Calgary Crime Statistics (2018-2023)

PowerBi Dashboard

~Author~

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Table of Content

1. Introduction

Crime statistics serve as a critical lens through which we can understand the safety dynamics of urban areas like Calgary. By harnessing the power of data analytics, particularly through tools like Power BI, we aim to uncover meaningful insights that can drive informed decision-making and proactive measures in crime prevention and law enforcement strategies.

Calgary, as a bustling Canadian city, experiences a diverse range of criminal activities spanning theft, assaults, vandalism, and more. Analyzing these crime statistics is not merely an exercise in data manipulation but a strategic initiative to enhance public safety, optimize resource allocation, and empower communities with actionable information.

2. Mission Statement

Our mission is to reduce crime in Calgary by leveraging data-driven strategies, fostering community partnerships, and implementing proactive policing initiatives.

By integrating diverse datasets and employing advanced data visualization techniques, we aim to uncover actionable insights that empower law enforcement agencies, policymakers, and community stakeholders.

3. Goals and Objectives

The goals and objectives outline a structured approach to leveraging Power BI for analyzing Calgary crime statistics, focusing on data integration, visualization, statistical analysis, actionable insights, stakeholder engagement, and continuous monitoring.

Goals:

- **Understand Crime Dynamics:** Gain a comprehensive understanding of crime trends, patterns, and dynamics within Calgary.
    - **Objective**: Analyze historical and current crime data to identify trends over time.
    - **Objective**: Identify patterns in crime based on location, time, and type of crime.

- **Enhance Public Safety:** Use insights to support law enforcement agencies in improving crime prevention and response strategies.
    - **Objective**: Provide actionable intelligence to law enforcement for proactive crime prevention.
    - **Objective**: Improve response times by identifying peak crime periods and hotspots.

- **Optimize Resource Allocation:** Identify high-crime areas and times to optimize resource allocation and deployment of personnel.
    - **Objective**: Use data to pinpoint high-crime areas and times for targeted resource deployment.
    - **Objective**: Allocate police personnel more efficiently to areas with the greatest need.

- **Influence Policy and Decision-Making:** Provide evidence-based insights to influence policy decisions and allocate resources effectively.
    - o **Objective**: Provide policymakers with data-driven insights to inform decisions on public safety.
    - o **Objective**: Influence the development of policies aimed at addressing the root causes of crime.

4. KPI's

Key Performance Indicators (KPIs) are essential metrics used to measure the success and effectiveness of initiatives, such as analyzing Calgary crime statistics using Power BI. Here are some KPIs that can be used to evaluate the outcomes and impact of the analysis:

- **Crime Rate:**
    - o **KPI:** Annual variance in total reported crimes compared to previous periods.
    - o **Why:** Indicates whether crime rates are increasing, decreasing, or stabilizing over time, providing a baseline for assessing the effectiveness of crime prevention efforts.

- **Crime Type:**
    - o **KPI:** Percentage breakdown of different types of crimes (e.g., theft, assault).
    - o **Why:** Helps prioritize resources and interventions based on the prevalence of specific crime types within Calgary.

- **Hotspot Identification:**
  - o **KPI:** Number of high-crime areas identified within each sector.
  - o **Why:** Pinpoints geographical areas within sectors where crime rates are disproportionately high, guiding focused policing and intervention efforts.

(Note: Due to limitation in the dataset not many KPI's are identified.)

5. Key Question

When analyzing Calgary crime statistics using Power BI or any data analytics platform, asking the right questions about the data is crucial to uncovering meaningful insights. Here are key questions to consider:

1) **What are the trends in crime severity over time?**

   Monitoring changes in crime severity (e.g., through Crime Severity Index) helps gauge overall community safety.

2) **What types of crimes are most prevalent in Calgary?**

   Understanding the distribution of crime types (e.g., property crime, violent crime) helps prioritize prevention efforts.

3) **Which crime category has the highest count over the years?**

   The aim is to identify the most prevalent crime category in Calgary over an extended period.

4) **How does the crime count compare among different sectors such as the Centre, Northeast, and South?**

By comparing crime counts across distinct sectors of Calgary we can discern spatial patterns and prioritize sector-specific policing strategies and community engagement efforts.

6. PowerBI Dashboard

Let's delve into some of the insights of Calgary city crime statistics using PowerBI. Multiple charts are used to display the statistics.

(Note: All the insights are subject to the dataset used. The data is of five years from 2018 to 2023. The dataset is attached in the repo.)
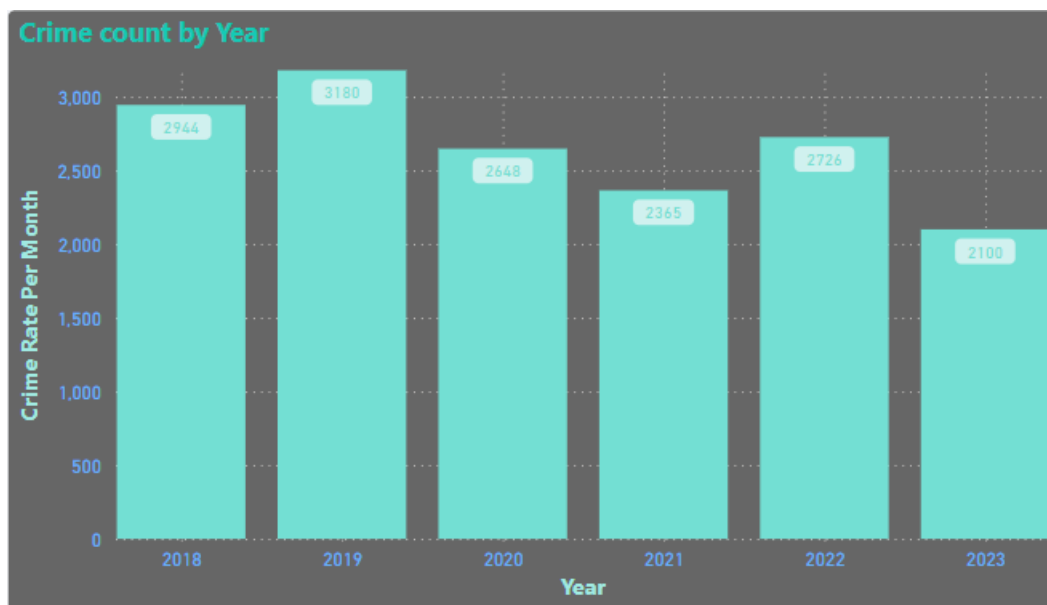
1) **KPI card** – Crime counts by year

This KPI card shows the average crime count in Calgary city in each year.

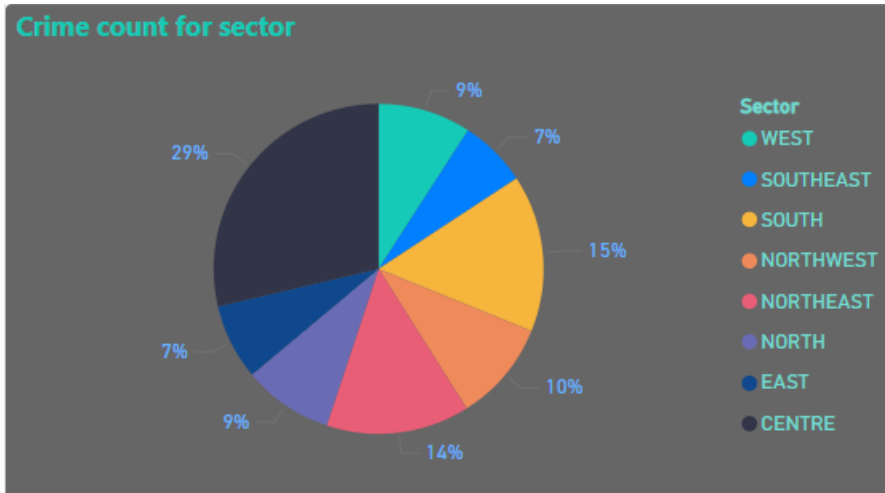2) **KPI card** – Crime rate per month

SEP
Top Crime Month

The KPI card shows the month which has the highest crime count in five years. Perhaps some strict measures should be taken in September month to control the crime in city.

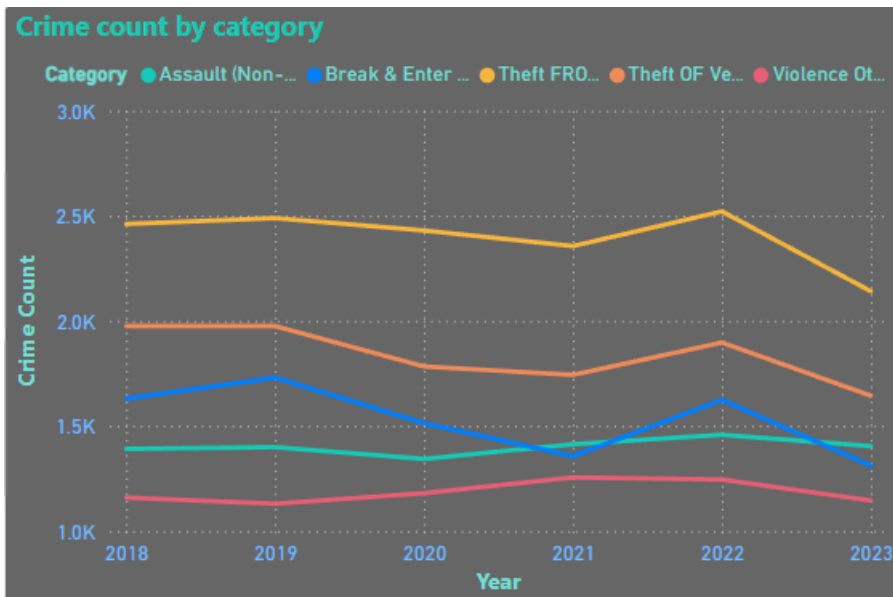3) **Bar chart** – Crime counts by every year

The chart shows crime is at peak in 2019 and lowest in 2023, it was a bit high in 2022.

4) **Pie chart** – Crime counts by sector (in Percentage)

The chart shows the crime in every sector of the city. At centre the crime is at peak i.e. 29% and lowest at east and southeast i.e. 7%.

5) **Line chart** – Crime counts by categories

The chart shows the crime of different categories in each year. The top category is Theft from vehicle which is represented using yellow line.

7. Conclusion

The Calgary Crime Rate Dashboard provides a detailed and insightful overview of crime trends, patterns, and distributions within the city. Here are the key conclusions drawn from the dashboard:

1) **Overall Crime Trends**:
   a. The total crime count is 192,000 among a population of 1 million residents.
   b. Crime rates peaked in 2019 with a significant drop in subsequent years, indicating a potential improvement in public safety or changes in reporting/recording practices.
   c. September is the pick month for the crime in the five years.

2) **Crime Categories**:
   a. The most prevalent types of crime include "Theft FROM Vehicle" and "Violence Other (Non-domestic)".
   b. Monthly trends show that "Theft FROM Vehicle" has seasonal peaks, particularly high in summer months.

3) **Yearly Crime Patterns**:
   a. The year 2019 saw the highest crime count, with a notable reduction in the following years.
   b. Despite the reduction, certain categories like "Theft FROM Vehicle" remain consistently high.

4) **Sector-wise Analysis**:
   a. The Southeast, South, and Northeast sectors exhibit the highest crime counts, suggesting these areas require targeted interventions.
   b. The pie chart shows the distribution of crime relative to the resident count, highlighting the Southeast sector as a significant hotspot.

Recommendations:

1) **Focused Policing and Resources**:
   a. Enhance police presence and resources in the Southeast, South, and Northeast sectors to address high crime rates.
   b. Develop specific strategies for high-incidence crimes such as "Theft FROM Vehicle".
2) **Seasonal Crime Prevention**:
   a. Implement seasonal crime prevention initiatives, particularly during summer months when "Theft FROM Vehicle" incidents peak.
3) **Community Engagement**:
   a. Foster community involvement in high-crime sectors to promote awareness and collaborative crime prevention efforts.
   b. Encourage public participation in neighborhood watch programs and other safety initiatives.
4) **Data-Driven Policy Making**:
   a. Use the detailed insights provided by the dashboard to influence policy decisions, focusing on areas and times with the highest crime rates.
   b. Allocate resources effectively based on evidence from crime data to maximize impact on reducing crime.

By leveraging these insights and recommendations, Calgary can work towards enhancing public safety, optimizing resource allocation, and engaging the community in crime prevention efforts, ultimately striving to create a safer city for all its residents.

8. Appendix

Here is the total overview of the PowerBI dashboard which contains some insights of the crime in Calgary city.