A close-up photograph of a coin-operated binocular viewer, often found in public spaces like parks or viewpoints. The viewer is made of dark metal with a textured surface. In the center, there are two eyepieces with a circular frame around them. Above the eyepieces is a small red circular button with the words "TURN TO CLEAR VISION". Below the eyepieces is a slot labeled "QUARTERS ONLY" and a "25¢" coin slot. A small instructional label below the slot says "TO OPERATE" with arrows indicating "STEP 1" and "STEP 2". The background is a dark, out-of-focus city skyline with various colored lights from buildings and street lamps.

Boston Crime Analysis

Trang Tran, Wui Lung and Kyla Araujo

Boston Crime Analysis Importance

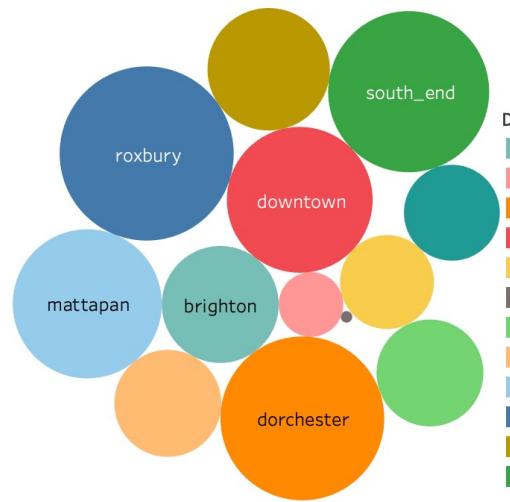


- **Data-Driven Adjustments:** Analyzing trends informs adjusted policing for targeted violence reduction and community safety in specific areas
- **Visualizing Insights:** With quality data, a user-friendly dashboard visually highlights key points for quick comprehension, aiding analysts in narrating the city's story
- **Identifying Influences:** For instance, the 2015-2022 shooting chart indicates a significant +20x YoY crime rate spike in 2019. This rise extended across districts, possibly due to social issues, leadership changes, or funding constraints

The bubble chart offers a perspective on the frequency of crimes and identifies the districts with the most pronounced occurrences of both overall crime and shootings

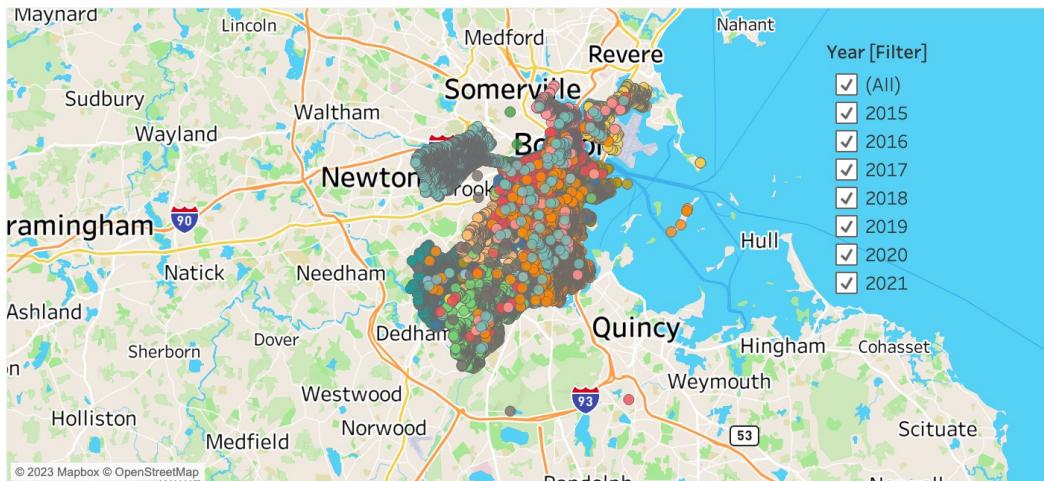
Shooting [Filter]

- (All)
- 0
- 1



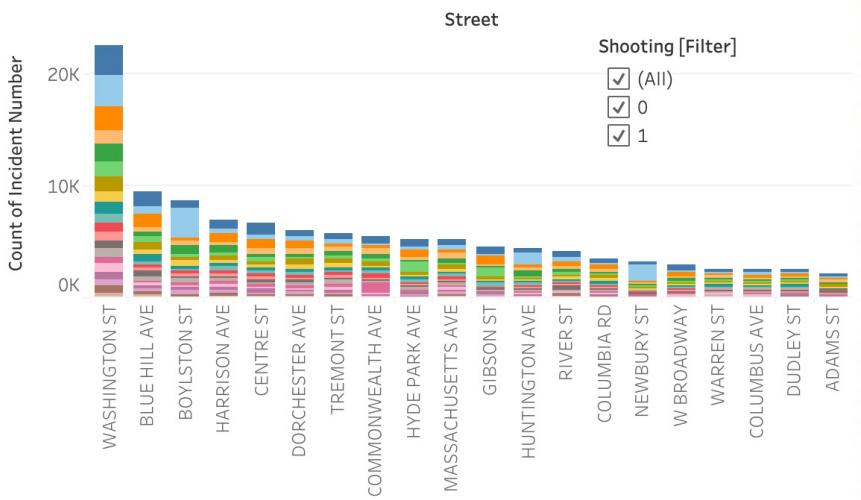
District Name
brighton
charlestown
dorchester
downtown
east_boston
External
hyde_park
jamaica_plain
mattapan
roxbury
south_Boston
south_end

A year-filtered heat map for cities in Boston with crime is crucial for visually tracking evolving crime patterns over time, informing resource allocation, evaluating interventions, and facilitating data-driven policymaking



Map based on Long and Lat. Color shows details about District Name. The data is filtered on Exclusions (District Name,Lat,Long,Street), Action (District Name) and Year. The Exclusions (District Name,Lat,Long,Street) filter keeps 60,169 members. The Action (District Name) filter keeps 13 members. The Year filter keeps 9 of 9 members.

Washington St and Blue Hill Ave emerge as hotspots for the highest overall crime rates, with a primary focus on addressing and investigating individuals being a predominant concern

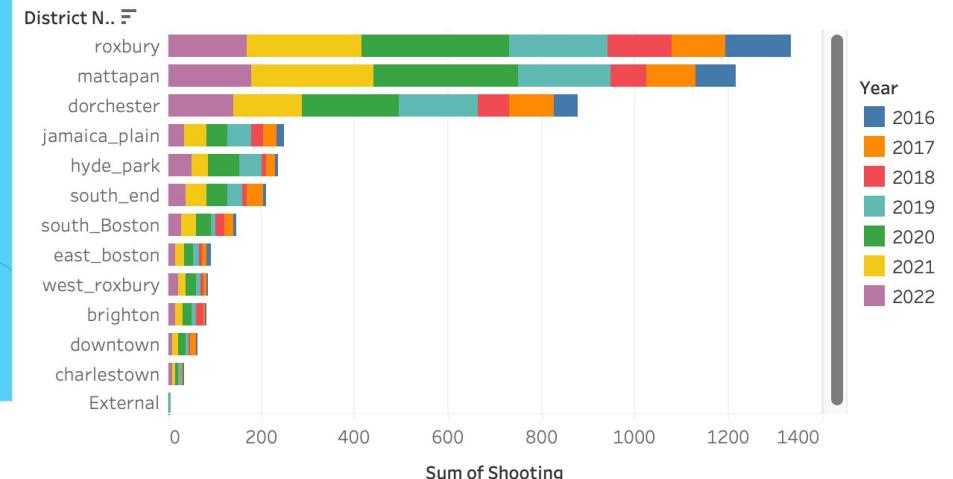


Street
Shooting [Filter]
 (All)
 0
 1

Offense Type

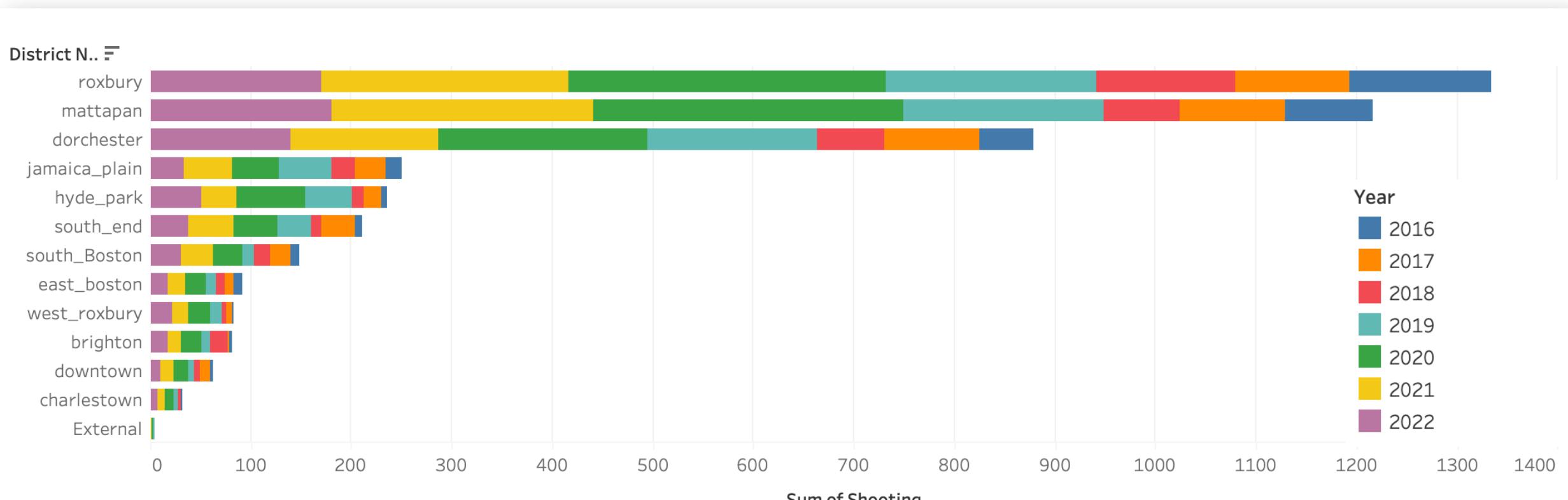
- INVESTIGATE PERSO..
- LARCENY SHOLIFTI..
- M/V - LEAVING SCEN..
- SICK/INJURED/MEDI..
- LARCENY THEFT FRO..
- INVESTIGATE PROPE..
- VANDALISM
- ASSAULT SIMPLE - B..
- THREATS TO DO BOD..
- LARCENY THEFT FRO..
- SICK ASSIST
- LARCENY ALL OTHERS
- VERBAL DISPUTE
- PROPERTY - LOST
- TOWED MOTOR VEH..
- ASSAULT - SIMPLE
- FRAUD - FALSE PRET..
- WARRANT ARREST
- ASSAULT - AGGRAVA..
- MISSING PERSON - L..

In 2020, Roxbury and Mattapan experienced a significant surge in shootings, which raises intriguing questions about potential connections to social factors, such as the impact of the COVID-19 pandemic

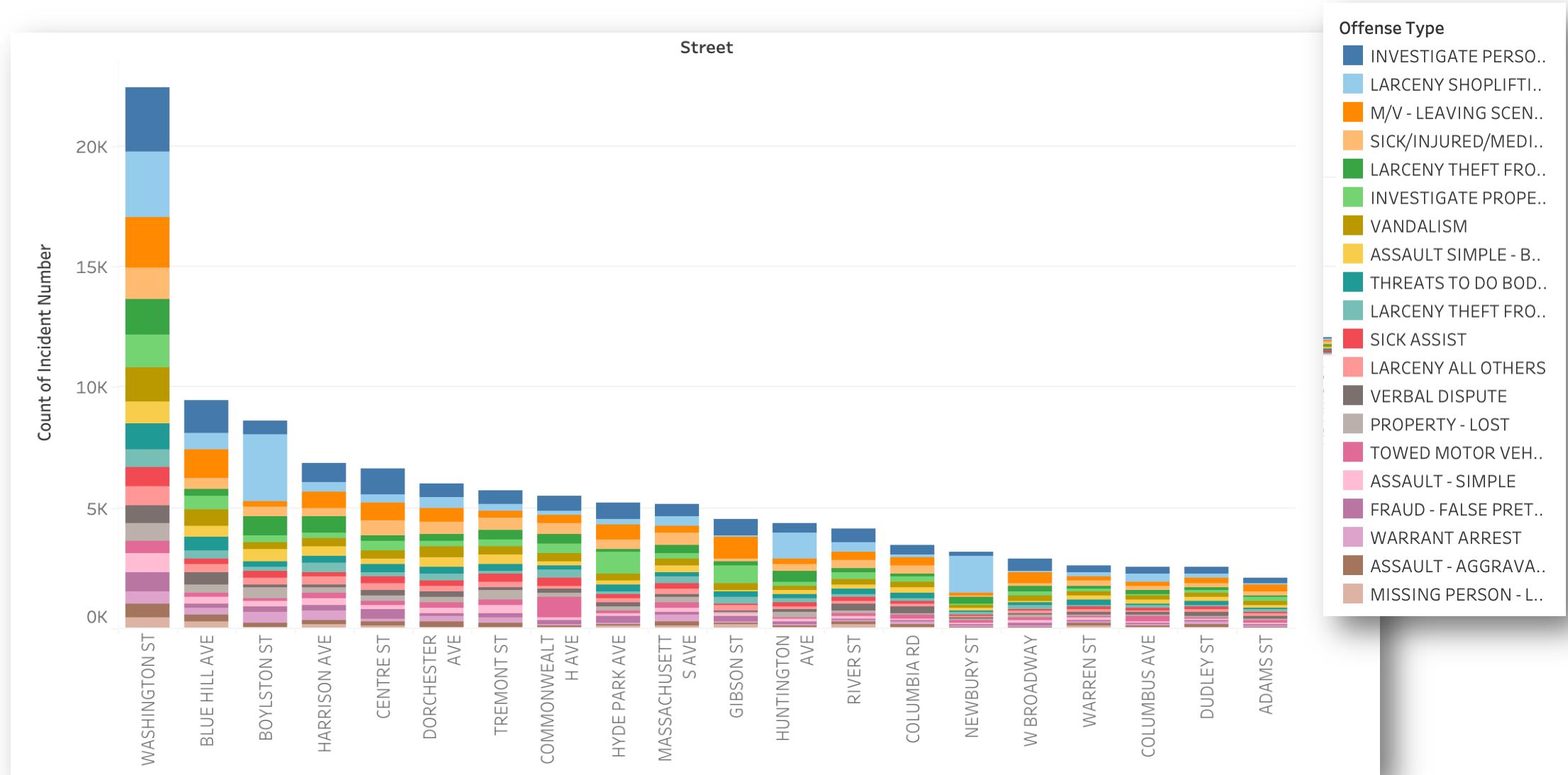


Year
2016
2017
2018
2019
2020
2021
2022

Opportunity to explore social elements such as COVID-19's impact and age demographics, given the contrast between higher shooting rates in areas like Roxbury and Mattapan and lower rates in Charlestown, potentially influencing community safety dynamics

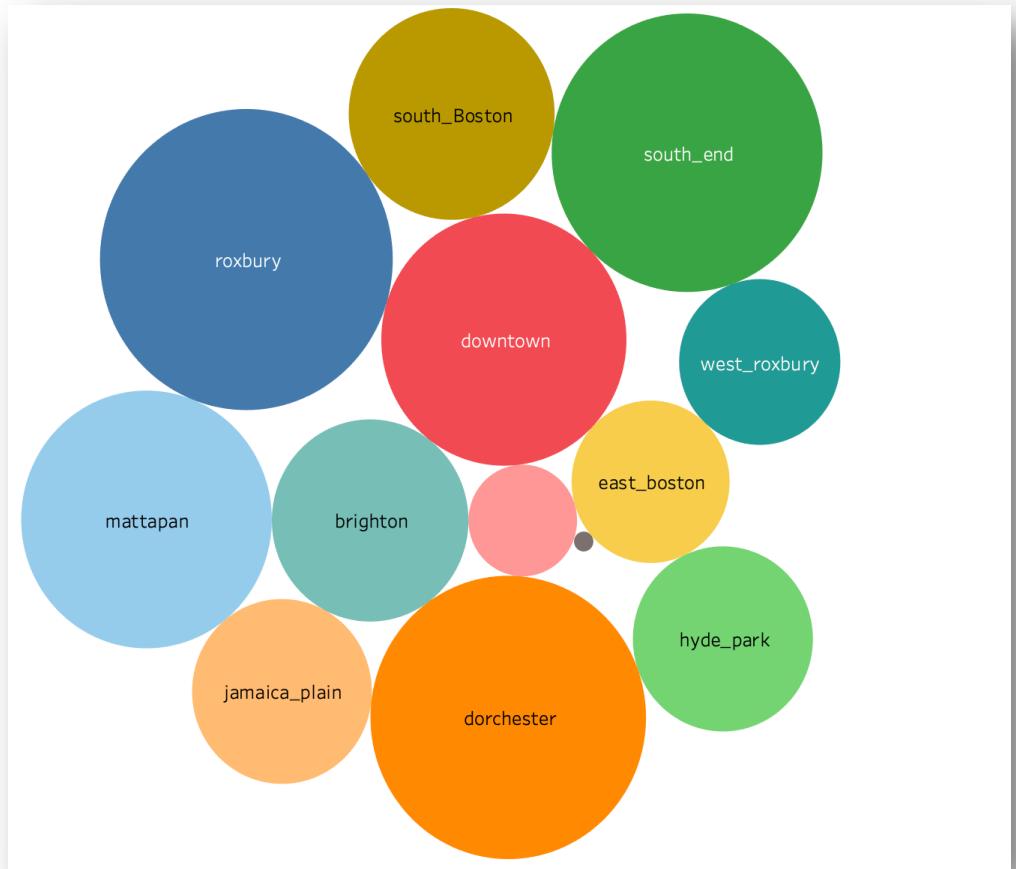


Washington St and Blue Hill Ave are prominent hubs for high crime rates, with a primary focus on investigating individuals, underscoring the complexity of factors contributing to crime in these areas

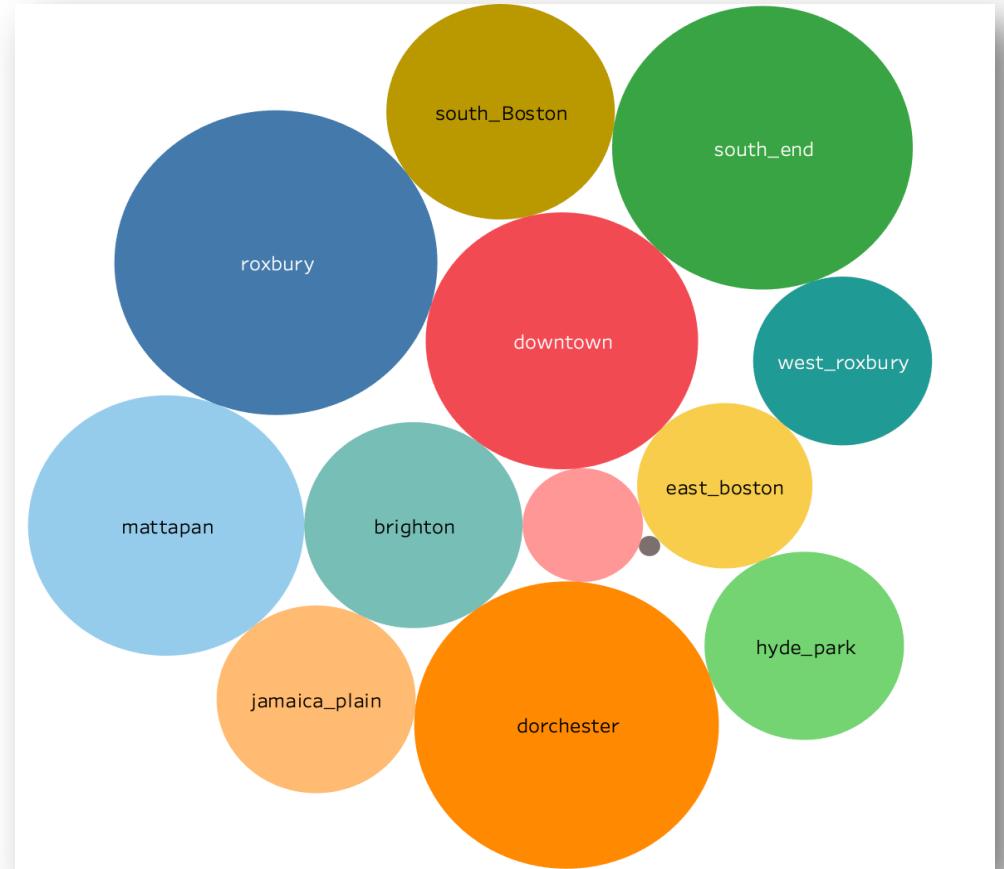


The districts South End, South Boston, and Dorchester exhibit notably higher crimes, this is not indicative of a corresponding prevalence of shootings

Overall Crime



No Shootings

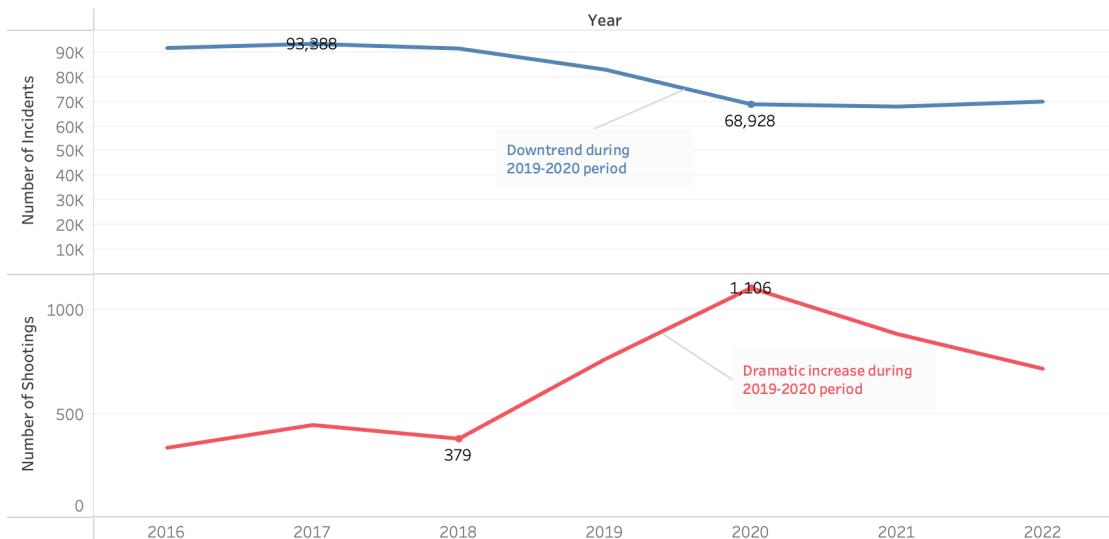


It's apparent that Roxbury, Mattapan, and Dorchester exhibit substantial shooting volumes, and these districts are concurrently prominent in terms of elevated overall crime rate. Suggesting that these are areas the police or city officials should monitor more

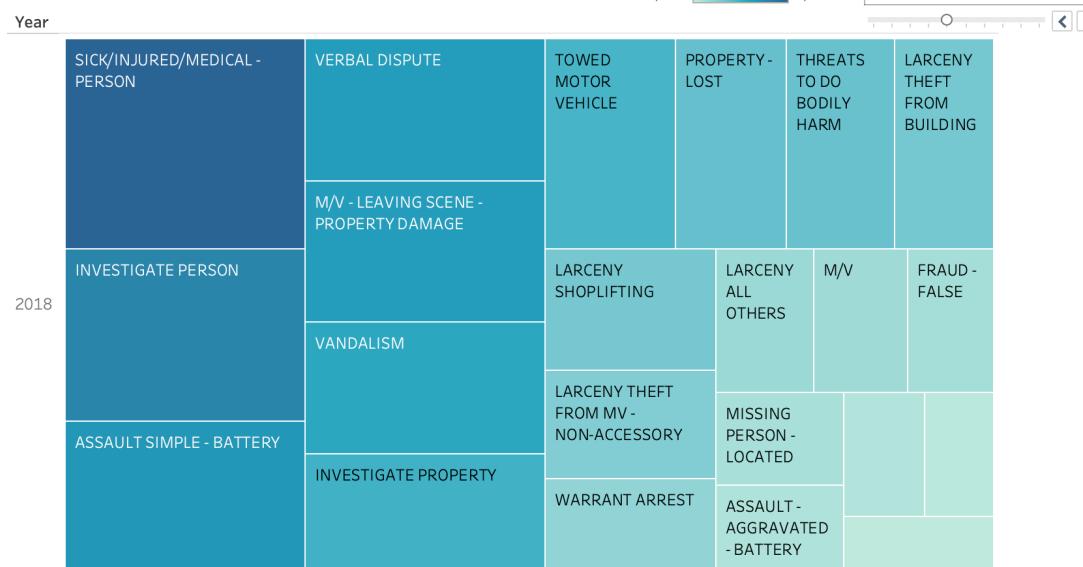


Year-to-Year Comparison of Offense Incidents and Shootings: 2016-2022

We don't have a full year's data for 2015 and 2023

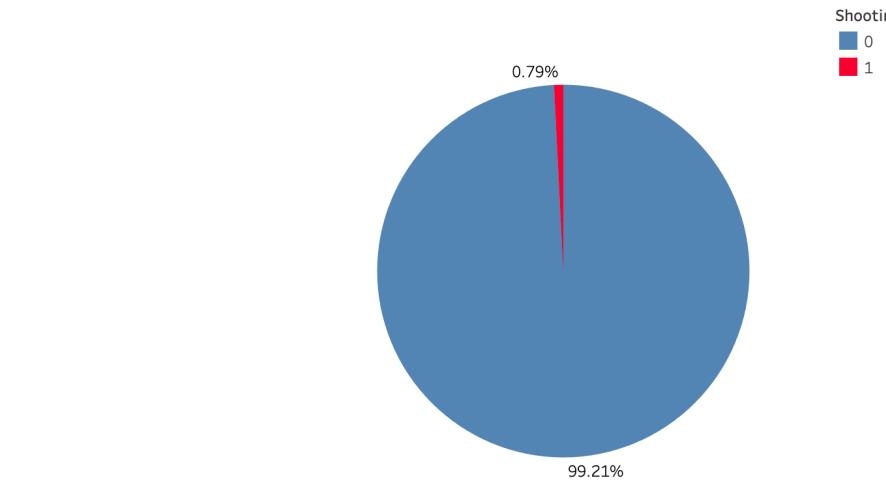


Distribution of Offense Types across Year



Shooting Count per Total Incidents

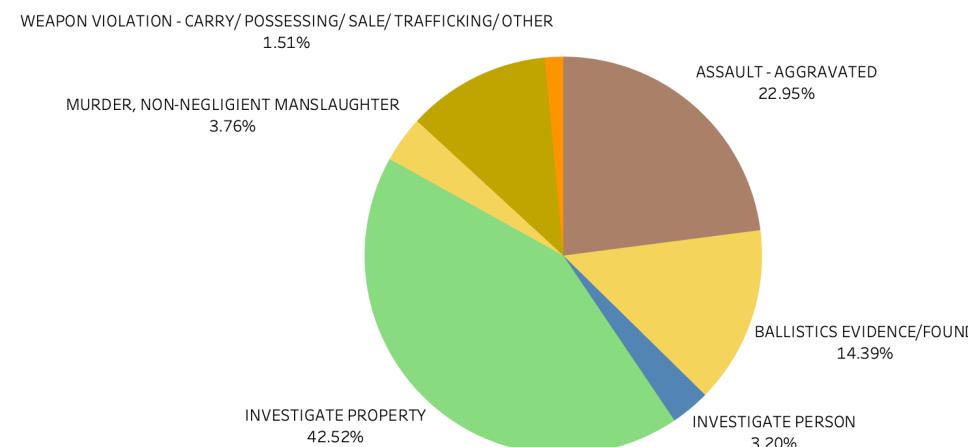
The shooting number just accounts for less than 0.8%



- Offense Description
- (All)
 - A&B HANDS, FEE...
 - A&B ON POLICE ...
 - ABDUCTION - IN...
 - AFFRAY
 - AIRCRAFT INCID...
 - ANIMAL ABUSE
 - ANIMAL CONTR...
 - ANIMAL INCIDE...
 - ANIMAL INCIDE...
 - ANNOYING AND ...
 - ANNOYING AND ...
 - ARSON
 - ASSAULT - AGGR...
 - ASSAULT - AGGR...
 - ASSAULT - SIMPLE
 - ASSAULT & BATT...
 - ASSAULT D/W - K...
 - ASSAULT D/W - O...
 - ASSAULT SIMPL...
 - AUTO THEFT
 - AUTO THEFT - LE...
 - AUTO THEFT - M...
 - AUTO THEFT - O...
 - AUTO THEFT - RE...
 - AUTO THEFT LEA...
 - AUTO THEFT OT...
 - B&E NON-RESID...
 - B&E NON-RESID...
 - B&E NON-RESID...
 - B&E RESIDENCE ...
 - B&E RESIDENCE ...
 - B&E RESIDENCE ...
 - BALLISTICS EVID...
 - BIOLOGICAL THR...
 - BOMB THREAT
 - BREAKING AND ...

Shootings in 2020

Investigate Property and Assault - Aggravated have the highest shooting count



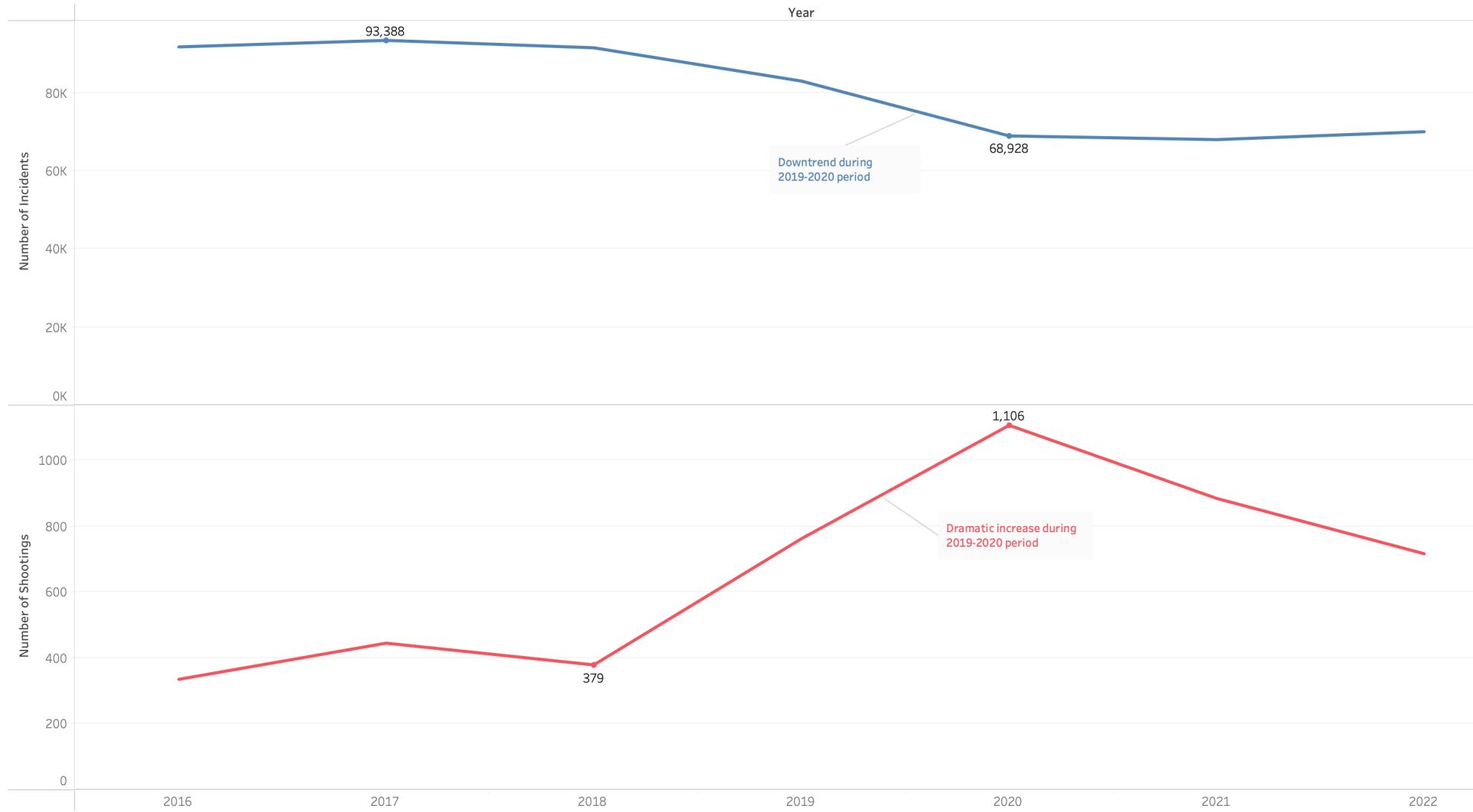
- Offense Description
- ASSAULT - AGGRAVATED
 - BALLISTICS EVIDENCE
 - INVESTIGATE PERSON
 - INVESTIGATE PROPERTY
 - MURDER, NON-NEGLECTFUL MANSLAUGHTER
 - VANDALISM
 - WEAPON VIOLATION...

The trend of decreased overall offense incidents alongside an uptick in shootings can be due to several reasons:

There might be a Shift in Crime Focus, and The COVID-19 pandemic

Year-to-Year Comparison of Crime Incidents and Shootings: 2016-2022

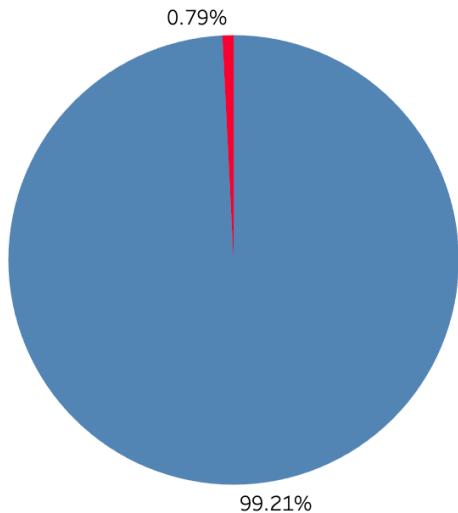
We don't have a full year's data for 2015 and 2023



Surprisingly, only 0.8% of Boston's reported crimes are related to shootings. This is good news for people thinking about moving to Boston because most of the offenses don't include firearms. We are also curious about the shooting in 2020 since this year has the highest number of shootings as shown previously.

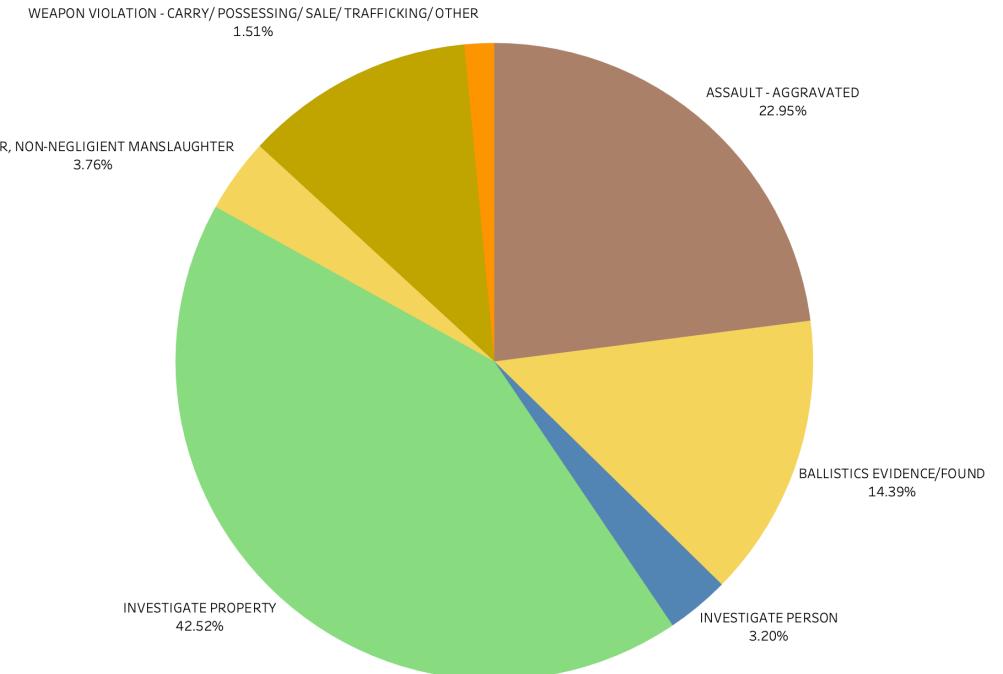
Shooting Count per Total Incidents

The shooting number just accounts for less than 0.8%



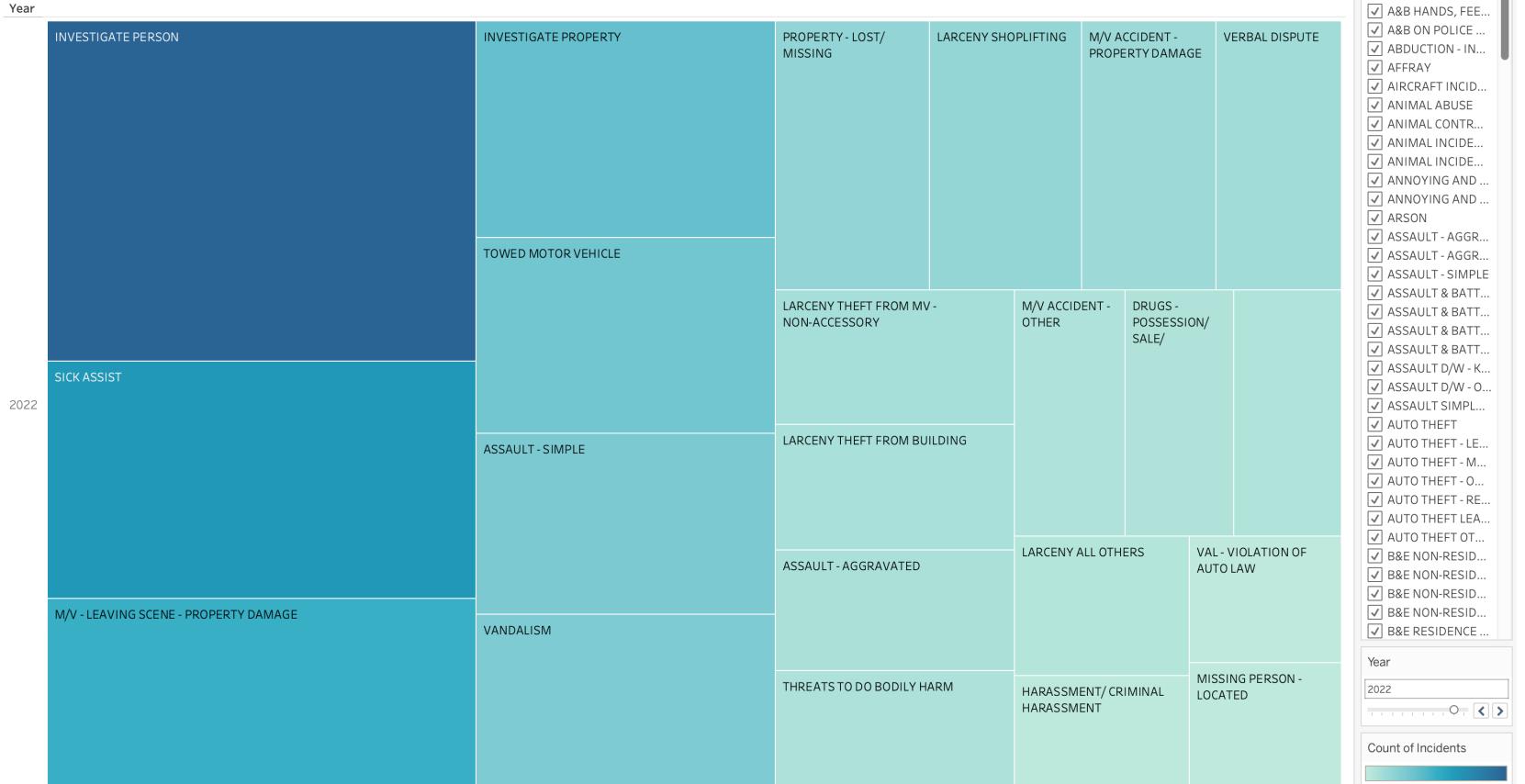
Shootings in 2020

Investigate Property and Assault - Aggravated have the highest shooting count



A comprehensive analysis of offense types across various years

Distribution of Offense Types across Year

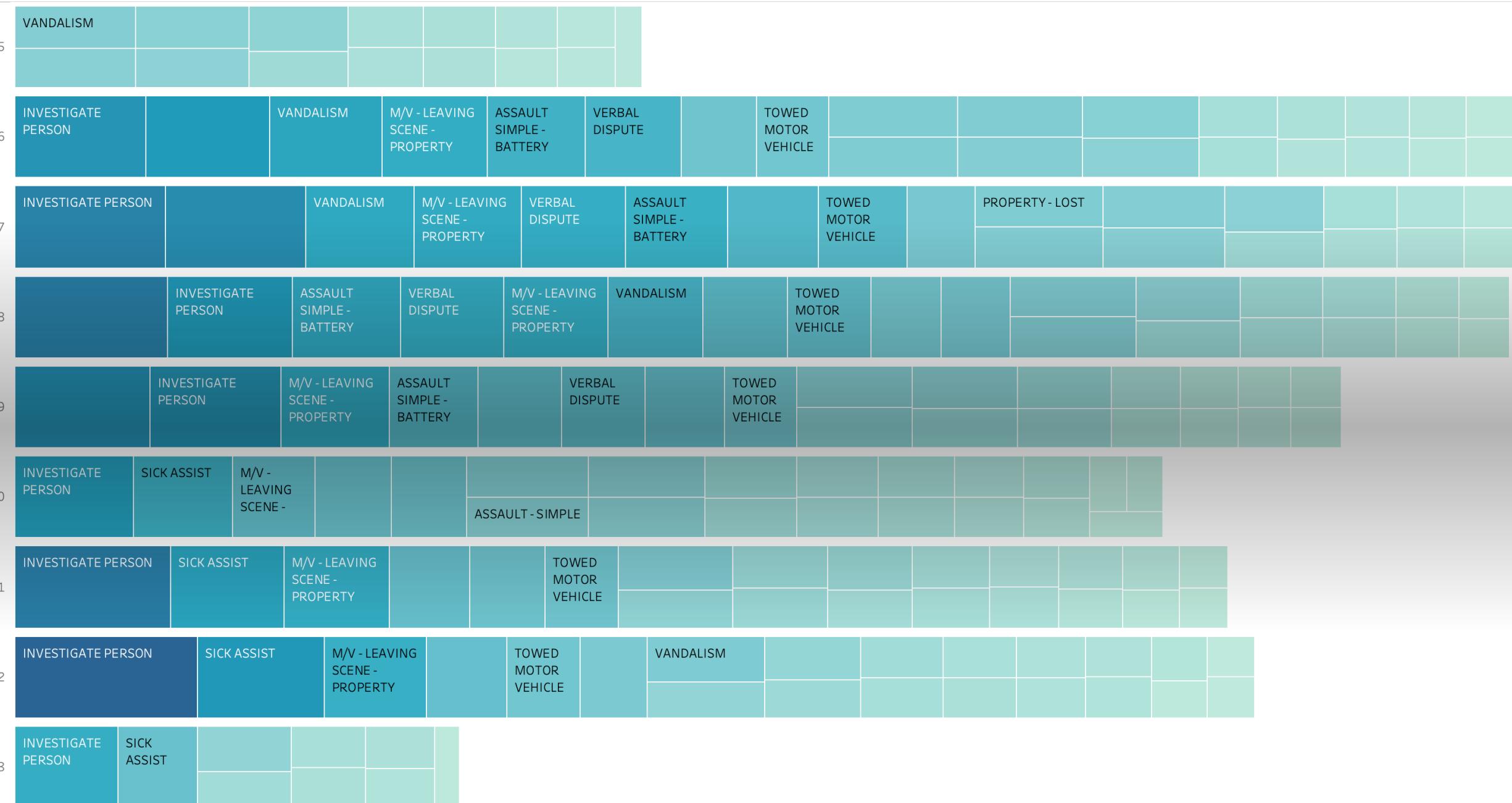


Categorizing BPD Incidents

Incident Categ..	Offense Description	Year				
		2016	2017	2018	2019	2020
Non-Criminal Incidents	AIRCRAFT INCIDENTS	4	22	18	19	16
	ANIMAL CONTROL - DOG BITES - ETC.	112	113	99	98	82
	ANIMAL INCIDENTS	82	88	77	82	
	ANIMAL INCIDENTS (DOG BITES, LOST DOG, ETC)	303	339	270	307	431
	BALLISTICS EVIDENCE/FOUND	14	14	10	9	
	CHILD ABANDONMENT (NO ASSAULT)	13	13	5	8	21
	CHILD REQUIRING ASSISTANCE (FORMERLY CHINS)	91	83	96	65	108
	CHINS	3	5	3	4	22
	DANGEROUS OR HAZARDOUS CONDITION	153	144	179	86	
	EXPLOSIVES - TURNED IN OR FOUND	431	396	361	277	
	FIRE REPORT	29	49	37	48	43
	FIRE REPORT - CAR, BRUSH, ETC.	6	3	5		
	FIRE REPORT/ALARM - FALSE	55	101	75	82	77
	GATHERING CAUSING ANNOYANCE	26	16	9	17	12
	HARBOR INCIDENT / VIOLATION	68	63	66	49	
	INJURY BICYCLE NO M/V INVOLVED	295	277	351	243	
	INVESTIGATION FOR ANOTHER AGENCY	1,266	1,121	895	1,075	1,169
	LANDLORD - TENANT	1,518	1,368	1,532	1,590	840
	LANDLORD - TENANT SERVICE	198	169	195	208	201
	MISSING PERSON	234	161	120	92	68
	MISSING PERSON - LOCATED	6	6	4	6	8
	MISSING PERSON - NOT REPORTED - LOCATED	294	287	284	251	295
	NOISY PARTY/RADIO/NO ARREST	1,045	1,221	1,201	1,109	928
	PRISONER - SUICIDE / SUICIDE ATTEMPT	2,640	2,859	3,129	2,186	
	PROPERTY - ACCIDENTAL DAMAGE	57	83	88	73	38
	PROPERTY - FOUND	11	10	7	6	7
	PROPERTY - LOST	60	38	58	39	
	PROPERTY - LOST/ MISSING	29	49	37	48	43
	PROTECTIVE CUSTODY / SAFEKEEPING	6	6	4	6	8
	REPORT AFFECTING OTHER DEPTS.	1,234	1,121	895	1,075	1,169
		138	115	149	149	99
		796	1,213	1,076	1,084	1,112
		234	223	236	240	178
		1,591	1,681	1,500	1,395	969
		240	254	231	268	217
		2,054	2,075	2,181	2,154	1,855
		572	490	485	305	
		130	173	167	151	174
		157	140	127	96	
		32	26	22	16	36
		313	371	347	264	207
		15	26	24	14	
		3,225	3,953	3,712	3,290	2,688
		834	707	734	782	474
		302	269	333	260	
		154	128	116	128	107
		634	510	522	468	
		877	697	821	562	
		364	362	348	390	623
		5,773	6,667	5,460	6,101	9,943
		3,356	3,981	3,752	3,761	3,576
		1,164	1,058	973	910	1,095
		144	111	132	119	119
		224	227	235	257	269
		1				

Distribution of Offense Types across Year

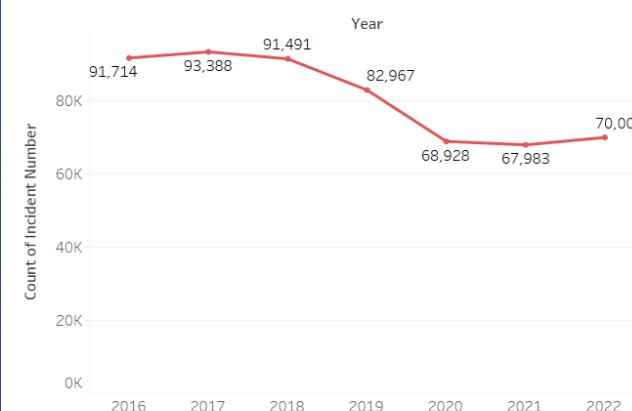
Year



When-Analysis Dashboard

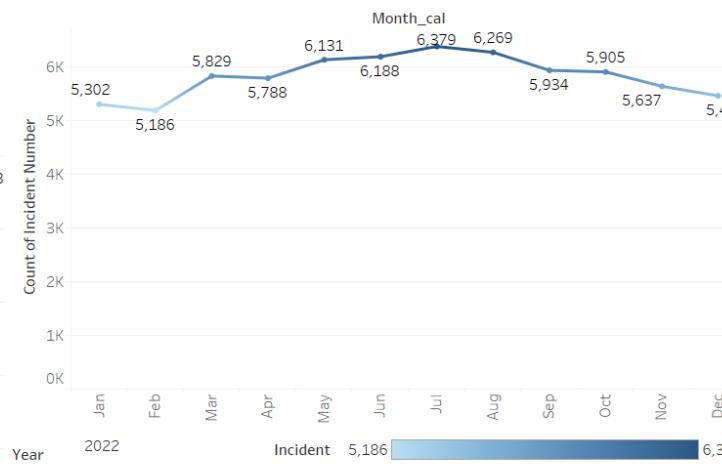
Yearly Number of Offenses from 2016 to 2022

The number of offenses has been on a downtrend, reflecting the Boston Administration's effective governance in reducing crime rates



Monthly Number of Offenses

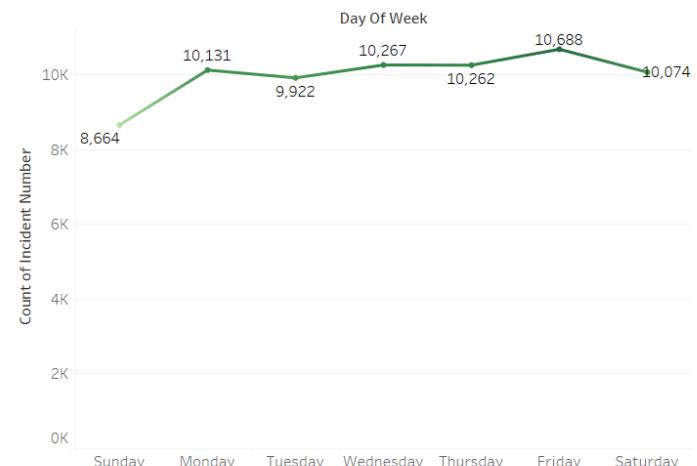
Crime numbers peak during the summer, while winter sees the fewest



Incident 5,186 [6,379]

Daily Number of Offenses

Weekdays generally have more offenses than weekends



Year
2022

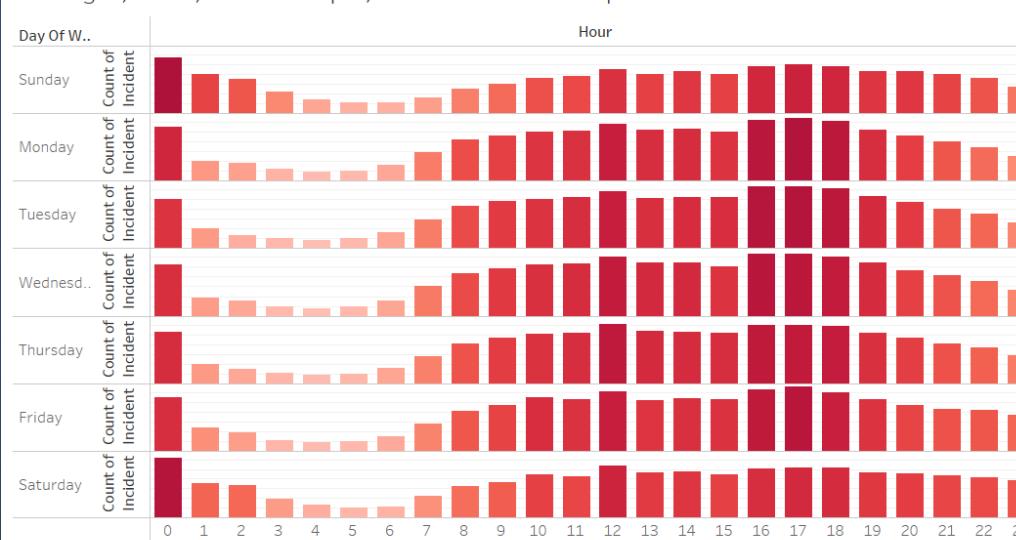
Action (Month_cal)

- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

Count of Incident
12.376% 15.267%

Hourly Number of Crimes by Day

Midnight, Noon, and 2-4:00pm, Afternoon have the peak crime numbers



% of Total Count of Incident

0.819%

6.857%

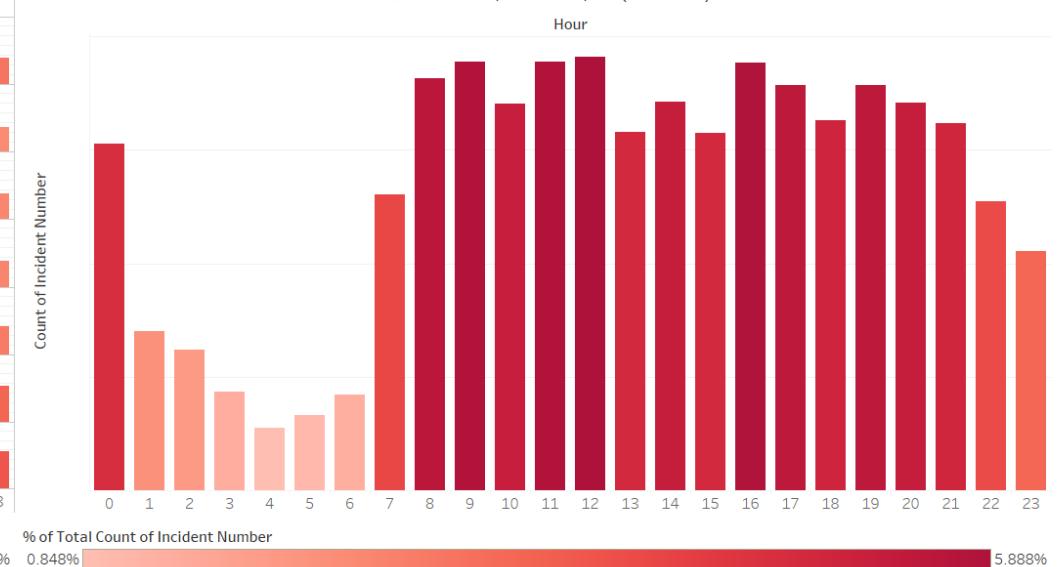
0.848%

5.888%

Top 10 Offenses + Shooting Offenses Hourly Crime Numbers in Selected District

Recommended District: Charlestown

Focused Crime Peak Time: 8-9:00 am, 11-12:00pm, 4:00pm (5.55%+)



District Name
charlestown

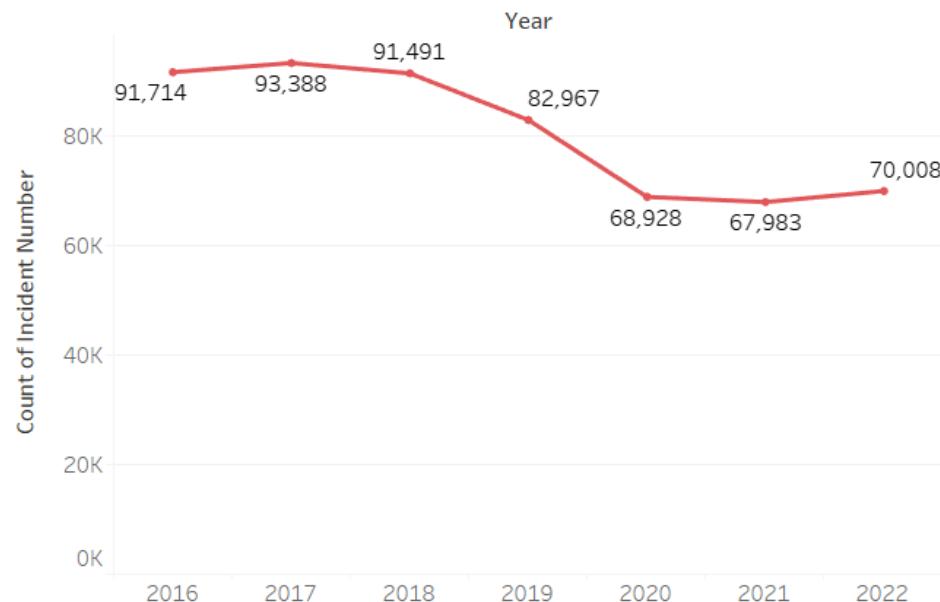
Offense Description

- assault - aggravated
- assault simple - bat...
- ballistics evidence/...
- investigate person
- investigate property
- larceny theft from...
- m/v - leaving scene...
- murder, non-neglig...
- sick assist
- sick/injured/medica...
- towed motor vehicle
- vandalism
- verbal dispute
- weapon violation - c...

Breakdown of When-Analysis: Yearly Crime Trend

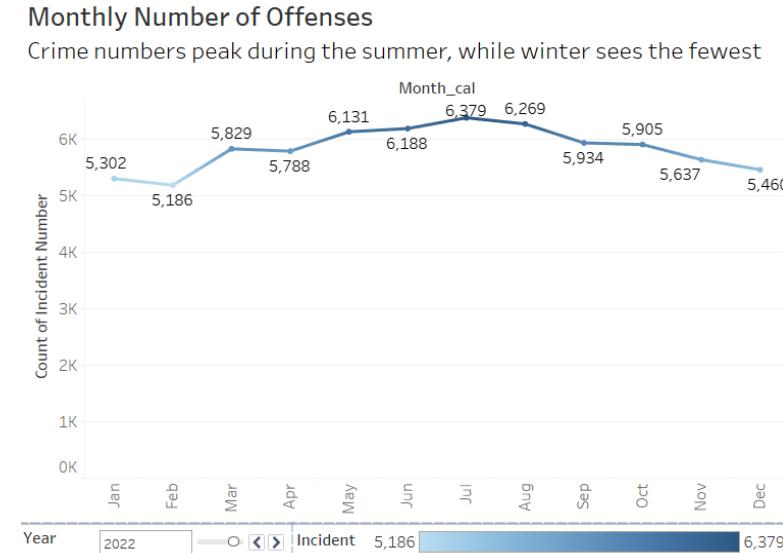
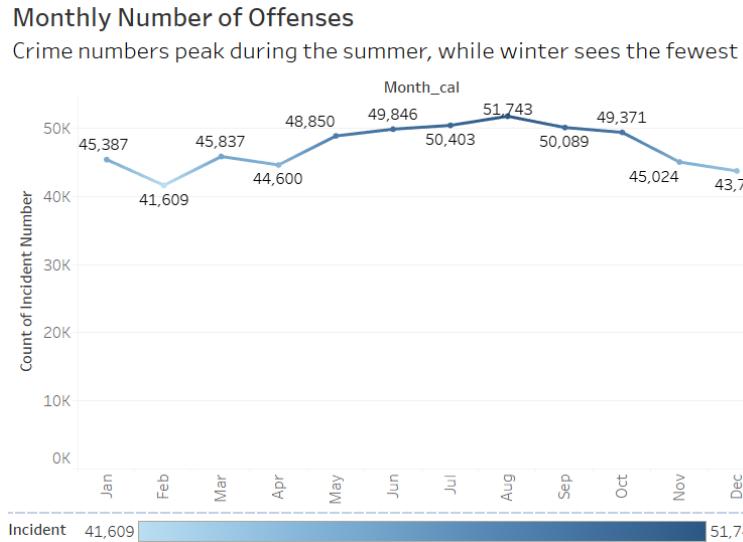
Yearly Number of Offenses from 2016 to 2022

The number of offenses has been on a downtrend, reflecting the Boston Administration's effective governance in reducing crime rates



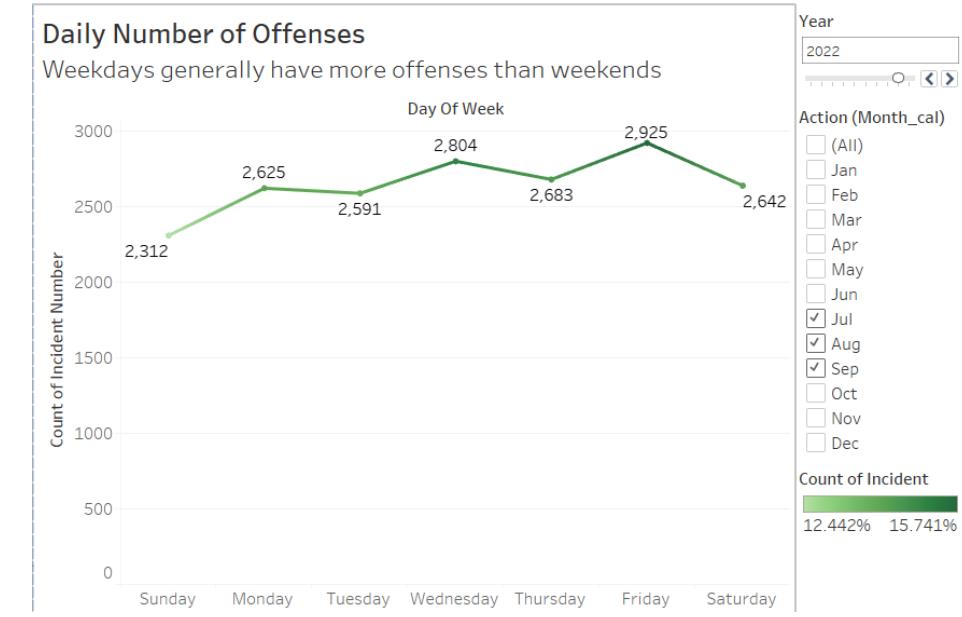
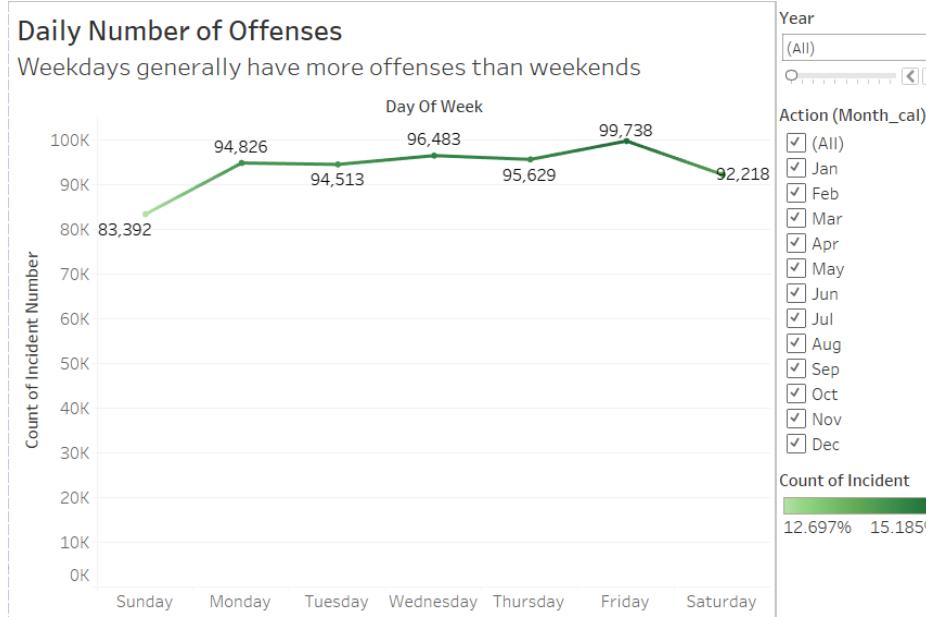
- From 2016 to 2022, annual offense numbers are in a **downtrend**
- 2016 to 2018 have an annual offense numbers at a **90,000+ level**
- 2020 to 2022 have an annual offense numbers at a **~70,000 level**
- Data of 2015 and 2023 is filtered out due to limited data (partial year)

Breakdown of When-Analysis: Monthly Crime Trend



- Monthly offense numbers are **highest in Summertime: Jul, Aug, Sep**
- Monthly offense numbers are **lowest in Winter time: Nov, Dec, Jan, Feb**
- In the year of **2022** specifically, **Most dangerous month is in July: 6379**, while **safest month is in February: 5186**

Breakdown of When-Analysis: Week of Day Crime Trend

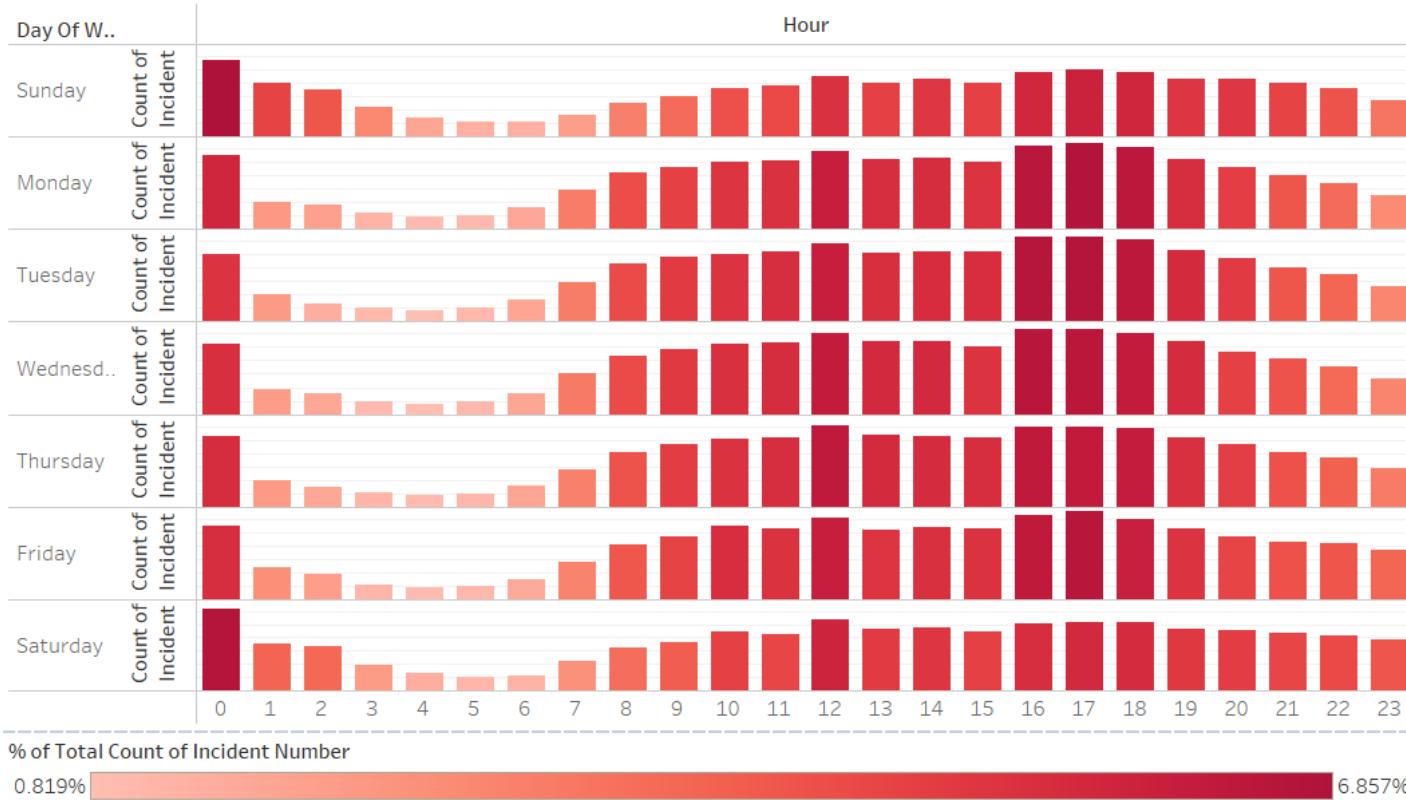


- Daily offense numbers are **higher in weekdays compare to weekends: Peak at Fridays**
- In the year of **2022** specifically, **Selecting Summertime (Jul, Aug, Sep), Wednesday and Friday are most dangerous (close to 30%+ of all crimes for these two days only)**

Breakdown of When-Analysis: Hourly Crime Trend

Hourly Number of Crimes by Day

Midnight, Noon, and 2-4:00pm, Afternoon have the peak crime numbers



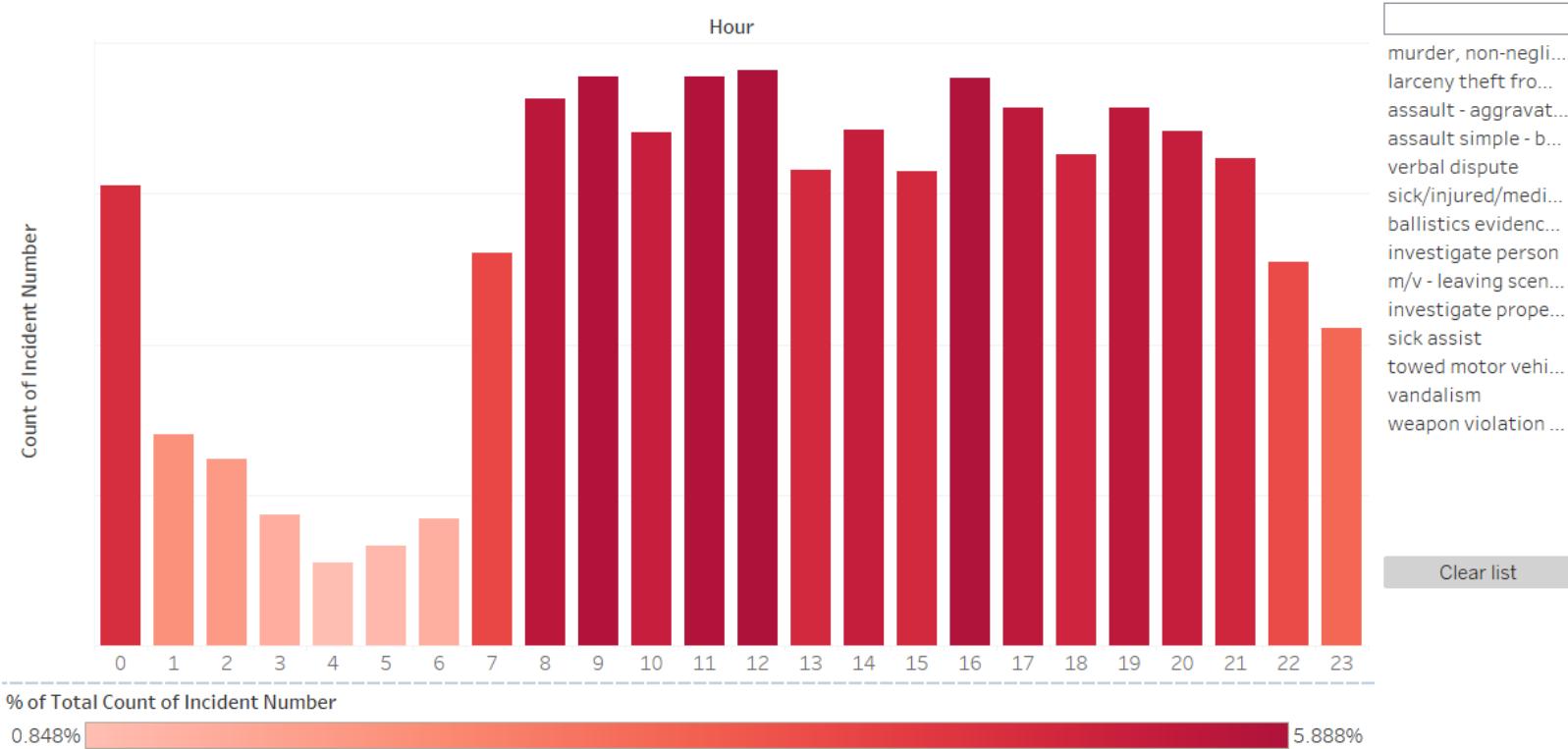
- Considering all days' hourly crime numbers in heatmap colorways
- Peak hour: **0:00, 12:00, 14-16:00**
 - More than 6% in these hours

Breakdown of When-Analysis: Hourly Crime Trend

Top 10 Offenses + Shooting Offenses Hourly Crime Numbers in Selected District

Recommended District: Charlestown

Focused Crime Peak Time: 8-9:00 am, 11-12:00pm, 4:00pm (5.55%+)



Selecting a Recommended District:

Charlestown

Peak hour: 8-9:00, 11-12:00, 16:00

- More than 5.55% in these hours**

Filtered with top 10 offenses and offenses that have at least once involved in shootings

Recommendations

Where:

- Mattapan, Roxbury and Dorchester see high overall crime rates- opportunity to add more policing resources here as these towns see high volumes of shootings and overall crimes
- Areas such as Charlestown and South end see lower crime rates, which may be impacted by factors such as age demographics and family income

Recommendations

What: there are downtrends in both the number of incidents and shootings from 2021 up to now. The shooting rate in Boston is low at less than 0.8% - a good sign of moving to this city.

- Property and Assault - Aggravated account for the highest shooting percentages, which should be taken more attention.
- Non-violent offenses, non-criminal incidents and Investigations are on top of the most common incidents list.

Recommendations

- When:
 - **City in Improvement:** Downtrend Offenses Numbers in Boston in recent years, Boston governance are putting efforts
 - **Avoid moving in Summertime:** Most dangerous time in the year, recommend moving in Wintertime
 - **Afternoon crime peak:** Do not leave children at school for late activities during 4:00 to 6:00pm. It is the peak crime time of the day (18%+ of daily crimes)
- A family who wants to live in Charlestown (recommended district), be careful specifically to 8-9:00, 11-12:00, and 16:00 that have relatively higher crime rate.