✓	✓	✓
	Granular level analysis (By incidents category)	✗	✓	✓	✓
	Statistical Comparison and Correlation	✗	✗	✗	✓
Actionable Suggestions	Early warning system	✗	✗	✗	✓

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# 2024 Downtown Public Safety Revitalization Dashboard

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Metric

SFD 911 Calls

Color Key

Year

Year

(Multiple values)

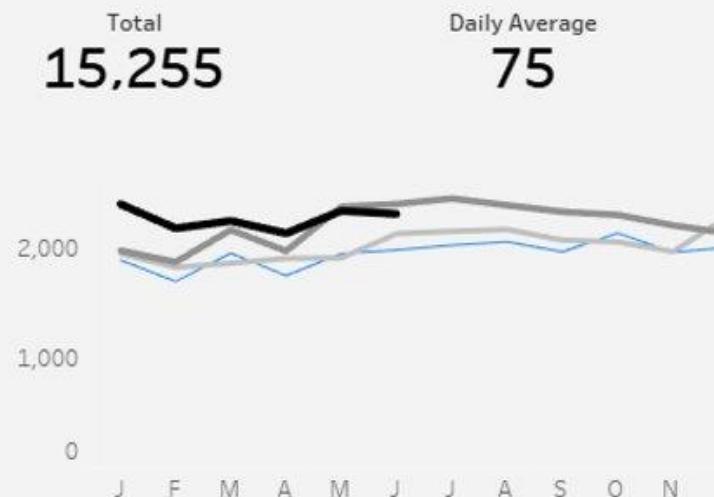
## SFD 911 Calls

2024 YTD Summary

Total

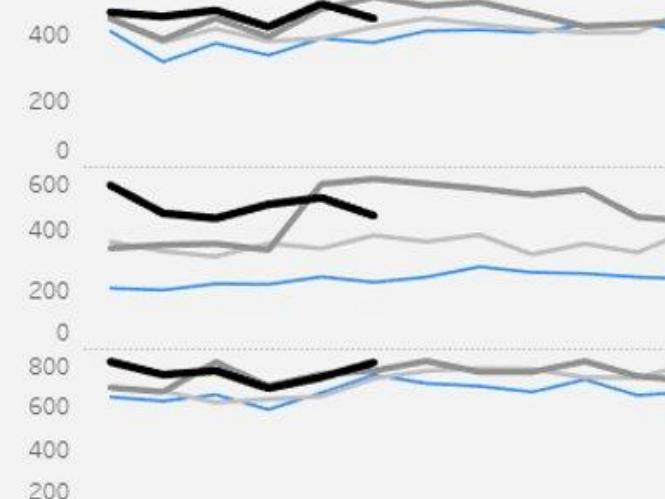
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Daily Average

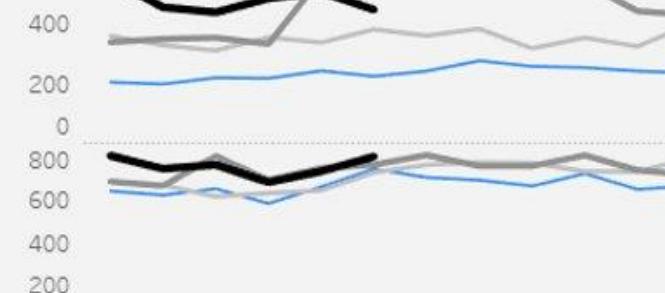
**75**

## By Neighborhood

Belltown



Chinatown-ID



Commercial Core



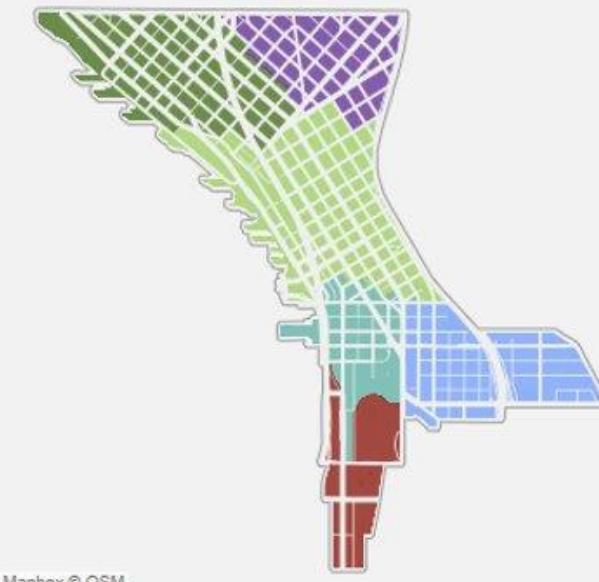
Denny Triangle



Pioneer Square



Stadium District



	2019	2022	2023	2024
Belltown	4,684	4,993	5,385	3,056
Chinatown-ID	2,807	4,205	5,510	3,202
Commercial Core	8,066	8,613	9,028	5,125
Denny Triangle	2,698	2,367	2,409	1,386
Pioneer Square	4,652	3,776	3,960	2,306
Stadium District	475	343	294	180

Year Key  
 2019     
  2022     
  2023     
  2024

Color Key  
 2024  
 2023  
 2022

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# 2024 Downtown Public Safety Revitalization Dashboard

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Color Key

None

Year of Report Date

(Multiple values)

**Metric 1** SFD 911 Calls

Category

## By Category

	2022	2023	2024
Total	24,288	26,586	16,927
Other	3,138	3,156	2,229
Aid Response	12,563	13,629	8,554
Auto Fire Alarm	1,755	1,658	1,001
Illegal Burn	321	344	270
Low Acuity Response	800	603	358
Medic Response	2,025	2,151	1,050
Medic Response- Over..	278	1,065	566
Nurseline/AMR	1,312	1,183	895
Rescue Elevator	453	503	323
Rubbish Fire	456	428	326
Trans to AMR	301	32	29
Triaged Incident	886	1,834	1,326

**Metric 2** Foot Traffic

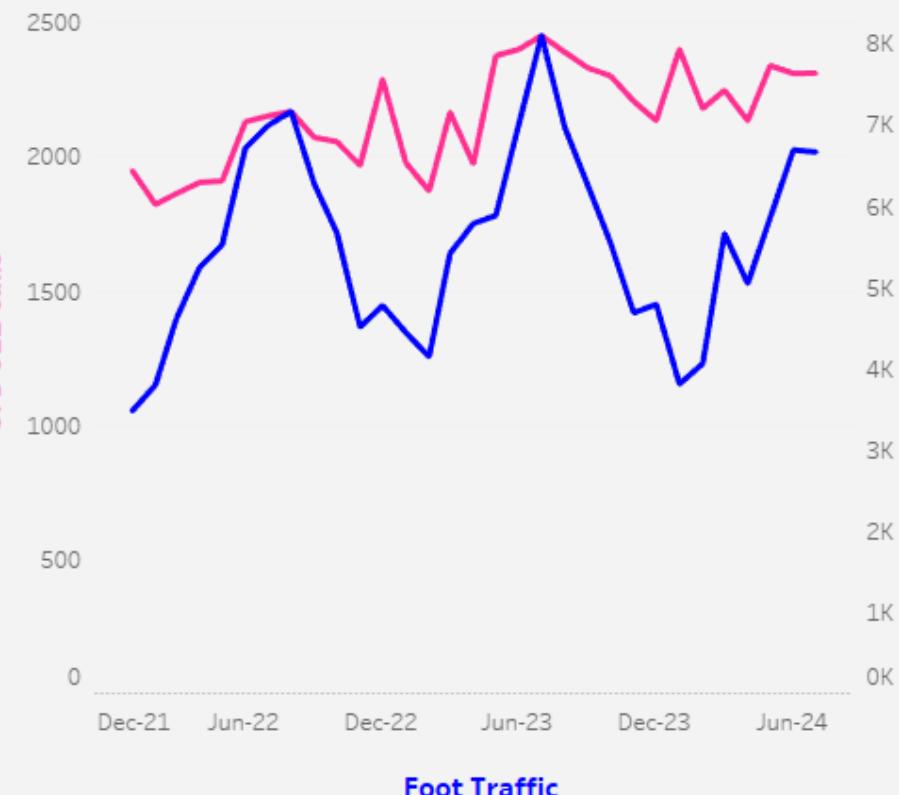
Category

## By Neighborhood

## By Neighborhood

	2022	2023	2024
Belltown	4,992	5,385	3,352
Chinatown-ID	4,204	5,510	3,526
Commercial Core	8,609	9,028	5,710
Denny Triangle	2,367	2,409	1,576
Pioneer Square	3,776	3,960	2,548
Stadium District	340	294	215

	2022	2023	2024
Belltown	8,937	8,878	5,073
Chinatown-ID	9,377	9,582	5,121
Commercial Core	24,812	26,137	14,855
Denny Triangle	9,419	10,070	5,699
Pioneer Square	5,226	5,961	3,097
Stadium District	6,996	8,415	3,955



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# 2024 Downtown Public Safety Revitalization Dashboard

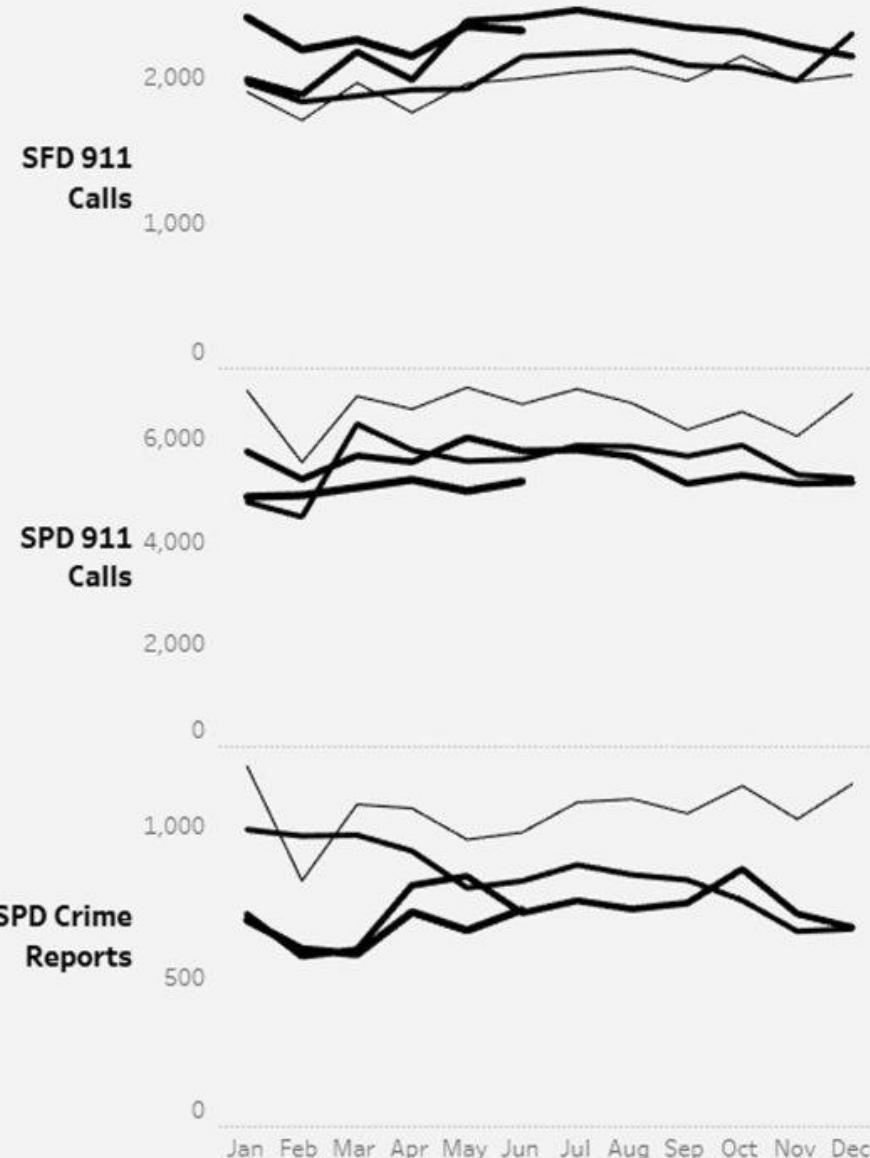
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[CRE](#)

Color Key

Year of Report Date

None

(Multiple values)



	2019	2022	2023	2024
Total	23,382	24,297	26,586	15,255
Other	3,167	3,139	3,156	2,010
Aid Response	12,228	12,571	13,629	7,685
Auto Fire Alarm	1,380	1,755	1,658	898
Illegal Burn	105	321	344	255
Low Acuity Response	800	603	329	329
Medic Response	2,940	2,025	2,151	939
Medic Response- Overdose	278	1,065	536	536
Nurseline/AMR	1,312	1,183	808	808
Rescue Elevator	415	453	503	294
Rubbish Fire	98	456	428	295
Trans to AMR	2,690	301	32	27
Triaged Incident	359	886	1,834	1,179
Total	78,763	66,179	66,029	33,438
Other	39,131	29,491	29,498	14,414
--ASSIST OTHER AGENCY--	2,542	2,291	3,031	1,703
--ASSIST PUBLIC - OTHER (..)	4,222	4,366	5,406	2,832
--CRISIS COMPLAINT - GE..	2,380	2,670	2,706	1,346
--DISTURBANCE - OTHER	7,874	6,902	6,940	3,172
--INTOX & LIQ VIOLS - INT..	2,947	1,901	2,105	1,462
--MISCHIEF OR NUISANCE ..	3,343	1,832	1,884	1,019
--PREMISE CHECKS - CRIM..	7,081	7,052	6,048	2,064
--PROWLER - TRESPASS	5,079	5,604	4,523	3,354
--SUSPICIOUS CIRCUM. - S..	4,164	4,070	3,888	2,072
Total	12,591	10,044	8,658	4,422
Other	3,002	2,117	1,933	1,224
Aggravated Assault	663	652	602	360
All Other Larceny	877	840	605	258
Burglary/Breaking & Ente..	799	996	766	438
Destruction/Damage/Van..	886	1,173	1,123	531
Intimidation	520	418	407	203
Motor Vehicle Theft	198	384	435	196
Shoplifting	1,408	674	459	154
Simple Assault	1,377	1,044	937	492
Theft From Motor Vehicle	1,758	1,380	1,080	417
Trespass of Real Property	1,103	366	311	149

	2019	2022	2023	2024
SFD 911 Calls	Belltown	4.7K	5.0K	5.4K
	Chinatown-ID	2.8K	4.2K	5.5K
	Commercial Core	8.1K	8.6K	9.0K
	Denny Triangle	2.7K	2.4K	1.4K
	Pioneer Square	4.7K	3.8K	4.0K
	Stadium District	0.5K	0.3K	0.2K
	Total	23.4K	24.3K	26.6K
SPD 911 Calls	Belltown	12.4K	10.1K	10.7K
	Chinatown-ID	11.2K	14.3K	15.5K
	Commercial Core	31.8K	28.4K	25.5K
	Denny Triangle	8.8K	5.4K	6.4K
	Pioneer Square	13.0K	7.3K	7.2K
	Stadium District	1.6K	0.6K	0.7K
	Total	78.8K	66.2K	66.0K
SPD Crime Reports	Belltown	2.2K	2.1K	1.9K
	Chinatown-ID	1.9K	1.7K	1.6K
	Commercial Core	5.4K	3.8K	2.9K
	Denny Triangle	1.2K	1.1K	1.0K
	Pioneer Square	1.6K	1.2K	1.1K
	Stadium District	0.3K	0.2K	0.2K
	Total	12.6K	10.0K	8.7K
		114.7K	100.5K	101.3K
				53.1K

Color Key

■ None

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# 2024 Downtown Public Safety Revitalization Dashboard

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Metric

SFD 911 Calls



Control alerts are calculated for each category and neighborhood. Metrics are **Above Baseline** when they are more than 1 standard deviation from the mean in the same month, in 2023.

Baseline Year

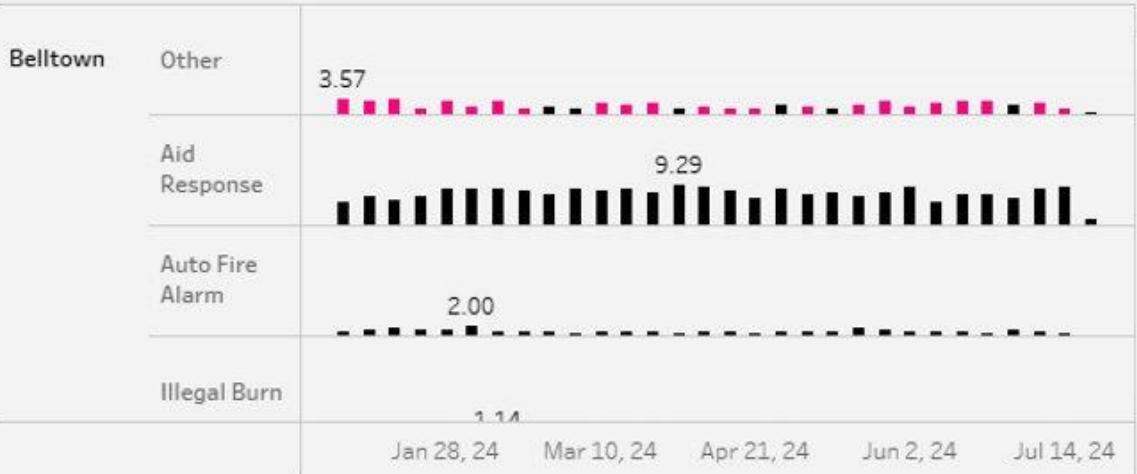
2023

Upper Control SD

1



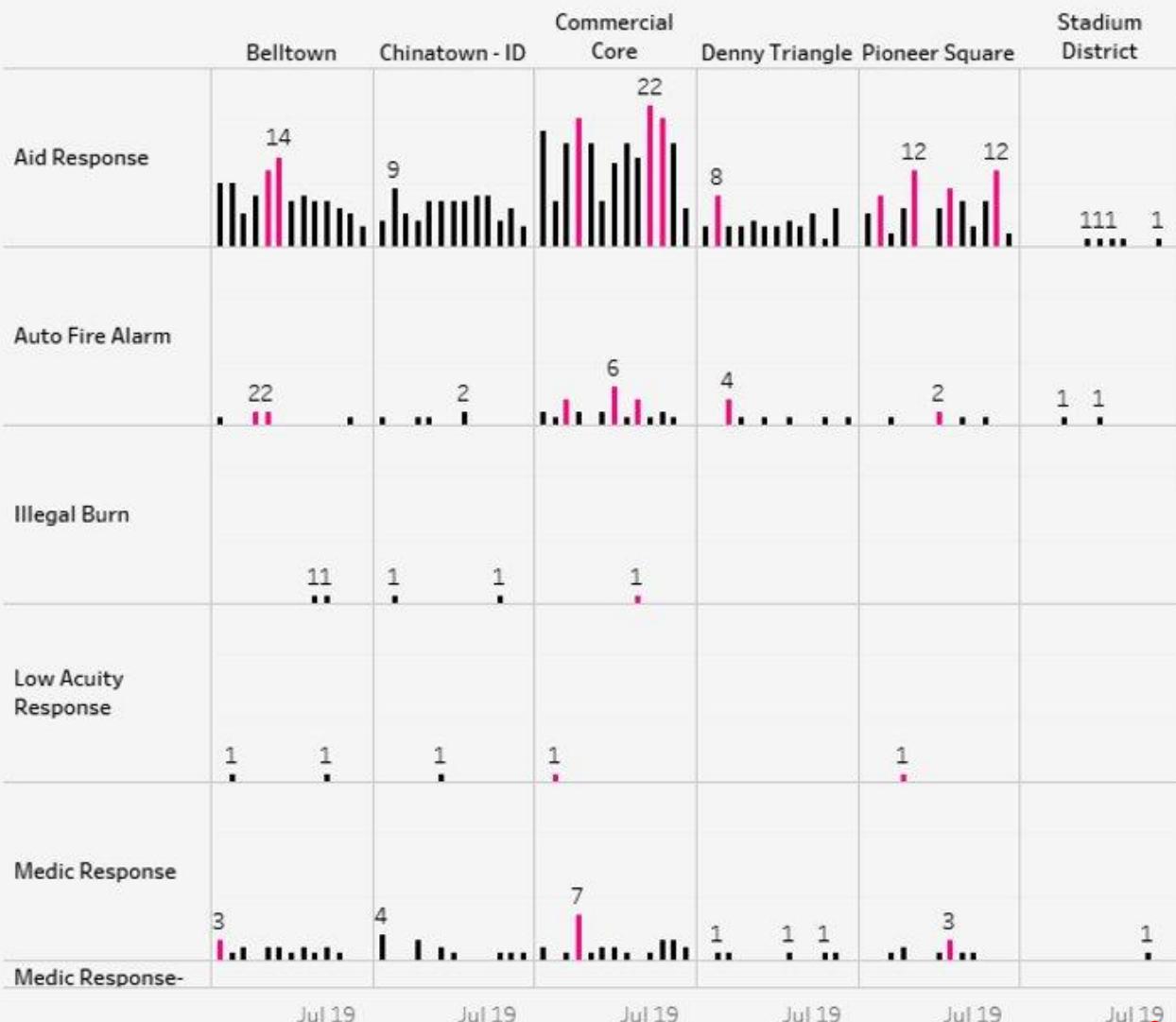
## Weekly averages by category



## Categories exceeding baseline

Week of Rep..	Metric	Geometry	Category	Total	Baseline	Daily Avg...
7/14/24	SFD 911 Calls	Belltown	Other	10	1.26	1.43
		Commercial Core	Other	21	1.37	3.00
		Pioneer Square	Other	16	1.58	2.29
7/7/24	SFD 911 Calls	Belltown	Other	17	1.26	2.43
		Commercial Core	Other	19	1.37	2.71
		Pioneer Square	Other	14	1.58	2.00
6/30/24	SFD 911 Calls	Commercial Core	Other	19	2.57	2.71
		Denny Triangle	Other	12	1.00	1.71
6/23/24	SFD 911 Calls	Belltown	Other	22	1.33	3.14

## Previous 14 days

● Below Baseline ● Above Baseline


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# Future Directions

1

Assess **impact** on decision-making process

2

Explore further **user case possibilities**

3

Convey information clearly to the **audience**

# What did I learn

1

**Understand public sector dynamics**

2

**Enhance technical problem-solving skills**

3

**Build valuable professional relationships**

# Thank you!

## 2024 Public Safety and Revitalization Dashboard

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<https://vickyxfsh.netlify.app/>

