

RETAIL ACCESS VS. SOCIAL COST

Store Locations, Sales Trends, and the Measured Social Impact of Legal
Cannabis in Canada

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Problem Statement & Background

Context & Problem

The **Cannabis Act (2018)** legalized recreational use, creating a split federal/provincial system. While an economic boom was expected, the **social effects**—specifically crime and community safety—remain a leading policy concern with limited comprehensive studies.

Project Goal

To fill the analytical gap by examining how **cannabis retail expansion** relates to **economic performance** and **community safety** across Canada's provinces and major cities using comprehensive data integration.

Policy Context & Economic Impact



Provincial Variations: Alberta adopted a free market (600+ stores), while Ontario used a lottery system initially. Atlantic provinces maintained strict government control.



Economic Scale: According to Statistics Canada data, cannabis sales in Canada totaled over **\$5.2 billion** for the fiscal year that ran from April 1, 2023, to March 31, 2024. About **40.4%** of the market is held by Ontario. [\[1\]](#)



Product Trends: Dried cannabis dominates (65%), but edibles and extracts are growing.



Data Sources



Store Locations

Health Canada & Provincial Portals. Over **4,000** data points gathered, requiring standardization of inconsistent formats.



Type of Cannabis Sales Data

Statistics Canada. Sales of cannabis by liquor and cannabis authorities and other retail outlets, by cannabis type.



Retail Trade Data

Statistics Canada. Monthly retail trade sales by province and territory



Crime data

Statistics Canada. Incident-based crime statistics, by detailed violations, Canada, provinces, territories, Census Metropolitan Areas and Canadian Forces Military Police.



Cities Crime Data

City-Specific portals: **Toronto** (Public Safety), **Vancouver** (Open Data), **Edmonton** (EPS).

Data Scale & Volume

6.77M

Total Rows Processed

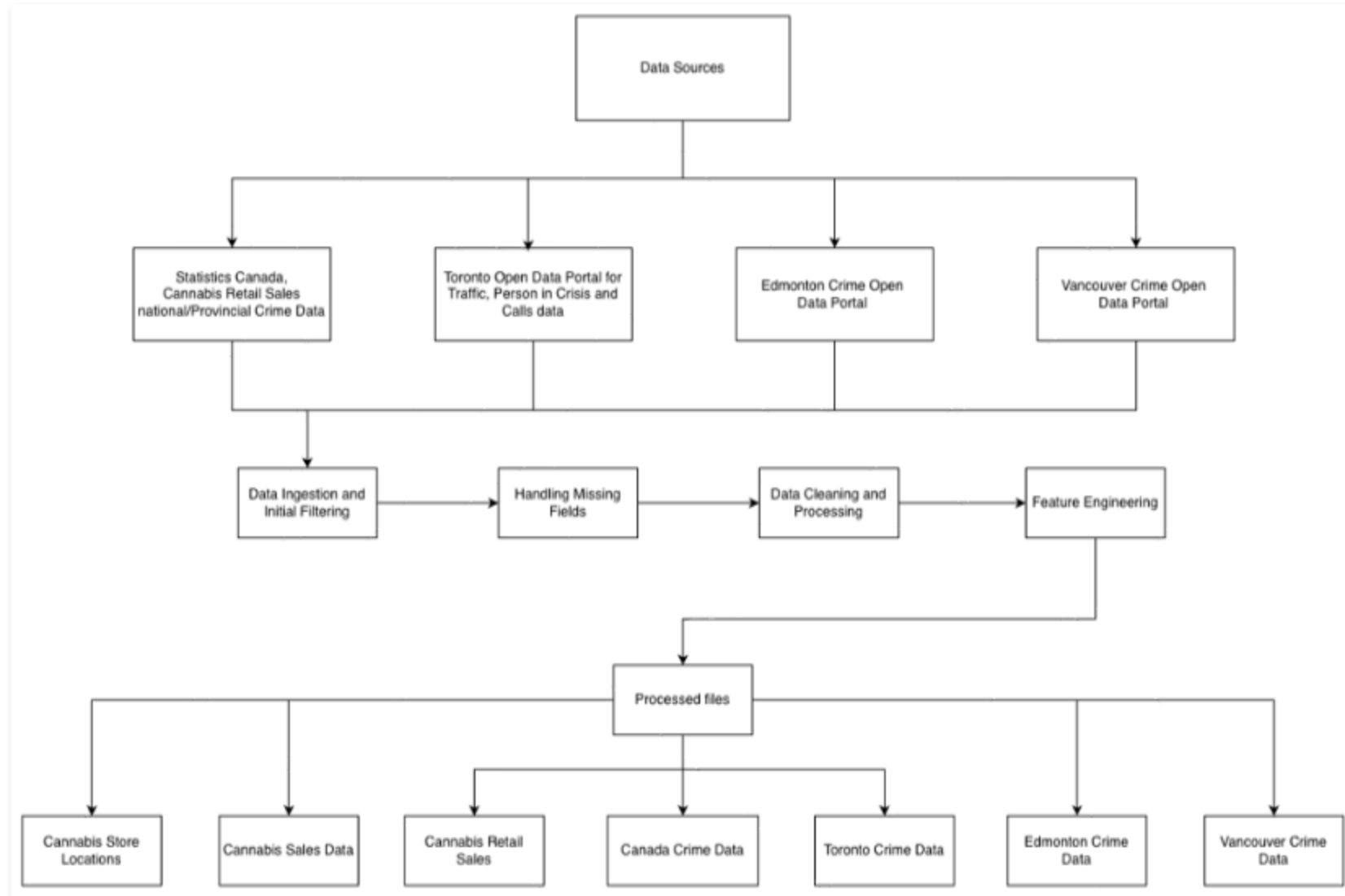
10

Distinct Datasets

3.5h

Pipeline Runtime

Methods: Data Processing



Methods: Tools & Frameworks



Development

Python 3.x (Pandas, NumPy, Matplotlib) used for all ETL operations. Google Colab & Jupyter Notebooks for environment.



Visualization

Power BI utilized for creating interactive dashboards and geospatial analysis of store density vs crime.



Sharing

Dataset published on **Kaggle**.
Version control and code transparency maintained via **GitHub**.

Results

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< 1 >> Code Download ⋮

Cannabis Store Locations Across Canada

Licensed Cannabis Store Locations in Canada (Geocoded)



Data CardCode (2)Discussion (0)Suggestions (0)Settings

About Dataset

Edit

Usability ⓘ
10.00

License
[MIT](#) [Edit](#)

Expected update frequency
Annually [Edit](#)

Tags
[Tabular](#) [Intermediate](#)

Licensed Cannabis Store Locations in Canada (Geocoded)

This dataset provides a comprehensive list of all publicly licensed and operating retail cannabis store locations across Canada. It aims to offer a single, unified source for analyzing the evolving landscape of cannabis retail, supporting research in geographic analysis, market penetration, and regulatory studies. Each entry includes essential retail details like Store Name, City, Province, Full Address, Postal Code, and, critically, geocoded Latitude and Longitude coordinates for immediate mapping and spatial analysis.

Data Collection and Provenance

The data was systematically compiled from official public listings provided by provincial and territorial regulatory bodies, which are primarily

Kaggle dataset : <https://www.kaggle.com/datasets/jainishpatel31/cannabis-store-locations-across-canada/data>

Results

Canada Wide Cannabis Sales Analysis

Adjustments: Unadjusted

Date Range

01/01/2019

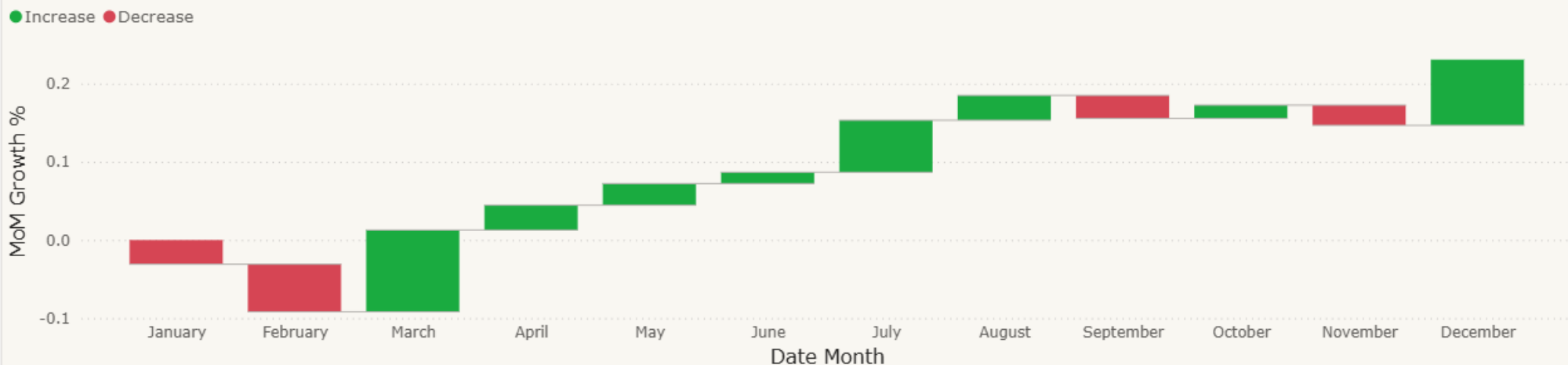
01/08/2025



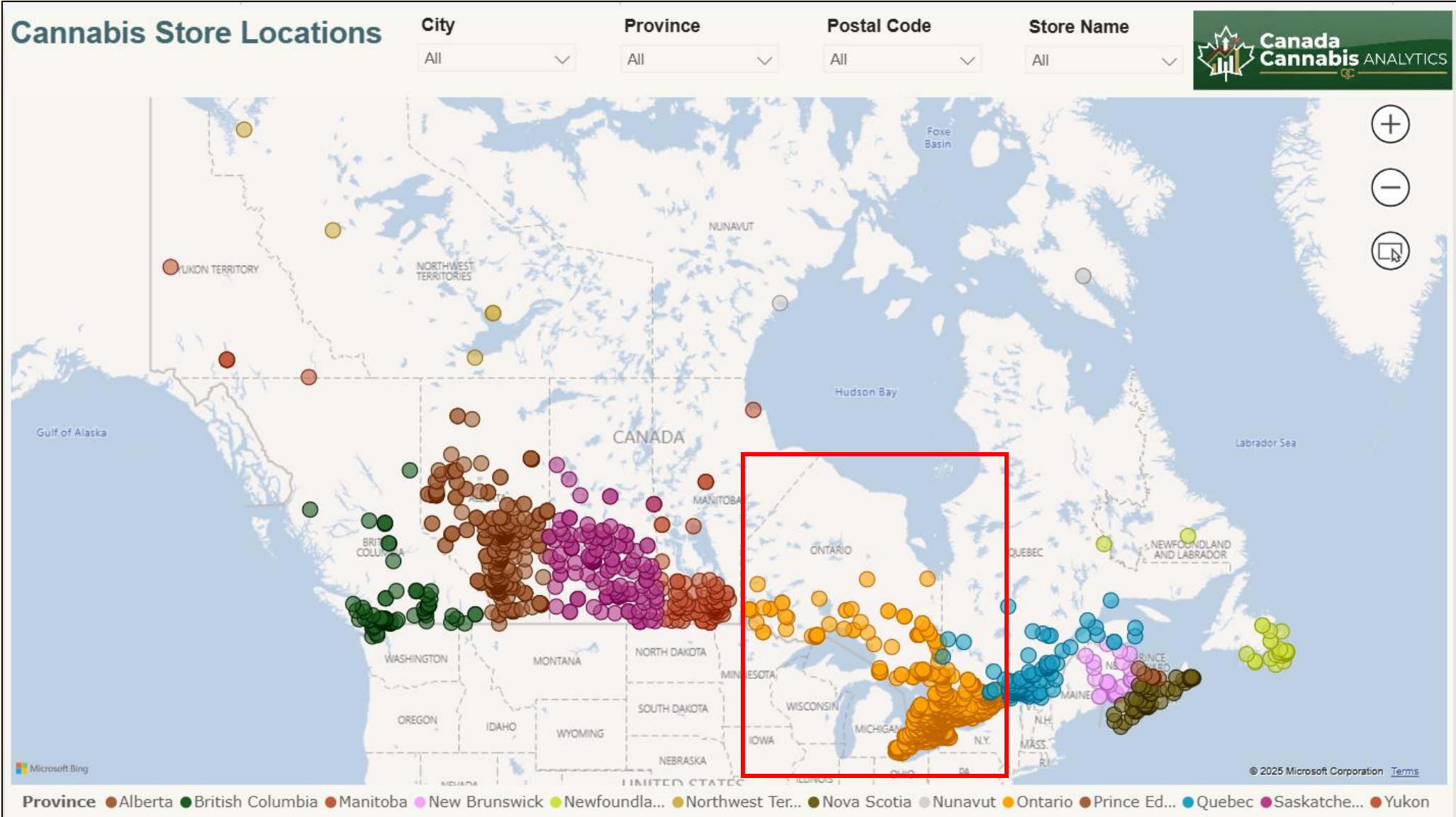
Total Sales and Average Sales by Year, Month and Locations



MoM Growth % by Month



Results



Results

Cannabis Retail Sales by Province

Adjustments: Unadjusted

Province

All

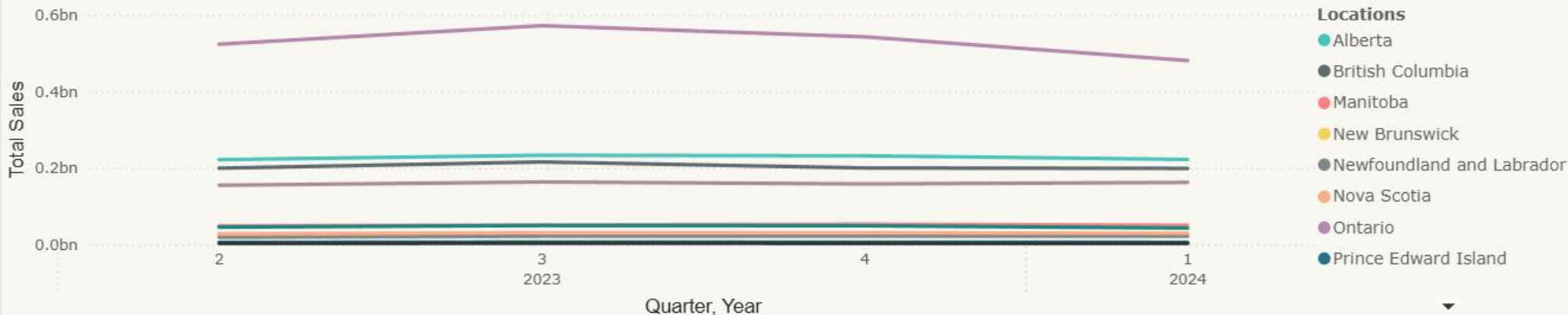
Date Range

01/04/2023

31/03/2024



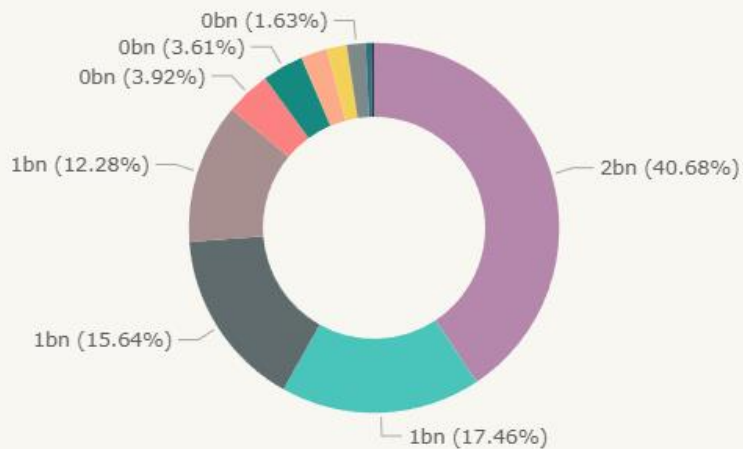
Total Sales by Year, Quarter and Locations



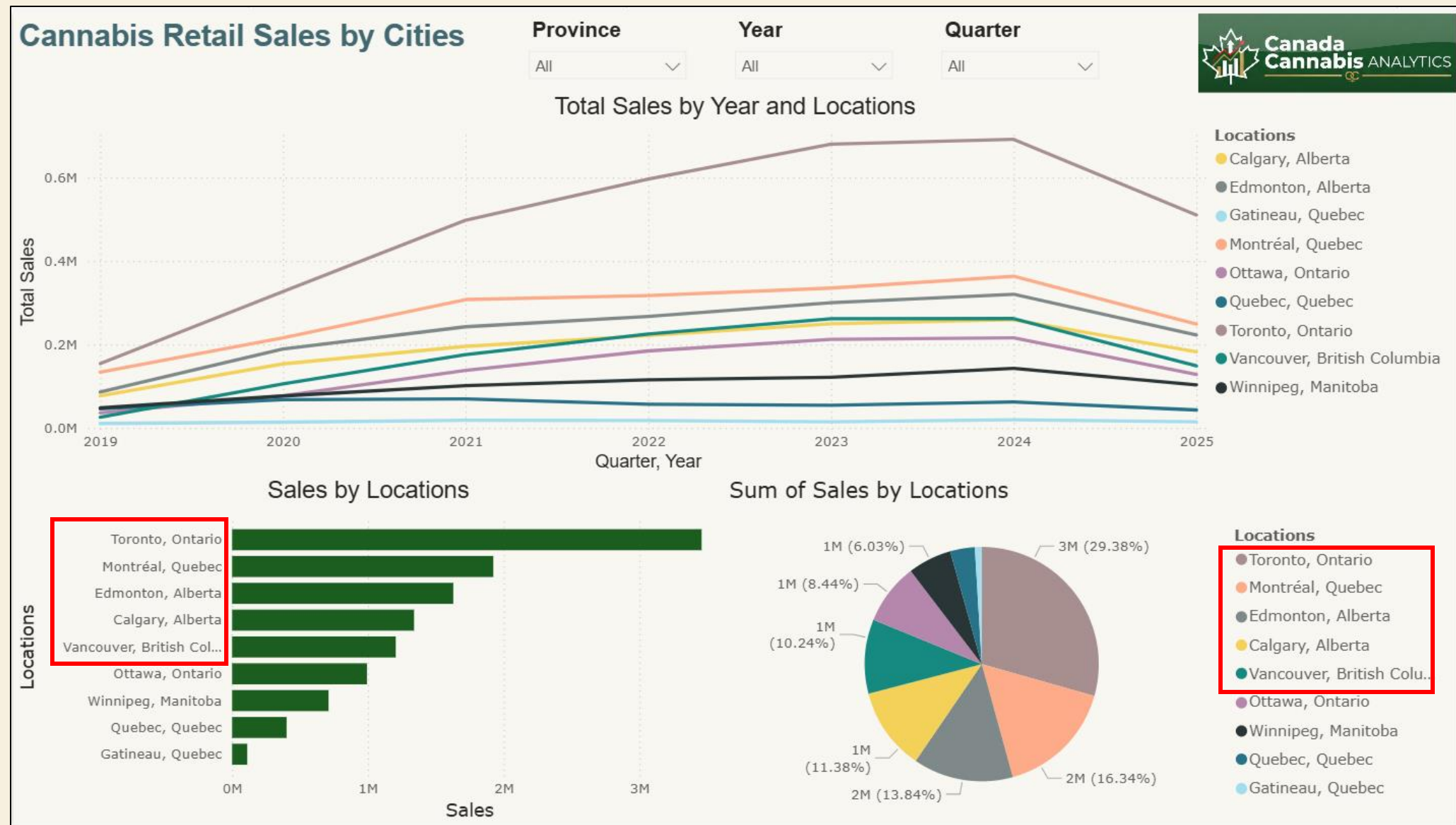
Total Sales by Province



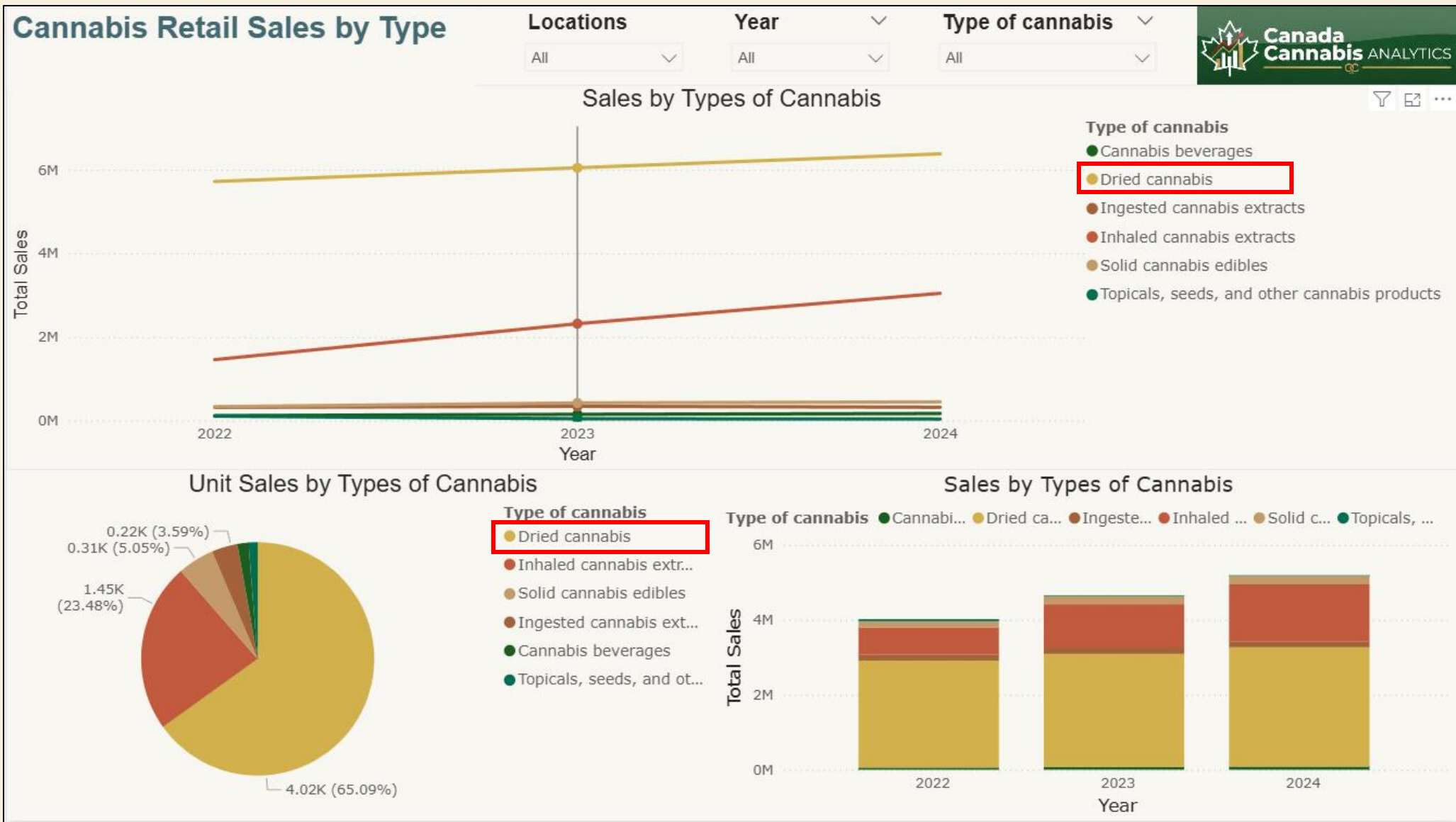
Sales by Locations



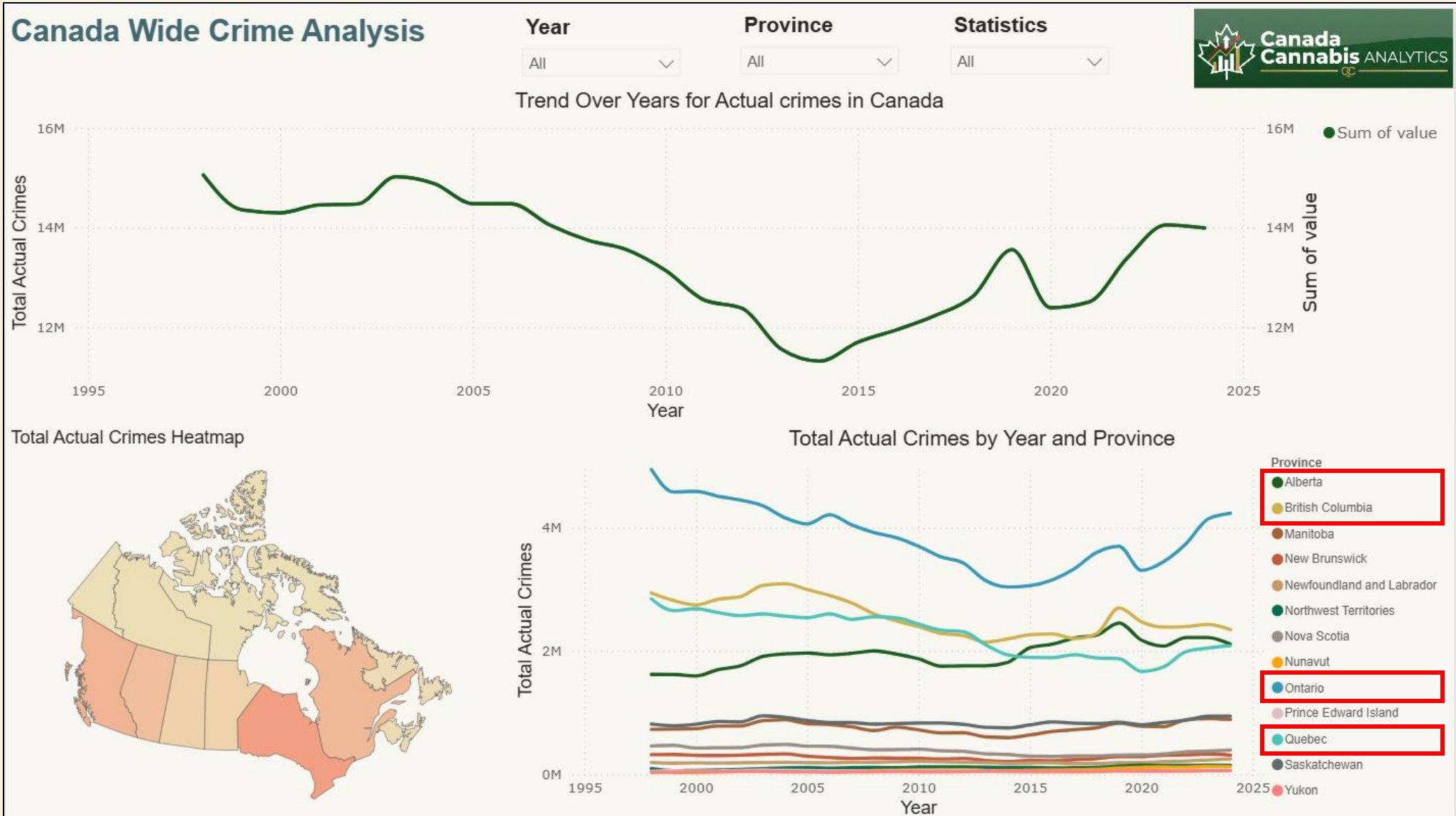
Results



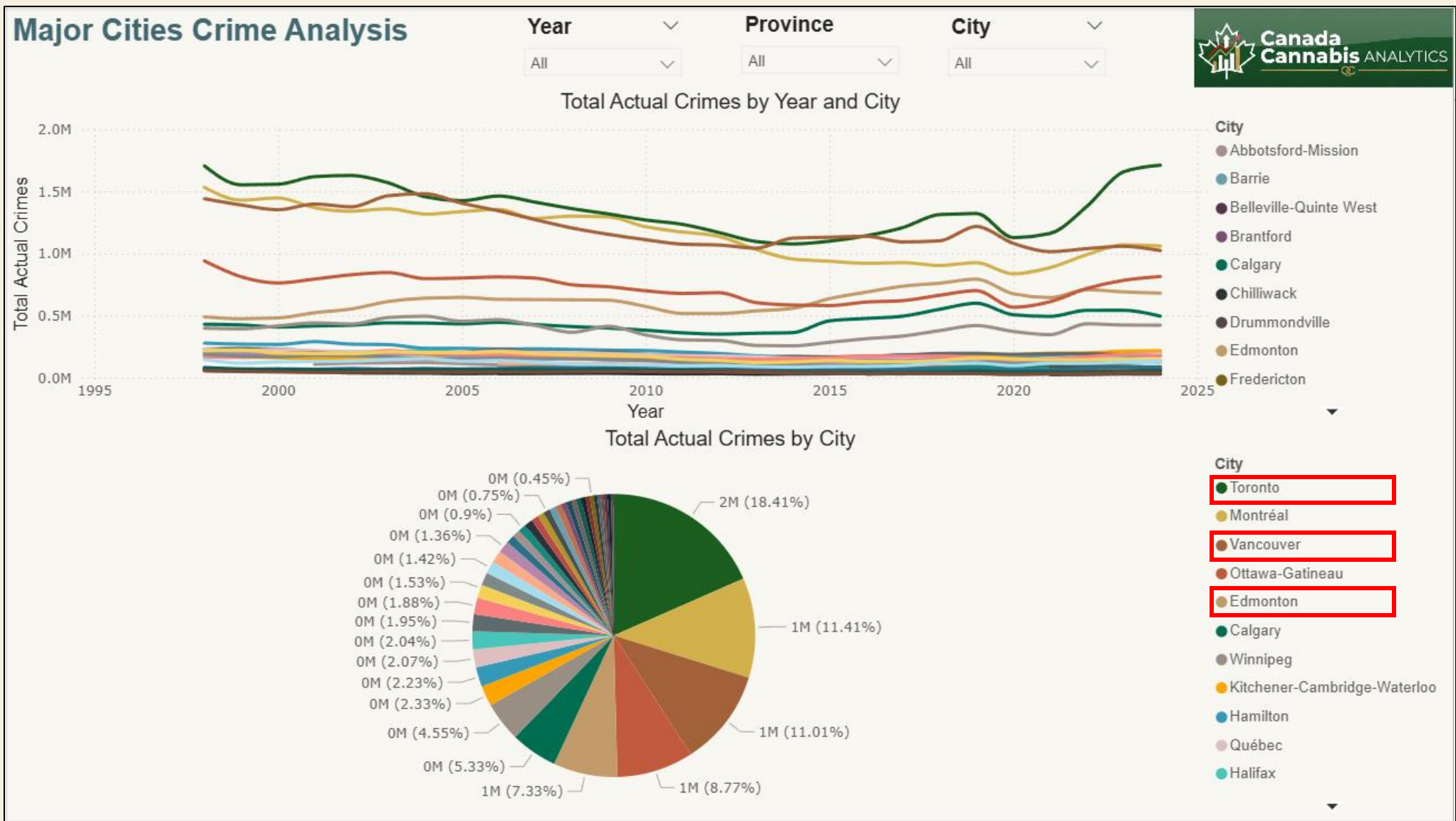
Results



Results



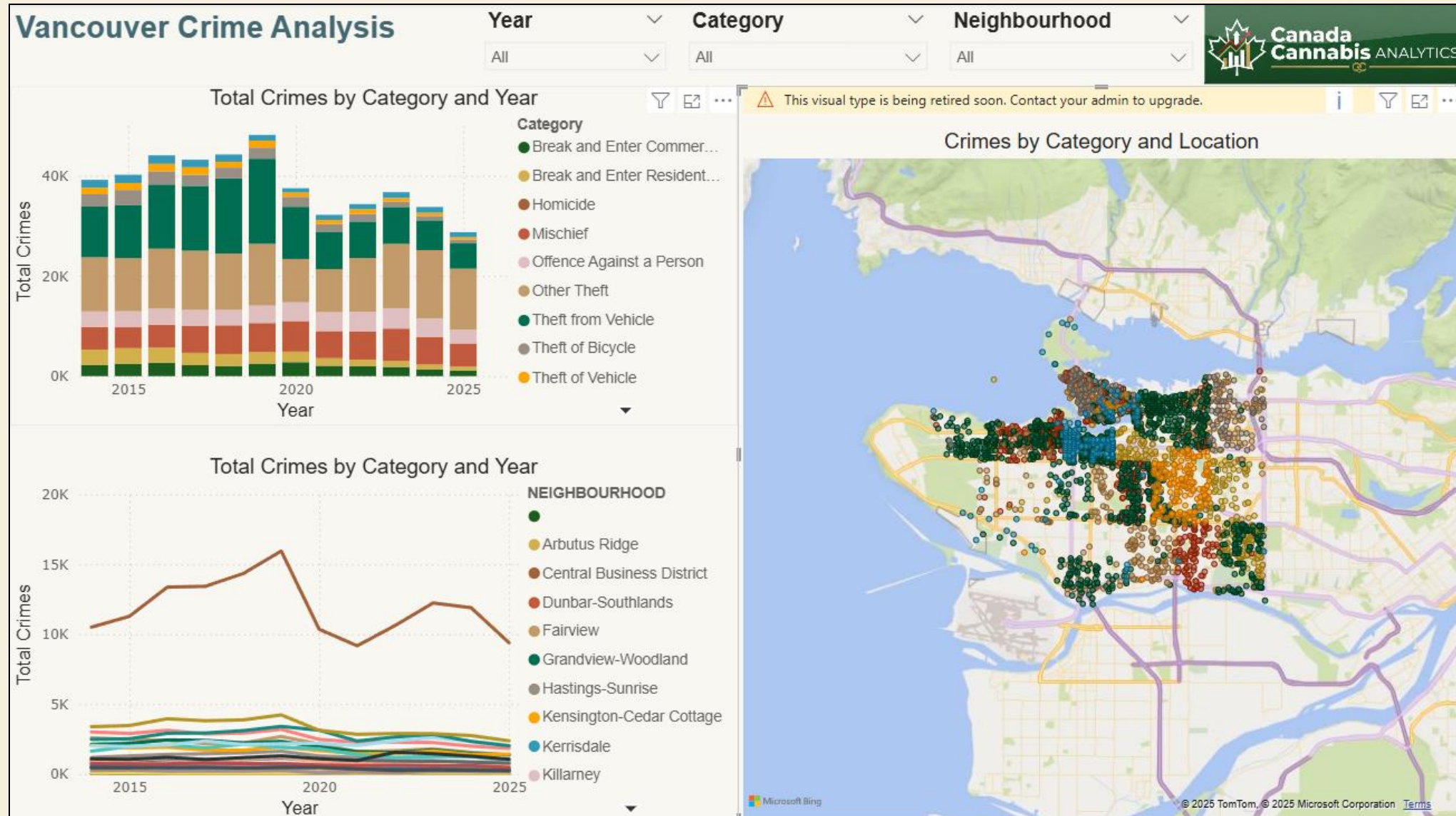
Results



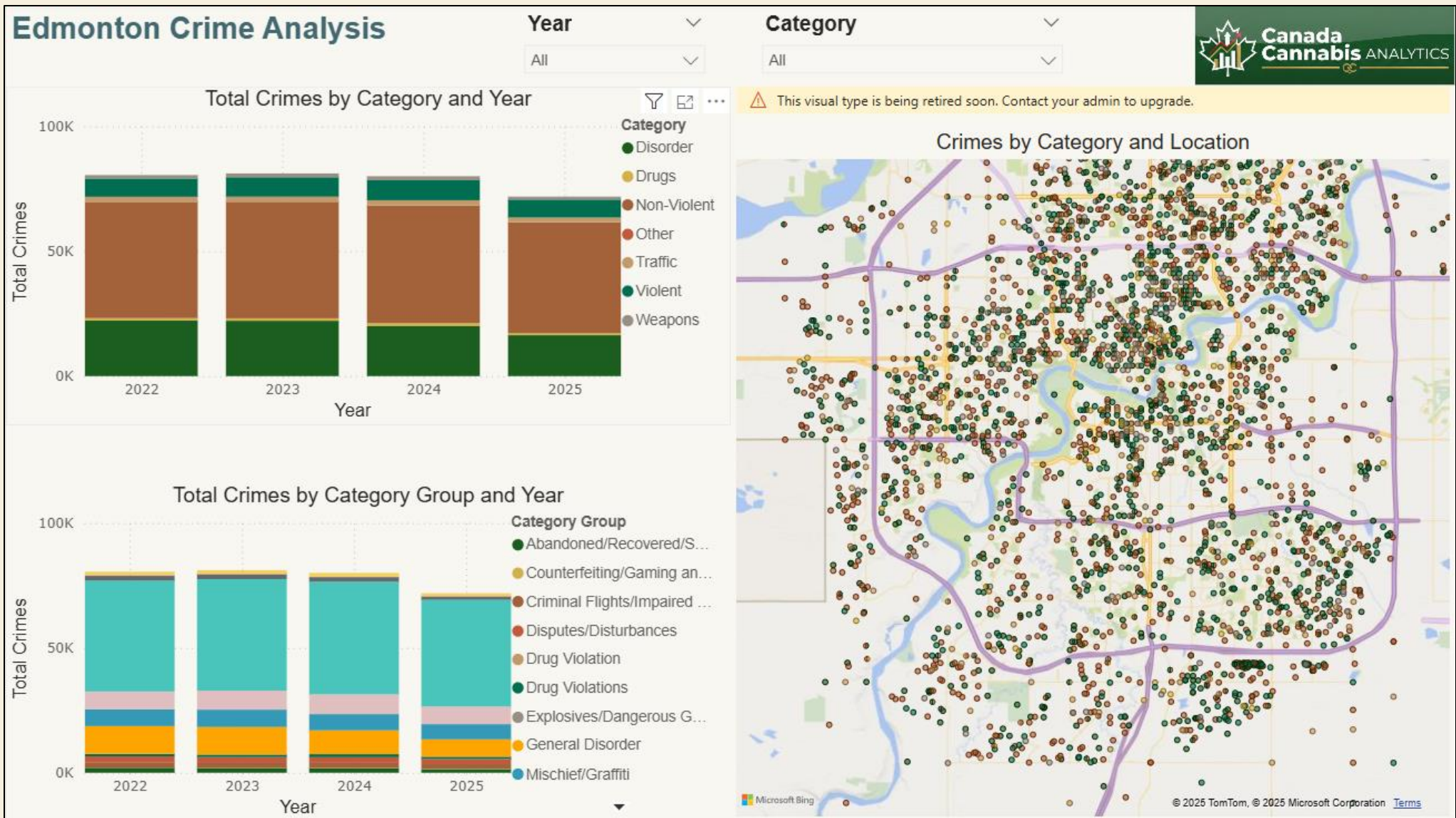
Results



Results



Results



Discussion

Market Dynamics

The market is reaching **maturity**. Provincial regulations directly influence outcomes—Alberta's open model boosted access, while BC's cautious rollout may have allowed the illegal market to persist longer.

Social Cost?

Cannabis retail density shows only a weak association with crime, but the parallel rise in cannabis sales and crime incidents from 2018 to 2025 suggests the need for careful policy evaluation.

Challenges Faced



Spatial Accuracy: Retail addresses needed precise geocoding, but some "social cost" events lacked granular coordinates.



Data Inconsistency: Municipal datasets varied significantly in structure and column definitions, requiring extensive cleaning.



Volume: Processing 6.77 million rows required memory-aware pipelines and optimized chunking strategies.



Defining KPIs: "Social Cost" is a broad concept; selecting meaningful metrics (severity, per capita burden) was critical.

Conclusion

- Canada's legalization of cannabis created a **\$4.5-billion industry** that grew rapidly until 2022 before stabilizing, signaling a transition into a mature market.
- Provincial regulatory differences produced notable disparities: Alberta's open-market approach resulted in the **highest per-capita consumption despite only 11% of the population**, while Ontario's slower lottery rollout ultimately captured **37.76% of national market share**.
- These contrasting regulatory frameworks clearly influenced **market development, retail expansion, and consumer adoption**, demonstrating that policy design directly shapes industry outcomes.
- Although early research showed only weak links between cannabis retail density and crime, **2018–2025 trends reveal parallel increases in sales and crime incidents**, suggesting a potential contributing relationship that warrants **serious policy review**.

Future Work

- Current findings offer a useful foundation for understanding cannabis policy impacts, but deeper investigation is needed to clarify any connections between expanding cannabis markets and rising crime rates.
- Future research should incorporate **richer, multidimensional data**, including neighborhood demographics, economic conditions, police resource allocation, and longer-term trend analysis, to capture the full social context.
- Because these issues are interconnected and influenced by multiple factors, analyses must consider the **broader ecosystem** rather than isolating cannabis activity from other social and economic dynamics.
- As Canada's cannabis landscape continues to evolve, and as other regions consider similar reforms, ongoing **comprehensive data collection and rigorous evaluation** will be essential for balancing public safety with responsible industry growth.

References

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