Locating Justice – The Power of GIS in Law Enforcement

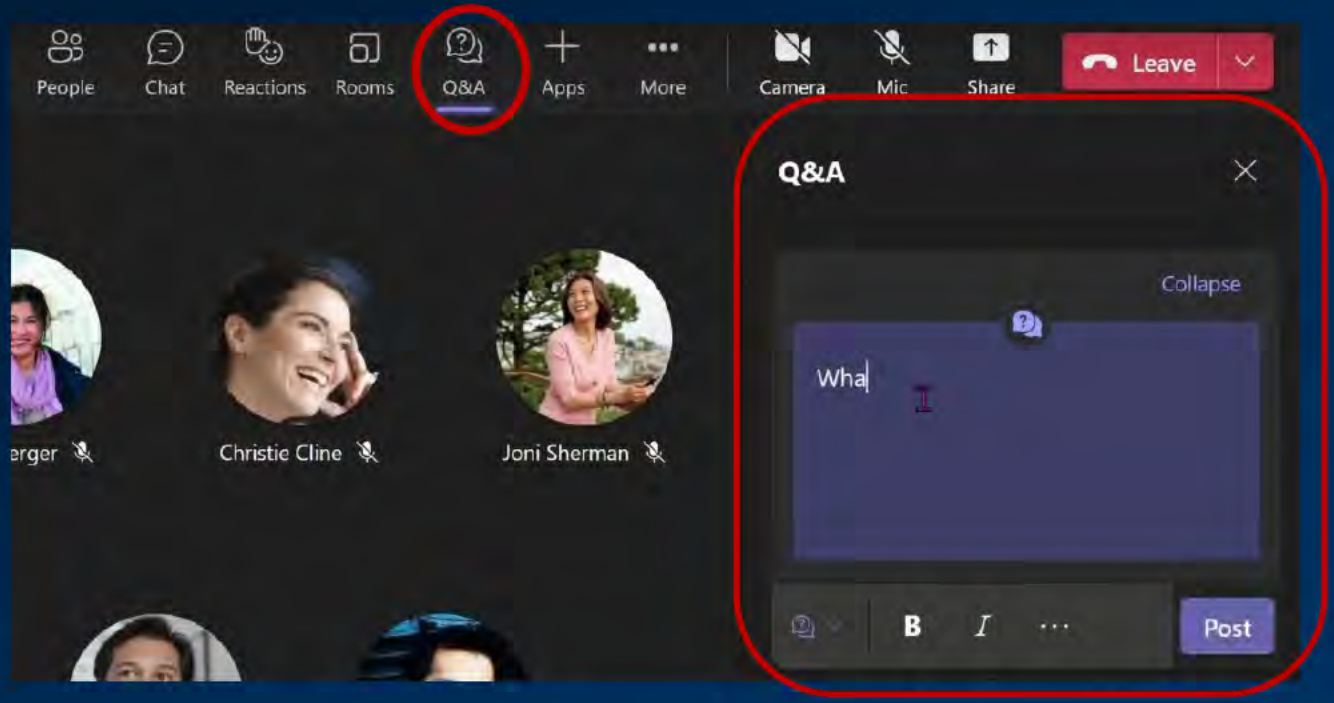
March 13th, 2024

National Alliance for Public Safety GIS (NAPSG) Foundation

napsgfoundation.org | @napsgfoundation

Webinar Prep

- Due to the large attendance, all participants are muted for the duration of the session to prevent background noise.
- Please use the Q&A functionality within Teams for questions that are relevant to the whole group.
- We will address these Q&A throughout the webinar!



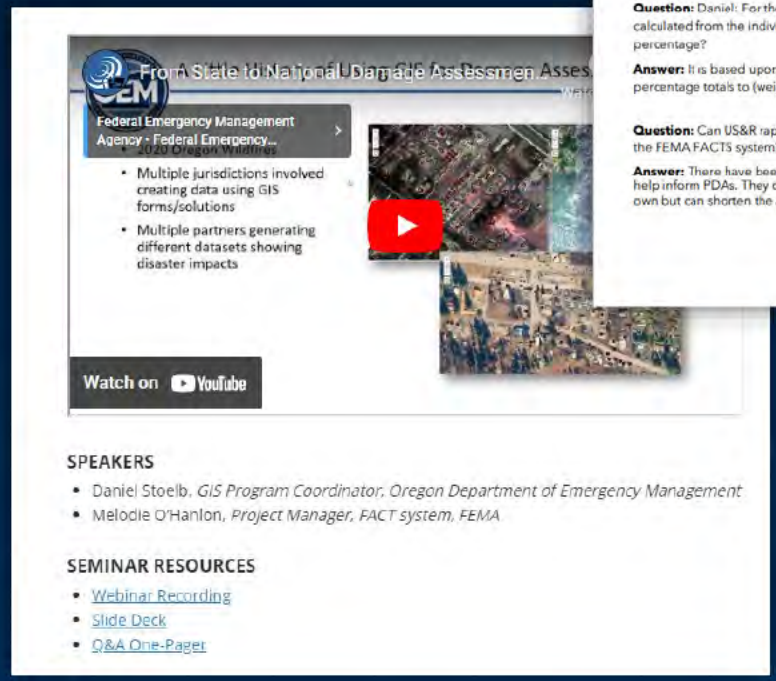
NAPSG Foundation

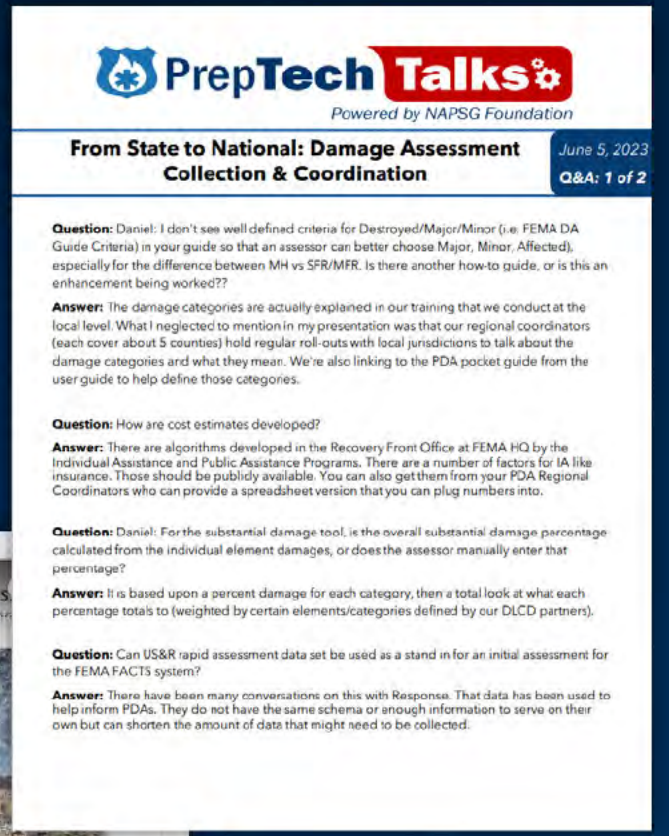
After the webinar

The recording and slides will be made available.

- Materials will be emailed to those who attended.
- Materials will also be posted on the Events Page of the NAPSG Website.

Q&A responses will be posted on the event page.





NAPSG Foundation

Agenda

01

Introduction

NAPSG Foundation

02

GIS in Law Enforcement

Shelby Roberson

Matt Harris

03

Closing

NAPSG Foundation

NAPSG Foundation

01 | Introduction

About NAPSG Foundation

- 501(c)(3) non-profit organization established in 2005
- +20,000 members: Public Safety Officials, Operators, and GIS Staff

  Mostly in the US, but spans the globe
- All training, tools, best practices and other resources provided at no cost

NAPSG Foundation Mission

Advance Geospatial

technology and capabilities for and with the public safety community

Foster Adoption

of geospatial tools, information, and best practices for planning, daily operations, and disasters

Bridge the Gaps

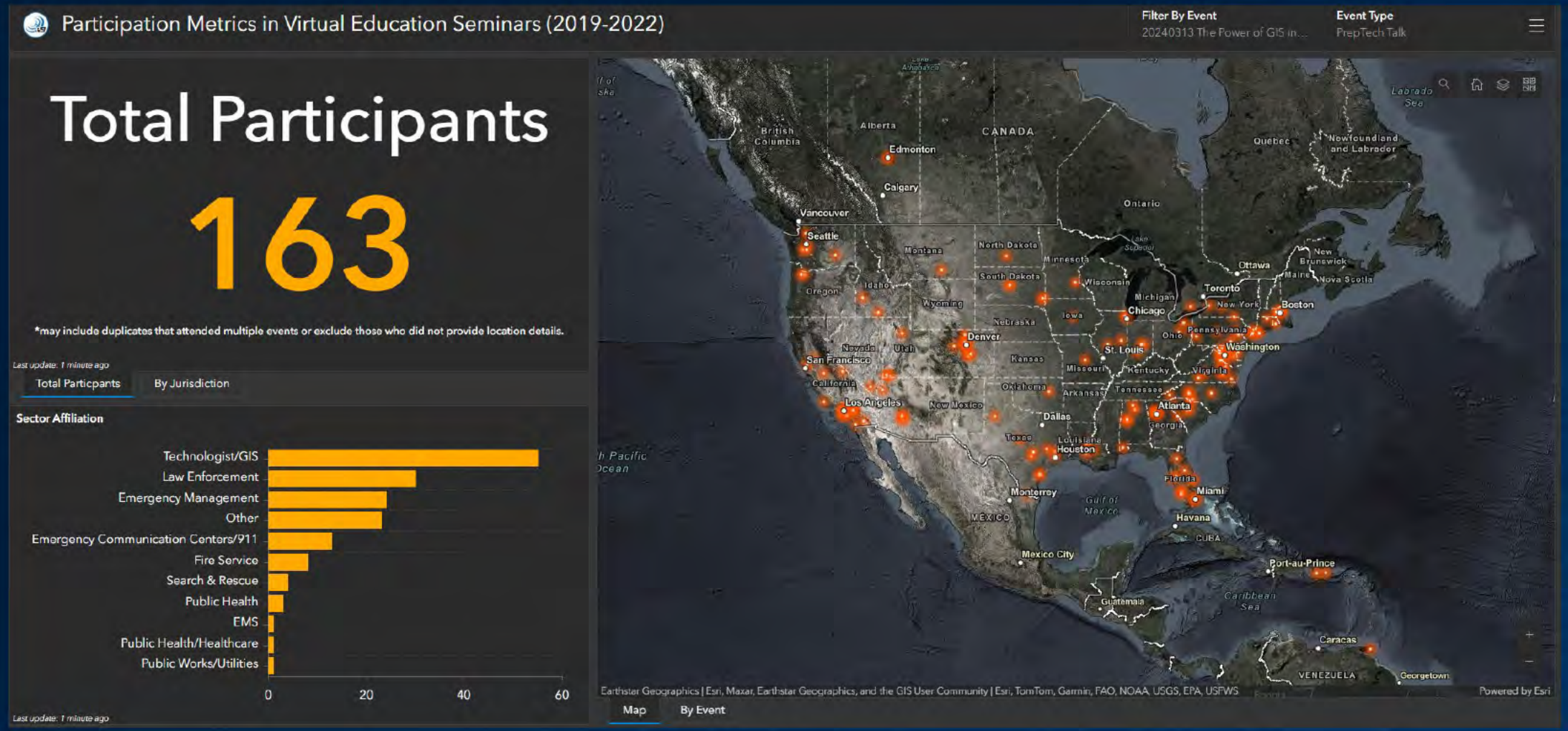
across agencies and disciplines, to better protect the communities they serve

NAPSG Foundation

How Do We Do It

NAPSG Foundation

Attendees



NAPSG Foundation

02 | GIS in Law Enforcement

Shelby Roberson

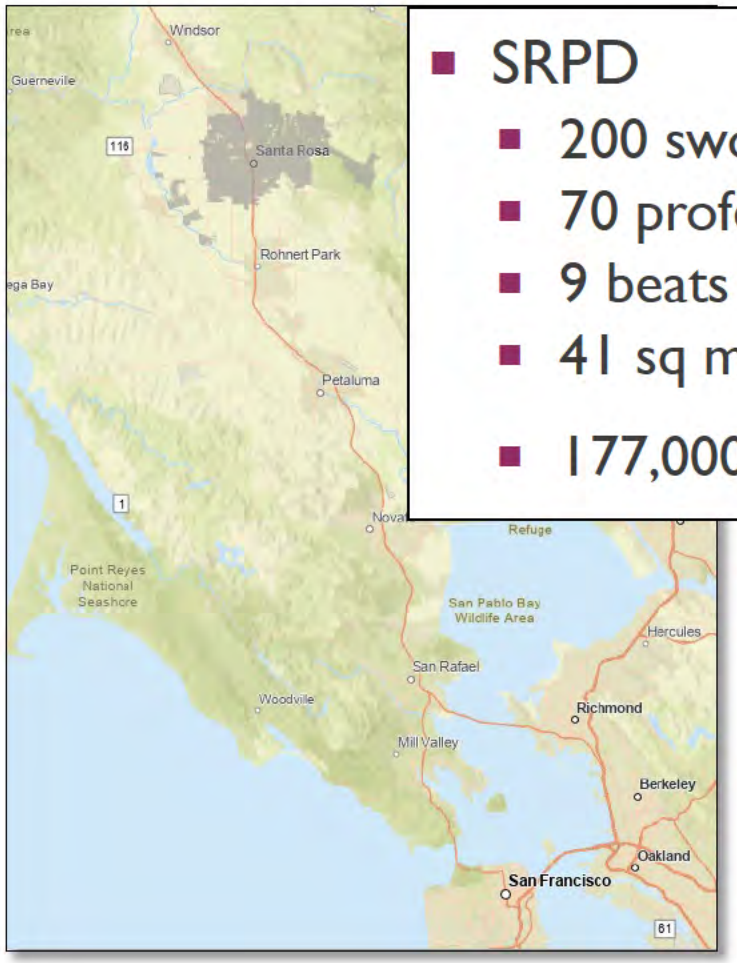
Matt Harris

LOCATING JUSTICE
THE POWER OF GIS IN LAW ENFORCEMENT

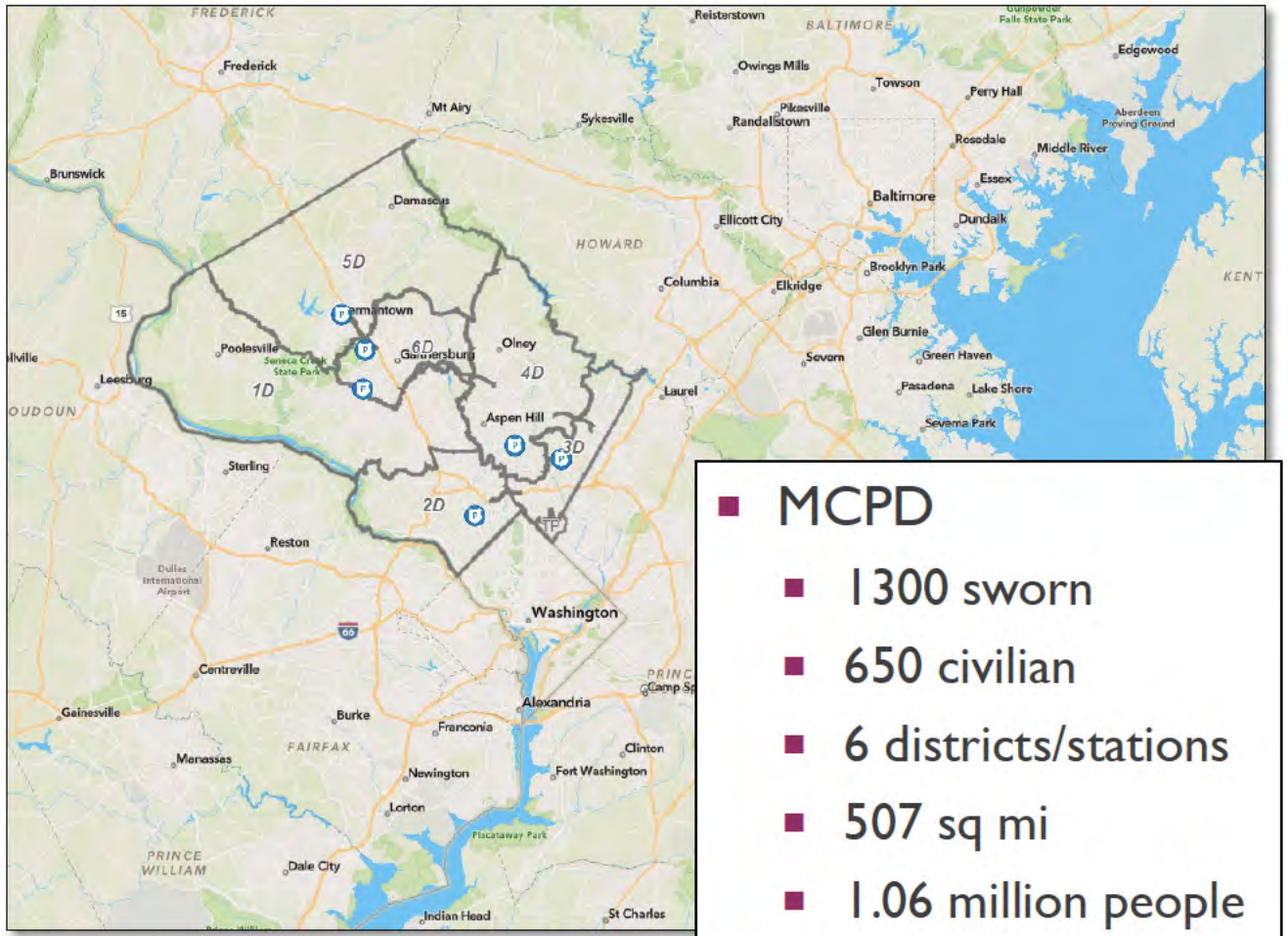
SHELBY ROBERSON - MONTGOMERY COUNTY (MARYLAND) POLICE DEPARTMENT

MATT HARRIS – CITY OF SANTA ROSA (CALIFORNIA) POLICE DEPARTMENT

ABOUT MCPD & SRPD



- SRPD
  - 200 sworn
  - 70 professional staff
  - 9 beats
  - 41 sq mi
  - 177,000 people



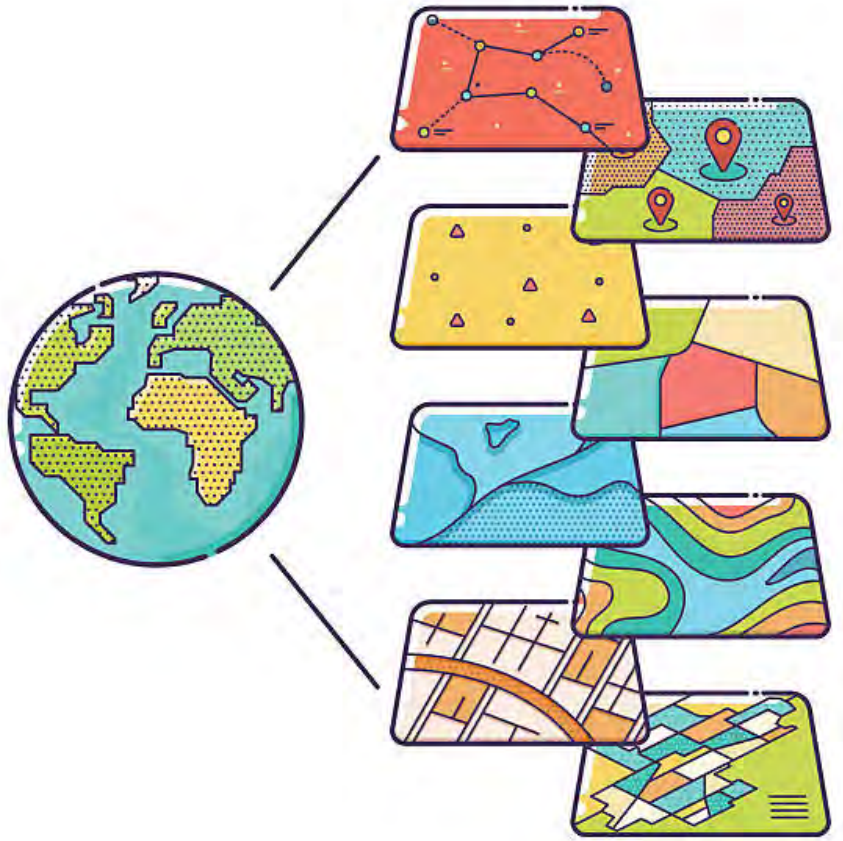
- MCPD
  - 1300 sworn
  - 650 civilian
  - 6 districts/stations
  - 507 sq mi
  - 1.06 million people

OUTLINE

- Why GIS?
- Examples of what we do with GIS in our respective police departments
  - Simple/less licensing required to more complicated/more licensing required
- A few notes about data
- Caveats and Issues
- Questions

WHY IS GIS/MAPPING SO IMPORTANT?

- Nearly everything has a "where" component
  - CAD data, RMS, addresses, beats/regions, districts, you name it!
  - Take advantage of XY coordinates or addresses
- Identify patterns, trends, and correlations
- Useful for predictive analysis
- Provides data-driven insights for things like resource allocation, understanding populations/communities served

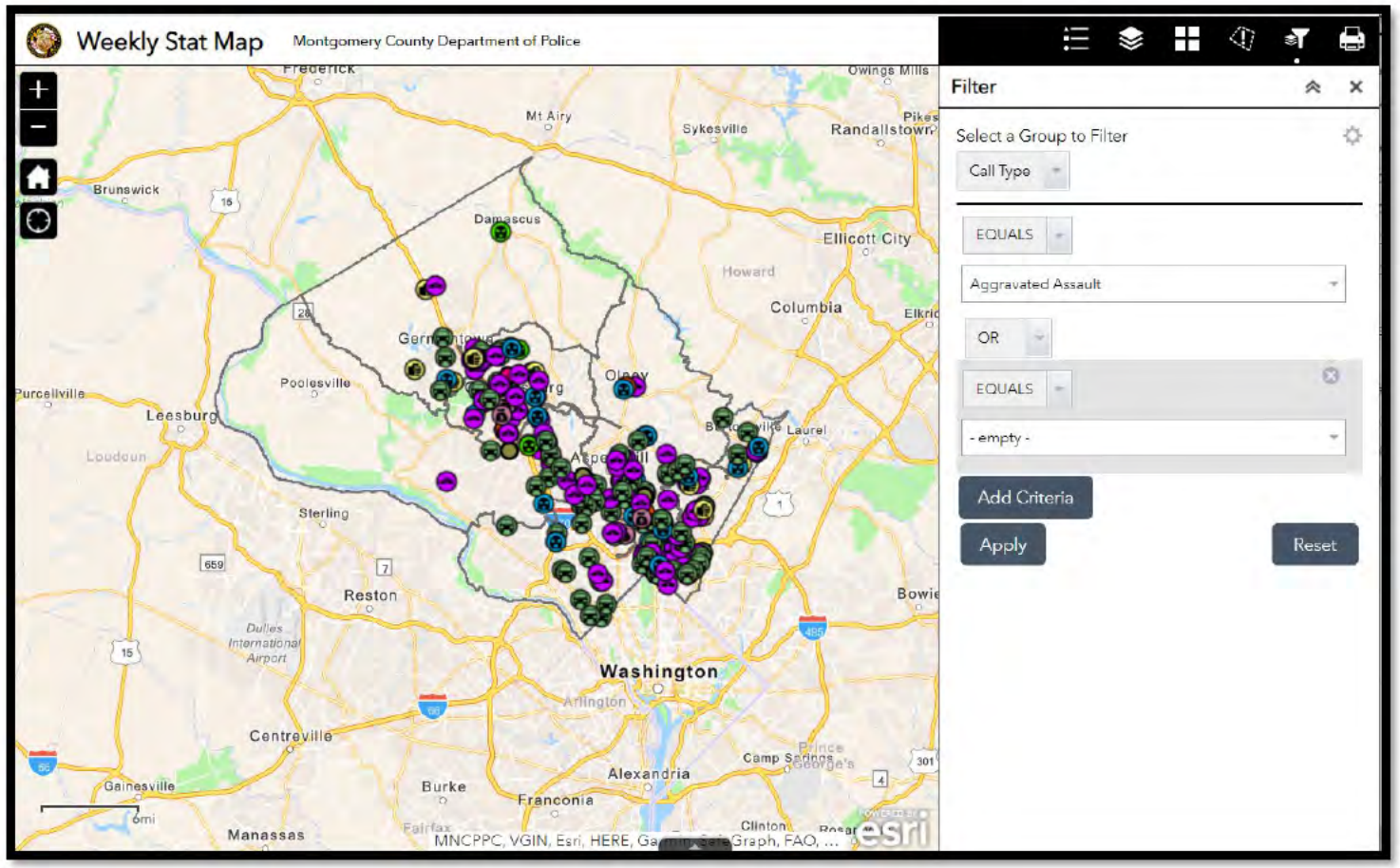


GIS IS ONLINE
ARCGIS ENTERPRISE/PORTAL & ARCGIS ONLINE

- Static PDF/image maps become outdated the moment they are created
- Online maps allow you to interact – zoom, read pops-ups, symbolize, control scaling, labels, etc
- Give the power to the end user through functional applications
- Can connect to your secure, centralized data sources

START SIMPLE - COMPARE STATS (COMPSTAT) MEETING MAPS

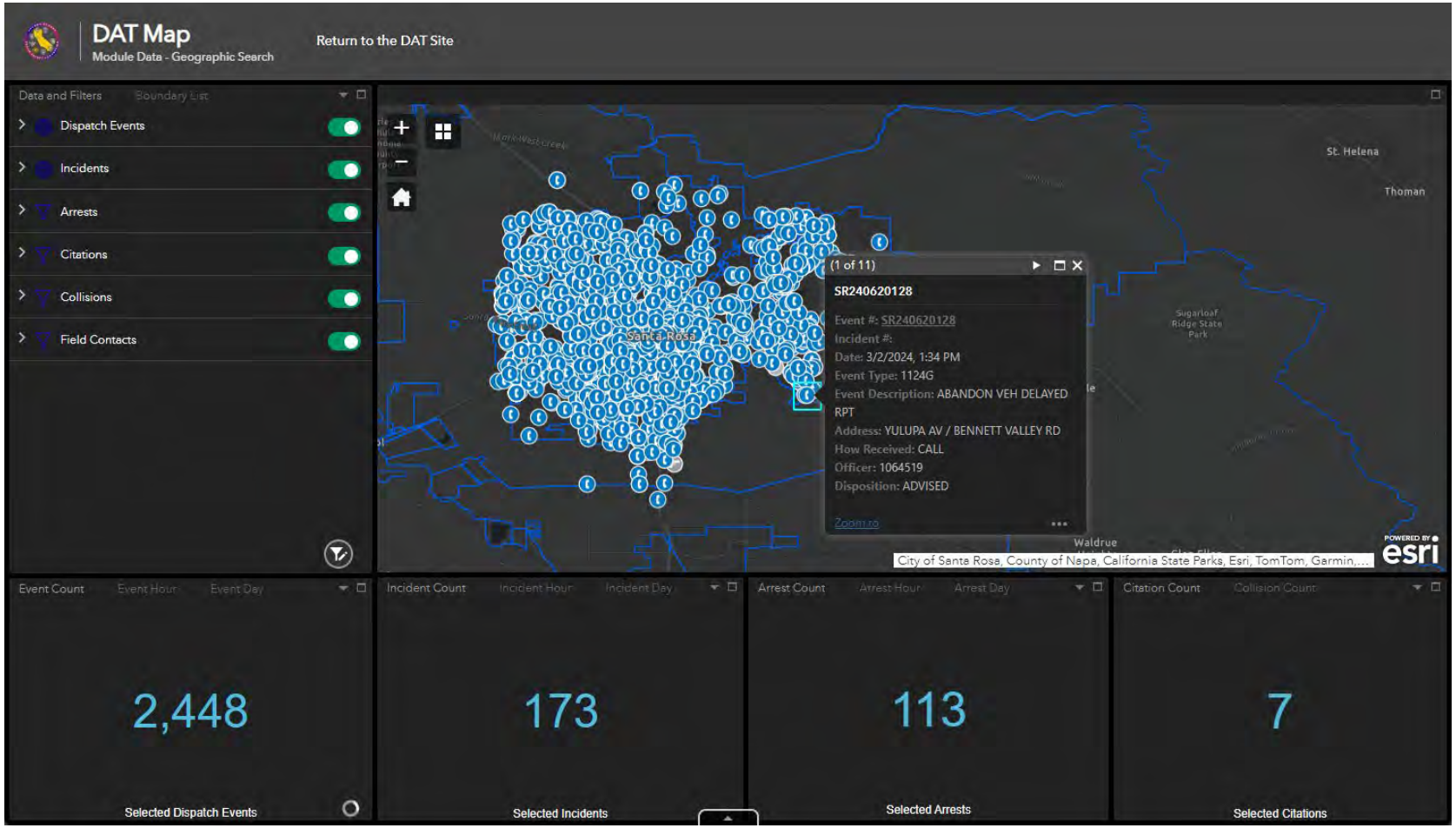
- Interactive map used in weekly comp stat meeting
- ArcGIS WebApp Builder
- Hosted in ArcGIS Online – no PII, publicly-accessible data



Link

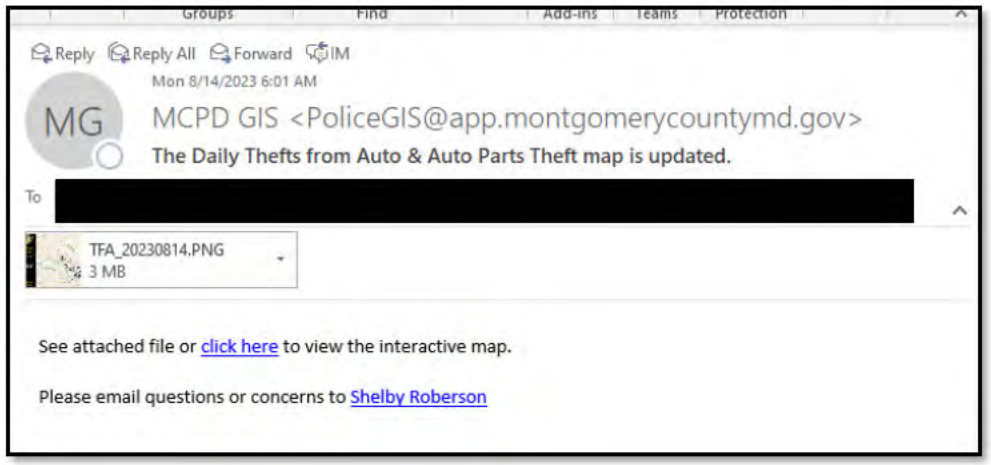
SCPSC DAT - MAP MODULE DATA

- Interactive map used to query Records Management System (RMS) and CAD data
- ArcGIS WebApp Builder



DAILY THEFTS FROM AUTO

- Updated each morning at 5am
- Interactive Portal map + emailed PDF map



Groups | Find | Add-ins | Teams | Protection

Reply | Reply All | Forward | IM

Mon 8/14/2023 6:01 AM

MG

MCPD GIS <PoliceGIS@app.montgomerycountymd.gov>

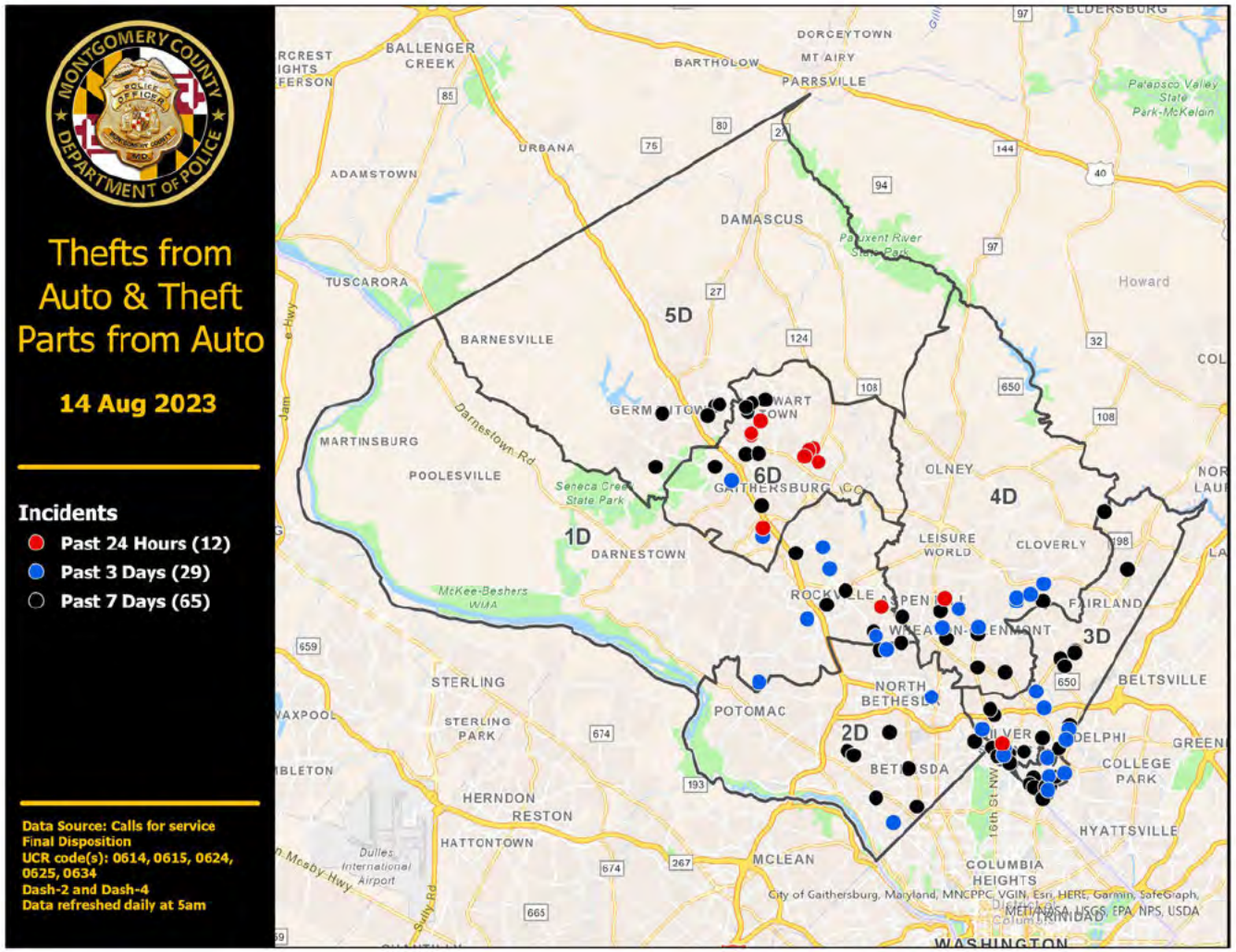
The Daily Thefts from Auto & Auto Parts Theft map is updated.

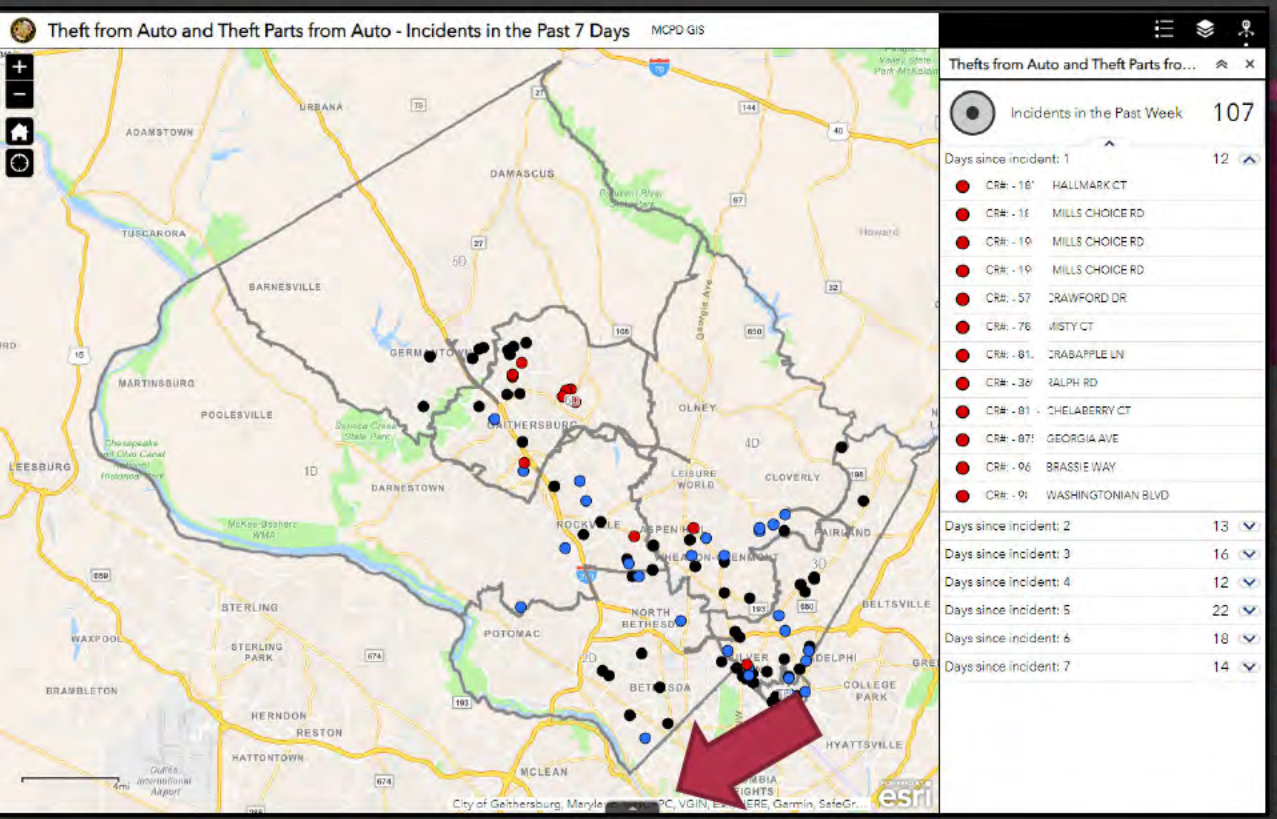
To [redacted]

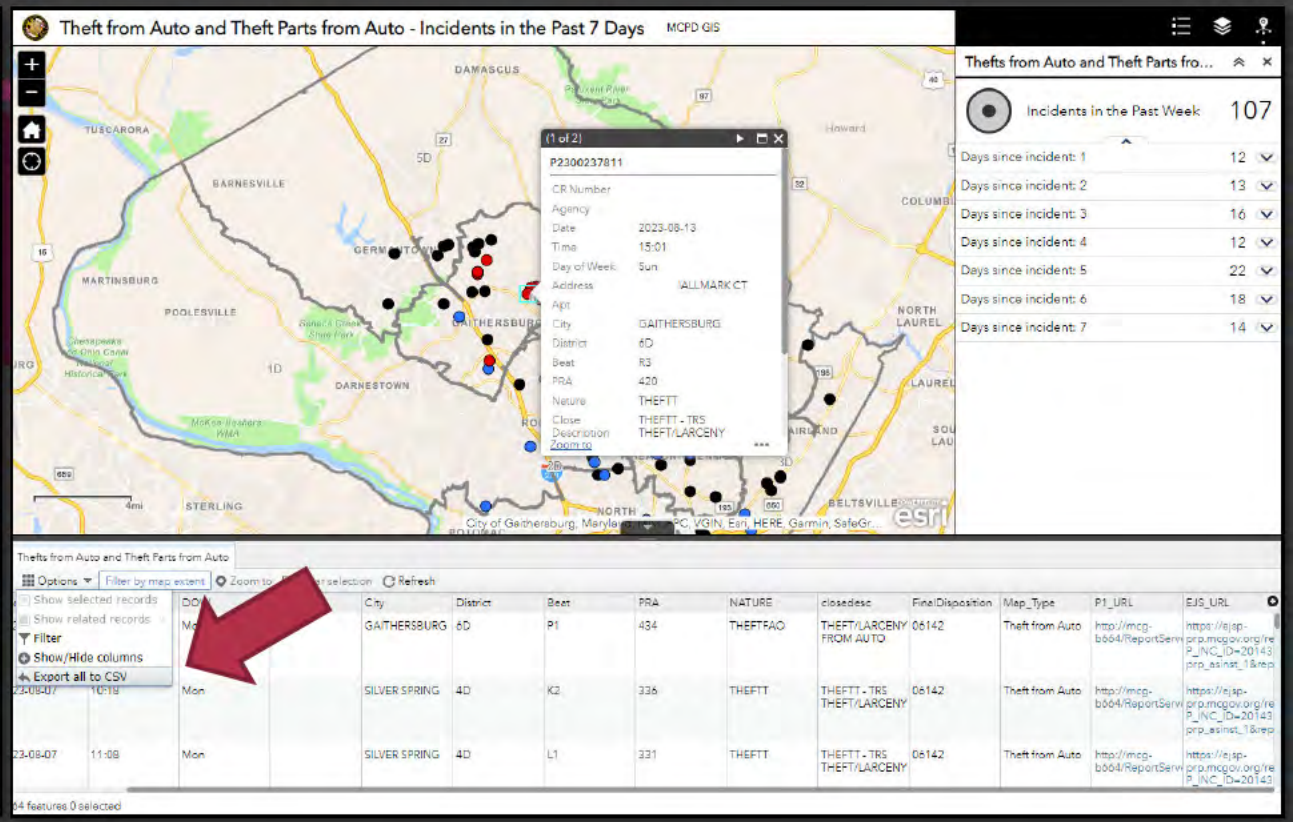
TFA_20230814.PNG
3 MB

See attached file or click here to view the interactive map.

Please email questions or concerns to Shelby Roberson





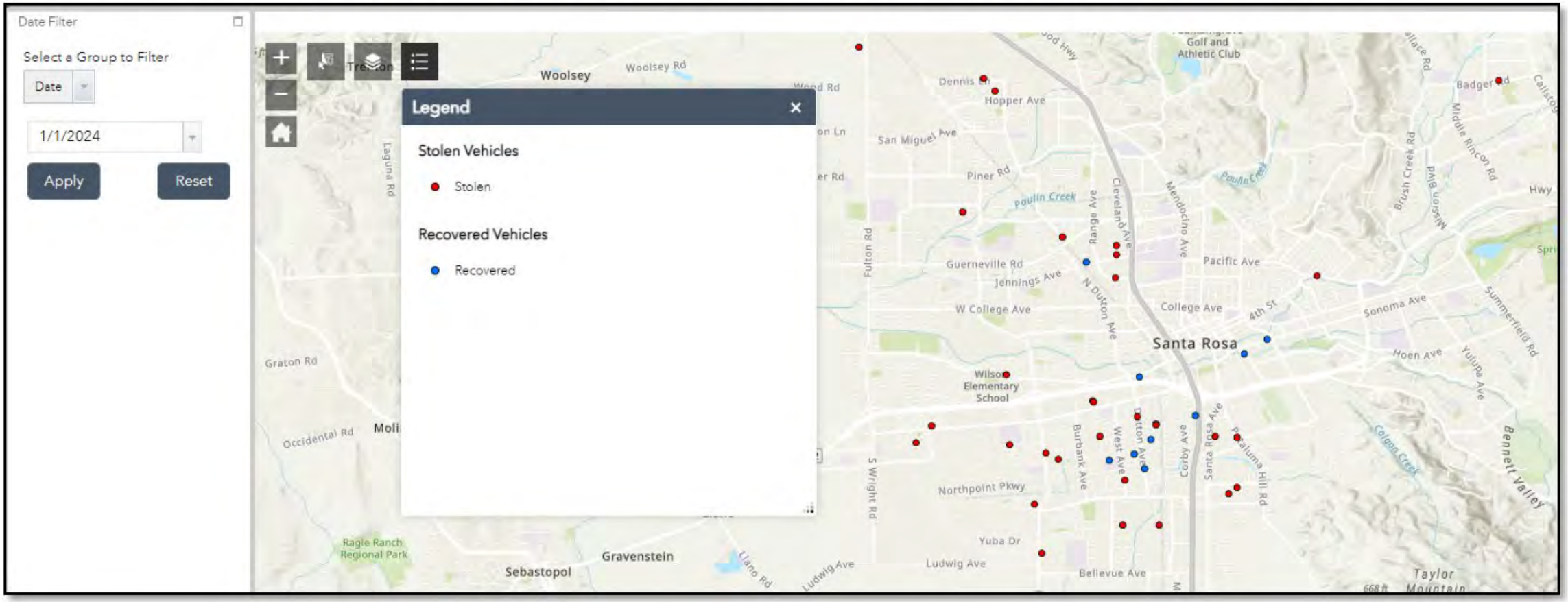


DAILY THEFTS FROM AUTO

- Interactive map built in ArcGIS WebApp Builder (*to be retired 2025)
- Can view details about individual incidents
- Can export table
- Can click links directly to CAD or RMS incident page

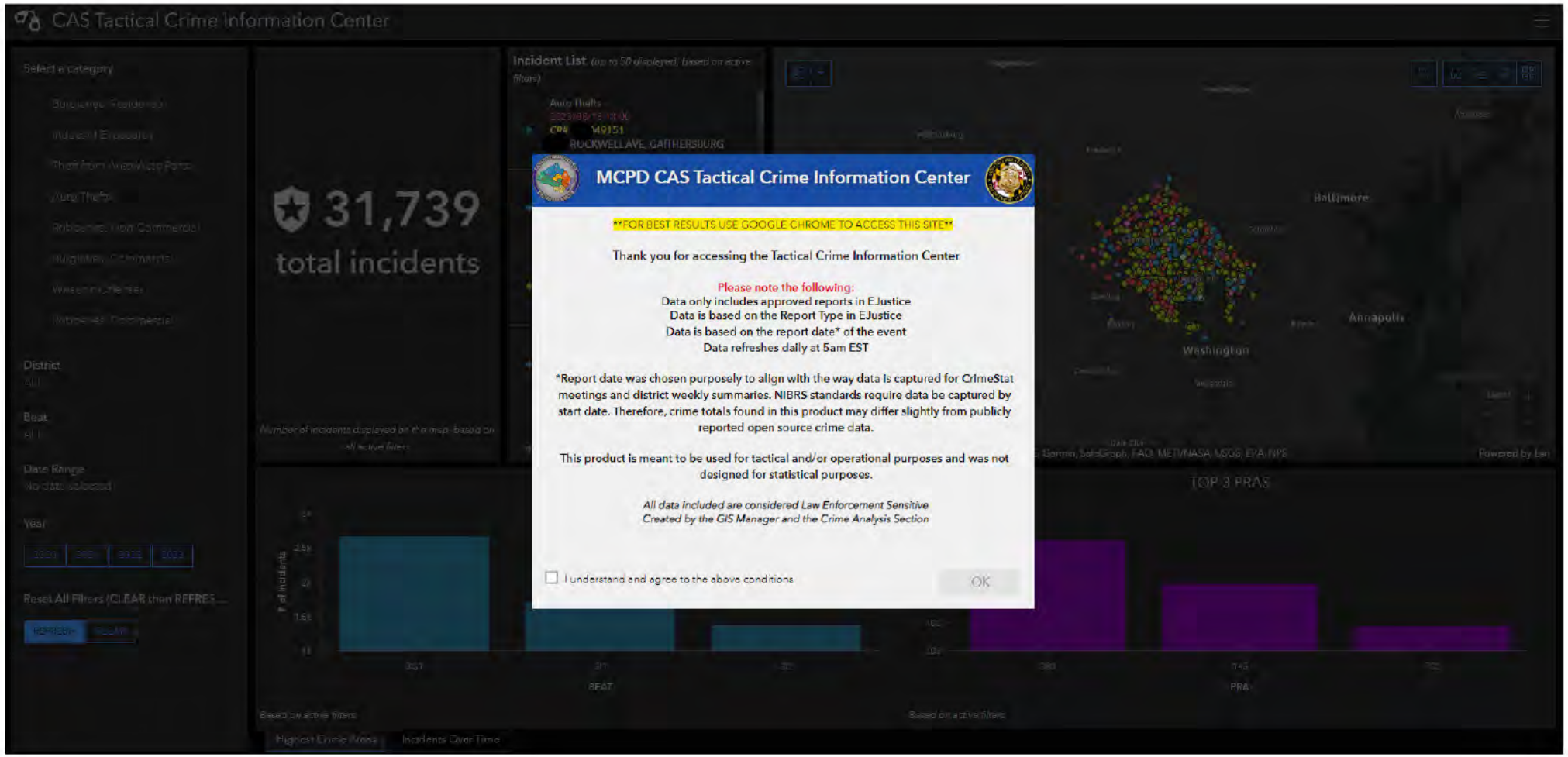
SRPD - THEFTS\RECOVERY OF MOTOR VEHICLES

- Updated via web app by Auto Theft Task Force, Interactive Portal shared to all allied agencies



TACTICAL CRIME INFORMATION CENTER (TCIC)

- Built in ArcGIS Dashboards
- Pop-up window uses Experience Builder. User must agree to terms.
- All widgets are interactive with each other
- Allows users to query
- Graphics update based on data
- *Future release will allow CSV export



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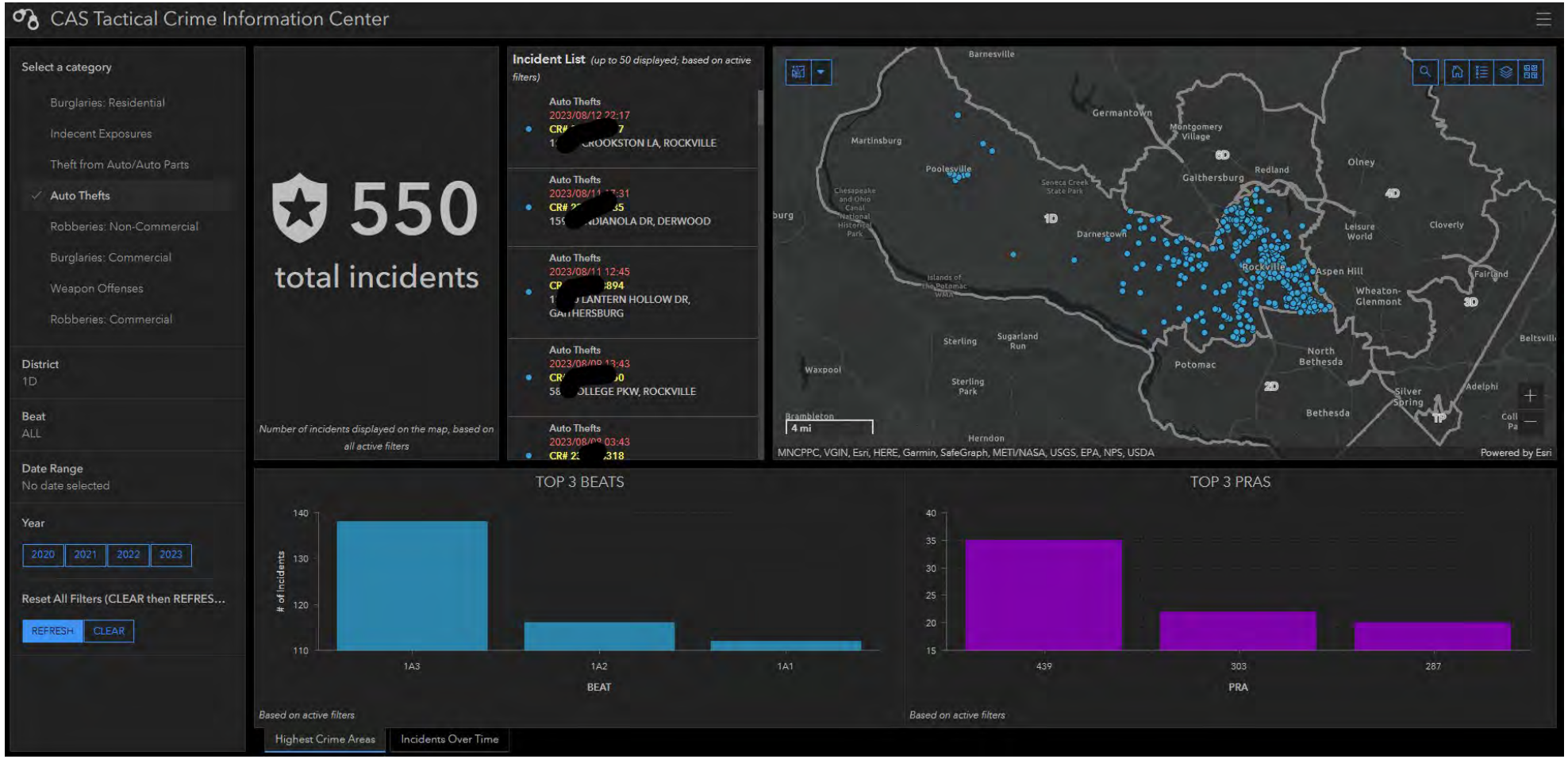
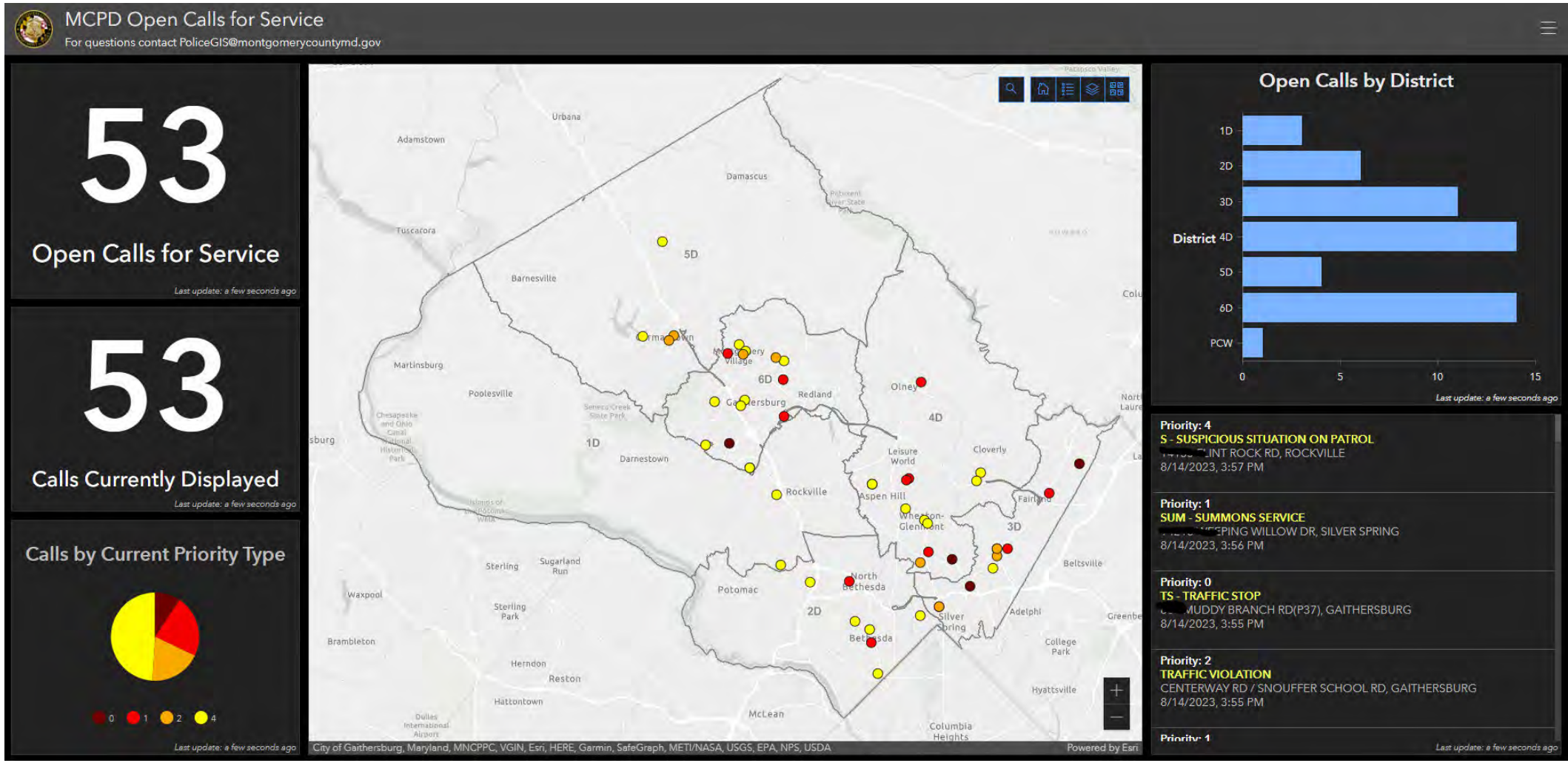


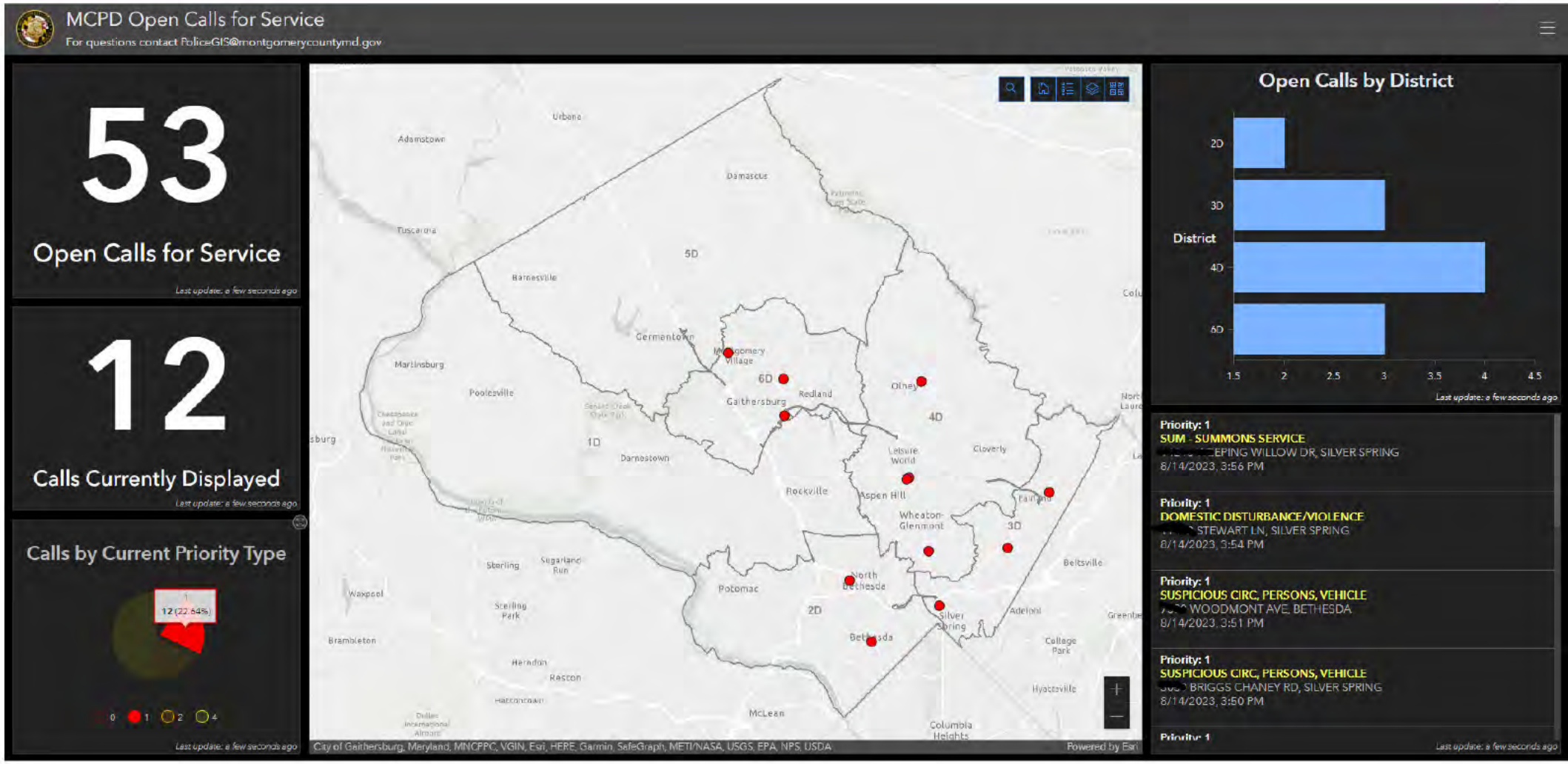
OPEN CALLS FOR SERVICE DASHBOARD

- Built with ArcGIS Dashboards
- Connects to CAD Oracle database via a SQL Server view
- Updates near-real time



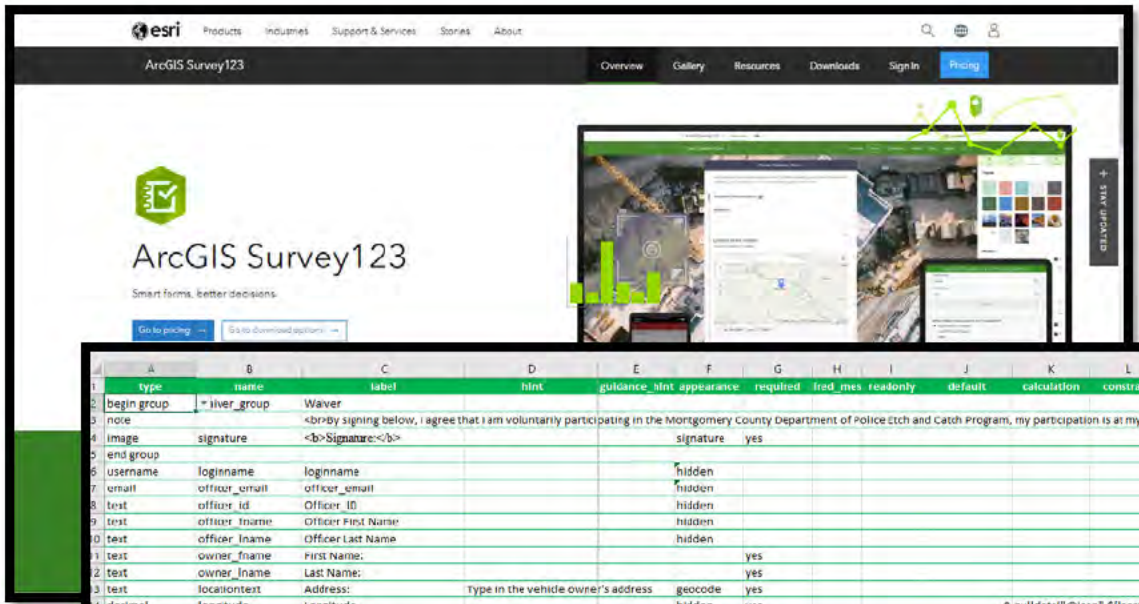
OPEN CALLS FOR SERVICE DASHBOARD

- Widgets connected to each other
- Used heavily by command staff



ARCGIS SURVEY123 – FORMS & DATA COLLECTION

- Great for multiple programs
  - Etch & Catch catalytic converter program. Populate vehicle info from VIN
  - Trespass agent letter locations
  - Field interview reports – scan driver's licenses!
  - Homeless camp locations
  - Complaints/Compliment forms
  - Security camera program
  - Casualty form
  - Tracking overdose info
  - Public sign-up for ride alongs



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begin group	liver_group	Waiver														
note		 By signing below, I agree that I am voluntarily participating in the Montgomery County Department of Police Etch and Catch Program, my participation is at my own risk and acknowledge that the Montgomery County Department of Police is not a mechanic and is														
image	signature	Signature:			signature	yes										
end group																
username	loginname	loginname			hidden											
email	officer_email	officer_email			hidden											
text	officer_id	Officer_ID			hidden											
text	officer_fname	Officer First Name			hidden											
text	officer_lname	Officer Last Name			hidden											
text	owner_fname	First Name:				yes										
text	owner_lname	Last Name:				yes										
text	locationtext	Address:	Type in the vehicle owner's address		geocode	yes										
decimal	longitude	Longitude			hidden	yes				0	pulldata("@json",${locationtext},"location.x")						
decimal	latitude	Latitude			hidden						pulldata("@jso${longitude!=0						
text	matchaddress	Matched Address:	(This field is read-only)					yes			pulldata("@json",${locationtext},"attributes.Match_addr")						
geopoint	location	Location			hidden						concat("numbe:${matchaddre Cannot equal null						
text	unit	Unit/Suite Number:	(Please write in, if applicable)														
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text	owner_email	Email:				yes					regex(., '^(([^<>()\[\]\\.,;:\s@"]+(\.[^<>()\[\]\\.,;:\s@"]+)*)|(".+"))@((\[[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}						
text	owner_phone	Primary Phone Number:				yes											
select_one servic	victim	Previous victim?				yes											
select_one car_m	make	Make			autocomplete search("make?url=https://policegis.montgomerycountymd.gov/agsserver/rest/services/Hosted/EJS_VehicleMakesModels/FeatureServer/5")												
text	other_make	Other Make not listed:															
select_one car_m	model	Model			autocomplete search("model?url=https://policegis.montgomerycountymd.gov/agsserver/rest/services/Hosted/EJS_VehicleMakesModels/FeatureServer/5","matches","vehicle_make_desc",${ma								
text	other_model	Other Model not listed:															
date	car_year	Year			hidden												
text	Year_Text	Year	Enter 4 digit year (e.g., 2023)			yes						regex(., '^(19|20)\d{2}$')					
text	vin	VIN	Enter the 17 character Vehicle Identification Number			yes						regex(., '^\b[(A Please enter a valid VIN format					
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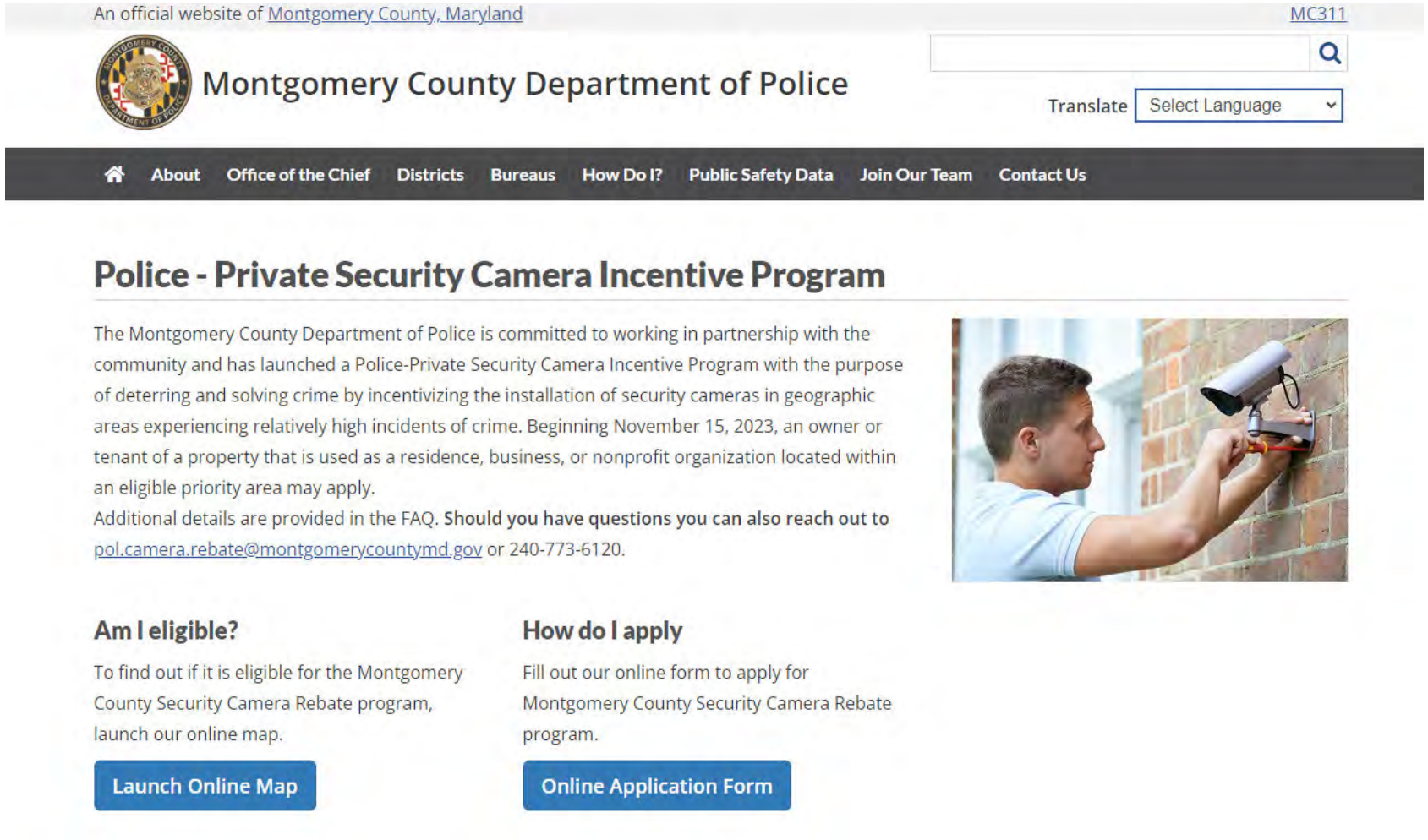
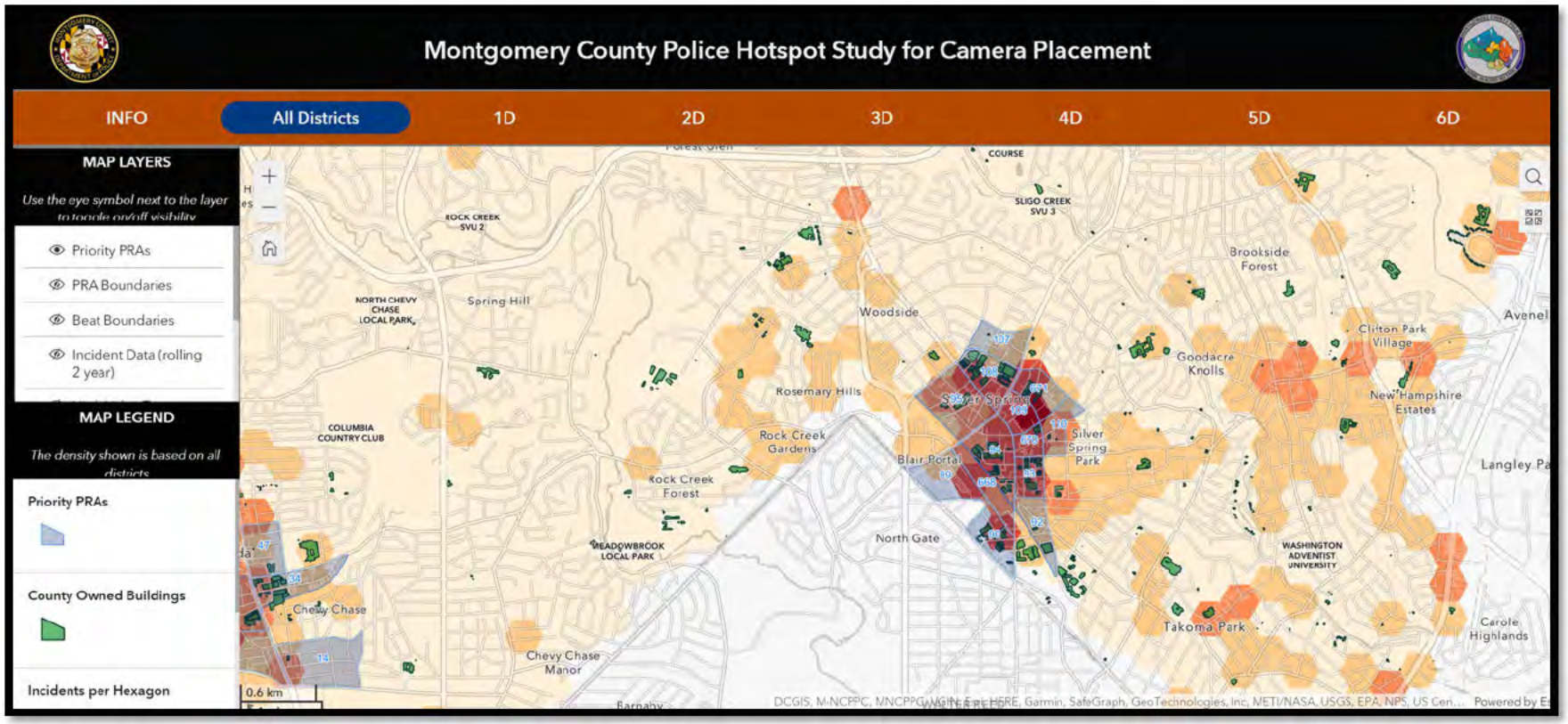
PUT IT ALL TOGETHER: SECURITY CAMERA REGISTRATION

- Residents can register their private security cameras (Ring, etc) with MCPD
- $250 rebate per camera



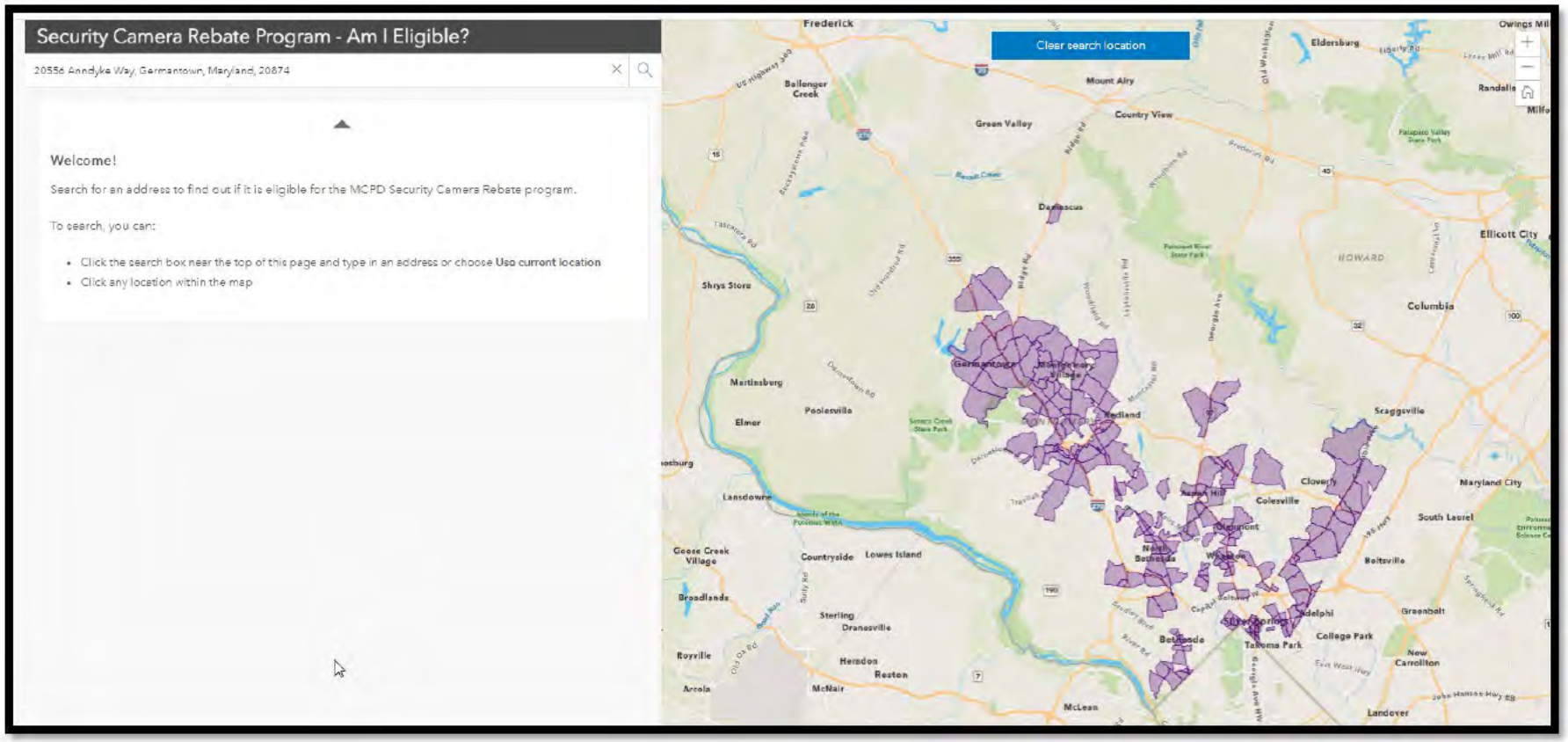
PUT IT ALL TOGETHER: SECURITY CAMERA REGISTRATION

Must live in a priority area – determined by GIS analysis of incidents



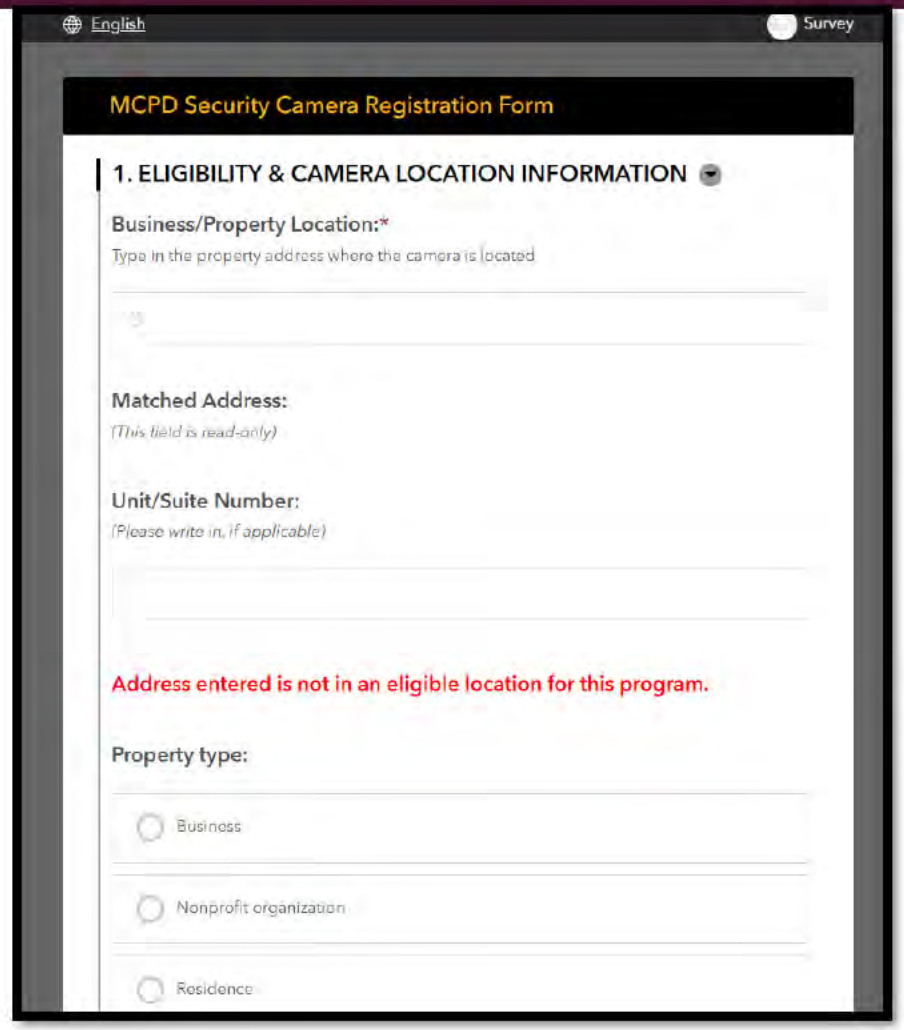
PUT IT ALL TOGETHER: SECURITY CAMERA REGISTRATION

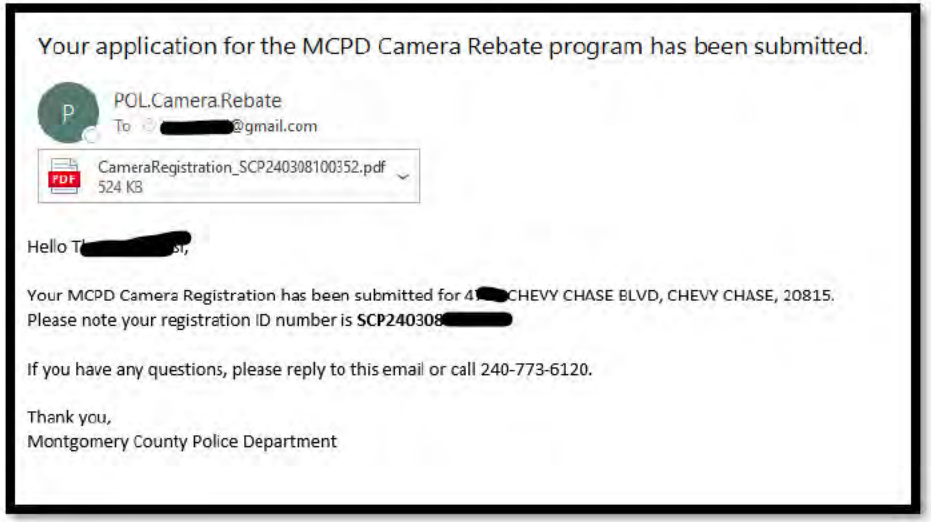
- Instant App used to determine eligibility



PUT IT ALL TOGETHER: SECURITY CAMERA REGISTRATION

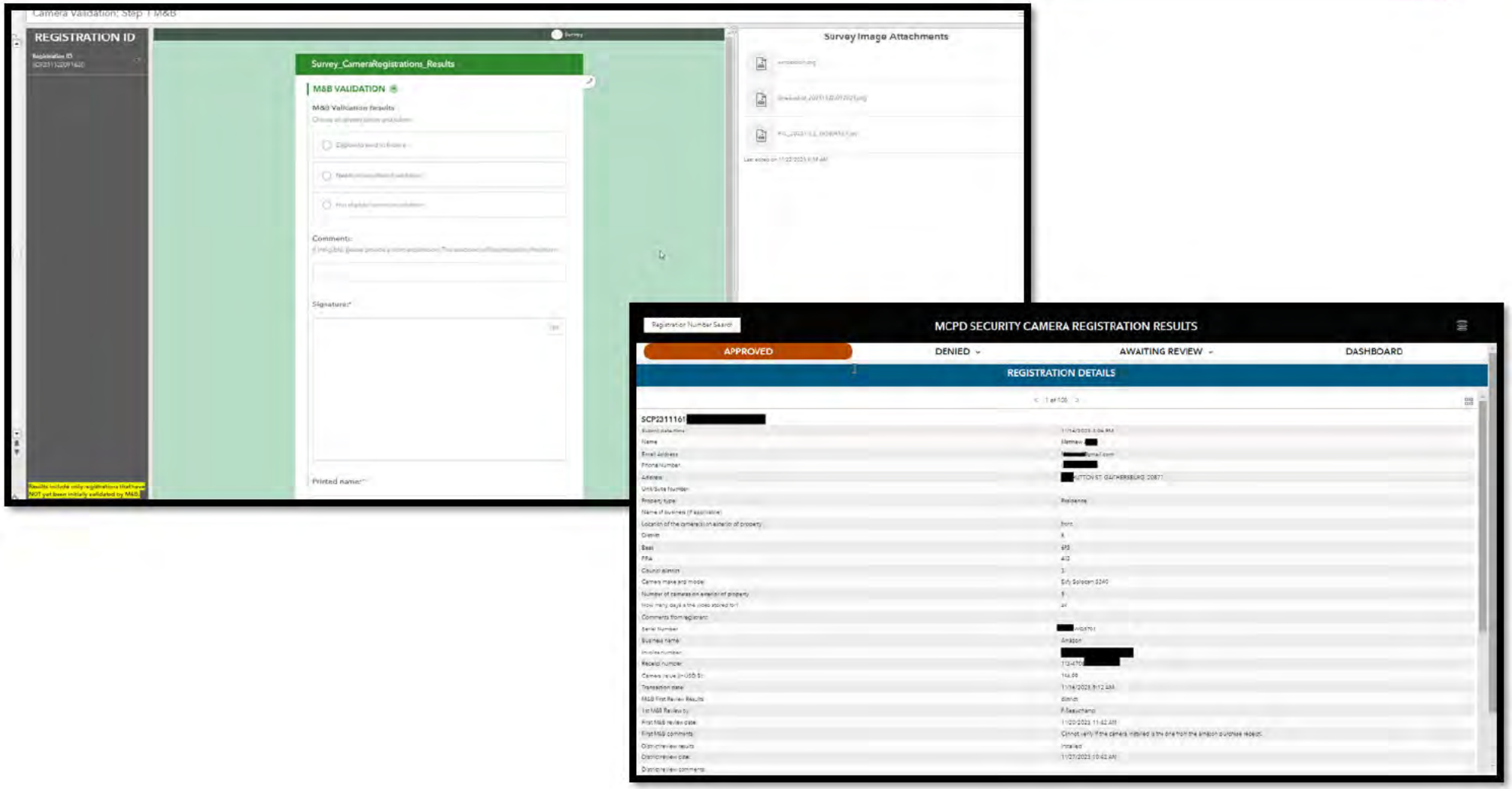
- User fills out Survey123 form and receives email





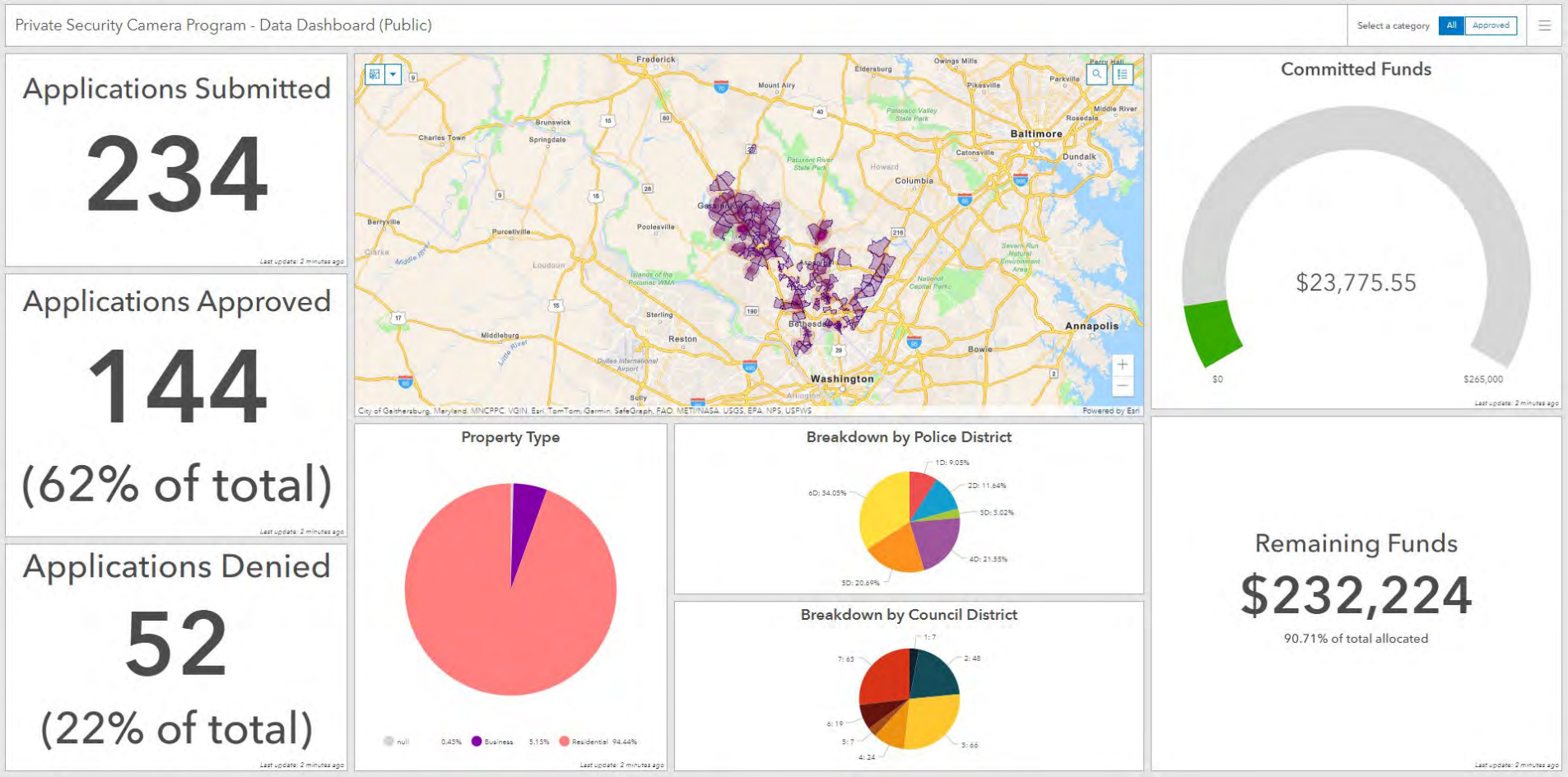
PUT IT ALL TOGETHER: SECURITY CAMERA REGISTRATION

- MCPD employees verify applications using S123 and Dashboards
- Experience Builder used to check statuses.



PUT IT ALL TOGETHER: SECURITY CAMERA REGISTRATION

Dashboard to disseminate results



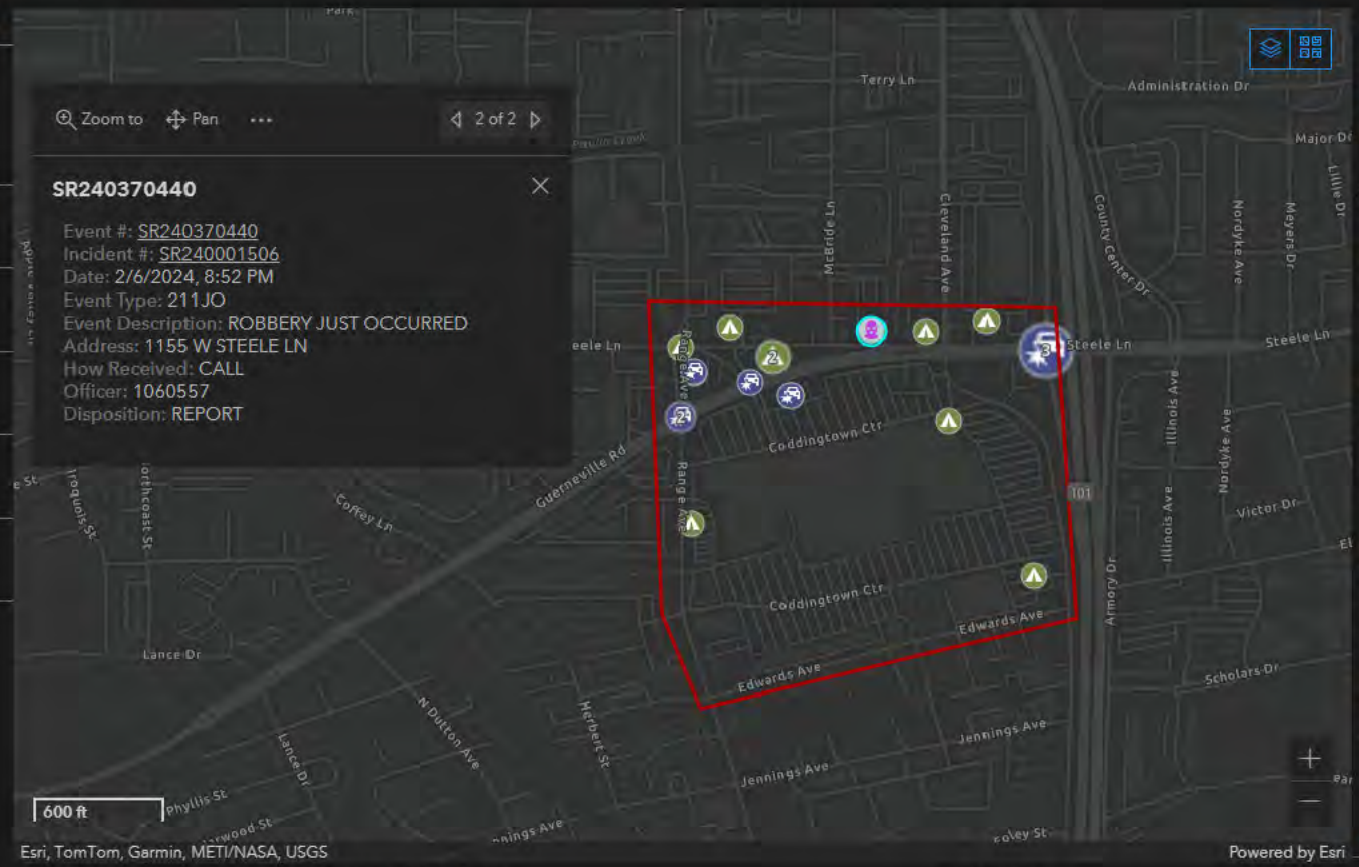
SRPD PATROL BEAT DASHBOARD

- View / Manage long term focus areas
- Manage responses to citizen complaints and patrol beat projects
- View officer-initiated activity and engagement opportunities
- Find known offenders for searches and warrant service
- Visualize existing and future Automated License Plate Recognition (ALPR) and security camera locations
- Explore and develop Problem Oriented Policing strategies

Data Led Policing Initiative - Patrol Beat Dashboard

BEAT

	Violence	Property	QOL	Traffic
1	Airway Dr / Industrial Dr / Piner Rd	Violence	Property	QOL
	Beat 1 | Sgt. Dunn			
2	Cleveland Av / Industrial Dr to Bicentennial Wy		QOL	Traffic
3	Beat 1 | Sgt. Dunn			
4	Cleveland Av / Terry Ln	Violence	Property	QOL
5	Beat 1 | Sgt. Dunn			
6	Coddingtown Center area	Violence	Property	QOL
7	Beat 1 | Sgt. Dunn			
8	Hopper / Airway Dr / Industrial Dr	Violence	Property	QOL
9	Beat 1 | Sgt. Dunn			
	Range Av / Bicentennial Wy / State Farm Dr	Violence	QOL	Traffic
	Beat 1 | Sgt. Dunn			



Coddingtown Center area

Problem 1: Stolen vehicles
Problem 2: Organized Retail Theft

Response Plan

[redacted]

Assigned Officer(s):
Priority: **Medium**

Goals

Problem 1: Reduce vehicle theft and increase recoveries in mall parking areas Problem 2: Reduce ORC at Dick's Sporting Goods

Strategies

Problem 1: Focused patrol using ALPR technology; fixed ALPR at mall ingress/egress
Problem 2: Identify suspicious persons/vehicles via consensual contacts and ALPR technology; establish in-person relationships w/businesses

Resources

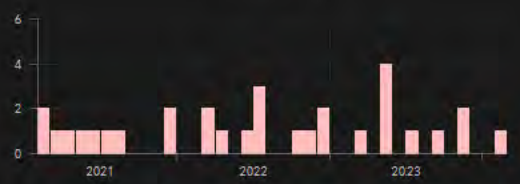
Problem 1: POP Tool Guide #46 - Theft of and from cars in parking facilities
Problem 2: POP Guide #15 - Burglary of Retail Establishments

Related community strategies

Problem 2: Monthly ORC information sharing meetings; known offender notifications

Edit

Violent Events



Property Crime Events

HRI Events

Collision Events

Focus Area Map | Beat Complaints Map | COP and Proactive Policing Map | Known Offender Map | ALPR & Security Camera Map | Response Strategies

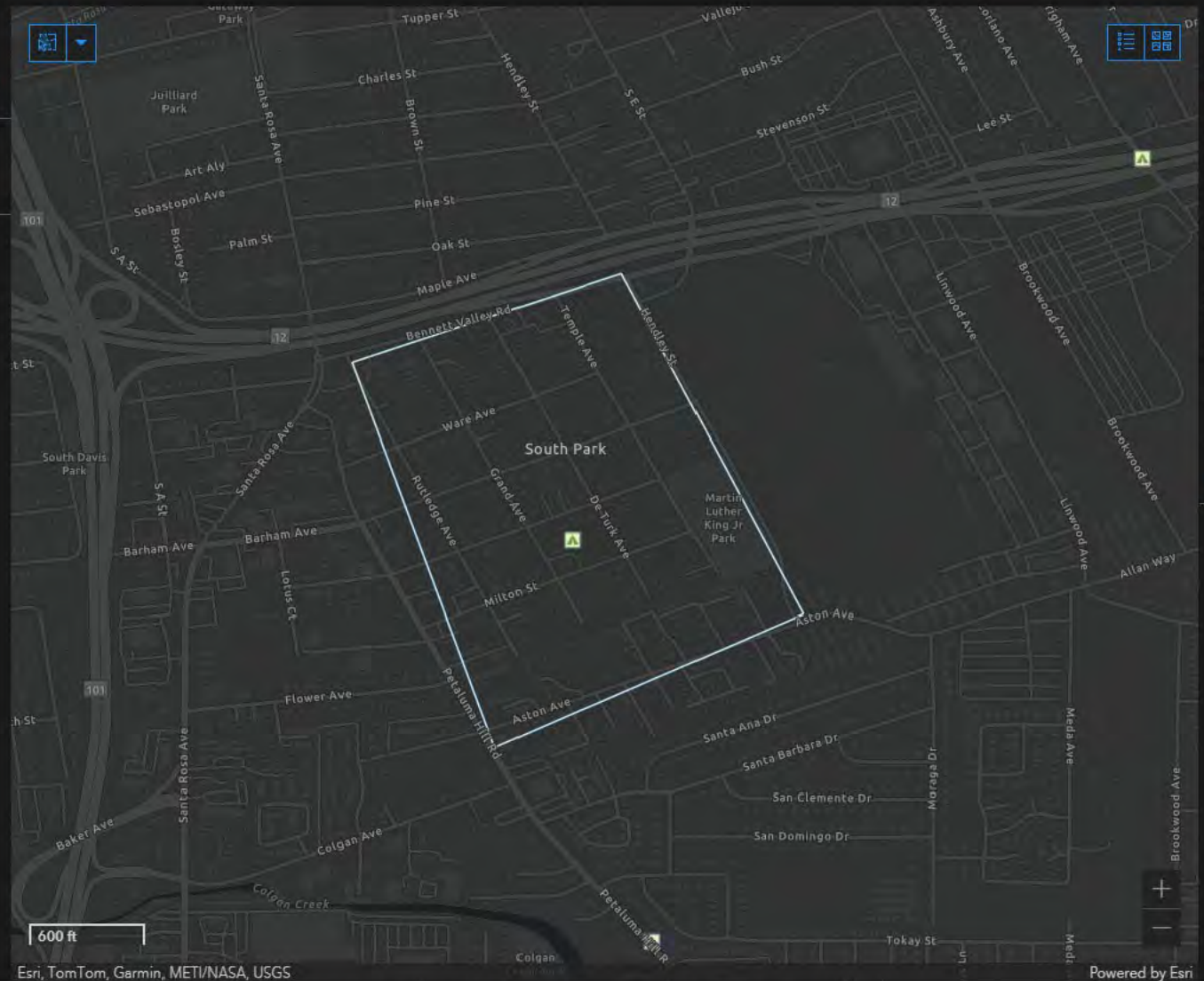
Data Led Policing Initiative - Patrol Beat Dashboard

BEAT
1
2
3
4
5
6
7
8
9

Add Beat Complaint

South Park Area - 2/29/2024
Reckless driving (Donuts), speeding, stop signs

New - Bellevue Ave & SR Ave & Terrimay In - 10/2/2023
Speeding & No stopping for cross walk, speeding



South Park Area - Added 2/29/2024

Complaint: **Reckless driving (Donuts), speeding, stop signs**

Time of Day: **all**
Day of Week: **Weekends,Weekdays**

Complainant: **South Park Coalition**

Assigned Officer(s): **Traffic Beat 8 Officers and Traffic**

Patrol Strategy: Conduct Extra Patrol in the area for visibility / Speak with Community Members, and take appropriate enforcement action on traffic violations.

Patrol Notes:

Edit

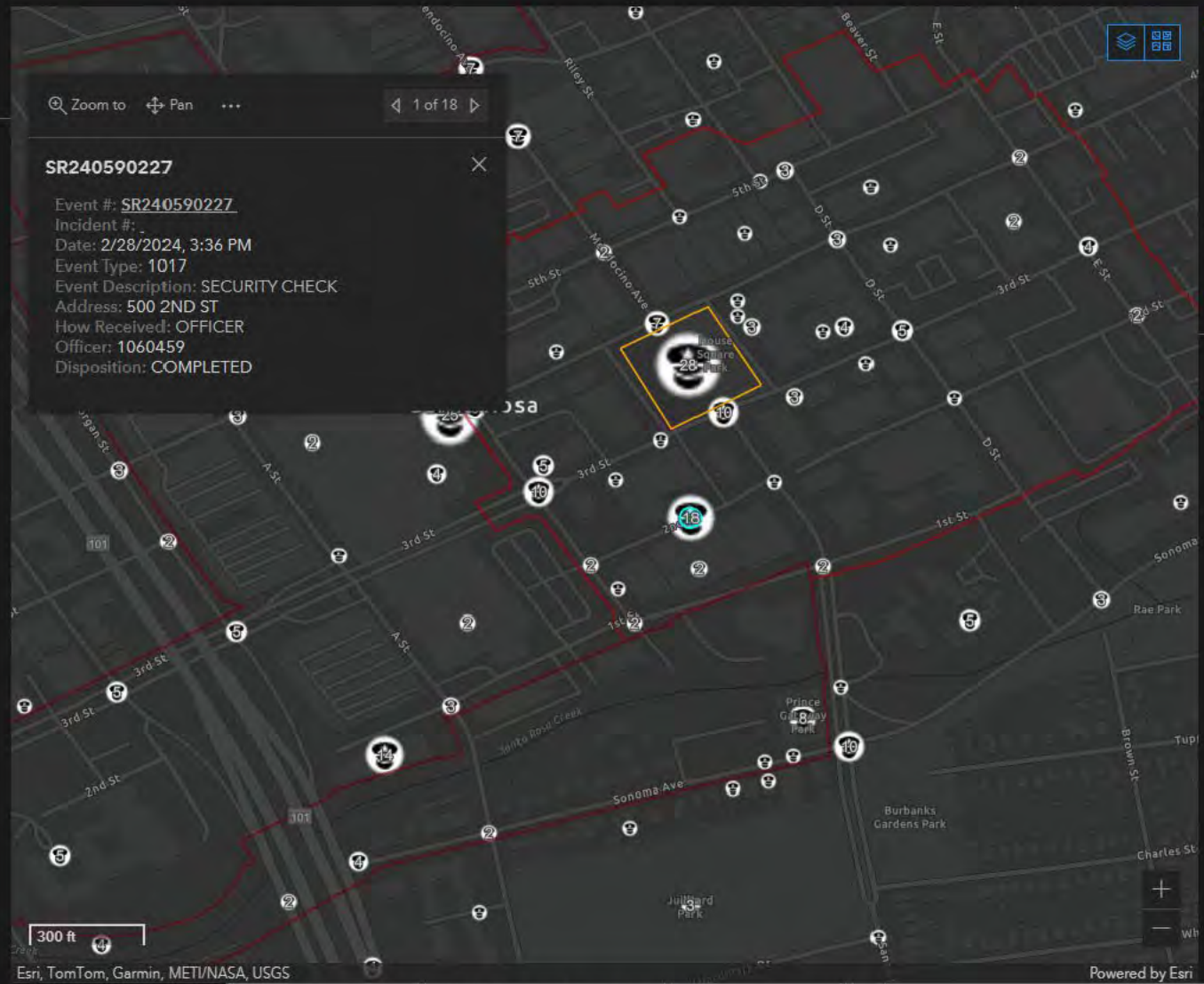
Focus Area Map | Beat Complaints Map | COP and Proactive Policing Map | Known Offender Map | ALPR & Security Camera Map | Response Strategies

Data Led Policing Initiative - Patrol Beat Dashboard

BEAT
1
2
3
4
5
6
7
8
9

Add Community Event

Festival Dia del Nino
50 Old Courthouse Sq, Santa Rosa, Ca 95404
4/28/2024, 12:00 PM



Festival Dia del Nino
50 Old Courthouse Sq, Santa Rosa, Ca 95404

Start: **4/28/2024, 12:00 PM**
End: **4/28/2024, 7:00 PM**

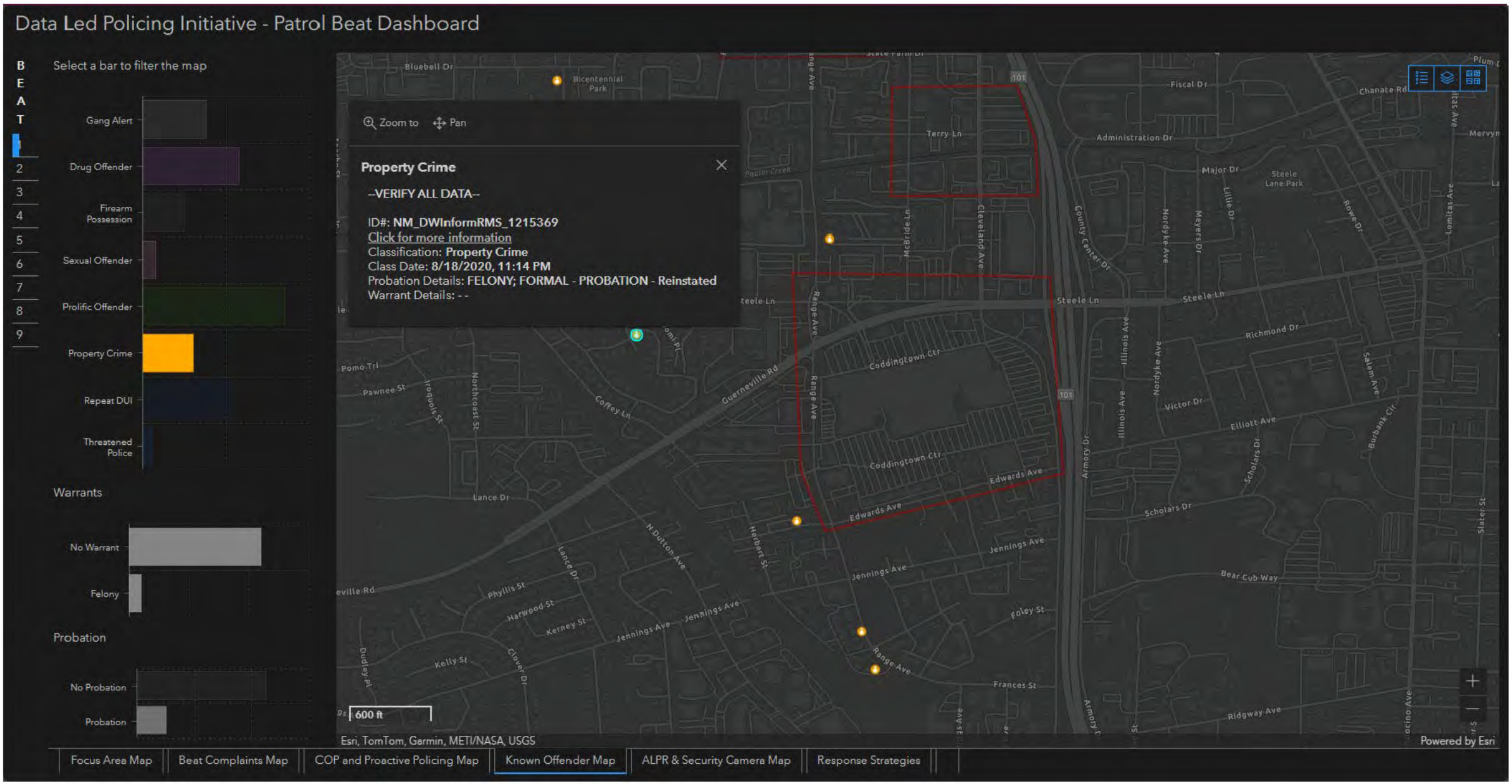
Assigned personell: **on duty as available**

[redacted]

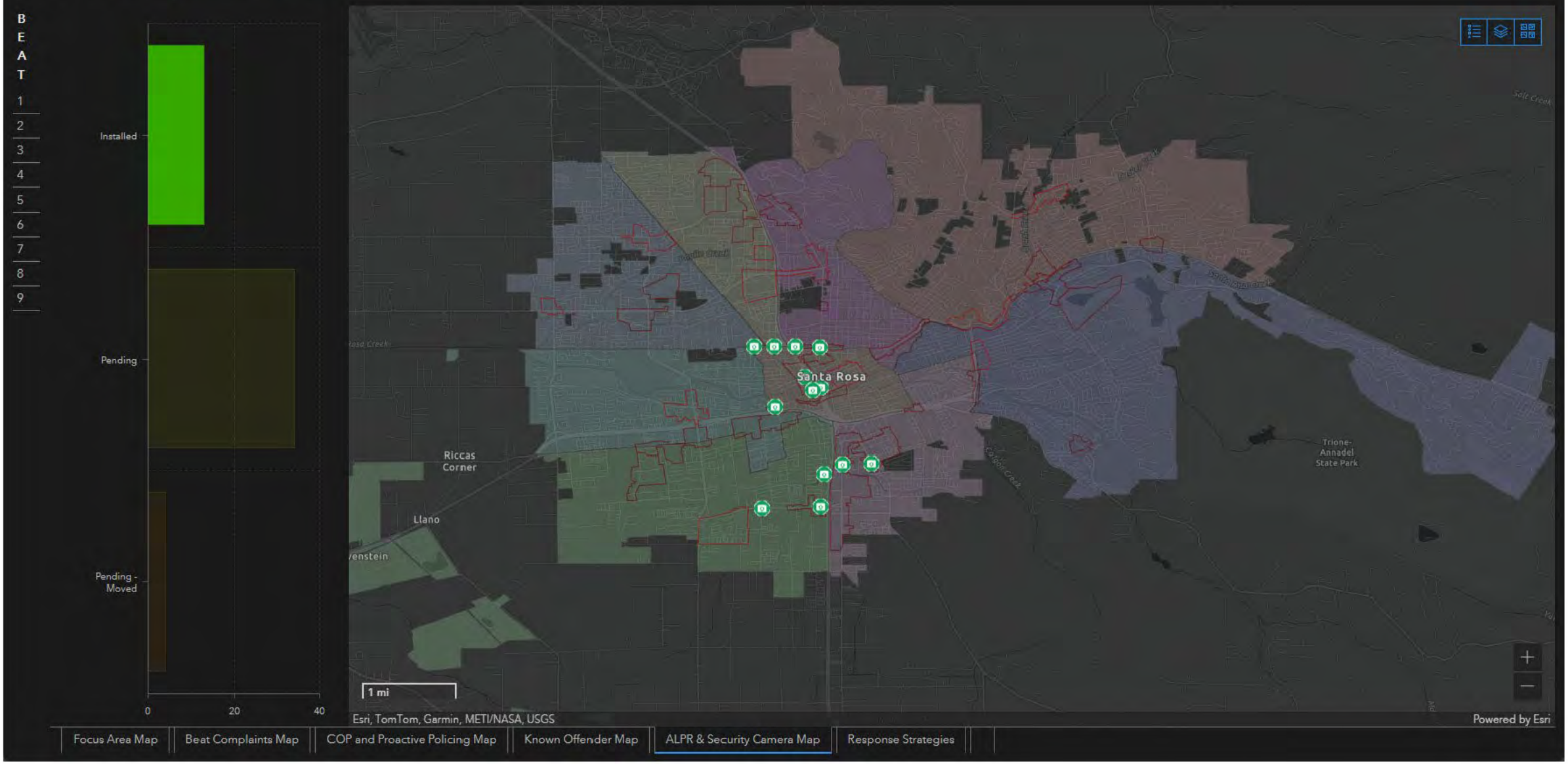
Edit

Focus Area Map | Beat Complaints Map | COP and Proactive Policing Map | Known Offender Map | ALPR & Security Camera Map | Response Strategies

Data Led Policing Initiative - Patrol Beat Dashboard



Data Led Policing Initiative - Patrol Beat Dashboard



Focus Area Map | Beat Complaints Map | COP and Proactive Policing Map | Known Offender Map | ALPR & Security Camera Map | Response Strategies

Data Led Policing Initiative - Patrol Beat Dashboard

BEAT

1
2
3
4
5
6
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8
9

To inform your response plans, review the strategies used to successfully reduce crime problems similar to the one you face.

Crimesolutions.gov: This site provides a clearing house of evaluated programs and practices in law enforcement and criminal justice. Evidence for effectiveness is assessed and programs are rated to help practitioners understand what works, what doesn't, and what's promising (National Institute of Justice).

Problem Specific Guides: This site provides a series of guides, written by researchers and practitioners, to help law enforcement agencies understand how to analyze, respond, and assess a specific type of crime problem. Each guide includes specific examples of problems faced in other jurisdictions, and examples of evaluated strategies shown to be effective for the type of crime problem (Center for Problem-Oriented Policing at Arizona State University).

Evidence-Based Policing Matrix: This site summarizes all research done on police interventions according to the type of intervention, rigor of evaluation, and evaluation findings. It can be used to identify promising strategies to use as part of a specific crime response plan. (Center for Evidence-Based Crime Policy at George Mason University).

Crime Reduction Toolkit: This site provides summaries of research evidence on various crime reduction strategies and their effectiveness, how they work, how to implement them and the costs associated with implementation (UK College of Policing).

SRPD PROPERTY CRIME REVIEW PANEL

- Review recently reported property crime Events and Reports
- Clean/summarize data for better search retrieval
- Tag reports as part of a Trend, Pattern, or Series

SRPD Property Crime Review Panel

AddTime	ModTime	Offense Level	Inv. Status
3/1/2024 - 3/4/2024	Any	All	All

Event #: SR240630063 Case #: SR240002607 Felony
Date Reported: 3/3/2024 0819 - Last Secure: 3/2/2024 2000 - Date Found: 3/3/2024 0740
Event Type: 10851 STOLEN VEHICLE RPT Address: 2323 MCBRIDE LN WILLOW TREE APTS
Offense: 10851(A) VC (FEL) THEFT OF VEHICLE Premise: PARKING LOT / GARAGE Beat: 1

Synopsis: [redacted]ported her vehicle was stolen from the carport at 2323 McBride Lane. No suspect information.

Created: 3/4/2024, 10:50 AM Edited: 3/4/2024, 10:50 AM edit

Event #: SR240610113 Case #: SR240002547 Felony Assigned
Date Reported: 3/1/2024 1222 - Last Secure: 2/29/2024 2200
Event Type: 10851 STOLEN VEHICLE RPT Address: 1851 SALEM AVE ALPINE APARTMENTS
Offense: 10851(A) VC (FEL) THEFT OF VEHICLE Premise: HIGHWAY / ROAD / ALLEY / STREET Beat: 2

Synopsis: Vehicle was parked on the street and stolen from 1851 Salem. Unknown suspect.

Created: 3/4/2024, 10:46 AM Edited: 3/4/2024, 10:46 AM edit

Event #: SR240610139 Case #: SR240002553 Felony Assigned
Date Reported: 3/1/2024 1403 - Last Secure: 2/27/2024 2230 - Date Found: 2/28/2024 1030
Event Type: 10851 STOLEN VEHICLE RPT Address: 1980 SANTA ROSA AVE TARGET SOUTHSRPD
Offense: 10851(A) VC (FEL) THEFT OF VEHICLE Premise: PARK / PLAYGROUND Beat: 8

Synopsis: RP reported a Uhaul she rented was taken from a parking lot. Later located and recovered.

Created: 3/4/2024, 10:44 AM Edited: 3/4/2024, 10:44 AM edit

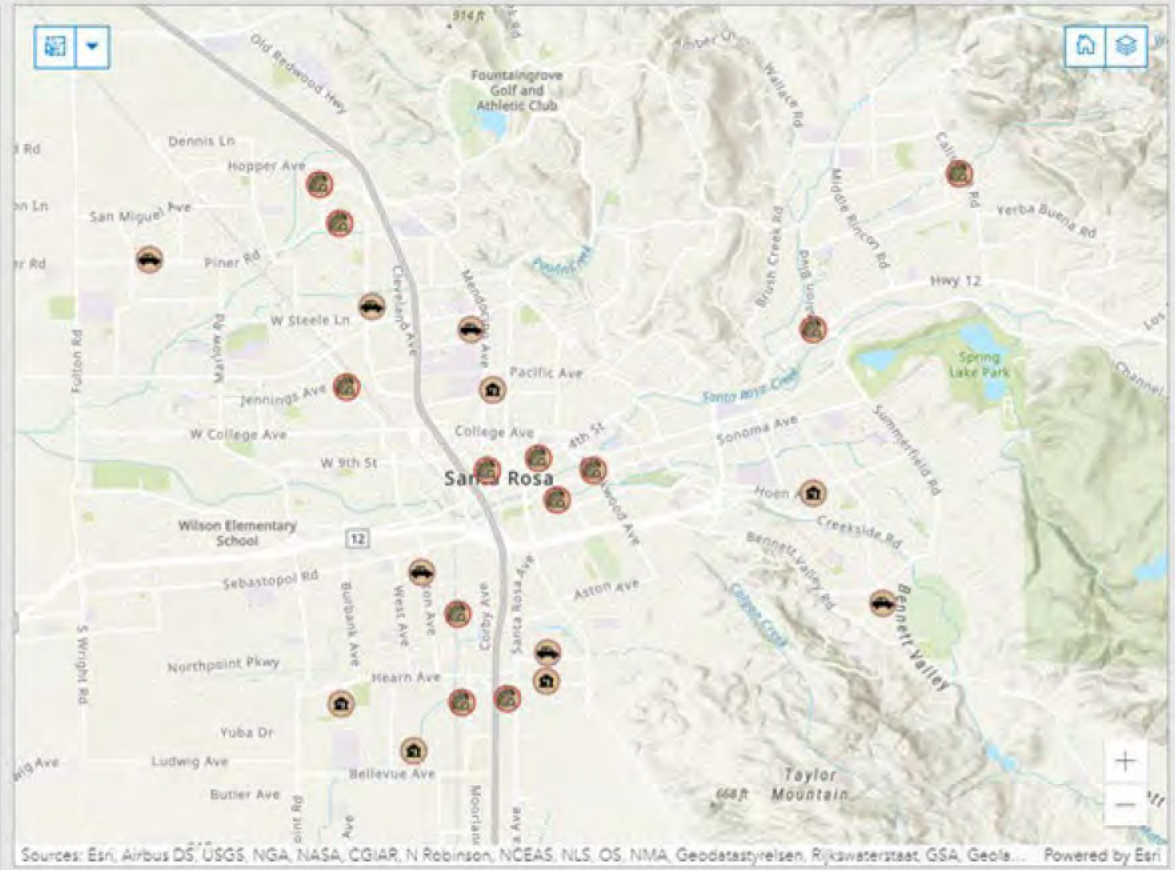
Event #: SR240610079 Case #: SR240002546 Felony Assigned
Date Reported: 3/1/2024 1035 - Last Secure: 2/29/2024 2300 - Date Found: 3/1/2024 1000
Event Type: 10851 STOLEN VEHICLE RPT Address: 2015 PIONEER WAY 1 UNIT AT PIONEER 2000
Offense: 10851(A) VC (FEL) THEFT OF VEHICLE Premise: PARKING LOT / GARAGE Beat: 3

Synopsis: Victim reported her SUV taken from her parking spot overnight without permission.

Created: 3/4/2024, 9:34 AM Edited: 3/4/2024, 9:34 AM edit

Event #: SR240630142 Case #: SR240002618 Felony Assigned
Date Reported: 3/3/2024 1405
Event Type: 594JO VANDALISM JUST OCCURRED Address: 801 4TH ST UMPQUA BANK
Offense: 594(B)(1) PC (FEL) VANDALISM ($400 OR MORE) Premise: BANK / FINANCIAL INSTITUTION Beat: 9

Synopsis: Suspect threw rocks through multiple bank windows causing thousands of dollars in damage and booked into jail.
Arrestee(s): S[redacted]1)



Pattern/Series/Trend Name	Add New
DISTRACTION Theft M.O.	Remove
Downtown Commercial Window Smash	Remove
Graffiti - GANG	Remove
Graffiti - TAGGER	Remove
High-Performace Car Theft	Remove

Notes

RED 2018 CHEVY CAMARO, CA 8PBA823.
Last Flock ALPR hit on Jan 19 at 02:58 hours (Davis St SB @ 6th St).
Similar case SR240000696, same vehicle make/model/year, taken on Jan 18.
Possible these two vehicles are seen on Davis St fixed ALPR on Jan 19 at 0258 hours.

Crime Association (Trend, Pattern, Series)

Crime Association Type

Series

Crime Association Name

High-Performace Car Theft

Crime Association Certainty

Low | Low-Medium | Medium | Medium-High | High

Submit

Powered by ArcGIS Survey123

SRPD Property Crime Review Panel

AddTime	ModTime	Offense Level	Inv. Status
Any	Any	All	All

Event #: SR240190044 Case #: SR240000733 Felony **Assigned**
Date Reported: **1/19/2024 0637**
Event Type: **10851 STOLEN VEHICLE RPT**
Offense: **10851(A) VC (FEL) THEFT OF VEHICLE**
Address: **933 EDWARDS AVE 3** LOS ROBLES APTS THE RENTAL PLACE 458 W COLLEGE
Premise: **PARKING LOT / GARAGE**
Beat: **1**

Synopsis: At some time between 0000 and 0600 on 01/18/2024, [redacted] had his vehicle stolen from his apartment parking lot located at 933 Edwards Ave #3. CHP 180 completed and vehicle entered into the stolen vehicle registry.
Analysis: RED 2018 CHEVY CAMARO, CA 8PBA823. Last Flock ALPR hit on Jan 19 at 02:58 hours (Davis St SB @ 6th St). Similar case SR240000696, same vehicle make/model/year, taken on Jan 18. Possible these two vehicles are seen on Davis St fixed ALPR on Jan 19 at 0258 hours.
Crime Series, High-Performace Car Theft, Confidence: High
Created: 1/22/2024, 12:32 PM Edited: 2/23/2024, 10:06 AM
edit

Event #: SR233330022 Case #: SR230015083 Felony **Closed**
Date Reported: **11/29/2023 0327**
Event Type: **10851 STOLEN VEHICLE RPT**
Offense: **10851(A) VC (FEL) THEFT OF VEHICLE**
Address: **1354 RANGE AVE # 207**
Premise: **PARKING LOT / GARAGE**
Beat: **1**

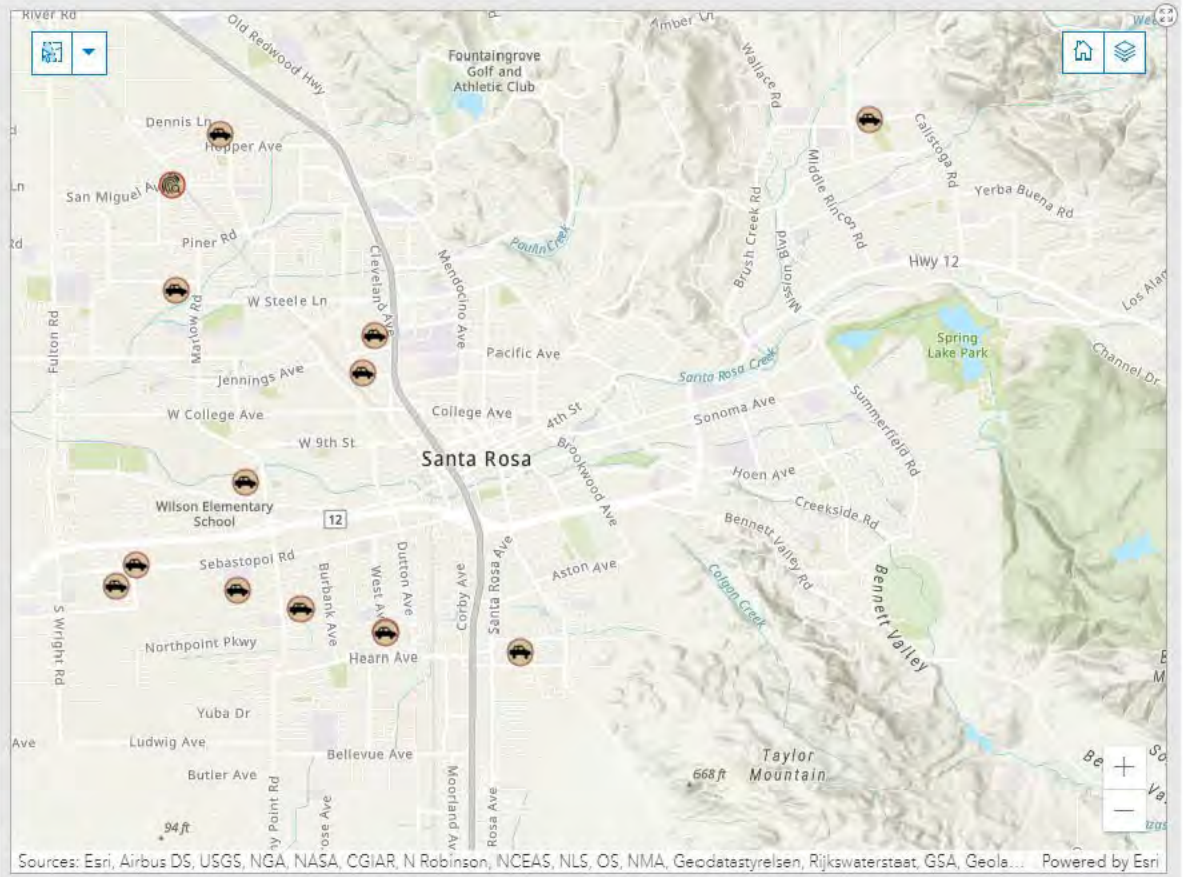
Synopsis: An unknown suspect stole the victims vehicle. The vehicle was tracked by OnStar and recovered by Napa Police Dept.
Analysis: White, 2018, Cadillac, CTS, 9FVE746 - Recovered by Napa along with Corvette from 23-15084
Crime Trend, High-Performace Car Theft, Confidence: High
Created: 11/29/2023, 9:18 AM Edited: 2/23/2024, 10:06 AM
edit

Event #: SR240300053 Case #: SR240001170 Felony **Assigned**
Date Reported: **1/30/2024 0751** - Last Secure: **1/29/2024 0200**
Event Type: **10851 STOLEN VEHICLE RPT**
Offense: **10851(A) VC (FEL) THEFT OF VEHICLE**
Address: **1964 RESPITE PL**
Premise: **HIGHWAY / ROAD / ALLEY / STREET**
Beat: **3**

Synopsis: Unknown suspect stole victims custom white 2019 Chevrolet Camaro, valued at $80,000.
Analysis: No Flock hits since Jan 2nd (last checked Jan 31).
Crime Trend, High-Performace Car Theft, Confidence: Med High
Created: 1/31/2024, 9:41 AM Edited: 2/23/2024, 10:06 AM
edit

Event #: SR233330025 Case #: SR230015084 Felony **Assigned**
Date Reported: **11/29/2023 0437**
Event Type: **10851 STOLEN VEHICLE RPT**
Offense: **10851(A) VC (FEL) THEFT OF VEHICLE**
Address: **1737 FENWICK DR**
Premise: **DRIVEWAY (RESIDENTIAL)**
Beat: **5**

Synopsis: Victim's vehicle was stolen overnight. Victim was unaware of the theft until I woke him up. The vehicle was recovered in Napa where the occupants fled from the vehicle.
Analysis: White, 2019, Chevy, Corvette, 8PEB178 - Recovered by Napa along with Cadillac from 23-15083
Crime Trend, High-Performace Car Theft, Confidence: High
Created: 11/29/2023, 10:08 AM Edited: 2/23/2024, 10:06 AM
edit



Pattern/Series/Trend Name	Add New
DISTRACTION Theft M.O.	Remove
Downtown Commercial Window Smash	Remove
Graffiti - GANG	Remove
Graffiti - TAGGER	Remove
High-Performace Car Theft	Remove

LET'S TALK ABOUT DATA

KNOW your data

What tables and fields do you have available?

How do they relate to one another?

Where are your gaps?

CENTRALIZE your data

Leverage your existing CAD & RMS (etc) databases, use the XYs

Databases provide structured storage & easy access to vast amounts of data

Users can quickly retrieve and query accurate & timely information

CONTROL what's coming in where you can

Reduce human error

Make it nearly impossible to input mistakes

Streamline workflows

SECURE your data

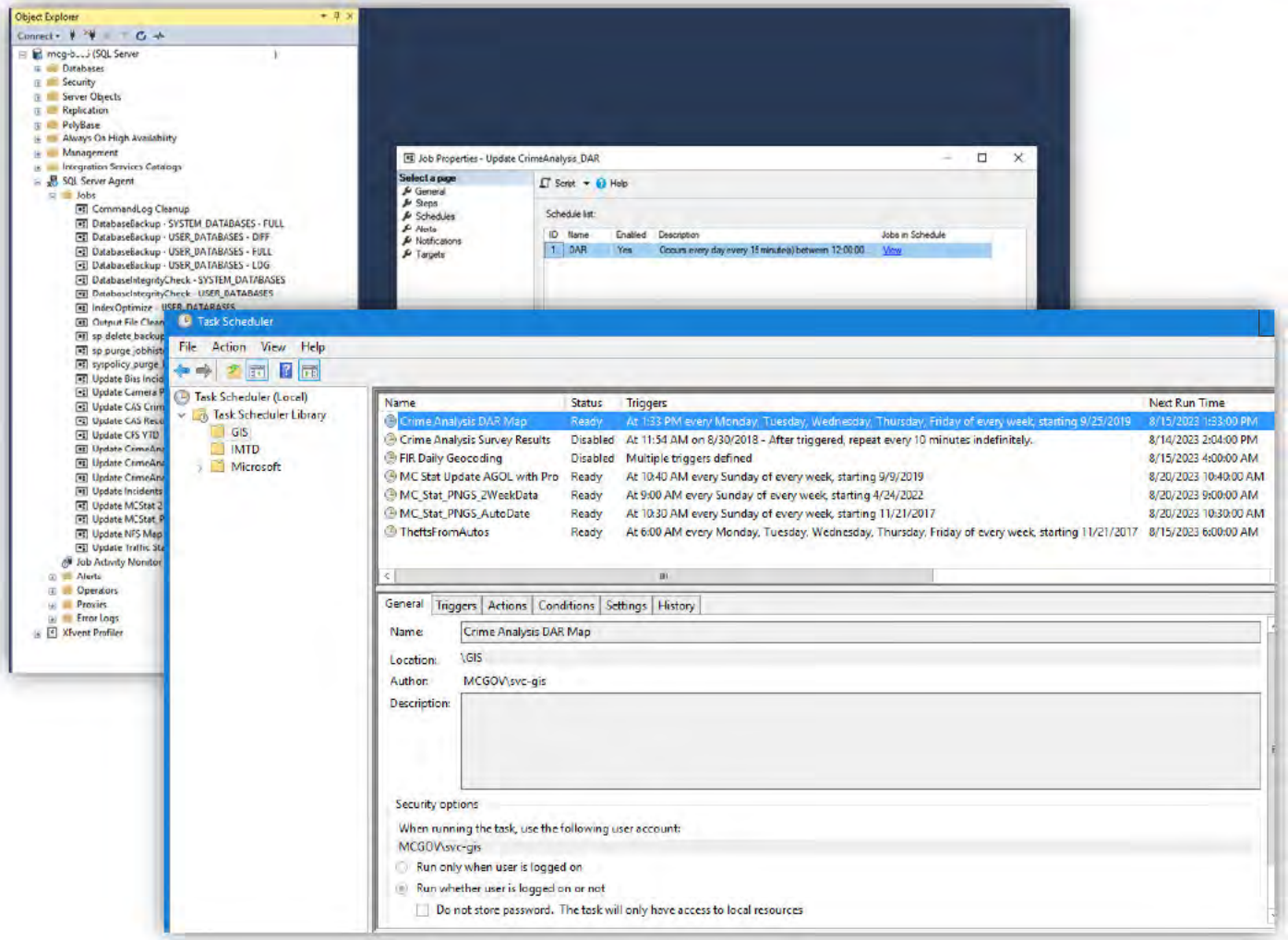
CJIS compliance

Make use of single-sign on, groups, sharing

Be aware of what you are putting out

AUTOMATE AS MUCH AS YOU CAN

- No reason to do the same tasks manually over and over
- Explore ModelBuilder, Python
- Schedule jobs
  - ArcGIS Pro tools can now be scheduled
  - Database management system (e.g., SQL Server)
  - Windows task scheduler
- Power Automate or Make for emails and other workflows



…BUT YOU DON'T HAVE THE STAFF/TIME/RESOURCES

Advocate, advocate, advocate

Reach out to your DBA, IT, GIS colleagues

Show the art of the possible

Bring in Esri

Ask around your region to see what others are doing. Make connections!

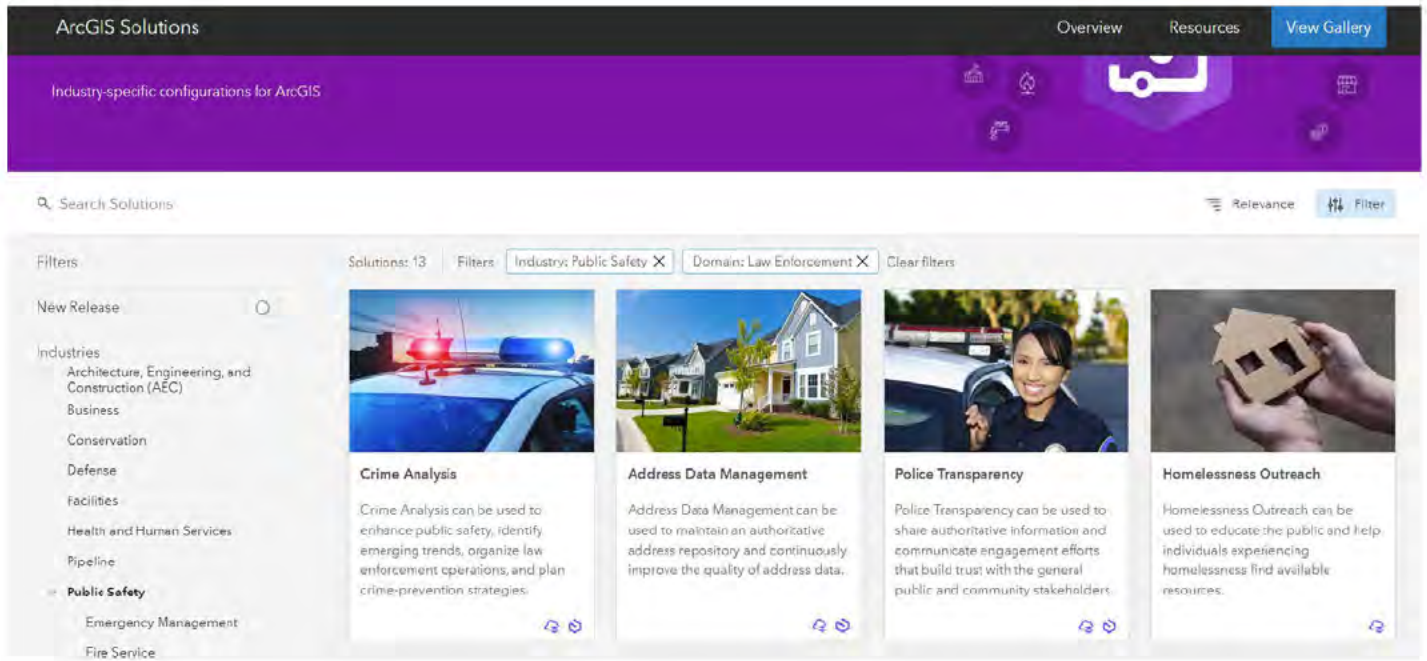
Training and keeping up-to-date is critical

CAVEATS/CHALLENGES

- Esri licensing
- Network security/firewalls
  - Must carefully consider how this is set up
  - CJIS compliance
- Training

ARCGIS SOLUTIONS FOR LAW ENFORCEMENT

- Helpful if starting from scratch
- If not, use for ideas
- Link



QUESTIONS

Thank you!

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Mharris@srcity.org

03 | Wrap Up

Q&A

Back To Our Roots PrepTech Talk Schedule

- April 10th, 2024: Fighting Fire with Data – The National Emergency Response Information System (NERIS)
- June 2024: GIS for Fire Analysis
- August 2024: Public Safety GIS Symbology
- November 2024: Emergency Medical Service GIS

THANKS!

Do you have any questions?
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napsgfoundation.org/

@napsgfoundation