





Aston Township

Delaware County, PA

Automatic License Plate Reader (ALPR) & Overview Camera Program

19 July 2023

Commissioner J. Dougherty, Police Committee

Ofc. J. Ryan, ATPD



- **Project Background**
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Project Background



- **Less than Optimal Clearance Rates**
- **We are a “Cut Through” Township => I-95**
- **Technology as a Force Multiplier**
- **We were behind the times**

- **Project Start Date = December 2019**



The Technology

CAMERAS



Two types of cameras are currently in use

ALPR

- Automatic License Plate Reader
- Interfaces with web platform
 - Provides alerts to officers in real time
 - Provides images of rear of vehicles for investigations

OVERVIEW

- “Birds Eye” view of intersection
- Provides live view to Officers in station
- Provides 1080p video record of intersection
 - Stored for approximately 2 weeks

ALPR System



- Service is provided by ViPR
 - *Formerly named PlateLogiq*
 - Local Business based in Chester County, PA
-
- LPR System records license plates as they travel through intersections equipped with ALPR cameras.
 - Systems records date, time, vehicle type, registration plate, and image of vehicle
 - These records are stored in the secure system for a 1-year period.
 - Registrations are compared in real time to “hotlists”
 - Stolen vehicle, AMBER Alert, Silver Alert lists

ALPR System



- **LPR records available only to authorized law enforcement**
- Accessible via secure web portal
 - 2 Factor Authentication
 - Security is CJIS (FBI) Compliant
 - Security audits performed on system by PA State Police
 - Officer use logged / subject to internal audits by ATPD

ALPR System Provides:

- ***Real Time Alerts to Officers***
- ***Investigative Resource for 1 year***
- ***Traffic Flow / Road Usage Data***

ALPR System

Real Time View - Example



The screenshot displays the ALPR system's real-time view. On the left, an 'Alerts' sidebar shows a list of alerts for vehicle RC05867, with the most recent one from 43 seconds ago. The main area features a map with a vehicle icon and a detailed view of the vehicle. The vehicle is a dark-colored convertible with license plate RC05867. The status is 'Suspended', and the alert is 'PennDOT Suspended'. The location is identified as 'DELA25 - CONCORD RD / DUTTONS MILL RD' and 'DUTTON MILL EAST'. The alert was triggered 44 seconds ago. Below the vehicle details, there is an 'Alert Details' section indicating the alert is effective from 2022-12-10. At the bottom, there are buttons for 'Unfreeze This Alert' and an 'Actions' dropdown menu. A 'Jump To Map' button is also visible. The interface includes a search bar at the top right and a 'Vehicle Gallery' button at the top left.

Real Time View is kept running in Police Vehicles

** Sample Vehicle / Screen Shown **

ALPR System

Investigative - Example



Search Vehicle Details Alerts Search

Choose Timeframe: 1h 24h 7d 30d All
Date Range: 07/12/22, 06:34 PM - 07/12/22
Site: Search Sites
Camera: Search Cameras
Vehicle Make: Vehicle Make
Vehicle Body Style: Vehicle Body Style

Search: RC05867

Find via map: Map Satellite

Advanced Filters: Clear all

- Day/Color
Vehicles visible in daylight
- Vehicle Model**
 - Mx-5 (11)
 - Cr-V (1)
- Car Color**
 - Black (11)
 - Charcoal (1)

12 Results [Export](#)

Image	License Plate	Vehicle Make, Model and Color	Created	Location	Actions
	RC05867 Pennsylvania	Mazda, MX-5, Black	Tue, Jun 20, 2023 9:05 PM	DELA28 - CONCORD RD / ASTON MILLS RD	Search Download
	RC05867 Pennsylvania	Mazda, MX-5, Black	Tue, Jun 20, 2023 9:03 PM	DELA20 - PENNELL RD / 5 POINTS CONCORD RD WEST	Search Download
	RC05867 Pennsylvania	Mazda, MX-5, Black	Tue, Jun 20, 2023 7:39 PM	DELA20 - PENNELL RD / 5 POINTS PENNELL RD SOUTH	Search Download

- Search for specific vehicle based on registration
- Search for vehicle based on make / model / color
- Search specific intersection or direction

** Sample Vehicle / Screen Shown **

Overview System

Intersection Overview Cameras



- Footage is live streamed to station
 - Has allowed officers to respond to serious accidents prior to dispatch – expediting response
- Footage is stored for 2 weeks on local, secure hard drive
 - Allows for review of footage after the fact
 - Has been used numerous times to determine cause of accident
 - Has been used to assist in criminal investigations (subjects fleeing on foot)
 - **System does NOT utilize facial recognition**

Overview System

Live View



1 / Pennell & Duttons Mill - SE

2 / Concord & Bridgewater - NE

3 / Concord & Dutton Mill - N

4 / Pennell & Duttons Mill - NW

5 / 5 Points - SE

6 / Concord Rd & Aston Mills Rd - N

7 / Concord & Dutton Mill - S

8 / 5 Points - NW

9 / Concord Rd & Aston Mills Rd - S

10 / Concord & Bridgewater - SW

Overview System

Historical View



Historical View replays in HD quality.



Locations, Phases & Costs

Camera Locations, Phases & Costs



Phase #	Location	BOC approval	Date "LIVE"	Cameras	Cost
1	5 Points	Apr-21	Mar-22	ALPR / Overview	\$7,935 / yr
1	Pennell & Dutton Mill	Apr-21	Mar-22	ALPR / Overview	\$5,800 / yr
2	Concord & Bridgewater	Feb-22	Apr-23	ALPR / Overview	\$11,824 / yr
2	Concord & Aston Mills	Feb-22	Apr-23	ALPR / Overview	\$12,240 / yr
2	Concord & Dutton Mill	Feb-22	Apr-23	ALPR / Overview	\$11,824 / yr
3	Pennell & Glendale	Apr-23	Q3 2023	ALPR / Overview	\$8,285 / yr
3	Pennell & Lehr	Apr-23	Q3 2023	Overview	\$2,215 / yr
3	Pennell & Lamp Post	Apr-23	Q3 2023	Overview	\$2,215 / yr
3	Pennell & Springbrooke	Apr-23	Q3 2023	Overview	\$2,215 / yr
3	Pennell & Weir	Apr-23	Q3 2023	Overview	\$2,215 / yr
3	Pennell & Hall	Apr-23	Q3 2023	Overview	\$2,215 / yr
3	Concord & Pancoast	Apr-23	Q1 2024	Overview	\$2,215 / yr
3	Concord & Lehr	Apr-23	Q1 2024	Overview	\$2,215 / yr
				TOTAL	\$73,413

Phase 2

ALPR

Concord & Dutton Mill Road



Location 3 – Concord Road and Dutton Mill Road – LPR

PLATELOGIQ will provide and install advanced license plate recognition cameras on each of the main arms as shown in Figure 5.

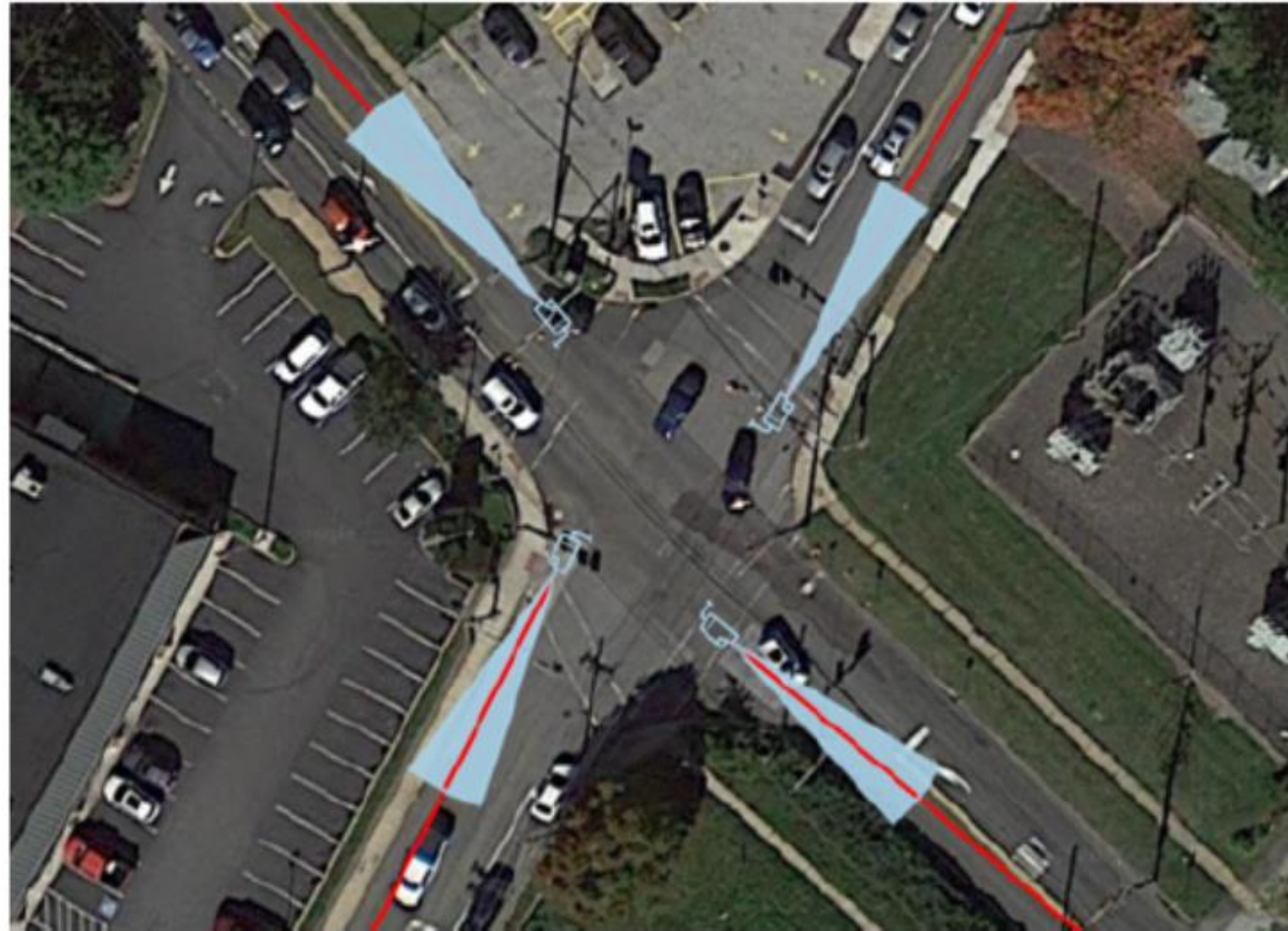


Figure 5 – Concord Rd. / Dutton Mill Rd. LPR Overview

Phase 2

Overview Camera Concord & Dutton Mill Road



Location 3 – Concord Road and Dutton Mill Road – Overview Cameras

PLATELOGIQ will optionally provide and install two ultra-high definition (UHD) 4K cameras to provide a complete overview of the subject intersection. These cameras will be mounted on the vertical traffic signal shafts as shown in Figure 6.



Figure 6 – Concord Rd. / Dutton Mill Rd. Overview Cameras

Phase 3

Overview Camera / ALPR Pennell & Glendale



Location 4 – Pennell Road and Glendale Boulevard – LPR

PLATELOGIQ will provide and install advanced license plate recognition cameras on each of the mast arms as shown in Figure 7.

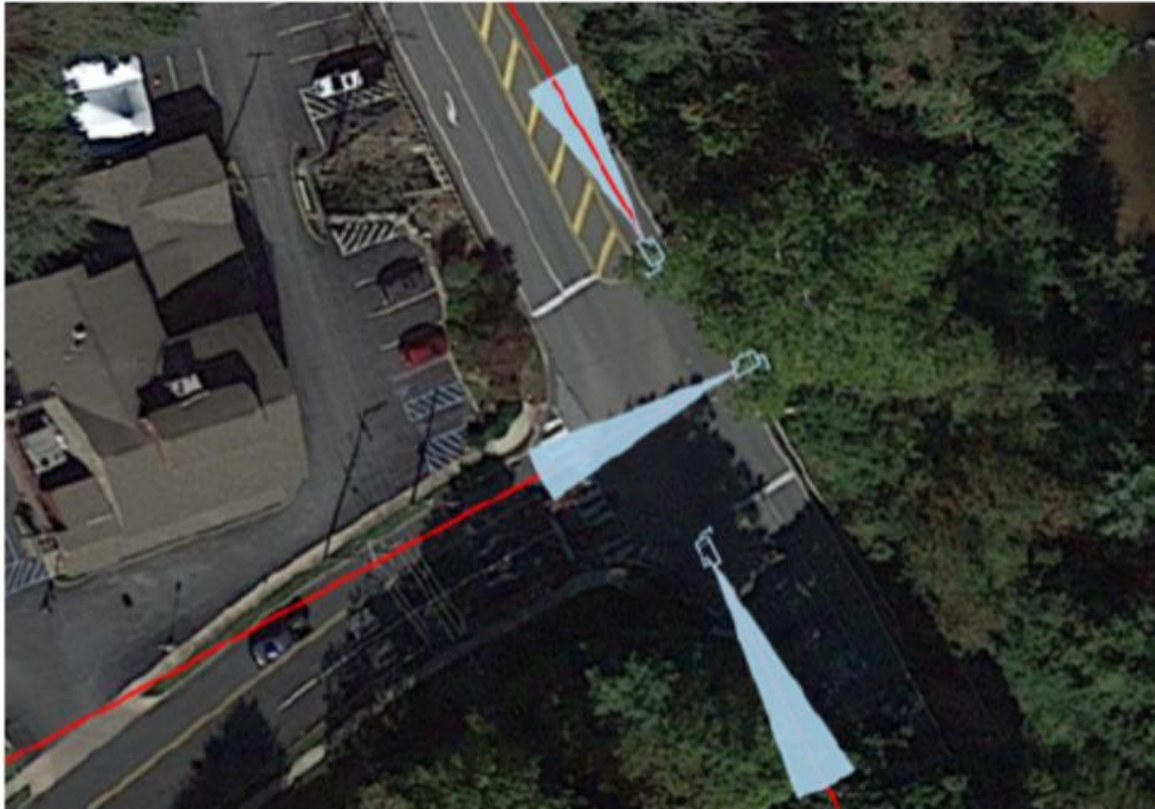


Figure 7 – Pennell Rd. / Glendale Blvd. LPR Overview

Location 4 – Pennell Road and Glendale Boulevard – Overview Cameras

PLATELOGIQ will optionally provide and install two ultra-high definition (UHD) 4K cameras to provide a complete overview of the subject intersection. These cameras will be mounted on the vertical traffic signal shafts as shown in Figure 4.

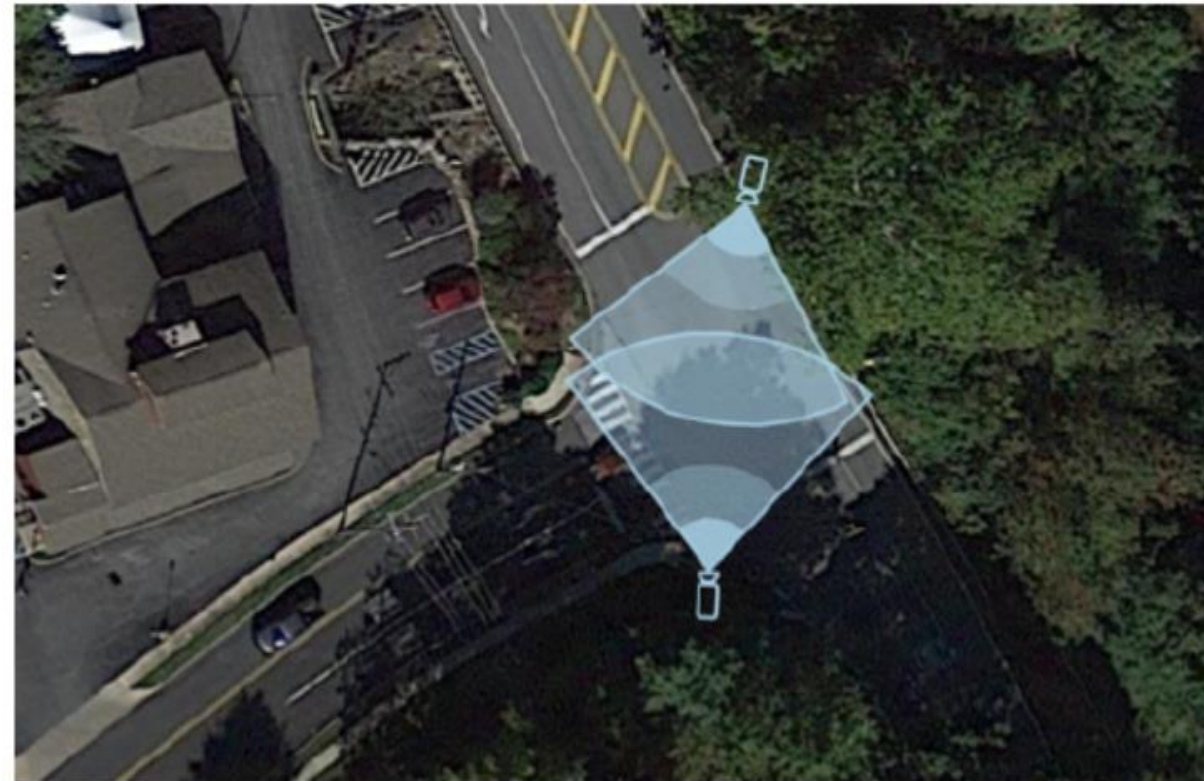


Figure 8 – Pennell Rd. / Glendale Blvd. Overview Cameras



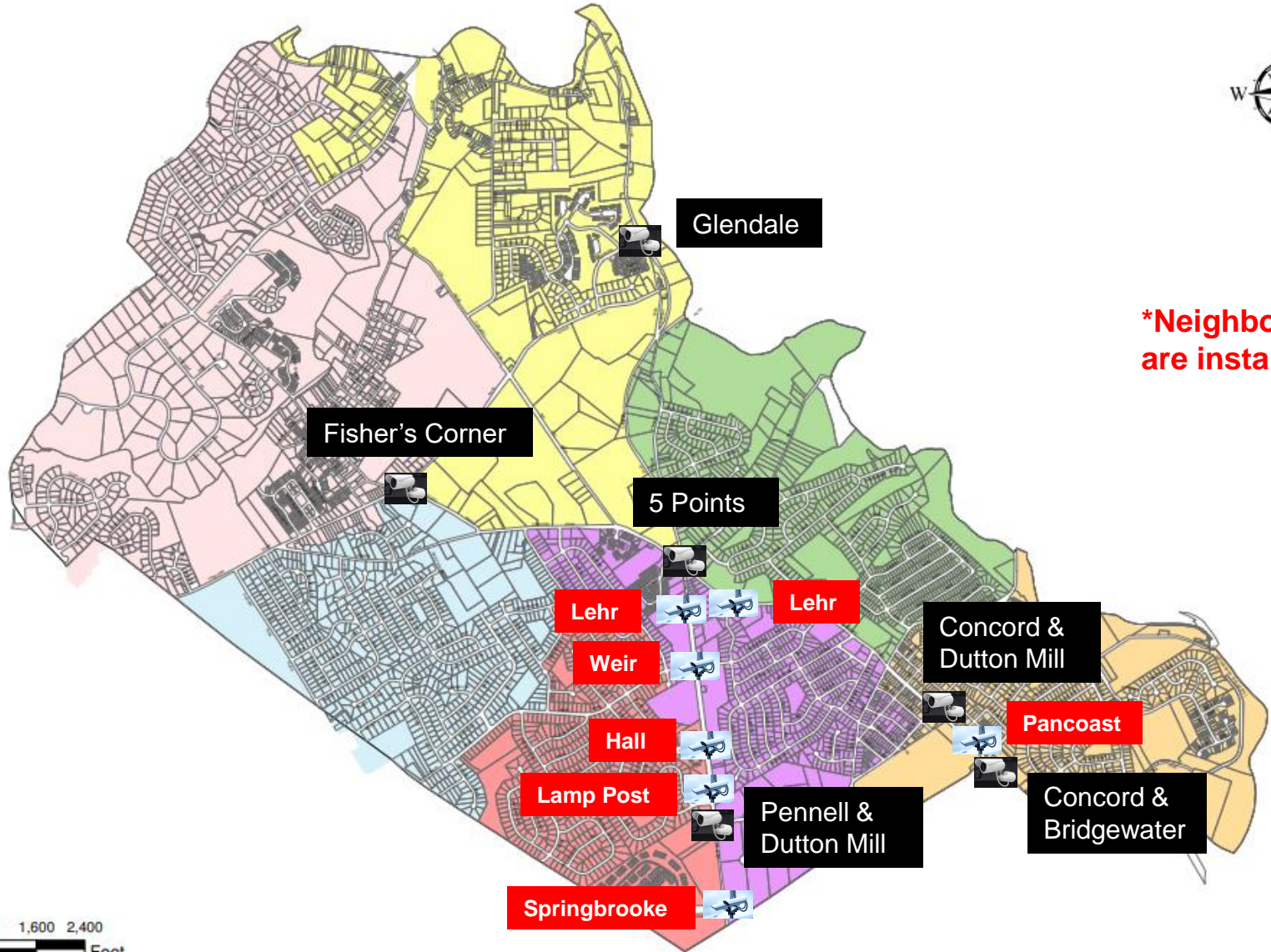
ALPR & Overview Camera Locations

Current & Future Sites

ALPR & Overview Cameras

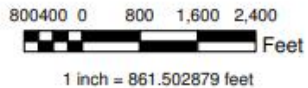


Overview Cameras ONLY



***Neighboring Municipalities are installing their own ALPRs**

- Legend**
- Wards**
- WARD**
- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7





Results

Average Traffic Volume per Month



Location	# of Vehicles per Month
5 Points	1,100,000
Pennell & Dutton Mill	835,000
Concord & Dutton Mill	817,000
Concord & Aston Mills	641,000
Concord & Bridgewater	600,000

Data Reporting / Validation



- ATPD Officers are required to complete reports for all calls for service
 - *ATPD conducts regular audits of data to ensure accurate data entry into report writing systems*
- Reports are used to submit crime data to the PA State Police / FBI as required by law
- This system is referred to as Unified Crime Reporting (UCR)
- UCRs are broken into two categories:
 - Part I & Part II
- UCR offenses are “**cleared**” if an arrest is made, crime was unfounded (did not occur) or via exception (victim declines prosecution, ect)

UCR Categories



PART I

- Murder
- Rape
- Robbery
- Assault
- Burglary
- Theft Offenses
- Vehicle Theft
- Arson
- Human Trafficking

PART II

- Forgery / Counterfeiting
- Fraud
- Embezzlement
- Possessing Stolen Property
- Vandalism
- Illegal Weapons Offenses
- Prostitution
- Other Sex Offenses
- Drug Offenses
- Gambling Offenses
- Offenses against Family
- DUI
- Liquor Law Offenses
- Drunkenness
- Disorderly Conduct
- Curfew / Loitering
- *All other non-traffic offenses*

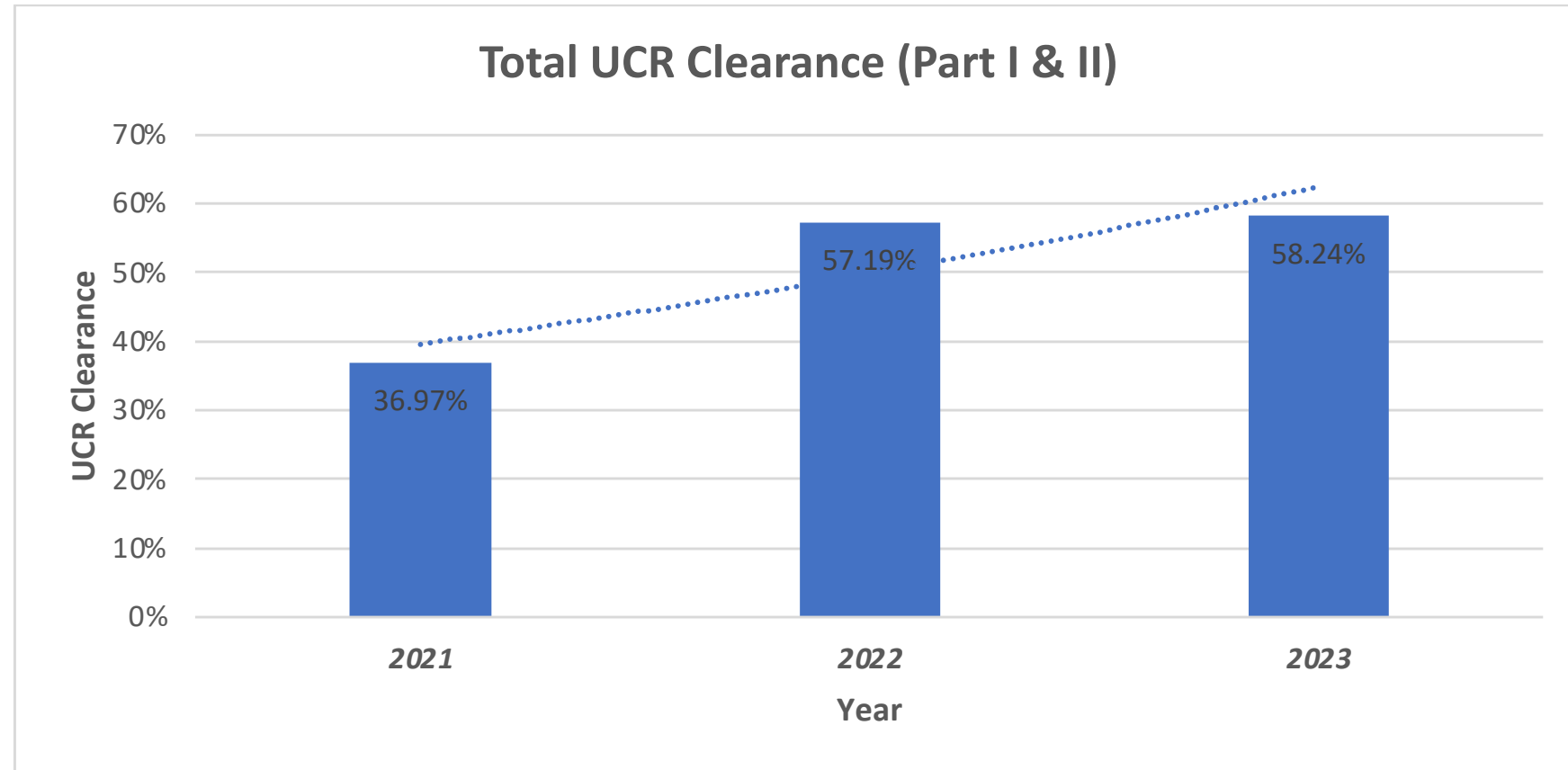
Data Analysis



- UCR Data was compiled and compared pre / post camera project
 - Data compared between calendar year prior camera implementation to present
 - Cases which were still under investigation were excluded
- **Significant increase in UCR case clearance since camera system in place**

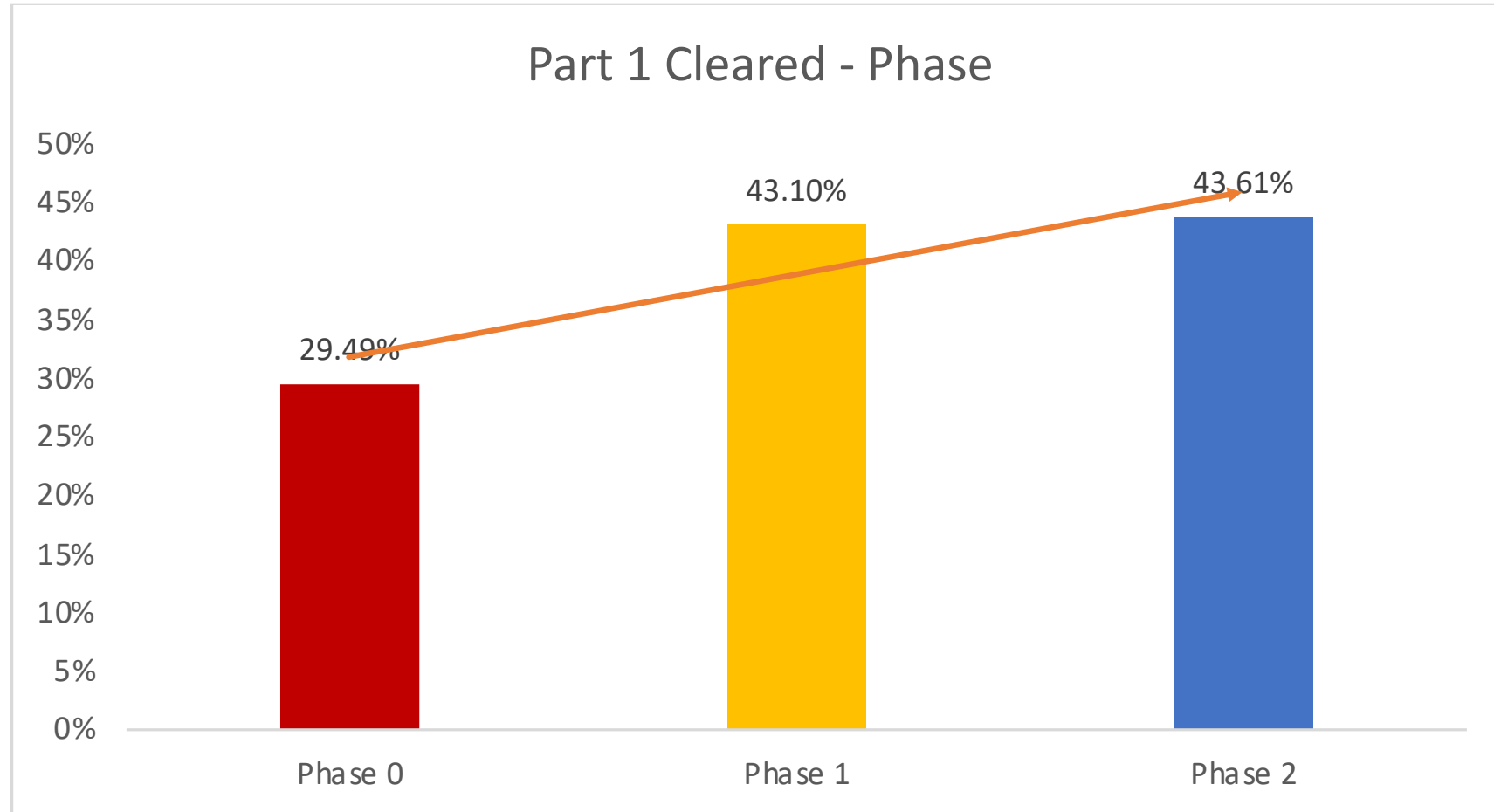
Data Analysis

UCR Part I & II



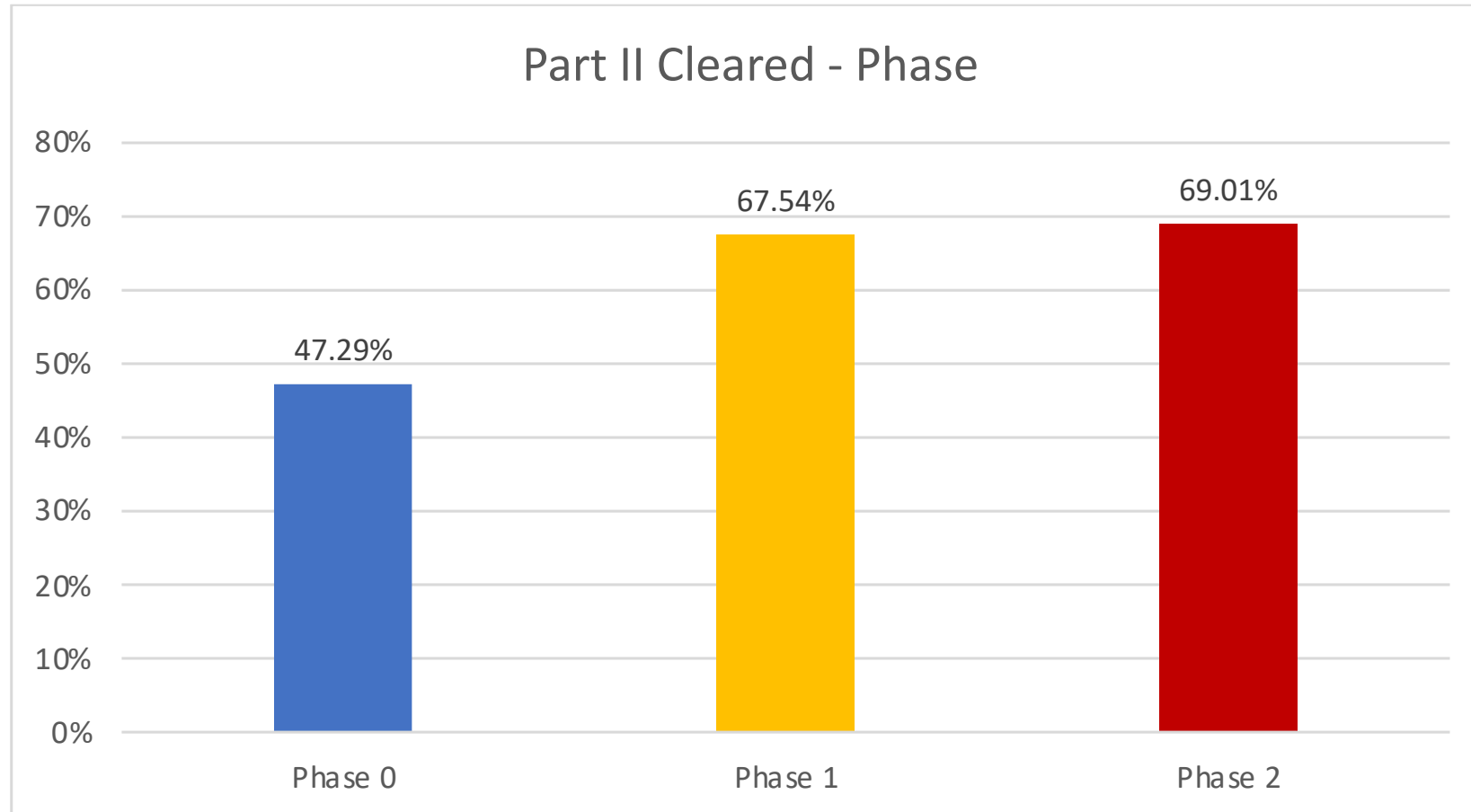
Data Analysis

UCR Part I



Data Analysis

UCR Part II





Case Studies

Case Studies

Example 1 – Missing Persons



- ATPD received report of **elderly couple** which had not returned home from trip
- Last seen over 300 miles away, outside of PA
- Family members were unable to make contact
 - Very concerned due to age of missing individuals

- Use of ALPR system allowed for officers to determine last known location of the vehicle on PA Turnpike
 - Vehicle had not returned to Aston
- Officers, contacted PA State Police and determined individuals had been involved in an auto accident on Turnpike
- ATPD was able to contact concerned family members and direct them to the hospital which they were transported

Case Studies

Example 2 – Armed Robbery



- ATPD dispatched to local business for an **armed robbery**
- Video cameras from store were used to identify vehicle

- Vehicle from store CCTV footage was found passing through intersection adjacent to business via ALPR prior to / after robbery
- Registration information provided information for vehicle owner
 - Suspect identified as passenger in vehicle
- **With assistance of neighboring agencies the suspect was identified and arrested within 3 hours of the robbery**

Case Studies

Example 3 – Multijurisdictional Theft



- Theft report at local school – Occurred prior weekend
 - Training equipment used by students had been stolen from the facility's property
 - Equipment valued at \$2150.00
 - **ALPR system (Phase 1) had been active for less than 1 week**

- School CCTV footage showed suspects arrive in rental truck
 - Distinctive features observed on rental truck
- ALPR records were checked, with the vehicle used during the offense identified
 - Rental agency was contacted and confirmed vehicle had not been returned on due date / was missing
 - Registration entered into Hotlist
- Vehicle passed through Aston – Triggering Alert
 - Officers alerted via system – Vehicle is pulled over by Officers
 - Occupants matched suspects in CCTV
 - Vehicle seized – Search Warrant obtained and vehicle searched
 - Various items were identified – Photographs were sent to neighboring agencies
- PA State Police believed some pictured items may have been stolen from their jurisdiction
 - Items confirmed to be remnants of stolen items from PA State Police theft
 - **Both suspects successfully charged by PA State Police / Aston Township Police in joint proceeding**
- Suspects were later charged for similar offense in Chester County based on ATPD / PSP Investigation
 - ChesCo theft occurred same week as ATPD / PSP thefts

Case Studies

Example 4 – Multistate Burglary Ring



- ATPD was alerted of a stolen vehicle traveling through Aston via ALPR system
- Check of area after quick response by officers revealed the vehicle had fled Aston

- Vehicle registration & description provided by ALPR
 - Confirmed stolen via armed robbery in Delaware
- Overview cameras were checked, showing the vehicle slowing as it passed a local business
- **Officers identified the vehicle as similar to vehicle used in burglaries / robberies of the same business chain in NJ, DE, PA and MD**
 - Possibly involved in robbery / shooting in VA
- Business of same chain was confirmed burglarized in neighboring jurisdiction *moments* later
- Registration and description were provided instantly to surrounding agencies via radio
 - Neighboring agency located vehicle as it crossed out of state – Followed until arrival of police from that state
- Neighboring State Police agency initiated pursuit of suspect / stolen vehicle
 - **Suspect captured by neighboring State Police agency directly as it fled from Pennsylvania burglary**
 - **Possible stolen firearm and items taken in PA burglary recovered**
 - **Other vehicle involved in the multi-state burglary ring was located during the pursuit**
 - **Suspect was believed to be “casing” the Aston business for later burglary attempt**

Acknowledgments



- Ofc. John Ryan
- Sgt. Chad Osborn (ret.)
- Det. Tom Giancristoforo

www.Astontownship.net

www.AstonPD.org

