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# Crime Trends and the Violence Reduction Strategy: Insights from Chicago's Community Areas

# RESEARCH QUESTION

To what extent has the City of Chicago's Violence Reduction Plan contributed to a measurable decrease in crime rates across community areas and how have crime trends evolved over time in response to its implementation?

## Introduction

- **Chicago** has faced persistently **high crime rates**, with certain community areas disproportionately affected by violence, including homicides and non-fatal shootings
- In response, the City of Chicago launched the **Violence Reduction Strategy (VRS)** in **2020**, targeting **15** priority **community areas** with focused efforts to reduce serious victimizations

## Targets

- Analyze **crime trends** before, during, and after the execution of Chicago's Violence Reduction Strategy
- Provide a **dynamic and informative dashboard** to analyze and map crimes by community areas
- Gain **insights** that can lead to actionable recommendations to the City of Chicago

## Data Used

- **Chicago Crime Dataset:** Provides a record of crime incidents, categorized by type and location
- **Violence Reduction Dashboard Dataset**: Offers real-time data on homicides and non-fatal shootings
- **Chicago Community Areas Dataset:** Highlights community area numbers and names

# One-Year Report: Sentiment Analysis

❑ Polarity: Measures the sentiment within the text, ranging from **-1 (negative)** to **1 (positive)**

❑ Subjectivity: Measures how subjective or opinion-based the text is, ranging from **0 (objective)** to **1 (highly subjective)**

❑ Full Report (**Positive**)

  ➢ Intro (Neutral)
  ➢ Results (Neutral)
    o Pillar 1
    o Pillar 2
    o Pillar 3
    o Pillar 4
    o Pillar 5
  ➢ Future (Positive)
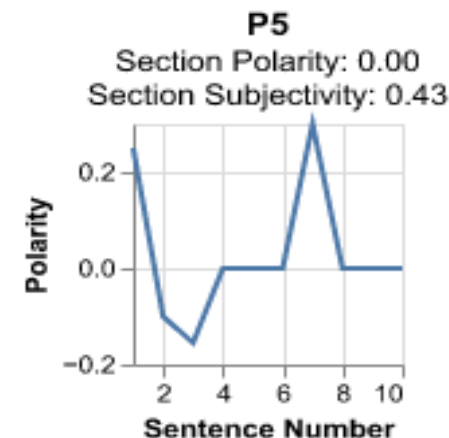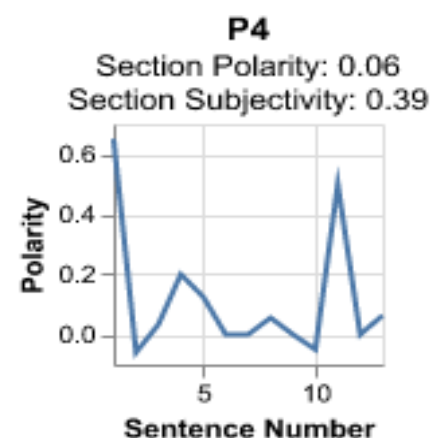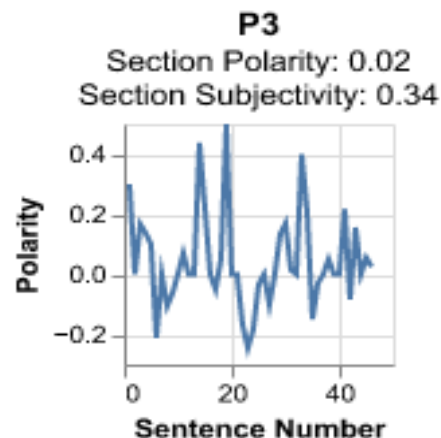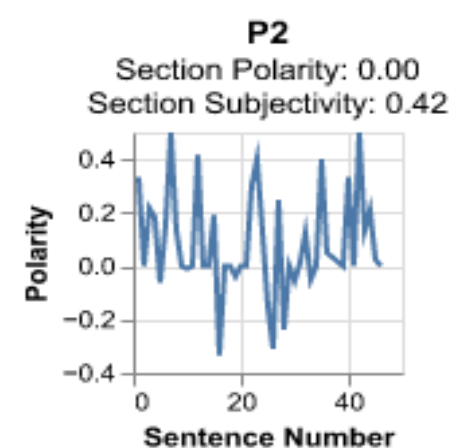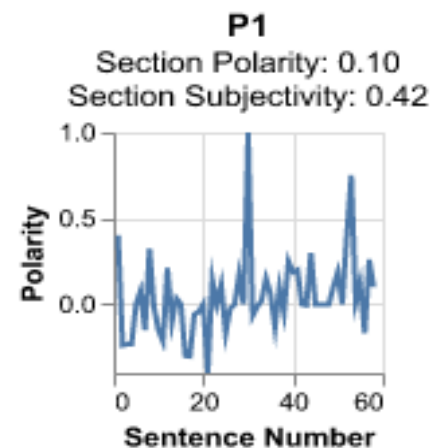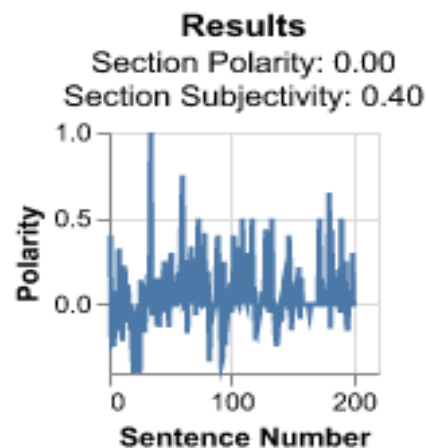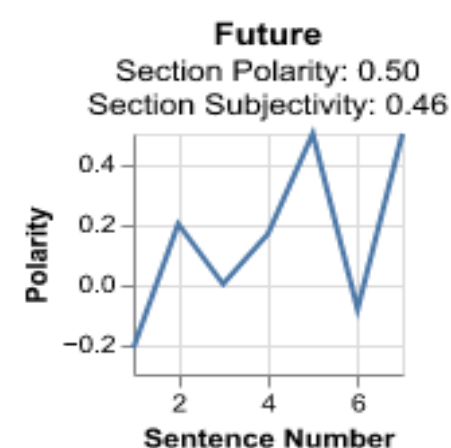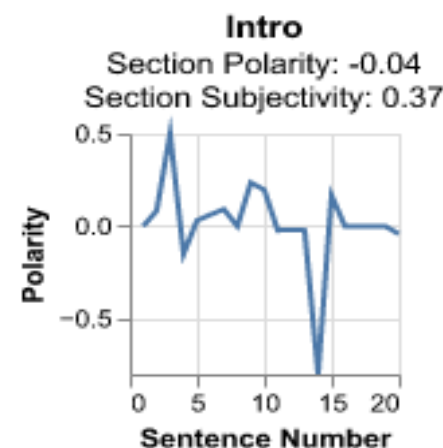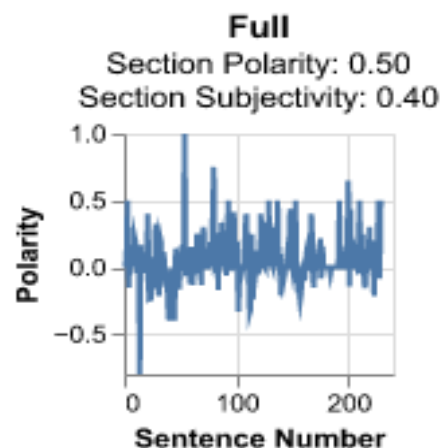
# Over the past decade, the 15 selected priority communities have consistently experienced the highest levels of crime



## All Communities

Total Crime Count by Community Area in Chicago (Jan 2015 to Nov 2024)
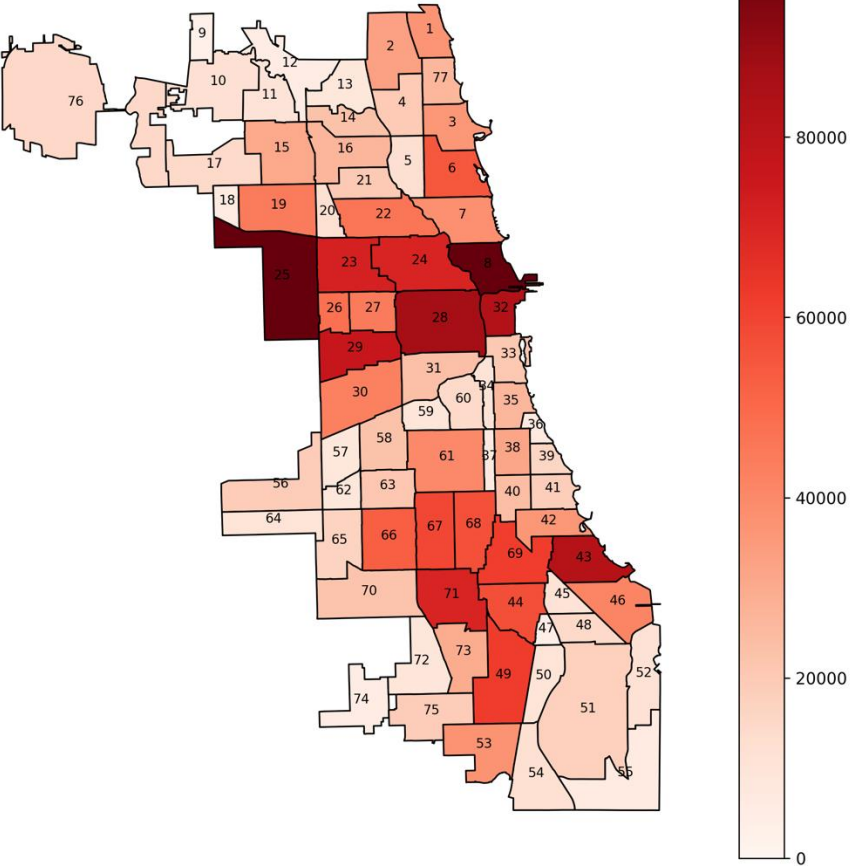
## 15 Priority Communities

Total Crime Count by VRS Community Area in Chicago (Jan 2015 to Nov 2024)
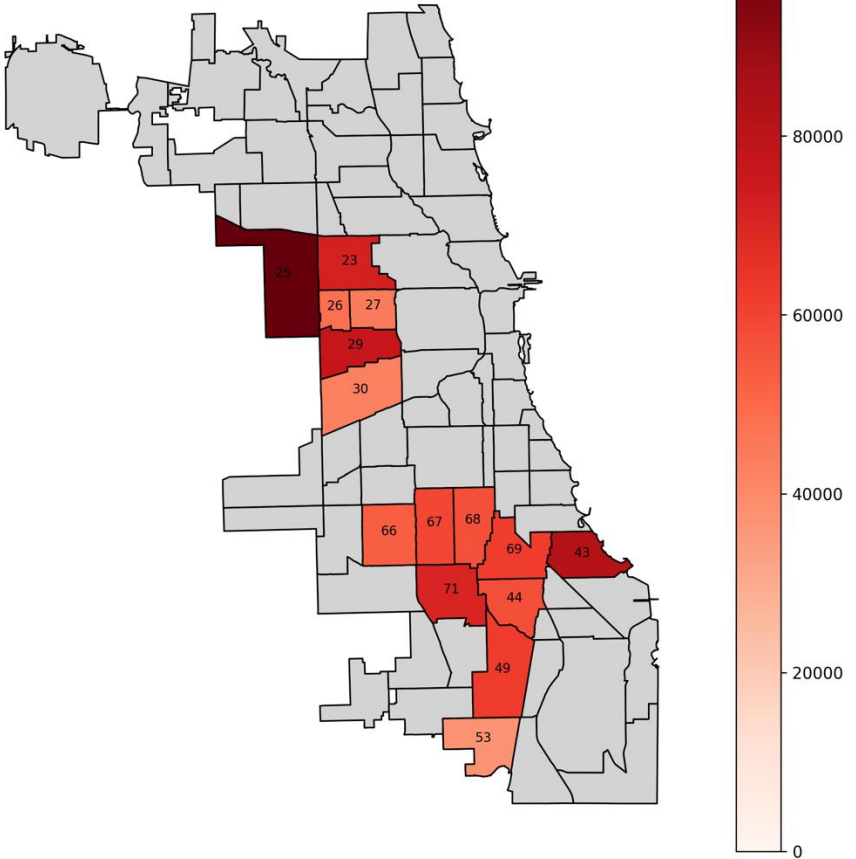
# Differences Over Time - Crimes decrease relatively uniformly across all community areas, but the 15 priority areas see the greatest decline

## All Communities

Difference in Total Crime Count by Community Area (2018-2020 to 2021-2023)
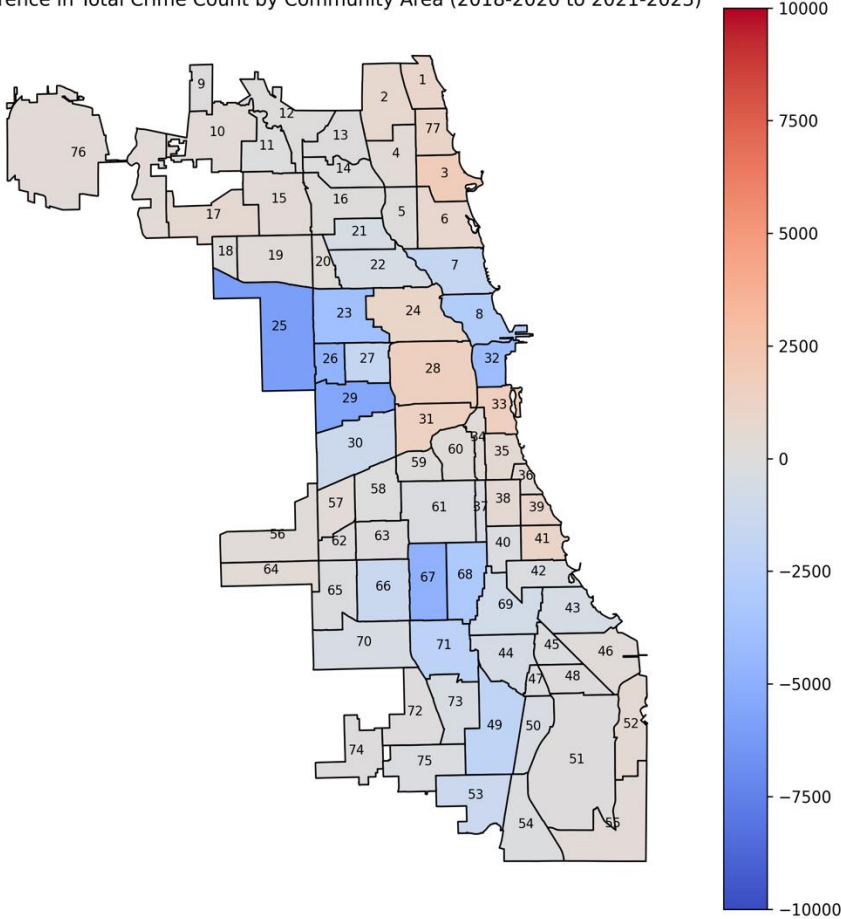
## 15 Priority Communities

Difference in Total Crime Count by VRS Community Area (2018-2020 to 2021-2023)

Total Number of Crimes Per Year (2015-2023)
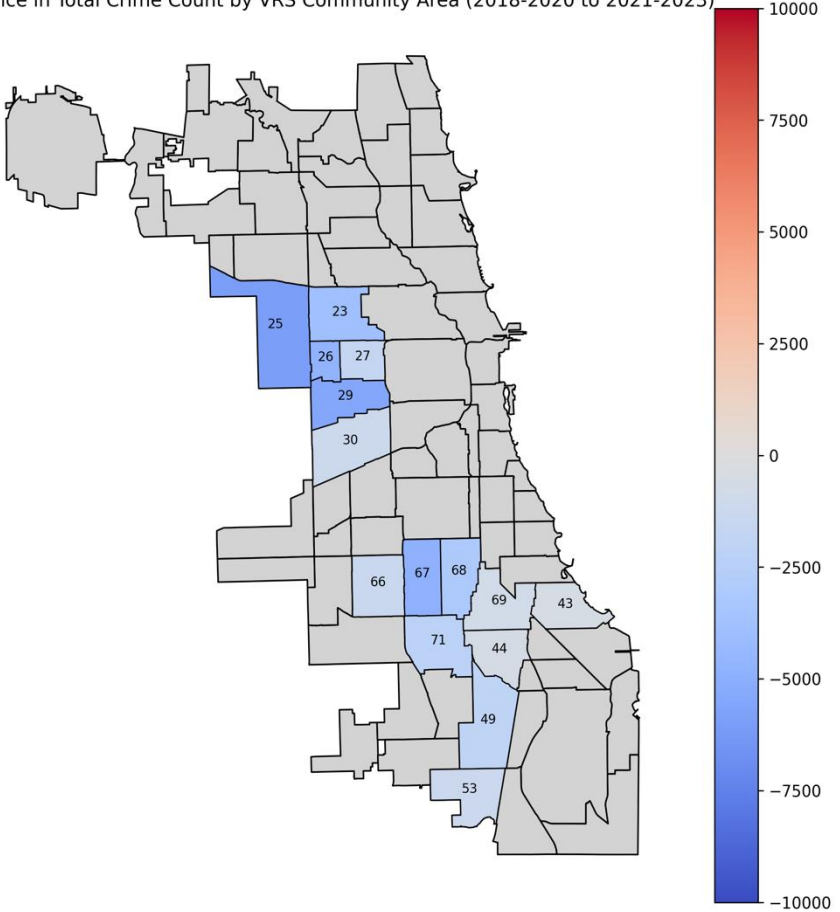
- ❑ The **VRS** was launched in **September 2020**

- ❑ The graph highlights **key trends**:
- ➢ A **decrease** that started as of **2019**
- ➢ A **decrease** persisted through **2020** and **2021**
- ➢ A **rise** again in **2022**, returning closer to pre-2019 levels

VRS Launch Date
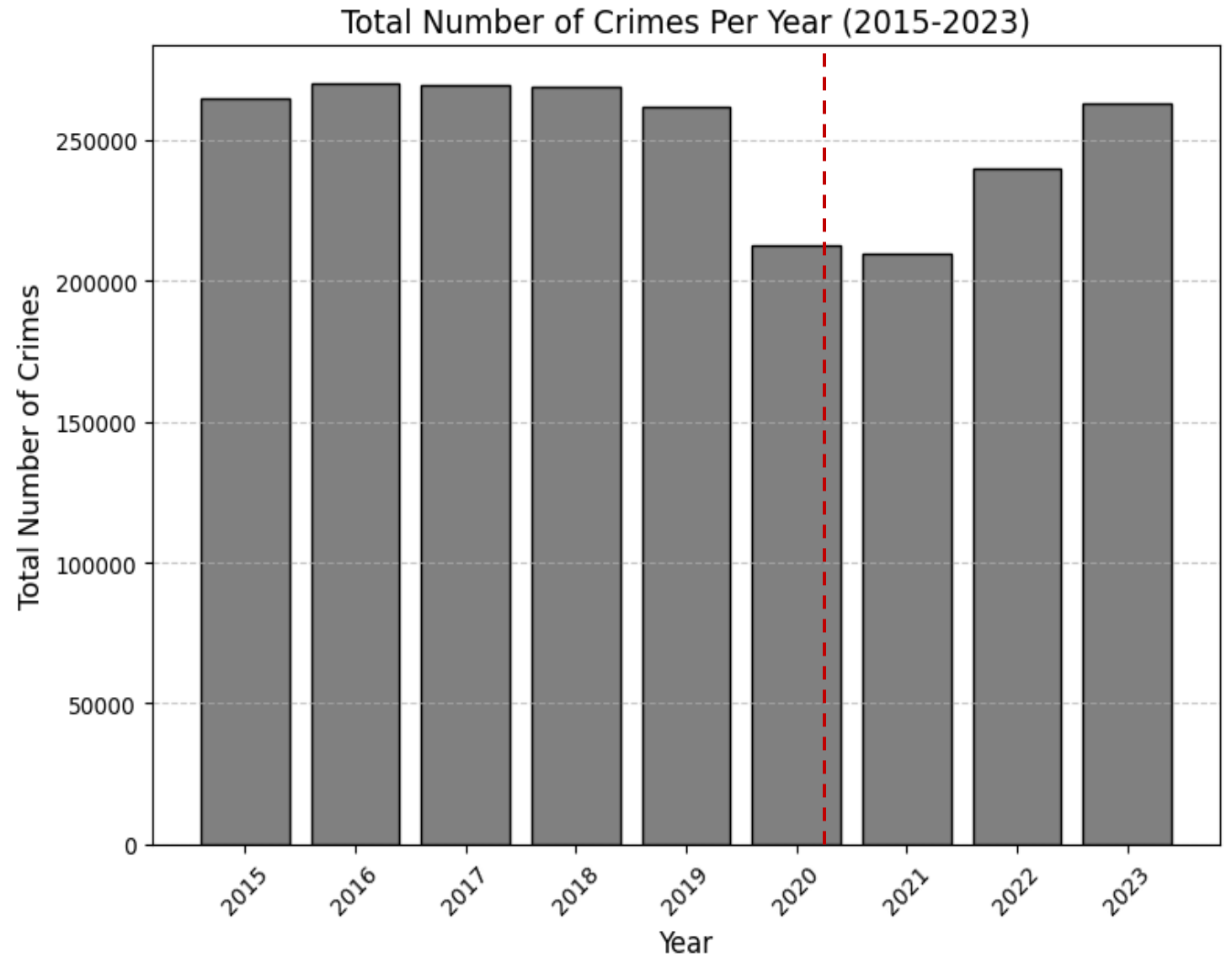
# VRS was launched in September 2020, yet crime trends started decreasing as of 2019 and rebounded back in 2021 after COVID and lockdowns



Top 20 Crime Trends (Stacked)

**Crime Type**
- ARSON
- ASSAULT
- BATTERY
- BURGLARY
- CRIMINAL DAMAGE
- CRIMINAL SEXUAL ASSAULT
- CRIMINAL TRESPASS
- DECEPTIVE PRACTICE
- HOMICIDE
- INTERFERENCE WITH PUBLIC OFFICER
- MOTOR VEHICLE THEFT
- NARCOTICS
- OFFENSE INVOLVING CHILDREN
- OTHER OFFENSE
- PROSTITUTION
- PUBLIC PEACE VIOLATION
- ROBBERY
- SEX OFFENSE
- THEFT
- WEAPONS VIOLATION
- --- Year 2023
- --- Year 2021
- --- Year 2020
- --- Year 2019

❑ **Top 3 Crime Types:**
- The leading crimes across Chicago are **Theft**, **Battery**, and **Criminal Damage**.

❑ **2019 Crime Decline:**
- Crime rates began dropping significantly in 2019, likely due to factors outside the VRS, such as **10,800 illegal firearms seized** by the Chicago Police Department (CPD), surpassing the combined totals of NYC and LA.

❑ **2020-2021 Factors:**
- The downward trend continued through 2021, potentially influenced by **COVID-19**, **lockdowns**, and other factors.

❑ **2023 Crime Drop:**
- **Increased Gun Seizures**: 12,500 firearms seized.
- **Strengthened Community Partnerships**: CPD deepened collaborations with local organizations.
- **Federal-Local Collaboration**: The U.S. Department of Justice established a Gun Crime Intelligence Center in Chicago enabling federal-local collaboration.

❑ **VRS Contribution:**
- If the VRS was solely responsible for reducing crime, rates should not have rebounded in 2021.

Crime Trends by Top 20 Crime Primary Types (Small Multiples)

Top 3 Crimes in Chicago
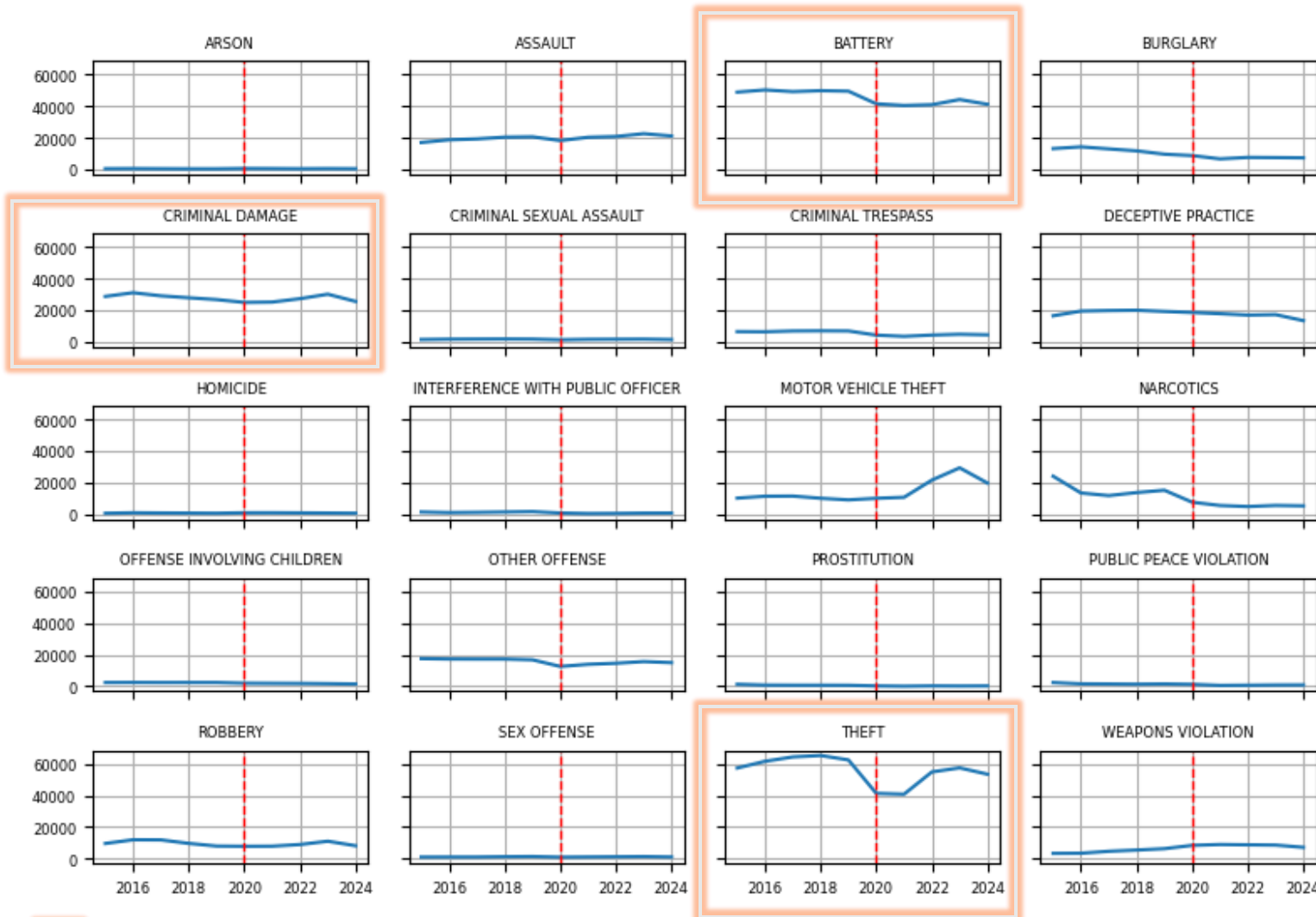
- ❑ **The previous chart** alphabetically stacks crimes by their **contribution to the cumulative total**. While informative, it can be visually confusing. The reader might focus on the top stack, rather than the **larger bands** that matter.

- ❑ These small **multiple plots** confirm that the **top 3 crimes** in Chicago are: **Theft, Battery, and Criminal Damage.**

- ❑ **Chicago's VRS** include efforts to reduce overall crime through **broader** community safety **measures**. However, theft, battery, and criminal damage are addressed **indirectly** rather than through **tailored programs.**

- ❑ Crime rates could decrease further with **targeted measures/initiatives** like theft surveillance, anger management programs, and restorative justice, supported by better resource allocation.

- ❑ In **New York** for instance, there's **Operation ID initiative,** which has been going on since 1972: A free service to register and engrave valuable electronics with unique serial numbers, making them harder to sell and easier to trace if stolen.

The VRS was implemented **citywide** but primarily targeted 15 community areas, which showed minimal improvement in crime rates.

❏ **Focus on Priority Areas:**
Homicides and Non-Fatal shootings are concentrated in 15 priority areas. They are among the most severe forms of violence, with immediate and devastating impacts on individuals, families, and communities.

❏ **Resource Allocation:**
Limited resources were focused on these crimes for effective use of funding and interventions.

❏ **Trends:**
➤ **Decrease: Only 6.6%** (i.e., Austin) of Priority Community Areas noticed a decrease in crimes after VRS.
➤ **Stable/Increase:** While almost 94% of the remaining priority areas show stable or rising trends.

❏ **VRS Contribution:**
➤ Mixed outcomes raise questions about whether the Violence Reduction Strategy is achieving its goal and suggests the need to refine interventions and assess external factors that might be driving the violence.



Homicides and Non-Fatal Shootings Across Priority Community Areas (2018–2020 vs. 2021–2023)
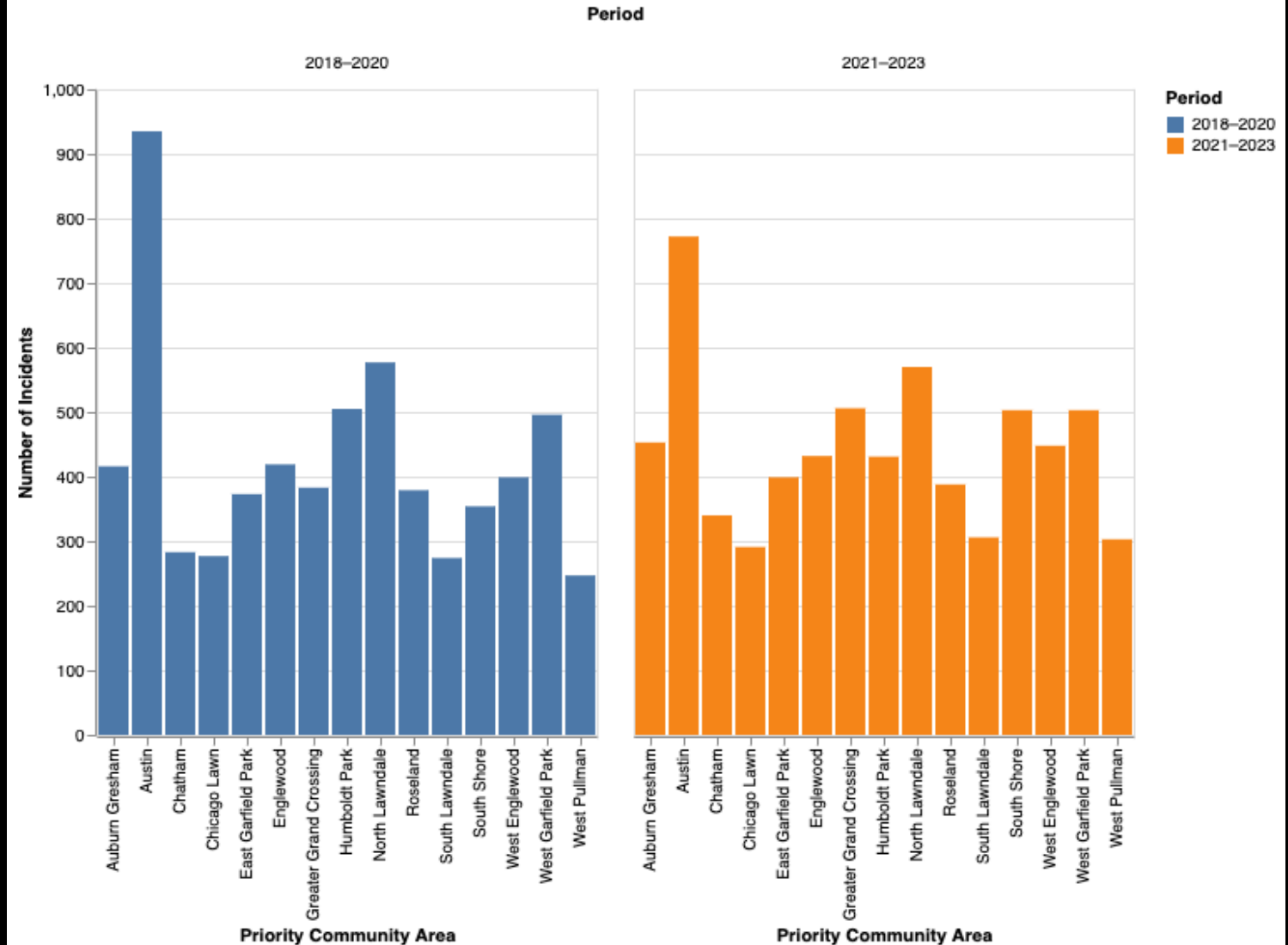
The orange band **exceeding** the blue in most areas indicates an increase in homicides and non-fatal shootings <u>post-VRS implementation</u>.

❑ **Policy Implications:**

➢ **Strategic Expansion**: The increasing trends in non-priority areas, suggest that the VRS could introduce initiatives tailored to the specific needs of non-priority areas.

➢ **Resource Allocation**: Rising violence in some non-priority areas could indicate the need for additional funding and localized interventions.

❑ **Critical Questions:**

➢ Are increases in non-priority areas linked to a **shift in criminal activity** due to interventions in priority areas (displacement and spillover effect)?

➢ How can resources be more equitably distributed without compromising the focus on priority areas?

➢ Should initiatives be tailored to address specific conditions of non-priority areas?



Homicides and Non-Fatal Shootings Across Non-Priority Community Areas (2018–2020 vs. 2021–2023)
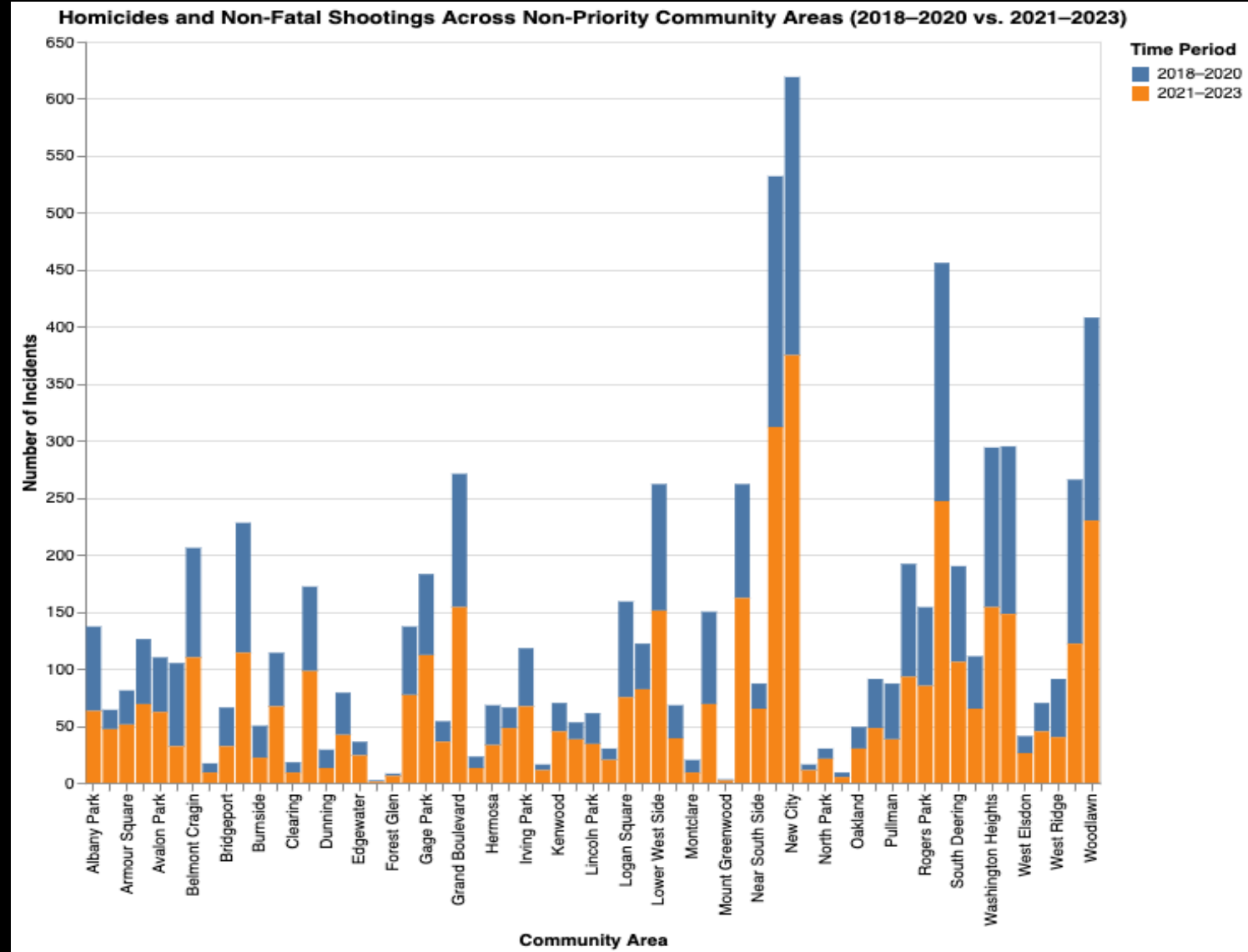
The below heatmap shows **crime timing by community area** and **hour**, highlighting areas with higher activity during specific hours

Most Common Timing of Crimes by Community Area Name
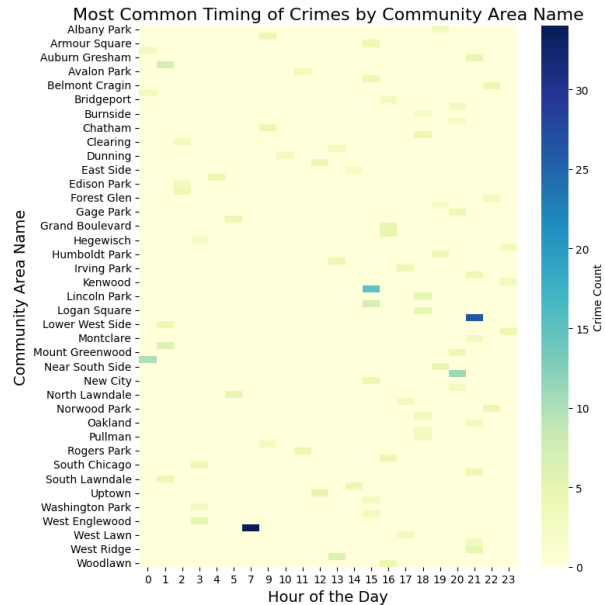


- **Evening periods** have higher concentrated crimes
- **Early morning hours (1am – 5am)** have relatively few crimes

The below heatmap displays **crime distribution** across community areas **by day**, identifying peak days for certain areas

Most Common Crimes by Community Area and Day of the Week
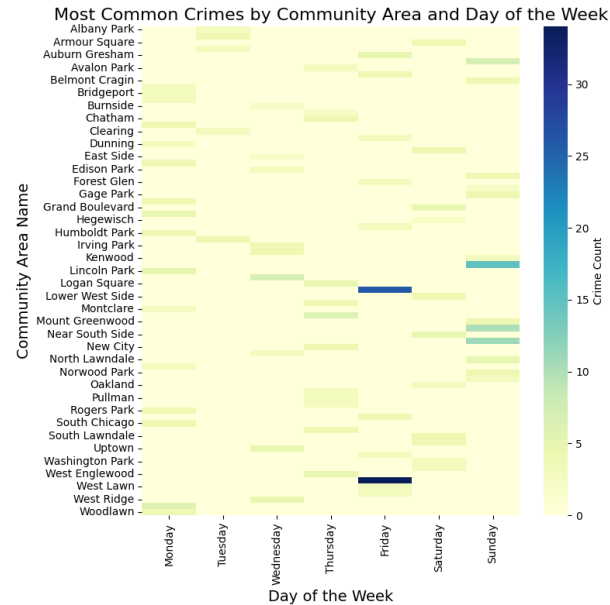


- **Thursday to Monday** have more crimes than Tuesday and Wednesday
- **Friday** shows the highest crime count
- **Sunday and Monday** have the most frequent crime distribution

This general heatmap combines all crimes **by day** and **hour**, revealing overall peak crime periods

Heatmap of Crimes by Day and Hour
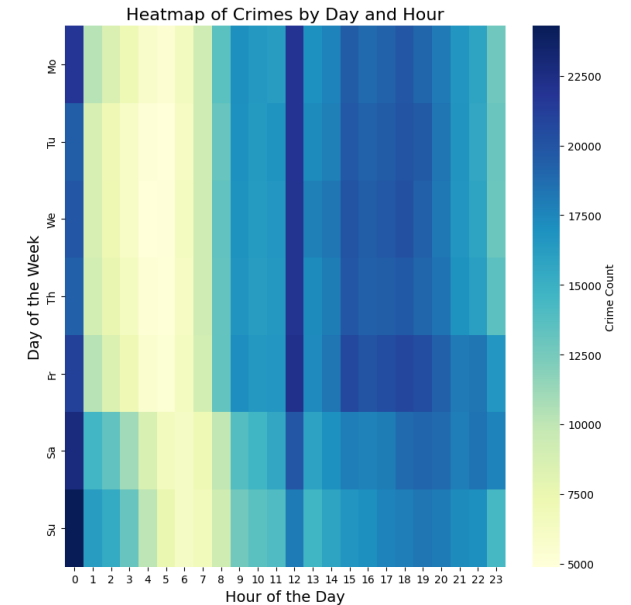


- **Evenings and weekends** are peak periods for crime, indicating a broader trend of increased activity during non-working hours
- **Midnight** and **noon** have distinct peaks in crime activity

# Summary and Recommendations

## Key Highlights

1. Validating findings requires applying **different methodologies**, groupings, and data manipulations

2. Top crimes in Chicago are **Theft, Battery, and Criminal Damage,** respectively with current VRS indirectly addressing these crimes

3. Crime rates began declining in **2019**, before the VRS launch in **September 2020**

4. **Overall crimes** may seem to have **decreased after the VRS**, but this reduction is likely influenced by **COVID-19 restrictions (2021)** and **2023 efforts** (e.g., firearm seizures, stronger community partnerships, federal-local collaboration), both of which occurred post-VRS implementation.

5. If the **VRS was solely responsible for reducing crime**, rates should not have **rebounded in 2021**

## Recommendations

1. **Tailored Initiatives**: Develop tailored solutions for unique crime patterns in both priority and non-priority areas

2. **Targeted Interventions**: Focus on high-crime hours (evenings and weekends) and peak days, especially Friday

3. **Resource Optimization**: Enhance enforcement during peak times and address the top three crimes with specific initiatives

4. **Monitor Spillover Effects**: Investigate whether priority-area interventions displace crime to non-priority areas

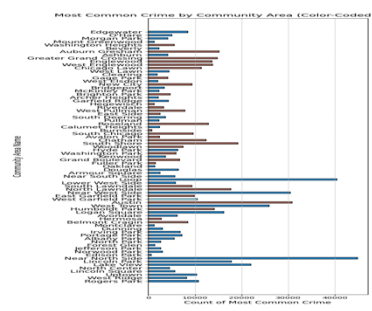5. **Update Strategy**: Urge to continuously update VRS strategy based on new findings, trends, and factors

THANK YOU

# APPENDIX
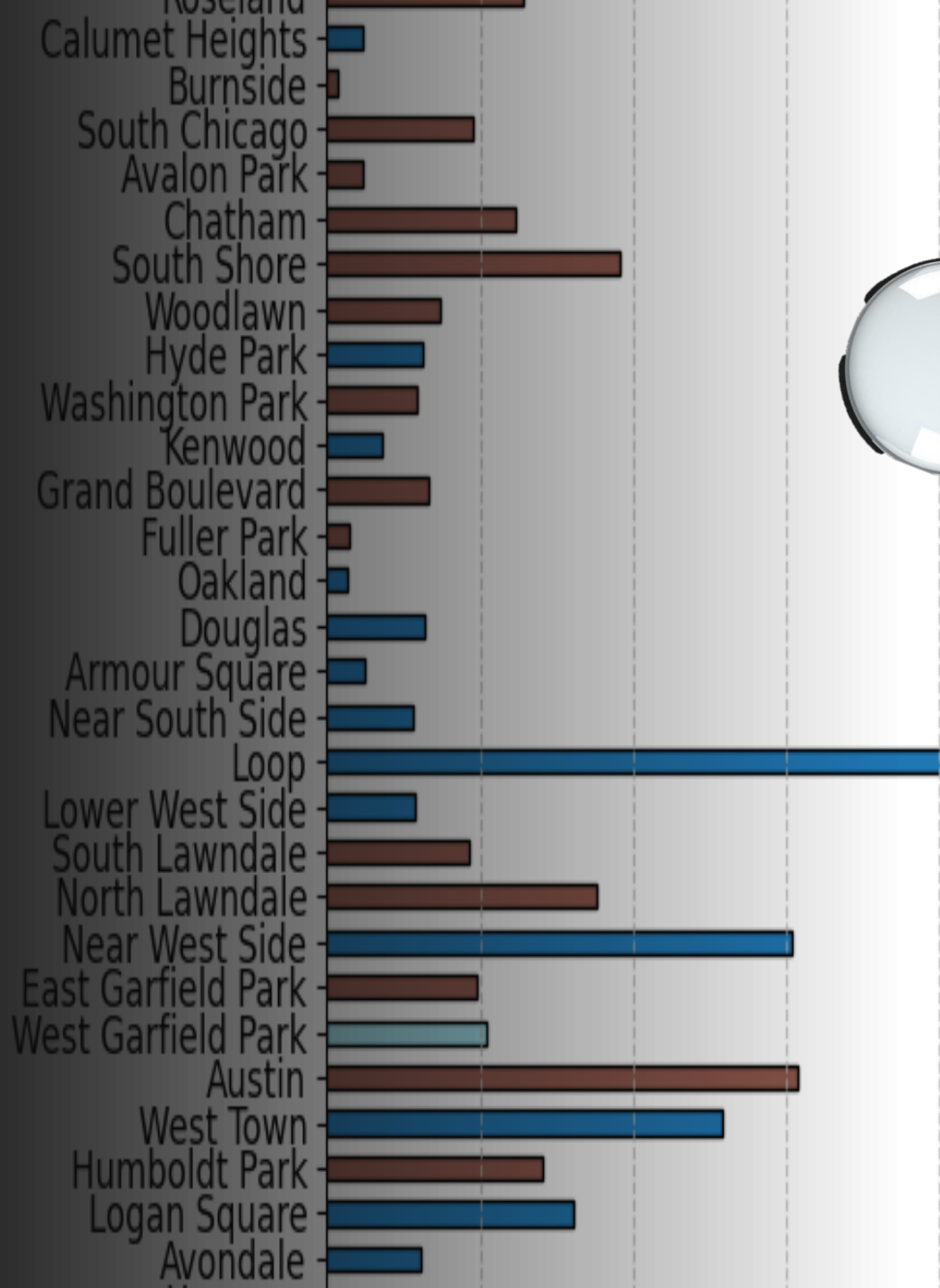
# Most Common Crime by Community Area



Some might consider investigating the **most common crime** by community area which this left graph does, highlighting theft, battery, and narcotics as the primary crime types.

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Yet, a more accurate approach would be to:
1. Get top 3 crimes per community area
2. Count common crimes across community areas
3. Show the 5 most common crimes across community area

✓ Validates our previous analysis that the top 3 crimes in Chicago are: Theft, Battery, and Criminal Damage, respectively.

**Crimes Most Frequently in the Top 3 Across Community Areas**



Community Area Name

**Primary Type**
- THEFT
- BATTERY
- NARCOTICS

Calumet Heights
Burnside
South Chicago
Avalon Park
Chatham
South Shore
Woodlawn
Hyde Park
Washington Park
Kenwood
Grand Boulevard
Fuller Park
Oakland
Douglas
Armour Square
Near South Side
Loop
Lower West Side
South Lawndale
North Lawndale
Near West Side
East Garfield Park
West Garfield Park
Austin
West Town
Humboldt Park
Logan Square
Avondale