

Charting the Course Data Literacy for Modern Policing

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PROTECTED A

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Agenda

Data In Policing

Where we started, where we are now, current opportunities

Data Democratization

Power, Risks and Responsibilities

Data Democratization & Data Literacy

Why you need both

Data Literacy and the Ethical Use of AI in Policing



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to join

Start AhaSlides





Which of the following best describes what you think of as "data"?

- Numbers and statistics
- Information collected from various sources
- Anything that can be measured or observed
- Raw facts waiting to be processed

Start AhaSlides





Do you use Waze, Google Maps, or a navigation system when driving?

- Yes
- No
- I have no idea what you're talking about

Start AhaSlides



0/0 0/200



If you use Waze/Google Maps what is your favorite feature?

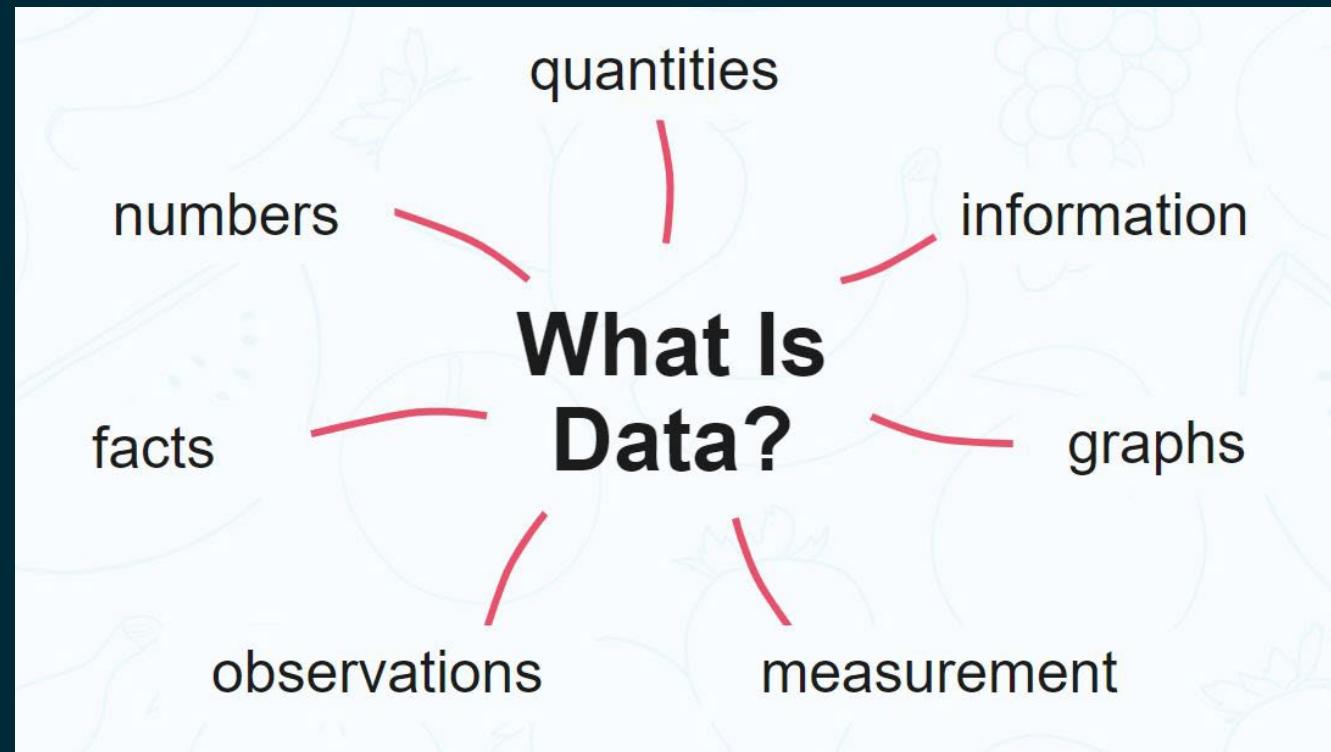
- ETA estimator
- Real Time Traffic Alerts
- Alternative Routes
- Crowd Source Road Conditions
- Voice Assistant Customization

Start AhaSlides



What is Data?

Data is whatever we need to **reconstruct** the reality we are hoping to understand



For Example: Driving

- Location
- Road conditions
- Weather condition
- Cars nearby
- How far away from destination?
- Is your car making any noises?
- Do you smell something?

These are all **data points** we use to understand & assess safety, how we drive, react, etc.



Importance of Data in Policing



Supports evidence-based decision making



Identifies crime patterns and allocates resources efficiently



Enhances operational efficiency and crime prevention



Improves community engagement, transparency and accountability

Data Literacy

Data literacy refers to the ability to **read, understand, analyze, utilize, and communicate** data effectively



Data Democratization

Making data **accessible** to all individuals within an organization, regardless of their role or technical expertise so they have the **information they need to make informed decisions**



Data in Policing

Where we started



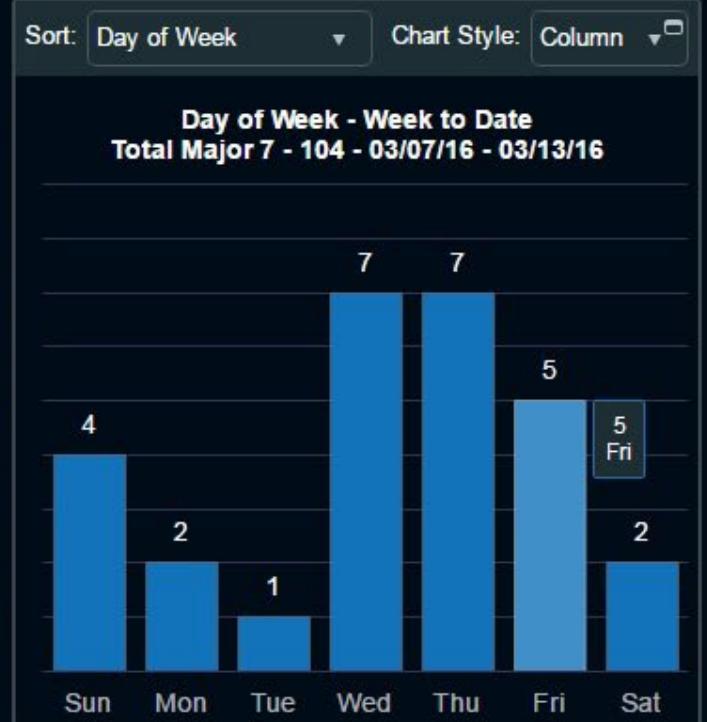
Patrol Borough: Queens North ▾ Precinct: 104 ▾



NYPD CompStat 2.0



CompStat Book				Week of 03/07/16 - 03/13/16			
	Week to Date			28 Day			% Chg
	2016	2015	% Chg	2016	2015	% Chg	
Murder	0	0	0.0 %	0	0	0.0	
Rape	1	0	- %	2	0	-	
Robbery	4	6	-33.3 %	9	16	-43.8	
Felony Assault	8	4	100.0 %	22	13	69.2	
Burglary	5	6	-16.7 %	19	26	-26.9	
Grand Larceny	8	8	0.0 %	37	28	32.1	
Grand Larceny Auto	2	3	-33.3 %	12	16	-25.0	
Total	28	27	3.7 %	101	99	2.0	
Patrol	28	27	3.7 %	98	99	-1.0	
Transit	0	0	0.0 %	3	0	-	
Housing	0	0	0.0 %	0	0	0.0	



E Division at a Glance - Crime Rate per 1,000 population

How to navigate the dashboard:
 Hover over charts for more details, or click to filter other visualizations.
 Click jurisdictions on map to filter stats.

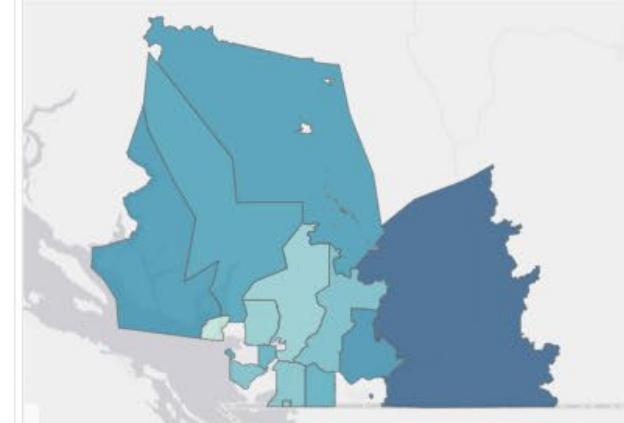
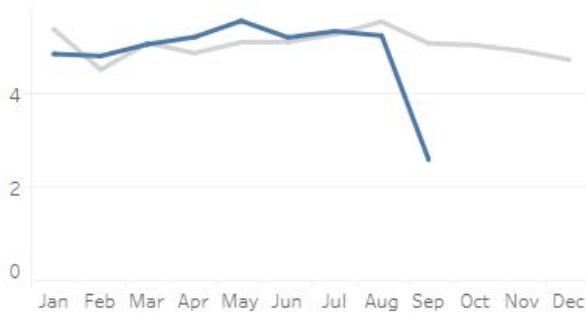
Select Metric
 Crime Rate per 1,000 population

Lower Mainland District

43.60

PERSONS VIOLENT CRIME	2024	10.60
	2023	
PROPERTY CRIME	2024	28.19
	2023	
CDSA OFFENCES	2024	3.15
	2023	
TRAFFIC OFFENCES	2024	2.24
	2023	

All UCR Type

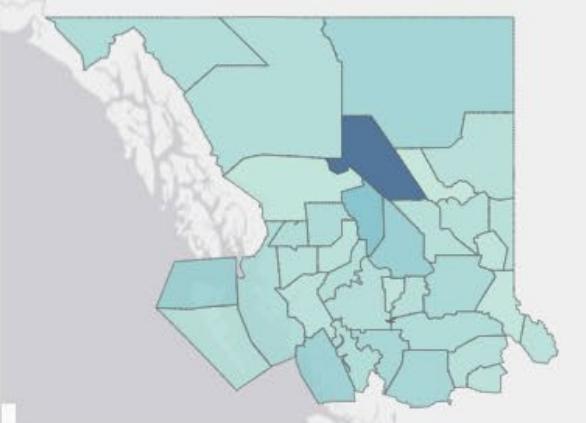
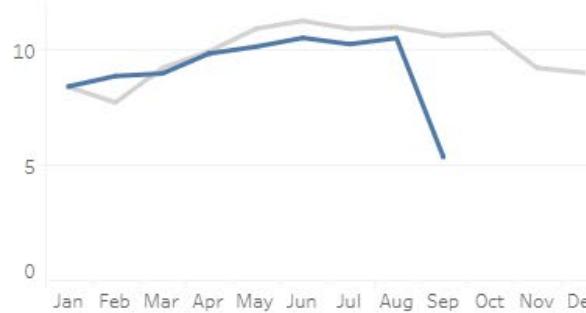


North District

82.71

PERSONS VIOLENT CRIME	2024	24.20
	2023	
PROPERTY CRIME	2024	53.06
	2023	
CDSA OFFENCES	2024	2.06
	2023	
TRAFFIC OFFENCES	2024	5.25
	2023	

All UCR Type

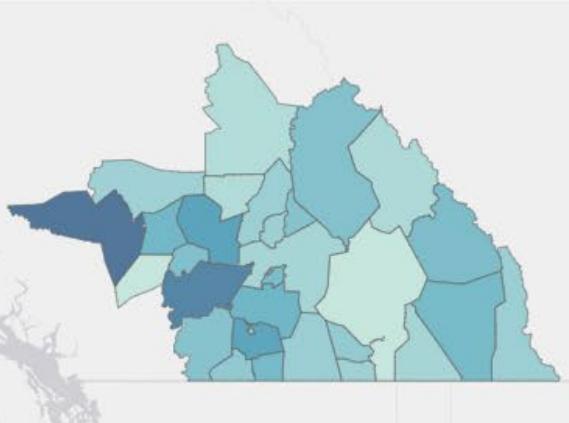


Southeast District

62.09

PERSONS VIOLENT CRIME	2024	16.24
	2023	
PROPERTY CRIME	2024	42.29
	2023	
CDSA OFFENCES	2024	1.44
	2023	
TRAFFIC OFFENCES	2024	3.28
	2023	

All UCR Type

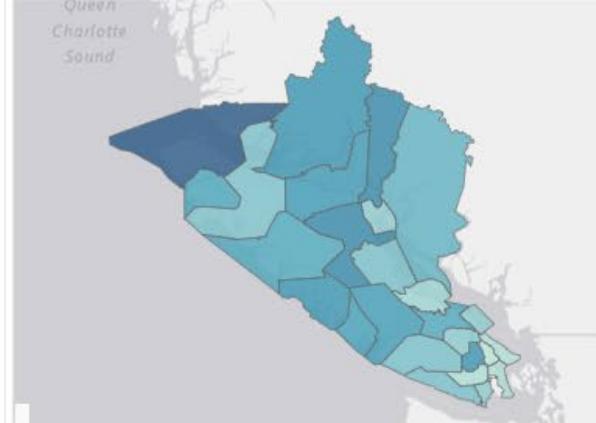
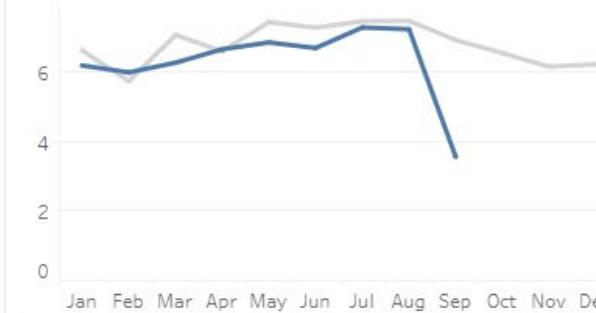


Island District

56.64

PERSONS VIOLENT CRIME	2024	16.47
	2023	
PROPERTY CRIME	2024	35.30
	2023	
CDSA OFFENCES	2024	1.76
	2023	
TRAFFIC OFFENCES	2024	4.27
	2023	

All UCR Type



'Defund the police' calls in Canada began in 2020. Today, budgets continue to climb

Loss of public confidence in policing a 'serious problem'

Data transparency helps builds public faith in police

In order to gain the trust of communities, it's critical for police to provide visibility into processes and accountability for actions.

Data in Policing

Where we are now





<h3>Assault</h3> <p> 4,260</p> <p>▼ -3.2% from last year (4,399)</p>	<h3>Attempt Murder</h3> <p> 20</p> <p>▼ -16.7% from last year (24)</p>	<h3>Break and Enter - Residential</h3> <p> 953</p> <p>▲ 10.6% from last year (862)</p>	<h3>Break and Enter - Commercial</h3> <p> 651</p> <p>▲ 4.2% from last year (625)</p>
<h3>Drug Violations</h3> <p> 564</p> <p>▼ -1.7% from last year (574)</p>	<h3>Robbery</h3> <p> 360</p> <p>▼ -3.2% from last year (372)</p>	<h3>Sexual Violations</h3> <p> 324</p> <p>▼ -25.7% from last year (436)</p>	<h3>Theft of Motor Vehicle</h3> <p> 2,408</p> <p>▼ -29.7% from last year (3,423)</p>
<h3>Theft Over \$5000</h3> <p> 524</p> <p>▼ -0.8% from last year (528)</p>	<h3>Homicide</h3> <p> 16</p> <p>▲ 60% from last year (10)</p>	<h3>Weapons Violations - Firearm</h3> <p> 126</p> <p>▼ -19.7% from last year (157)</p>	<h3>Weapons Violations - Other</h3> <p> 276</p> <p>▼ -34.3% from last year (420)</p>



Filters

* data available: 2023 to date

Municipality

All

Occurrence Date

30 Days

Predefined Custom Date

7 days

30 Days

60 Days

180 Days

365 Days

All

Reset

Occurrence Groupings

Primary Secondary All

 Arson Assaults Attempt Murder Break and Enter - Commercial Break and Enter - Residential Drug Violations

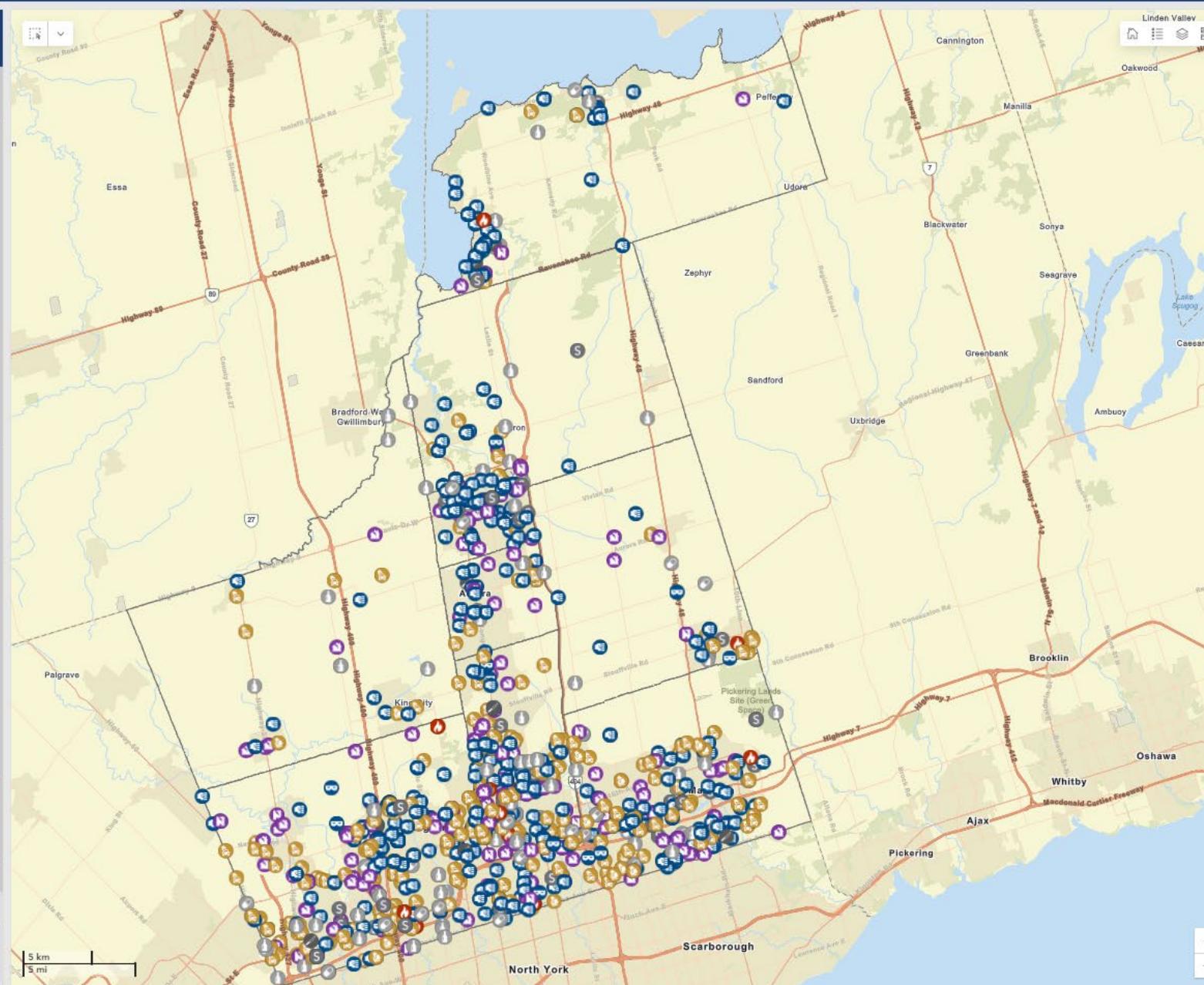
Reset

Select all

Occurrence Flags

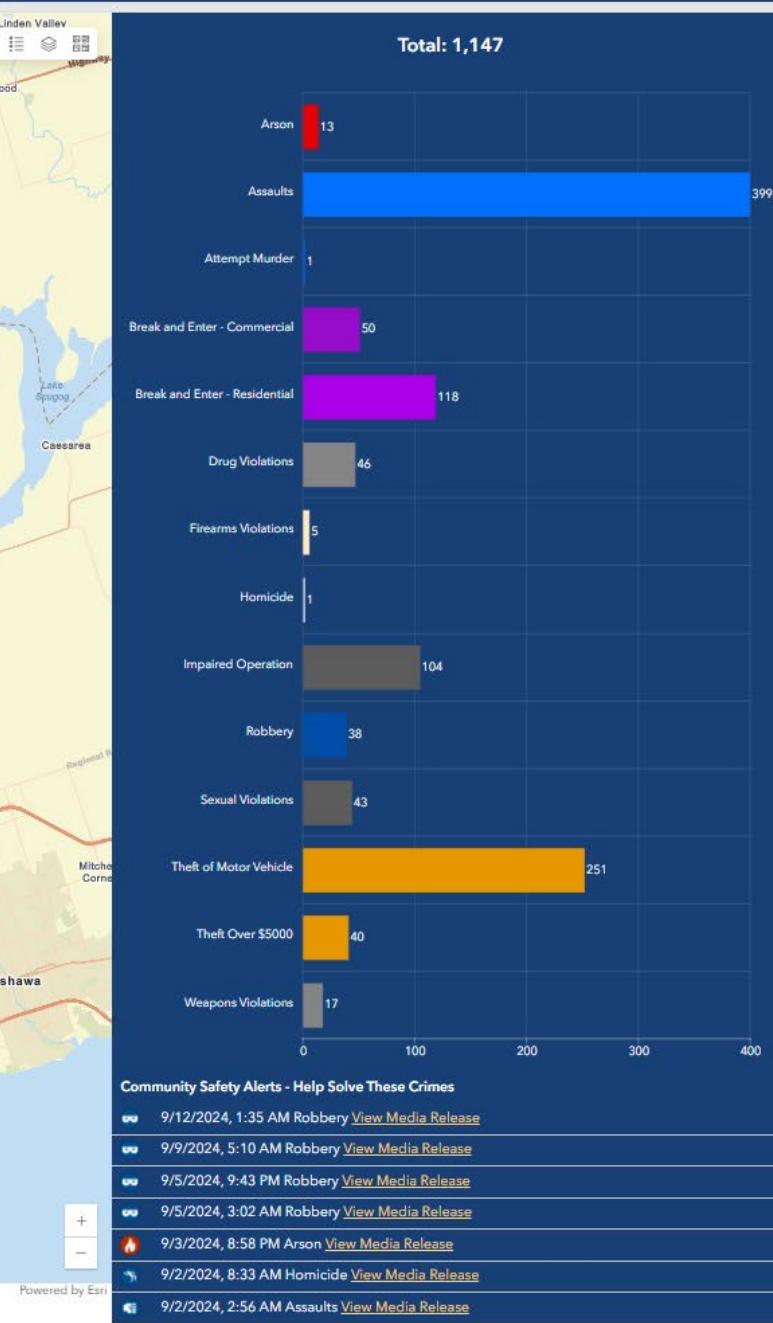
 Violent Crimes Shootings Hate Crimes

Community Safety Alerts

 Media Releases

Province of Ontario, York Region, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada

* Points on the map are not the exact locations, refer to full disclaimer for more details. Data is current as of yesterday.





Filters

* data available: 2023 to date

Municipality

All

Occurrence Date

30 Days

Predefined Custom Date

7 days

30 Days

60 Days

180 Days

365 Days

All

Reset

Occurrence Groupings

Primary Secondary All

 Arson Assaults Attempt Murder Break and Enter - Commercial Break and Enter - Residential Drug Violations

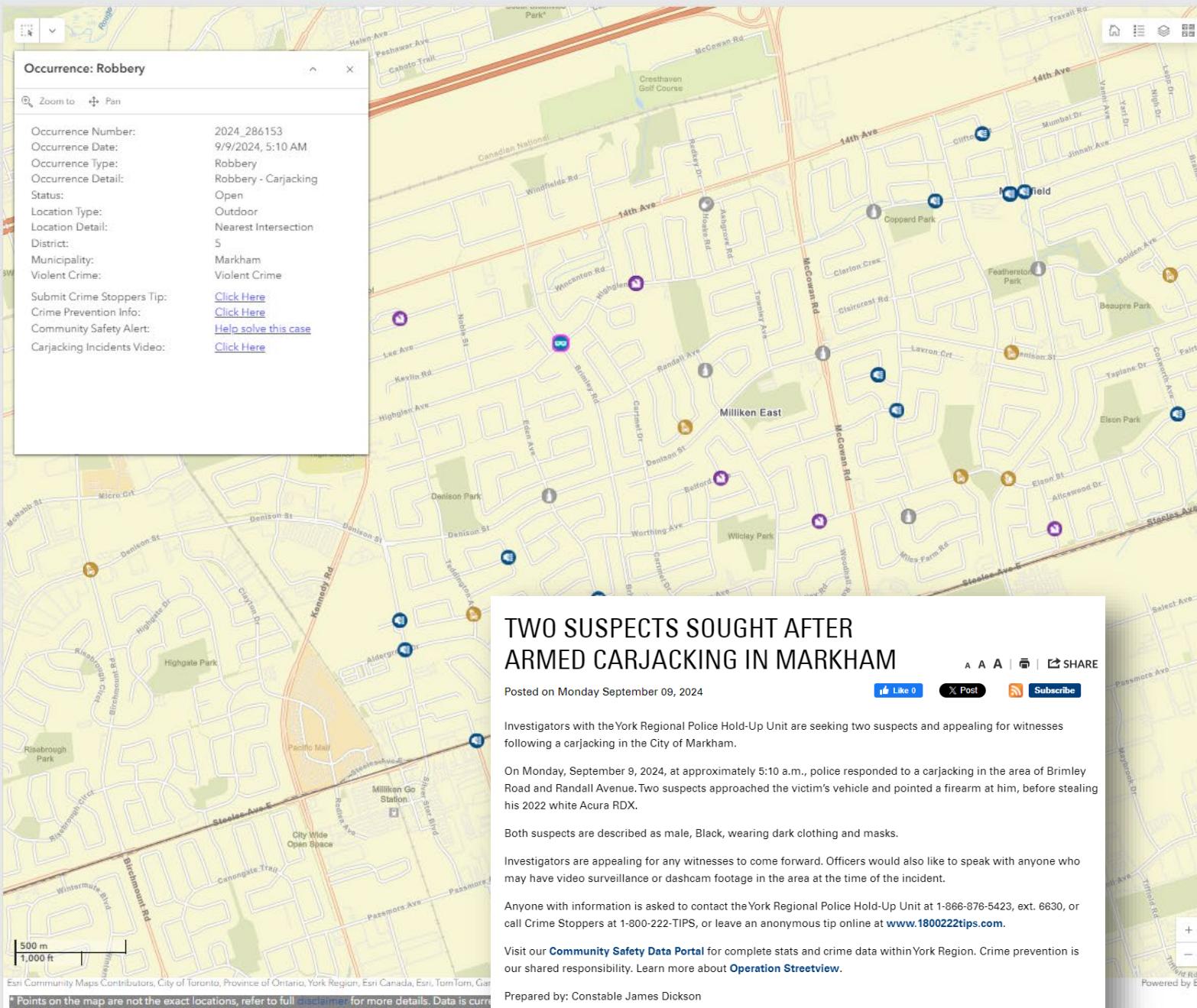
Reset

Select all

Occurrence Flags

 Violent Crimes Shootings

Community Safety Alerts

 Media Releases

Total: 47



Community Safety Alerts - Help Solve These Crimes

9/9/2024, 5:10 AM Robbery [View Media Release](#)



Economics of Front Line Policing | Economics of People and Places

Fixed Period: Last 30 Days

Defined Period: Last 30 Days

Organization: Location

Call Types: Priority: All

Generated by: Citizen, Officer

Initial or Final Call Type: Final

Call Types: PARKING COMPLAINT, PERSON IN CRISIS, PRISONER MEAL, PROJECT READY, PROPERTY DAMAGE, PROPERTY FOUND, PROPERTY LOST, PROPERTY TRANSPORT, PROWLER, PUBLIC ORDER DEPLOYMENT

Call Remarks: Occurrence Number: Occurrence Type: Show visual with: Call Type, Case Type. Select a Metric: Cost of Calls, Total Calls. Reset, Update.

Costs

Total Costs

Variance Trend: +39.6% **\$212.39K** (Calls: 201, Hours: 1,567:11)

Monthly Average: \$ 319,936

Sep. 2023 to Aug. 2024

Summary

	Hours Spent on Call	Cost of Call	Rolling 12 Month Cost Trend
Average	7:47:49	\$ 1,056.68	
Median	6:40:52	\$ 926.72	
Maximum	69:15:55	\$ 9,325.03	
Minimum	0:20:44	\$ 24.83	

Call Type Distribution

Final Call Type	Calls	Total Hours	Cost of Calls
PERSON IN CRISIS	201	1,567.2	\$212,392
TOTAL	201	1,567.2	\$212,392

District Metrics

District	Cost of Calls
District 4	55,042
District 2	48,957
District 1	48,308
District 5	43,439
District 3	10,646

Municipality Metrics

Municipality	Cost of Calls
VAUGHAN	60,044
RICHMOND HILL	43,176
MARKHAM	37,135
NEWMARKET	23,886
GEORGINA	16,646
AURORA	10,915
EAST Gwillimbury	9,777
WHITCHURCH-STOWE	7,085
KING	3,730

Sector Metrics

Sector	Cost of Calls
Sector 22	22,82
Sector 41	22,67
Sector 23	15,412
Sector 13	13,849
Sector 31	13,141
Sector 46	12,372
Sector 12	11,654
Sector 11	10,915
Sector 52	10,754
Sector 44	9,496
Sector 14	9,454
Sector 53	9,151

Location Distribution

District	Sector	Calls	Total Hours	Cost of Calls
District 1	Sector 13	17	94.6	\$13,849
	Sector 12	13	83.7	\$11,654
	Sector 11	8	78.0	\$10,915
	Sector 14	8	65.2	\$9,454
	Sector 15	3	15.5	\$2,426
District 2	Sector 22	18	172.7	\$22,824
	Sector 23	15	114.9	\$15,412
	Sector 21	6	45.9	\$5,782
	Sector 24	4	38.1	\$4,940
	Sector 31	8	95.6	\$13,141
District 3	Sector 32	3	23.0	\$3,504
	Sector 41	17	170.5	\$22,671
	Sector 46	10	93.3	\$12,372
	Sector 44	8	73.6	\$9,496
	Sector 45	5	44.4	\$5,628
District 4	Sector 42	6	24.2	\$3,123
	Sector 43	3	12.1	\$1,752
	Sector 52	12	80.8	\$10,754
	Sector 53	12	66.2	\$9,151
	Sector 54	7	61.2	\$8,348
District 5	Sector 51	8	63.6	\$8,101
	Sector 55	10	49.9	\$7,085
	TOTAL	201	1,567.2	\$212,392

22 of 22 records, Page 1 of 1

Data in Policing

Current Opportunities



B.C.'s human rights commissioner to hold inquiry into use of force by police

This inquiry will focus on the use of force by police against racialized people and those with mental health issues in B.C.

US police use force on 300,000 people a year, with numbers rising since George Floyd: 'relentless violence'

CRIME

Officer failed to de-escalate, used unnecessary force in Toronto shooting: report

POLICE AND LAW ENFORCEMENT

FBI releases new details on police use of force as public grapples with distrust



Use of Force - Subject

UoF Report Year

2023

Subject Flag Group*	Race
(All)	All

Race and Subject Flag set to ALL to view all UoF data

324 Subjects' Residency - Race: All

York Region Residents: 123
Non York Region Residents: 107
Residency Unknown: 94

Armed



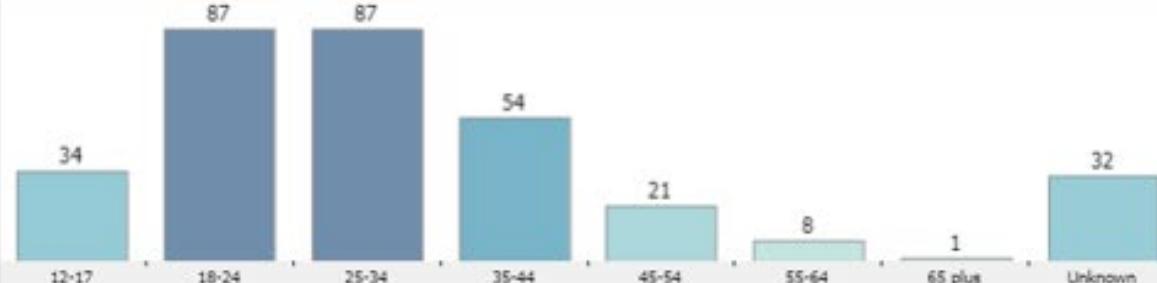
215 Subjects (66%)

Unarmed



109 Subjects (34%)

Age Group (Solgen's data)



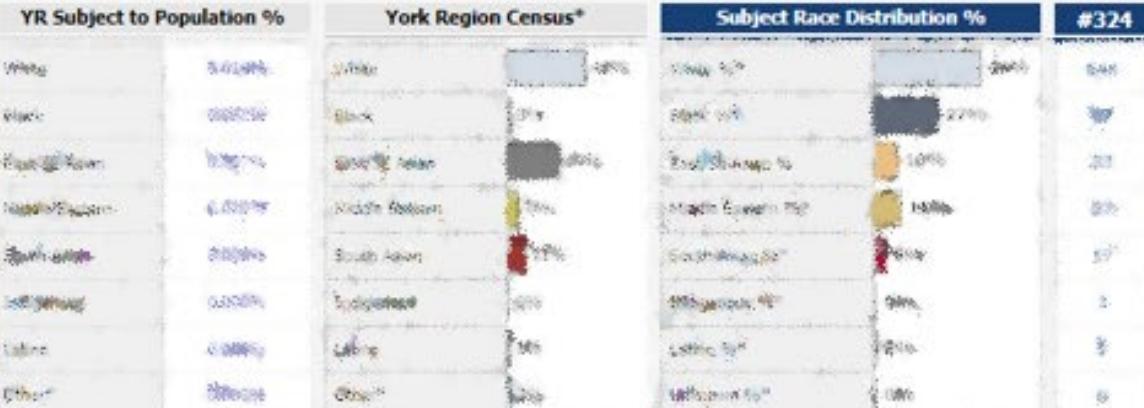
*Due to Subject Residency Data Collection Process, We are not able to use YR residents as a filter to further slice the dataset.

Census Year

York Region Resident?

2023 (All)

Subject Race vs. York Region Population



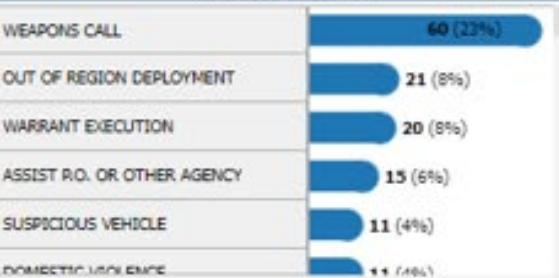
Use of Force 265 Incidents

Use of Force 421 Reports

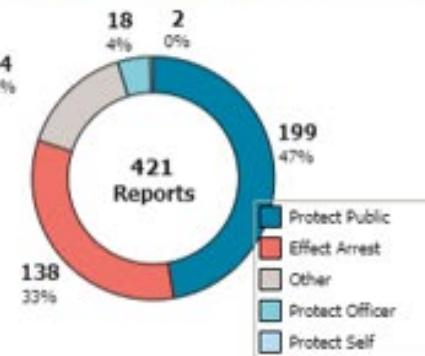
Subject Used Weapon Category



Initial Call Type

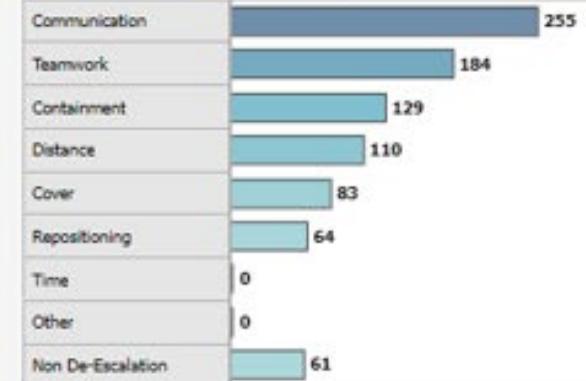


Officer - Reason of Force Used



De-Escalation Efforts

Per UoF Report



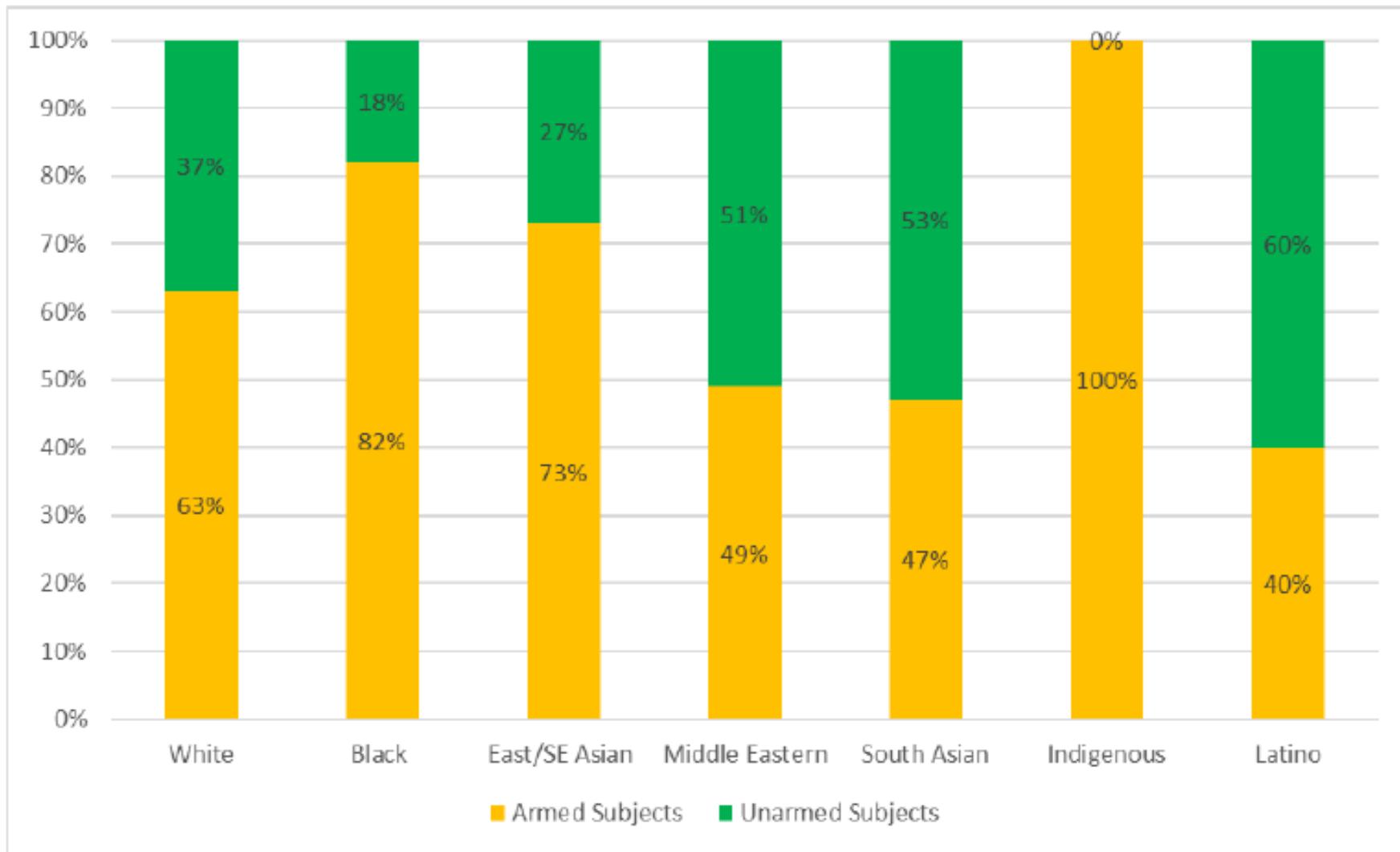
*Firearm discharged does not include active SIU investigation

Officer - Type of Force (Total 634)



Figure #12B

ARMED VS. UNARMED SUBJECTS BY RACE



The police wellness crisis: New research and recommendations

The “What Cops Want in 2024” survey results indicate that the work of policing exacts a heavy toll on the health and wellness of those who serve and protect our communities

June 27, 2024 08:54 PM • David Black, Ph.D.

The depth of the crisis

The stress of police work manifests in various high-impact ways, with officers reporting the following consequences specifically resulting from their work-related stress:

- 71% struggled with sleep disturbances.
- 50% experienced heightened anger.
- 50% indicated relationship or family issues (such as arguments, tension, or conflicts)
- 39% were affected by depression.
- 36% endured anxiety or panic attacks.
- 35% reported Post-Traumatic Stress, PTSI, or PTSD
- An alarming 11% harbored suicidal thoughts specifically due to work stress.



Organizational Wellness Supervisor Wellness Member Wellness

Call Intensity

Automated Intense Call(s) by Tier

Switch to Scores / Drill to Intense Calls

154

Call(s)

Call Count Changes

4

Previous Count: 168 Current Count: 154
Percent Change: -3%

Score Changes

-1525

Previous Score: 8065 Current Score: 6540
Percent Change: -19%

Work Life Balance

Exception Hour Summary

7,348

Exception Hours

Exception Changes from Previous Period

3,500 - 3,000 - 2,500 - 2,000 - 1,500 - 1,000 - 500 0 500 1,000

Member Intensity Call Score and Tier

Member Self Report Score and Tier

Member	Automated Tier Count	Automated Score	IoD	UsF
12345678901234567890	1 4 2 7	165		
12345678901234567890	4 2 1 11	160		
12345678901234567890	3 4 1 10	155		
12345678901234567890	3 3 2 5	155		
12345678901234567890	7 1 2 11	125		
12345678901234567890	4 1 4 9	110		

140 of 140 records. Page 1 of 1

Member Schedule List

Member	Interruption Count	Interruption Hours	Vol. Time Off Hours	Sick Hours	Paid Duty Hours
12345678901234567890	12	312.0	56.0	12.0	0.0
12345678901234567890	1	56.0	52.0	0.0	0.0
12345678901234567890	8	28.0	30.0	0.0	0.0
12345678901234567890	8	45.0	38.0	12.0	0.0
12345678901234567890	8	45.0	49.0	0.0	14.0
12345678901234567890	5	49.0	12.0	0.0	0.0

Personal

0 Self Reported Experiences

Legend

- Non-Intense
- Tier 0
- Tier 1
- Tier 2
- Tier 3
- Tier 4
- On Work Exception
- Voluntary Time Off
- Sick/Bereavement
- Paid Duty

RCMP misses deadline for employees to complete mandatory anti-racism training

The 3-hour online course “Uniting Against Racism” was introduced as part of the Vision 150 program brought in by Brenda Lucki when she took over.

Ten years after Moncton shootings, RCMP still struggling with supervisor training



Mass Casualty in Nova Scotia Report

Training

It is essential that police officers have the skills and training they need to respond to critical incidents. We have updated our training and have implemented several changes to address topics including:

- Public alerting
- The Incident Management Intervention Model
- De-escalation
- Immediate Action Rapid Deployment
- Carbines
- Using night vision devices during rural operations
- Breaching (forced entry) techniques
- First aid
- Roll out of body-worn cameras

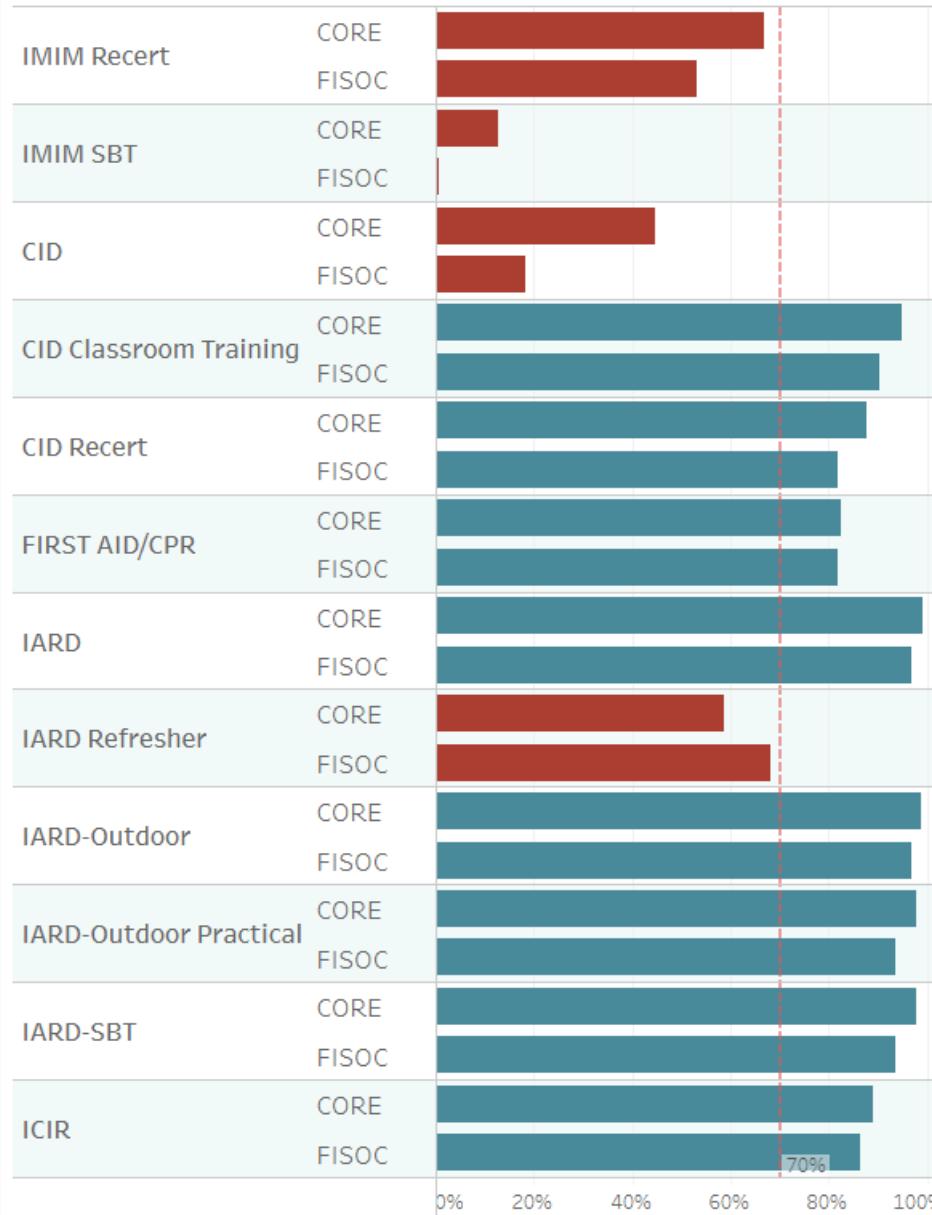
In Nova Scotia, the RCMP has exceeded benchmarks in all areas of operational training. For instance:

- 93% of operational police officers are Immediate Action Rapid Deployment trained
- 91% of operational police officers are Initial Critical Incident Response 100 trained
- 76% of operational frontline supervisors are trained in Initial Critical Incident Response 200
- 82% of frontline police officers are carbine trained and current

A new mandatory training model will begin in April 2023 and include the following:

- Vehicle and exterior tactics
- Refresher of the Immediate Action Rapid Deployment – designed to maintain officer safety skills related to responding to an active threat
- Scenario-based training – 100+ standardized operationally-relevant scenarios which incorporate real-time decision-making, the Incident Management Intervention Model, and de-escalation techniques, informed by actual public and police encounters

E Division Compliance Rate per Course



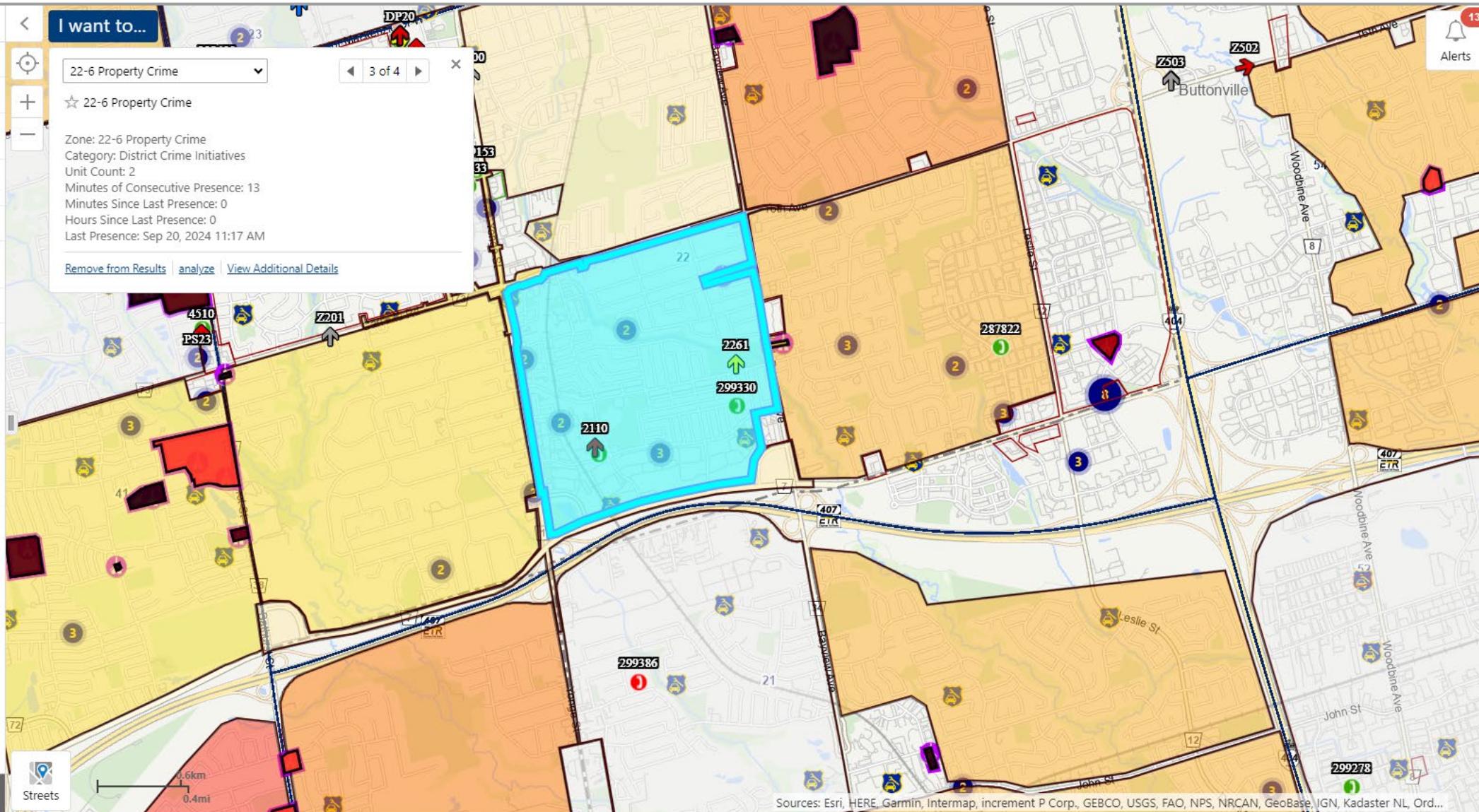
Data Democratization

Making data **accessible** to all individuals within an organization, regardless of their role or technical expertise so they have the **information they need to make informed decisions**





- Area of Interest Results (29) ...
- (2) Current Unit Positions ...
- (2) Live Calls For Service ...
- (5) Priority Patrol Zone Presence Analytics ...
- (2) Places of Worship/Institutions Priority Patrol Zones ...
- (5) Priority Patrol Zones ...
- (12) Theft Of Vehicle Occurrences (Previous 90 Days) ...
- (1) Demographics (CA) ...



Power of Democratizing Data

Empowers Officers

Gives frontline officers the tools to make data-driven decisions

Improves Efficiency

Sharing of information between departments and units enhances operational efficiency

Increases Transparency

Enhances accountability by allowing more people to access and understand the data

Risks of Democratizing Data

Potential for Bias

Bias is inherent in data, especially in policing, where crime data may contain racial or social bias

Inconsistent Reporting

Proper interpretation requires a deep understanding of the complexity of police data

Privacy Concerns

Police departments have access to data sets containing sensitive personal information

Filters

Fixed Period

Defined Period

Last 30 Days

Organization

Location

Call Types

Occurrence Type

When you select any filters here, you will filter out notebooked calls

Criminality

All

Crime Category

All

Crime Sub Category

All

Crime Types

All

12 HOUR SUSPENSION

24 HOUR NOVICE SUSPENSION

ABDUCT CONTRAVENE CUST ORDER

ABDUCTION - SUSPECTED

ABDUCTION <14

ABDUCTION <16

ABDUCTION NO CUSTODY ORDER

Study Flag

Dates

Fixed Period

Defined Period

Last 6 Months (183 days)

Select Count Option

 UCR Count Occurrence Count Founded Unfounded Report

Location

Crime Filters

Category

Groups

Criminality

 Crime Non-Criminal

Crime Category

ALL

Crime Sub Category

ALL

Crime Types

ALL

12 HOUR SUSPENST

Fixed Period

Defined Period

Last 30 Days

Organization

Location

Call Filters

Priority

ALL

Generated by:

 Citizen Officer

Dispatched Indicator:

 Dispatched Non Dispatched

View Type:

 Dispatched Officer/Officer

Initial or Final Call Type: Final

ALL

ABANDONED VEHICLE

ABDUCTION

ABSENT CHILD INVESTIGATION -

ABUSE CHILD

ABUSE ELDER

ACCIDENT FARM

ACCIDENT INDUSTRIAL

ADVISED 911 CALL

AIRCRAFT

Keyword Search

Reload Filters

Update

Active Parameters

From Date: 2024/09/17

To Date: 2024/09/15

District: All

Responsibility of Democratizing Data

Data Understanding

Ability to assess the bias that exists in the data being evaluated and presented

Analyze Data Effectively

Requires a deep understanding of the complexity of police data

Ethical Use

"just because you can doesn't mean you should"

Data Literacy

Data literacy refers to the ability to **read, understand, analyze, utilize, and communicate** data effectively



Data Democratization



Data Literacy

Democratizing data can empower police officers and enhance policing efforts

Realizing the potential and mitigating the risks of democratization requires that police agencies train their personnel in data literacy

Together, they lead to **smarter**, more **efficient**, and more **transparent** policing

Data Literacy and Ethical Use of AI in Policing





How Familiar are you with generative AI technologies (ChatGPT, Copilot, etc)?

- Very Familiar – I use generative AI regularly
- Somewhat Familiar – I've explored it but don't use it often
- Slightly Familiar – I've heard of it but haven't used it
- Not familiar at all

Start AhaSlides





TOWARDS RESPONSIBLE AI INNOVATION

SECOND INTERPOL-UNICRI REPORT ON ARTIFICIAL INTELLIGENCE FOR LAW ENFORCEMENT



Hot spot mapping – the collection of historic crime data from local law enforcement departments, combined with additional datasets, including weather predictions, police patrol history and criminological knowledge, to predict crime hot spots in a jurisdiction.

Deployment of resources on demand – the allocation of police resources (i.e., personnel, vehicles and equipment) based on the actual demand for the area in which crime hot spots have been identified.

Patrol route scheduling – the use of identified hot spots to optimize patrol routes and schedules.

Dispatch of resources for calls – dispatching the nearest available resources to respond to service calls based on their predicted response time.

Response route plotting – identifying the optimal route by factoring in distance and time and then deploying the resource(s) based on availability and optimal response time.

(FATE) Principles and Data Literacy in Law Enforcement



Fairness

- Recognize & mitigate biases in data & algorithms
- Officers equipped with data literacy can critically assess the data sources used in AI systems. This understanding helps identify potential biases that may reinforce systemic inequalities.
- Ensure AI doesn't perpetuate inequalities

Accountability

- Understand AI limitations & risks
- Discern when human intervention is necessary

Transparency

- Explain AI functionalities & limitations to public
- Demystify decision-making processes

Explainability

- Communicate rationale behind AI decisions
- Cultivate trust & justify outcomes



You

how many use of force interactions did york regional police report in 2023



Copilot

In 2023, York Regional Police reported **265 use of force incidents** out of **429,000 interactions** with the public ¹.

This means that the vast majority of their interactions were resolved without the use of force.

Is there anything specific you'd like to know about these incidents or the policies surrounding them?

Learn more

1 bradfordtoday.ca

2 yrpsb.ca

3 yrpsb.ca

4 newmarkettoday.ca

5 wrps.on.ca



• 1 of 30 responses

AI-generated content may be incorrect

How does this compare to the population ?



In 2023, York Region had a population of approximately **1,258,200 residents**¹. With **265 use of force incidents** reported by York Regional Police, this translates to about **0.021 incidents per 1,000 residents**.

Given the population size, the number of use of force incidents is relatively low, indicating that such incidents are rare in the region. This suggests that the police force is generally effective in managing interactions without resorting to force.

Would you like to know more about the measures in place to ensure these numbers remain low?

Learn more

1 york.ca

2 annualreport.yrp.ca

3 yrp.ca

4 york.ca



● 3 of 30 responses

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Here's a breakdown of vehicle theft rates per capita for other municipalities in York Region in 2024:

- **Newmarket:** Approximately 216 incidents per 100,000 residents [1](#).
- **Aurora:** Around 190 incidents per 100,000 residents [2](#).
- **East Gwillimbury:** About 180 incidents per 100,000 residents [3](#).
- **Georgina:** Roughly 170 incidents per 100,000 residents [4](#).
- **King:** Approximately 160 incidents per 100,000 residents [5](#).



Guidelines for usage of GenAI

1. Establish Clear Policies

- Develop comprehensive AI usage policies.
- Evaluate risks and benefits prior to deployment.
- Require public consultations for high-risk AI.

2. Implement Robust Risk Assessment

- Conduct thorough risk assessments for each AI tool.
- Monitor deployed AI systems for one year postimplementation.

3. Ensure Transparency and Accountability

- Human In the Loop
- Provide clear documentation on AI capabilities and limitations.
- Implement accountability measures across the AI supply chain.
- Develop

4. Prioritize Privacy and Security

- Obtain legal authority for processing personal data.
- Implement strong security safeguards against data threats.

5. Engage Key Stakeholders

- Consult with legal, privacy, and community experts before deployment.

6. Focus on Low Risk Use Cases

- Use generative AI for low-risk tasks (e.g., drafting documents).
- Avoid high-impact decisions related to sensitive areas.

GenAI Testing

Accuracy Testing:

- Ensuring the AI's outputs are correct and reliable.

Bias and Fairness Testing:

1. Checking for and mitigating any biases in the AI's responses.

Robustness Testing:

1. Ensuring the AI performs well under various conditions and inputs.

Explainability and Transparency:

1. Making sure the AI's decision-making process can be understood and trusted by users.



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There are no unanswered questions.

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Data Literacy for Modern Policing

.....if you want police officers to be data driven then you need to invest in their data literacy

