Houston Crime Analysis Report – 2024

An Exploratory Analysis of Unsafe Crimes by Time, Location, and Premise

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Table of Contents

Introduction

This report presents an analysis of Houston's Crime Data for 2024, focusing particularly on unsafe crime – offenses that pose direct threats to public safety, such as assault, robbery, burglary, weapon law violations, and drug-related incidents. The dataset used includes thousands of records with detailed information on each incident: type of crime, date and hour of occurrence, geographic coordinates (longitude & latitude) and premise.

The primary objective of this study is to understand when, where, and how frequently unsafe crimes occur in Houston. The key questions explored include:

- What are the most common types of crimes overall?
- During which hours and months do unsafe crimes peak?
- Which neighborhoods experience the highest volumes of unsafe crime?
- What kinds of premises are most associated with unsafe crime incidents?

The report proceeds by first identifying and categorizing crime types, followed by an analysis of temporal patterns (by hour and month), spatial distribution (by neighborhood), and environmental context (by premises). Each section includes visualizations and insights that support targeted conclusions.

Analysis

2.1 What are the most common types of crimes in Houston?

I used the NIBRSDescription field to group and count all crime incidents. This field categorizes each incident based on the type of offense. The analysis focused on the frequency of all crime types to understand which offenses are most prevalent.

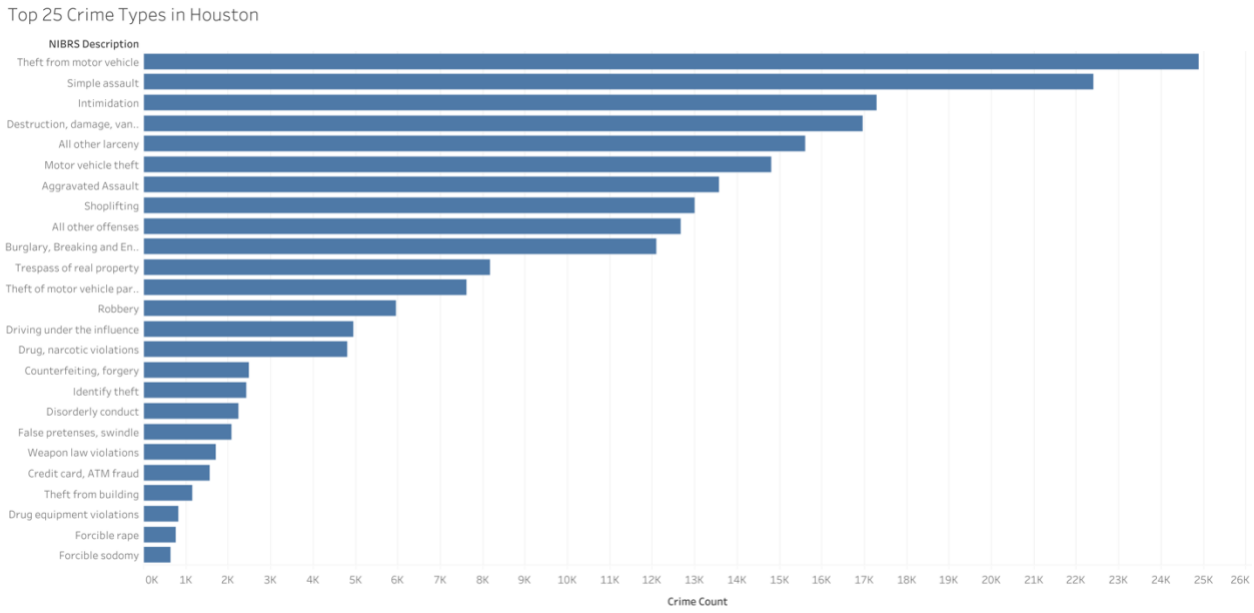
The most frequently reported crimes in Houston for 2024 were:

- Theft from Motor Vehicle
- Simple Assault
- Intimidation

Unsafe crimes such as Aggravated Assault and Robbery were also among the top categories, underscoring persistent issues with violence and property crime.

While non-violent property crimes dominate in terms of raw numbers, violent crimes still make up a significant share, justifying their focused analysis throughout the report.

Figure 2.1 — Top 25 Crime Types in Houston (2024)

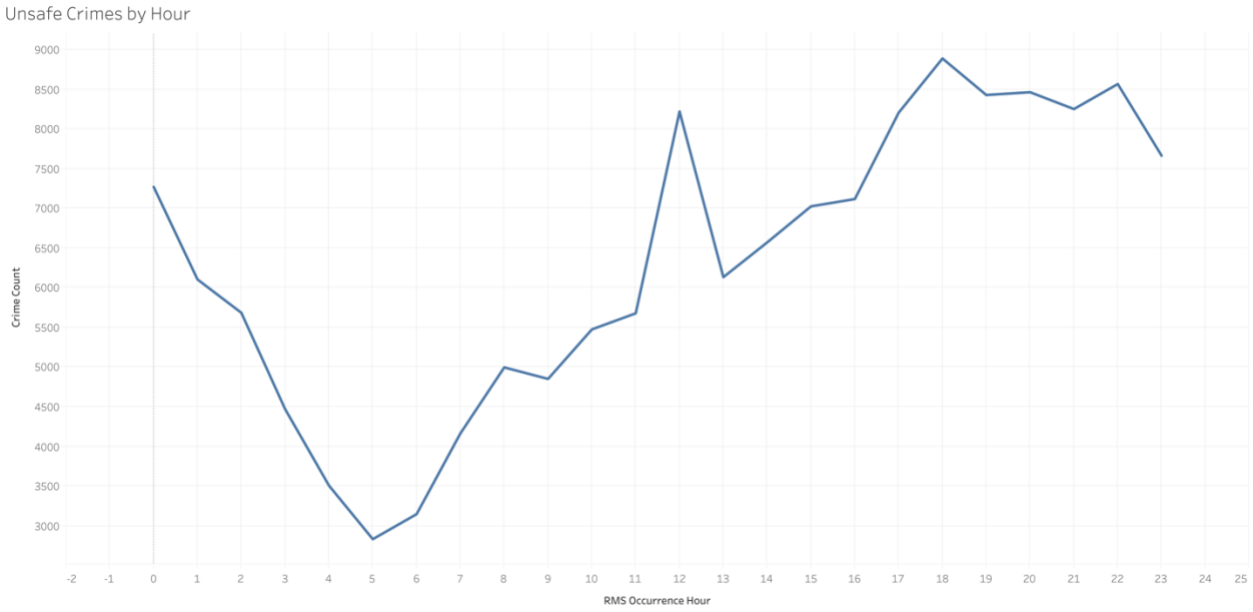


2.2 When do unsafe crimes occur most frequently by hour?
Unsafe crimes were isolated based on a filtered list of violent and high-risk offenses. We grouped these incidents by the RMSOccurrenceHour field to determine hourly trends.

Crime levels were lowest in the early morning hours (around 4–6 a.m.) and gradually increased throughout the day, peaking during the evening between 5 p.m. and 10 p.m. A sharp spike also occurs around 12 p.m., which may reflect increased public activity during midday hours such as school dismissals, lunch breaks, or transitional traffic patterns. This pattern aligns broadly with times when more people are outside, commuting, or engaging in social activity.

Evening hours are consistently the most dangerous, which can help inform police patrol schedules and public safety advisories.

Figure 2.2 — Unsafe Crimes by Hour of Day (2024)



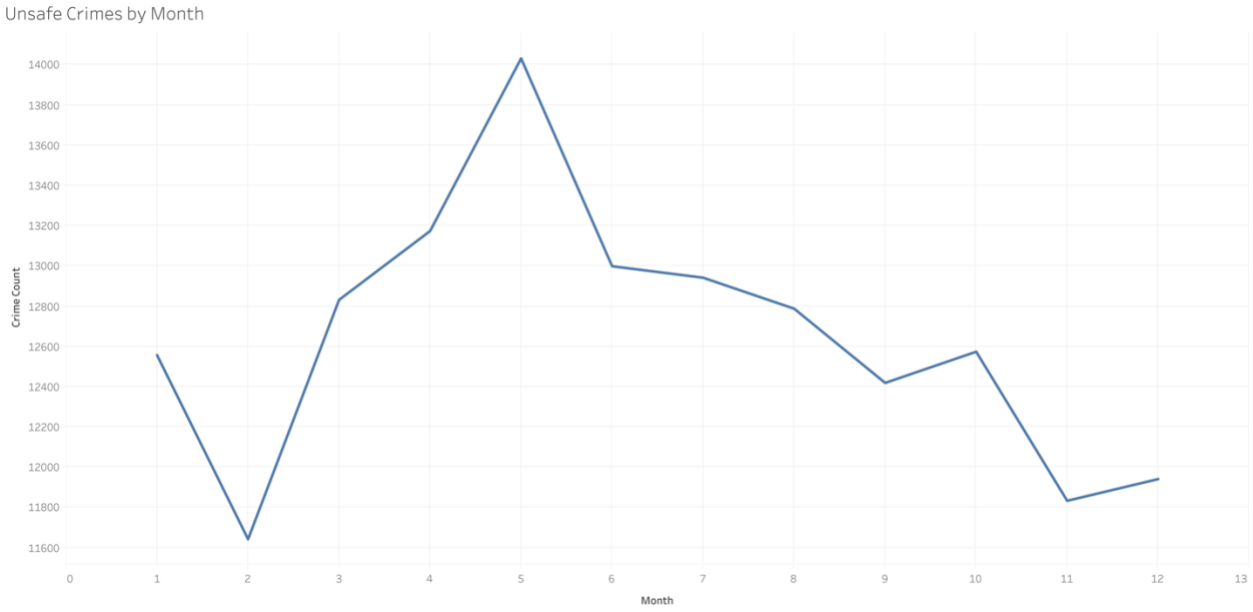
2.3 What months see the most unsafe crimes?

Unsafe crime incidents were grouped by month using the RMSOccurrenceDate field. We aggregated total counts to visualize seasonal trends.

Unsafe crime counts were lowest in February and rose steadily through spring, peaking in May. A gradual decline followed during summer and fall, with another dip in November. The highest-risk months were April through July, while February and November had the fewest reports. These trends may relate to seasonal changes in public activity such as end-of-school-year transitions.

Spring and early summer appear to be the riskiest times of year in terms of unsafe crime, possibly warranting additional safety campaigns or law enforcement resource allocation during those months.

Figure 2.3 — Unsafe Crimes by Month (2024)



2.4 Which neighborhoods have the most unsafe crimes?

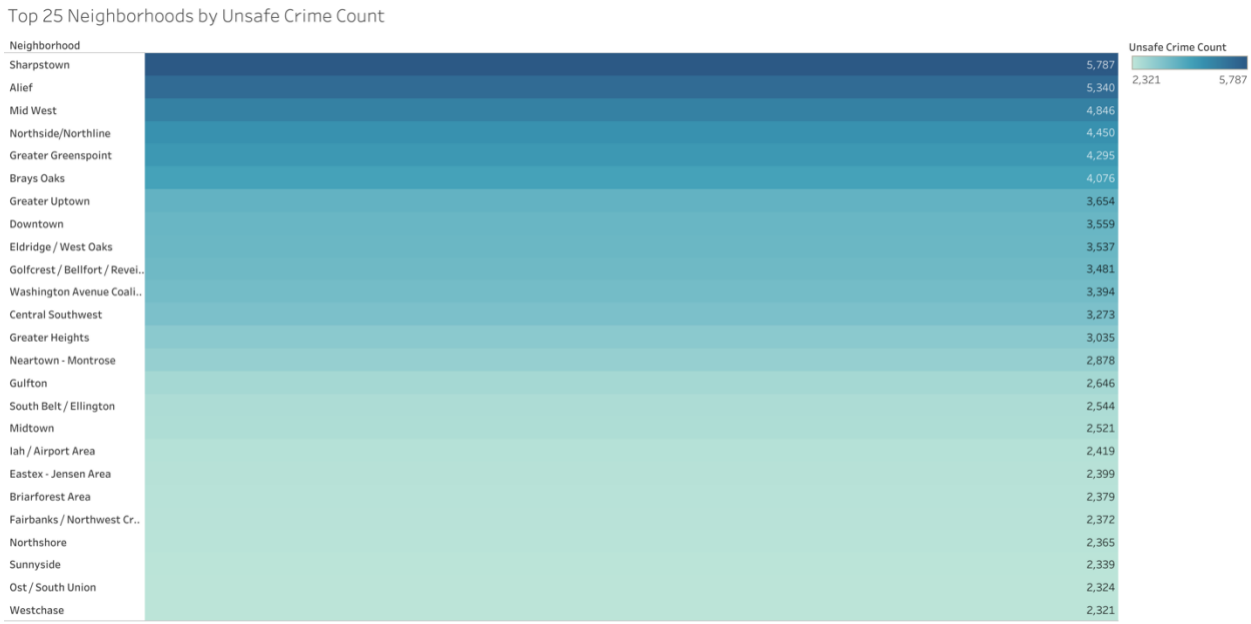
The original dataset did not include neighborhood names. Each crime record contained longitude and latitude, which were used to spatially join the data with a publicly available GeoJSON file of Houston's super neighborhoods. This process produced a new CSV file with an added neighborhood field for each crime, enabling localized analysis of unsafe crime trends. Unsafe crimes were then aggregated by neighborhood.

The neighborhoods with the highest volumes of unsafe crime were:

- Sharpstown (5,787 incidents)
- Alief (5,340)
- Mid West (4,846)

These areas represent key crime hotspots. Crime prevention efforts could be prioritized in Sharpstown and Alief, as they consistently rank highest in unsafe incident frequency.

Figure 2.4 — Top 25 Unsafe Neighborhoods (2024)



2.5 Where do unsafe crimes tend to happen most often (by premise)?
We grouped unsafe crimes by the Premise field to identify which physical settings are most affected.

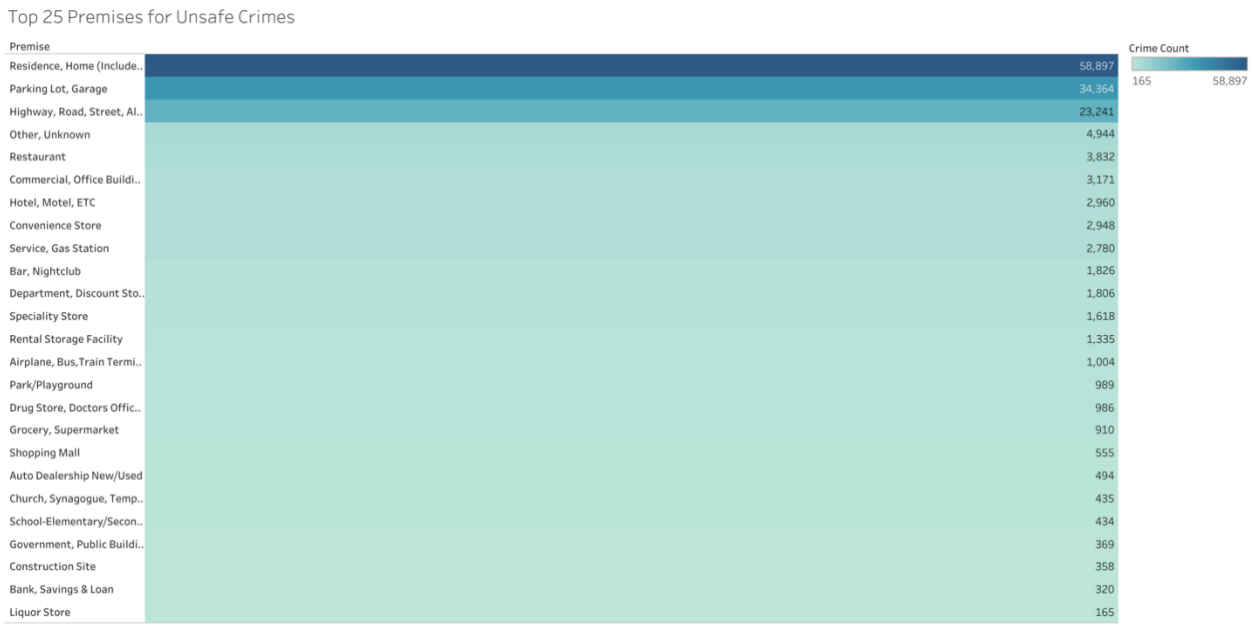
The top three premises were:

- Residences (58,897 incidents)
- Parking Lots, Garages (34,364)
- Public Streets, Roads (23,241)

This highlights the vulnerability of both private and public spaces, with residences showing the highest concentration by far. Parking and transit areas also represent high-risk environments for unsafe crime activity.

The high volume of residential crimes suggests a need for increased awareness campaigns and potential neighborhood-level safety programs.

Figure 2.5 — Top 25 Premises for Unsafe Crimes (2024)



Conclusion

This analysis of Houston's 2024 crime data focused on unsafe crimes and answered several key questions related to their frequency, timing, and distribution across neighborhoods and premises.

We found that:

- Theft from Motor Vehicles, Simple Assault, and Intimidation were the most reported crimes overall.
- Unsafe crimes were most frequent in the evening hours (5 p.m. to 10 p.m.) and during April through July, with May showing the highest count.
- The neighborhoods of Sharpstown, Alief, and Mid West consistently reported the most unsafe crimes.
- Unsafe crimes occurred most often at residences, parking lots, and public streets, underscoring the need for increased security in both private and public spaces.

These patterns point toward actionable insights. For instance, local authorities might prioritize patrols during evening hours and in high-crime neighborhoods. Residential crime prevention programs and community watch efforts could also be effective.

Future work could explore:

- Normalizing crime counts by population to identify per capita risk in each neighborhood.
- Tracking repeat incidents or hotspots over time using time-series heatmaps.
- Analyzing demographic or socioeconomic overlays for deeper context behind crime patterns.
- Evaluating the effectiveness of past interventions or policy changes.

This report provides a foundational look at unsafe crime trends in Houston. With additional data and ongoing monitoring, these findings can help support targeted and community-informed safety strategies.

Appendix

This appendix includes supplemental information and materials that support the analyses presented in the main report. These items are referenced throughout the report where relevant but are included here in full for readers seeking technical details or additional context.

Appendix A: Full Crime Type Breakdown

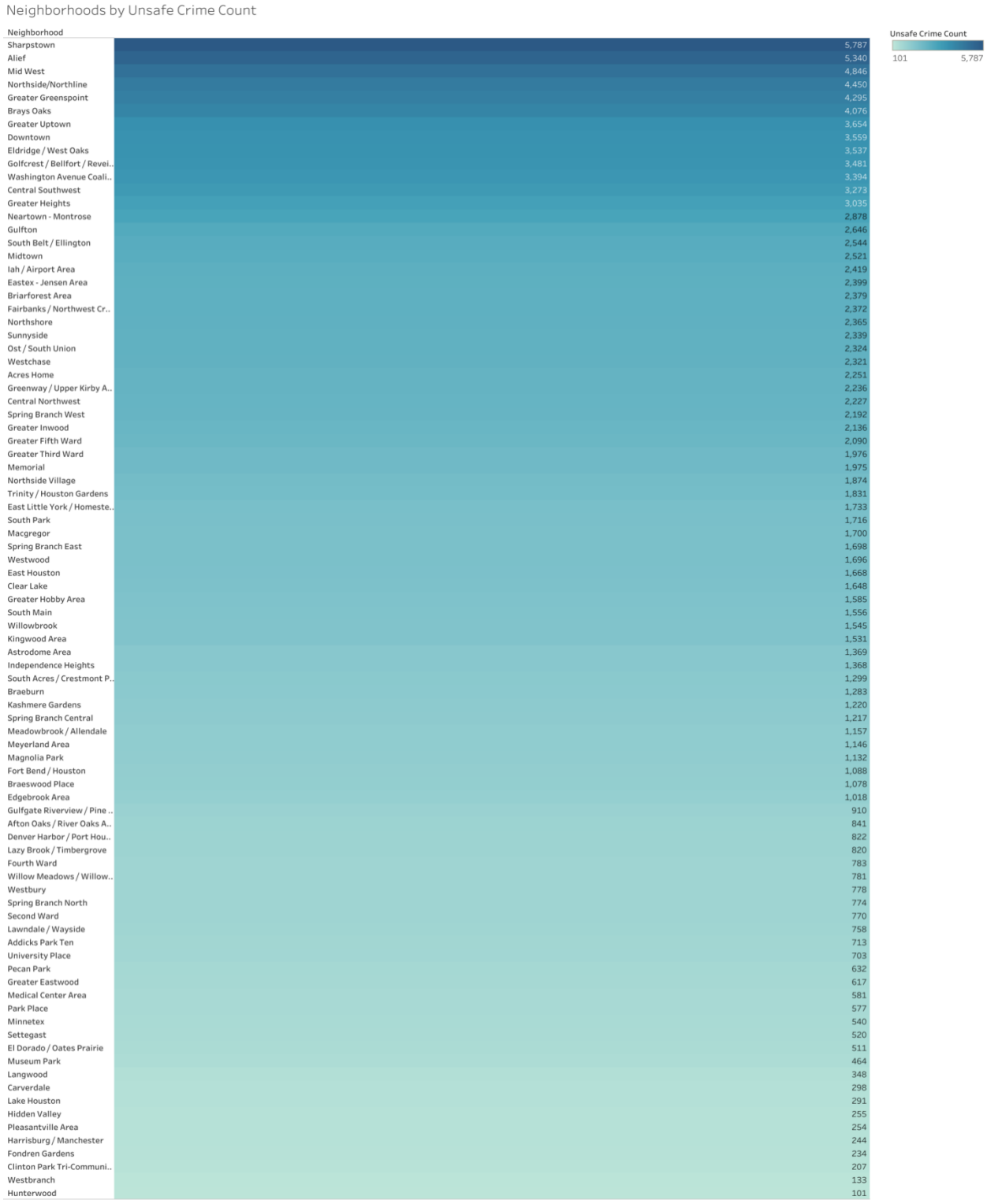
A complete table of all crime types included in the dataset, along with their total incident counts. The main report focuses only on the Top 25 (**Figure 2.1**).

Crime Types in Houston

NIBRS Description	Crime Count
Theft from motor vehicle	24,894
Simple assault	22,400
Intimidation	17,285
Destruction, damage, van..	16,957
All other larceny	15,601
Motor vehicle theft	14,814
Aggravated Assault	13,575
Shoplifting	12,995
All other offenses	12,669
Burglary, Breaking and En..	12,091
Trespass of real property	8,165
Theft of motor vehicle par..	7,618
Robbery	5,958
Driving under the influence	4,956
Drug, narcotic violations	4,810
Counterfeiting, forgery	2,490
Identify theft	2,417
Disorderly conduct	2,246
False pretenses, swindle	2,082
Weapon law violations	1,706
Credit card, ATM fraud	1,558
Theft from building	1,156
Drug equipment violations	830
Forcible rape	766
Forcible sodomy	644
Forcible fondling	580
Family offenses, no violen..	565
Prostitution	494
Animal Cruelty	433
Pornographs, obscene ma..	401
Purse-snatching	301
Murder, non-negligent	266
Extortion, Blackmail	242
Purchasing prostitution	228
Kidnapping, Abduction	228
Pocket-picking	227
Stolen property offenses	207
Arson	199
Embezzlement	190
Liquor law violations	111
Impersonation	81
Hacking/Computer Invasi..	65
Human Trafficking/Comm..	64
Drunkenness	47
From coin-operated machi..	36
Assisting or promoting pr..	29
Curfew, loitering, vagranc..	24
Bad checks	22
Statutory rape	16
Gambling equipment viola..	10
Promoting gambling	8
Justifiable homicide	7
Bribery	7
Wire fraud	6
Incest	5
Sexual assault with an obj..	4
Welfare fraud	3
Human Trafficking/Involu..	2
Negligent manslaughter	1
Betting/wagering	1

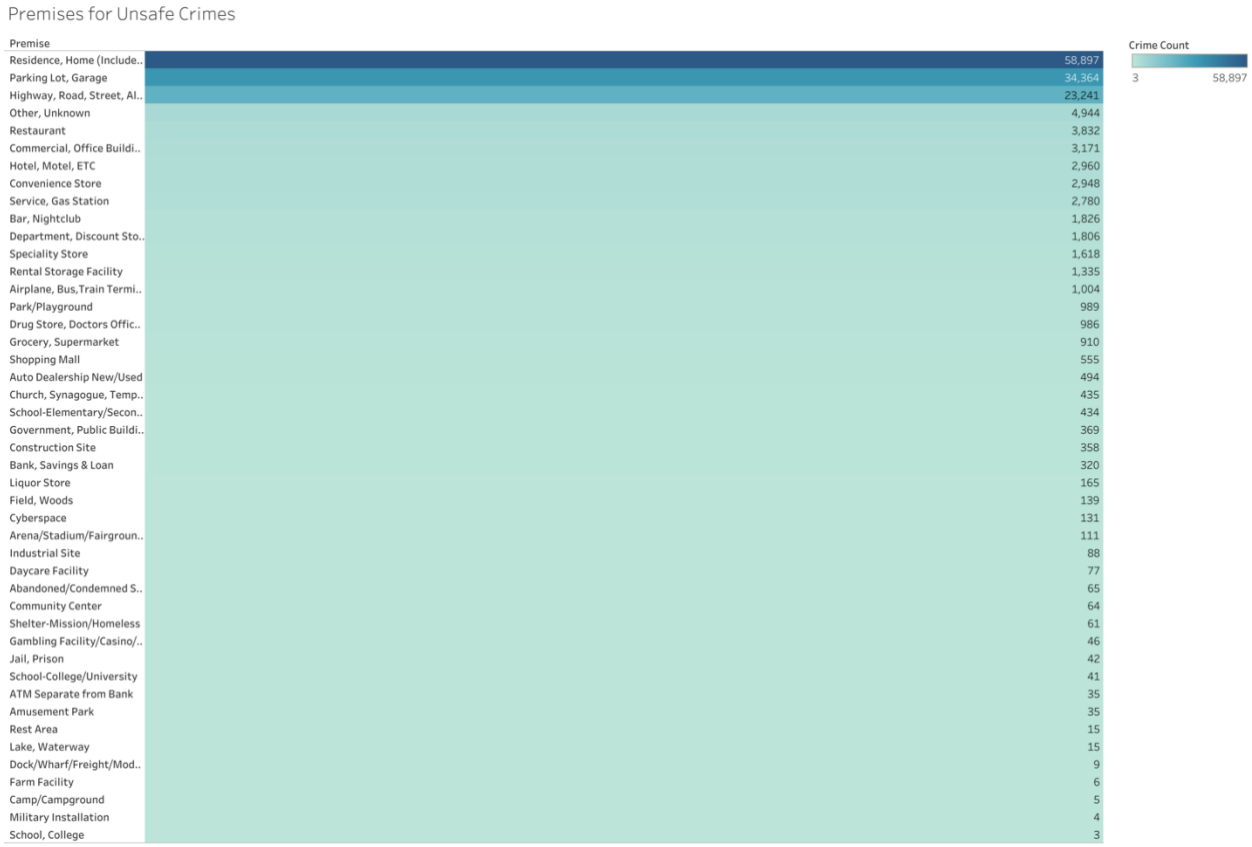
Appendix B: Full Unsafe Crime Counts by Neighborhood

Complete list of all Houston super neighborhoods with their respective unsafe crime totals. This includes lower-frequency neighborhoods not shown in the Top 25 visualization (**Figure 2.4**).



Appendix C: Full Unsafe Crime Counts by Premise

Table showing all premise types and the number of unsafe crimes reported in each. This includes uncommon categories that were excluded from the main chart in **Figure 2.5** for readability.



Appendix D: Unsafe Crime Definition

The following NIBRS descriptions were used to define unsafe crimes for this analysis:

- Aggravated Assault
- Simple Assault
- Robbery
- Forcible Rape
- Forcible Fondling
- Forcible Sodomy
- Intimidation
- Kidnapping/Abduction
- Murder/Non-negligent Manslaughter
- Weapon Law Violations
- Drug/Narcotic Violations
- Drug Equipment Violations

- Driving Under the Influence
- Burglary/Breaking and Entering
- Arson
- Motor Vehicle Theft
- Theft from Motor Vehicle
- Theft from Building
- Destruction/Damage/Vandalism of Property
- Theft of Motor Vehicle Parts or Accessories

These offenses were selected due to their direct threat to personal or public safety and were used throughout the report in all unsafe crime analyses.

Appendix E: Neighborhood Mapping Method

The original dataset did not include neighborhood names. Each record contained geographic coordinates (longitude and latitude), which were used to assign a corresponding Houston super neighborhood. This was done by performing a spatial join using a publicly available GeoJSON file.

The GeoJSON file was sourced from:
https://github.com/codeforgermany/click_that_hood/blob/main/public/data/houston.geojson

The join was performed using a Python script that checks whether each crime location point falls within the boundary of a neighborhood polygon from the GeoJSON file. The output was a new CSV file with an added Neighborhood field for each crime record, used in Section 2.4 of this report.

Appendix F: Tools and Code Access

All data cleaning, filtering, and aggregation were performed using:

- Tableau — for filtering, grouping, and creating visualizations
- SQL — for data verification and summary statistics
- Python — for preprocessing and spatial joining with GeoJSON

The full Python script used for the spatial join, along with this report and all associated visualizations, is available on GitHub:
https://github.com/shynggyssali/houston-crime-analysis-report

This includes the dataset, GeoJSON file, and source code used in the project.