

Dashboard Storytelling Rationale: Boston Crime Patterns

(2016–2024)



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This dashboard was created to help Boston police officers, public safety leaders, and community members clearly understand crime trends over the past nine years. Rather than just displaying numbers, it was designed to tell a story — one that supports proactive decision-making, resource planning, and public awareness.

The goal was to help city decision-makers and law enforcement understand where and when interventions are most needed to reduce crime and improve community safety.

Why I Chose These Visualizations

Each visualization was selected to answer a specific question: *When, where, and what crimes are happening in Boston — and how can this information help us act?* The visuals are grouped to follow a narrative: time trends first (stacked bars, heatmap), then location-based (district bars and map), helping users move from general to specific insights.

- **Stacked Bar Chart (Year × Day of Week):** This shows how crime trends have shifted across the years and which days are most active. The dip in 2020 due to the pandemic, followed by a sharp increase in 2023–2024, is immediately visible. Saturdays consistently show the highest incident counts, flagging weekends as critical focus periods.
- **Bar Chart by Police District:** This highlights which Boston districts are most impacted. B2, C11, and D4 consistently report the most incidents. For officers, this helps prioritize patrol zones; for residents, it identifies neighbourhoods where community engagement can make a difference.
- **Heatmap (Month × Weekday):** This visualization shows when crime peaks occur by month and day. Summer months like July and August and weekdays like Tuesday and Friday emerge as risk periods. These insights inform staff scheduling, outreach timing, and event planning. This helps police departments deploy additional patrols during known high-crime months, especially during Tuesday/Friday evenings in the summer.
- **Map with Major Crime Types:** The map includes five high-impact crime categories: **Assault, Drug Violations, Alcohol-Related Offenses, Larceny, and Vandalism.** These were selected due to their social impact and frequency across districts. These were chosen for their relevance to public safety operations. The map visualizes where these crimes cluster, guiding area-specific intervention.

How Filters Improve the Experience

The dashboard includes global filters for:

- Year
- District
- Crime Type

These filters allow viewers to customize the dashboard to their needs. Police officers can zoom into specific years or crime types in their assigned district. Community members can filter by neighbourhood to stay informed about local patterns. Because these filters apply to all visuals, the dashboard becomes an interactive experience tailored to each viewer.

Visual Design & Gestalt Principles

The dashboard uses key design and Gestalt principles to support clarity:

- **Proximity:** Related charts are grouped together (e.g., time trends and location maps).
- **Alignment:** All visuals are neatly aligned using containers, creating flow.
- **Color consistency:** Crime types and time-based values use consistent color schemes.
- **Hierarchy:** Filters are placed at the top; key trends start from top-left and flow right/down.
- **Whitespace:** Used to reduce visual clutter and make interpretation easier.

What Story the Dashboard Tells — For Police Officers and the Community

This dashboard is not just for analysis but designed as a decision-support tool for local law enforcement and community awareness. This dashboard reveals that crime in Boston is not random — it follows patterns in time, location, and type. By exploring the visuals, police officers and community members can better understand what's happening in the city and when to act.

We can clearly see that crime dipped in 2020, likely due to lockdowns and reduced public activity, but has since risen sharply in 2023 and 2024. This rise signals a return to pre-pandemic levels or even more concerning activity. Saturdays consistently show the highest incident counts, pointing to weekend-related risks tied to nightlife, social events, or reduced vigilance.

The district bar chart shows that areas like B2, C11, and D4 experience higher volumes of crime compared to others. For police officers, this highlights where patrols or community engagement may need to be strengthened. For residents, it offers a clearer view of the areas that may benefit from more lighting, neighbourhood watch programs, or community-based support.

The heatmap shows seasonal and weekday spikes, especially in July and August, and on Tuesdays and Fridays. These insights are vital for strategic deployment — officers and safety teams can use this to better align shifts, campaigns, and field operations with peak periods of risk.

The map offers an added layer, focusing on five key crime categories — assault, drug violations, vandalism, larceny, and alcohol-related offenses. We see that some crimes are concentrated in downtown zones, while others are more spread out. These clusters reflect social behavior patterns and help direct specific responses, whether that's health outreach, zoning awareness, or surveillance.

Together, these visuals don't just report data — they tell a cohesive story of where public safety needs are most urgent. The dashboard empowers officers and communities alike to ask better questions and take smarter action.

Final Takeaway

This dashboard gives real-world insights to the people who need them most — Boston police officers and local communities. It shows that crime patterns can be understood, tracked, and responded to when visualized effectively.

It doesn't just present data — it tells a story that supports smarter strategies, safer streets, and stronger collaboration between law enforcement and the public.

References

Few, S. (2009). *Now You See It: Simple Visualization Techniques for Quantitative Analysis*. Analytics Press.

Knafllic, C. N. (2015). *Storytelling with Data: A Data Visualization Guide for Business Professionals*. Wiley.

Ware, C. (2013). *Information Visualization: Perception for Design* (3rd ed.). Morgan Kaufmann.

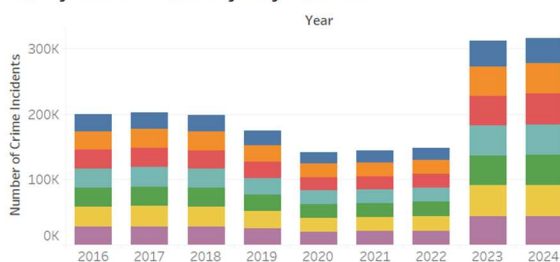
Tableau. (n.d.). *Dashboard Design Best Practices*. Retrieved from <https://www.tableau.com/learn/articles/dashboard-design>

Boston Police Department. (n.d.). *Open Data Portal – Crime Incident Reports*. <https://data.boston.gov/dataset/crime-incident-reports-august-2015-to-date-source-new-system>

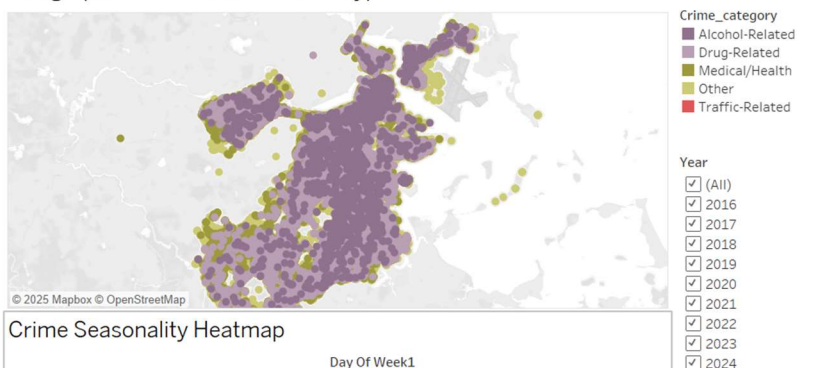
Appendix

Targeted Crime Insights for Boston Police and Communities (2016–2024)

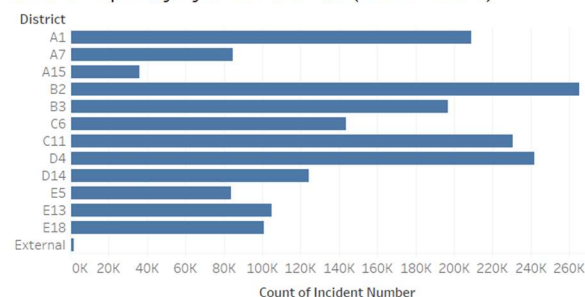
Yearly Crime Trends by Day of Week



Geographic Distribution of Crime Types



Crime Frequency by Police District (2016–2024)



Crime Seasonality Heatmap

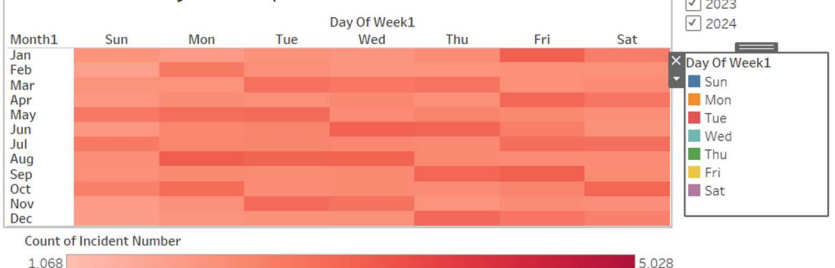


Tableau Dashboard Link

[Book3 | Tableau Public](#)