

Addison Police Department

License Plate Recognition System and Optical Cameras Pilot Project Report

April 2019 – April 2020

Police Chief Paul Spencer
Presented to Addison City Council on May 26, 2020

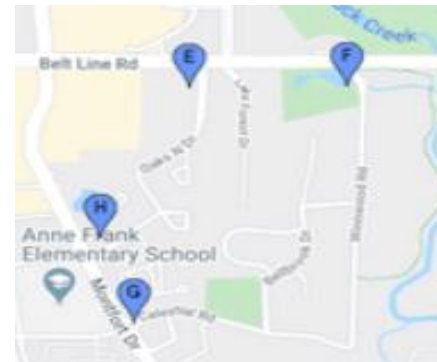
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About the License Plate Recognition (LPR) System

Based on Council's direction to explore additional technologies for Addison's public safety efforts, the Addison Police Department identified two key programs: License Plate Recognition and Optical Cameras.

The Town selected Vigilant Solutions as a vendor for a suite of comprehensive software including License Plate Recognition (LPR), Facial Recognition (FR), neighborhood system alerts, and commercial data alerts. The goal of Council and the Addison Police Department is to use this software to increase community safety and the protection of property.



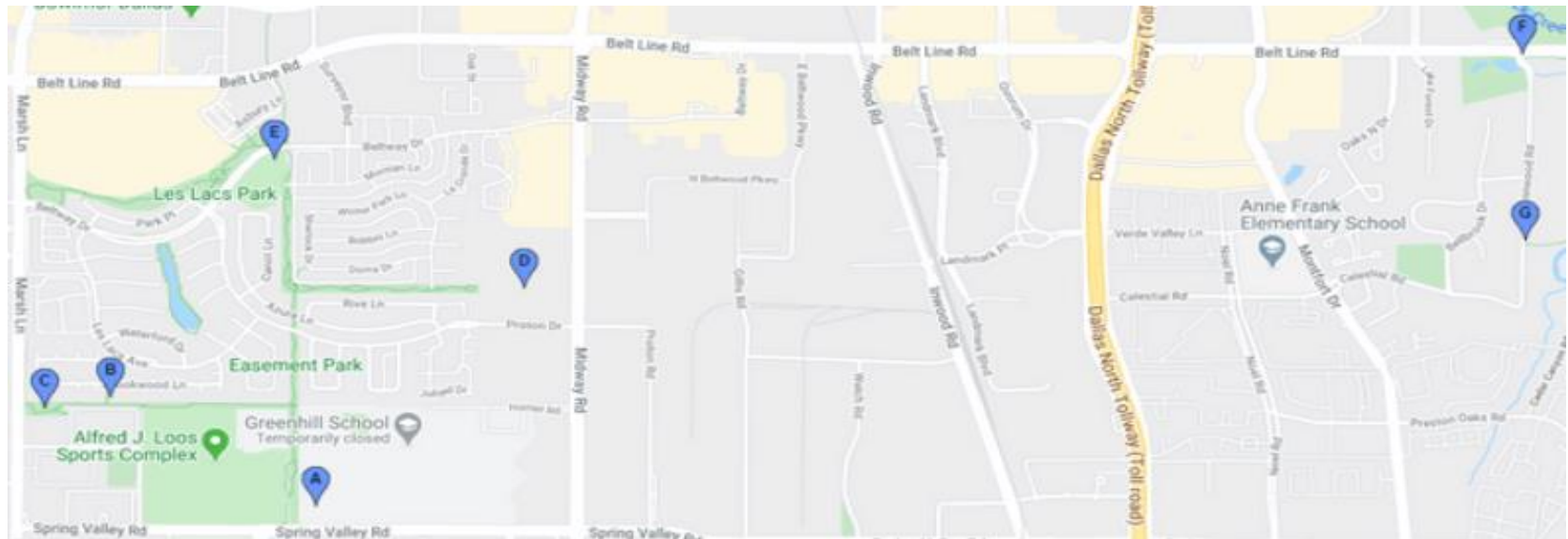
The Town installed LPR equipment in eight locations in the Midway Meadows/Les Lacs and Oaks North/Winnwood neighborhoods. The systems are located at each neighborhood street entrance and scan traffic in both directions. All stored data is purged every 45 days in accordance with Town policy.

About Optical Camera Technology



Seven optical video cameras were installed along Linear, Redding and White Rock Creek Trails to increase neighborhood safety in areas that sometimes feel more isolated.

Investigators can request to pull stored footage when an incident is reported. Additionally a live feed is available to patrol officers on their in-car computers.



Facial Recognition Technology



Facial Recognition (FR) software allows an investigator who has undergone extensive training to select a picture of a suspect from social media, business surveillance cameras, body cameras, or other sources and compare it against a list of jail book-in photos. The user manually looks through these matches to find a possible suspect.

Using FR software detectives have solved 8 cases where the victim was targeted by a partially known or completely unknown person. Warrants were written for suspects of two residential burglaries, a commercial burglary, an aggravated robbery, and a case of credit card abuse.

Case Study:

A resident whose apartment was burgled the day before had a peculiar conversation with one of his neighbors. The suspect asked about specific stolen items and other information he should not have known. The resident called 911 and officers detained the suspect in the parking lot.

After giving a fake name Officers took a picture of him and sent it to investigators, who found a possible match using FR. Officers realized the date of birth and social security number given by the suspect were each a number off from the matched person. He was arrested for failure to identify and residential burglary.

LPR Use: Patrol



Neighborhood system LPR alerts have been crucial for Patrol operations. Addison officers receive immediate alerts from our neighborhood LPR equipment on their in-car computers.

Vehicles driving past the equipment whose license plates are tagged by the State of Texas as stolen, belonging to a wanted person, or whose owner is missing will signal an alert showing vehicle information and location. Nearby officers are then able to intercept these persons. This is an incredible force-multiplier for patrol.

STOLEN VEHICLE OR VEHICLE/BOAT PARTS

DATE: 08-13-2019 TIME: 02:57 PM (06:57 PM UTC)

EXACT MATCH ALERT

SAVE DELETE

DETECTION

MAP NEAREST ADDRESS

HOTLIST RECORD

ADDITIONAL IMAGES

ADDITIONAL HITS AVAILABLE 142

STOLEN VEHICLE OR VEHICLE/BOAT P...	4487408
STOLEN LICENSE PLATE	PLU7190
STOLEN VEHICLE OR VEHICLE/BOAT P...	0LV7000
STOLEN VEHICLE OR VEHICLE/BOAT P...	0A43900
STOLEN VEHICLE OR VEHICLE/BOAT P...	7L08801

DETECTION DETAILS

DATE/TIME OF SCAN	08-13-2019 11:57 AM
SCANNED BY	Kyle Huerbush (310) 808-0400
CAMERA NAME	MobileCamperion
HOT PLATE	0A43900
ALERT TYPE	Stolen Vehicle or Vehicle/Boat Parts

Case Study:

Patrol supervisors were alerted that a robbery suspect's plate had been scanned in one of our apartment complexes. Officers were able to conduct surveillance on the area looking for suspects.

The officers recovered the vehicle, obtained a search warrant, and found evidence for our case.

LPR Use: Criminal Investigations



Investigators search through all commercial and neighborhood scans using various filters for date, time, location, and agency. If a decal, rim type, damage, or other unique mark is noted Investigators can scan the Metroplex for weeks looking for that exact vehicle.

Once investigators have identified the suspect vehicle they can use separate software to find the registered owner, any contacts with that vehicle, associated persons, and possible home addresses. If the vehicle is located it can be examined with a search warrant which often produces evidence such as receipts, masks, or stolen items.

Investigators have identified suspect vehicles for serious offenses including two residential burglaries, an aggravated assault, and multiple vehicle burglaries. In a recent home invasion investigators were able to search the suspect vehicle's LPR scans and find a recent home address for him. Officers served the arrest warrant and found additional evidence from our offense inside the vehicle.

Case Study:

A suspect using a stolen credit card without consent likely regrets promoting his rap album to a store clerk. While buying shoes the suspect had a conversation with the clerk about his musical aspirations and bragged about his Instagram account. Detectives used a photo from his social media account compared it against arrestees using the FR software. The suspect was identified, and a felony arrest warrant was issued for credit card abuse.

Phase One: LPR Successes and Challenges



Hardware for the neighborhood equipment is operating as expected. The hardware was expected to capture metal license plates at about 95% accuracy and regular audits have shown that to be true. The LPR systems have not yet required adjustment, replacement, or repair.

Investigators discovered many paper buyer's tags were also scanned if the tag was unwrinkled and in full daylight. Though the ability to capture some paper tags was not an expected feature it has been extremely helpful in several investigations.

A new update called a "Missing Plate" report was recently implemented for our existing neighborhood equipment. This will trigger a scan for all moving objects above a certain speed. This update should help capture vehicles with flawed, unreadable, or no license plates.



Review of Pilot Project Goals



LPR System and Optical Cameras should:

- Assist the police department in their public safety efforts.
- Alert patrol officers if a criminal enters an area protected by the system.
- Provide valuable forensic evidence if a crime does occur.
- Act as a force-multiplier for residential areas when the Town experiences high numbers of calls for service in the business sectors.
- Increase the perception of safety for our residents.



The one-year time period for the pilot project concluded in April 2020. The following summarizes the Addison Police Department's findings.

- The LPR system and optical cameras provided a direct, tangible benefit to our public safety efforts.
 - Patrol officers and detectives use the systems daily.
 - The systems are directly responsible for solving over two dozen crimes.
 - Facial recognition and commercial data are also extremely helpful.
- The equipment is providing the force - multiplying result we anticipated.
 - Alerting officers in the field when a criminal enters our neighborhoods has led to valuable contacts and arrests.
 - Providing valuable forensic evidence after a crime does occur greatly assists detectives.
 - Real time video footage from the optical cameras is accessible in the office or the squad car.
- We need more information from residents on how the system has affected their perceptions of safety in the neighborhoods.

Phase Two: Plans for 2020 & Beyond



LPR Project

Identifying over a dozen suspects and recovering multiple stolen vehicles has made it clear to patrol officers and investigators that the neighborhood LPR systems are incredibly helpful in solving crime. Despite only having eight locations over 3.3 million license plate have been scanned. The proof of concept design has demonstrated the ability to be a force - multiplier for the police department assisting in our public safety efforts .

Solar Powered Trailers & Additional Covert Options

Addison personnel are exploring new technology to protect our entertainment districts and multi-family residential areas during a spike in criminal activity. Several options include solar-powered movable trailers, poles, boxes, and other systems to be deployed in hot spots.

Future Technology

Vigilant Solutions recently created a new cellular application with promising advantages. Officers can turn a cell phone into a competitive LPR scanning device enhancing flexibility in the field. This is a low-cost innovation compared to traditional fixed or mobile equipment.

Optical Camera Update

Addison currently has over a dozen cameras across the parking lots of town-owned buildings. These cameras are on several different operating systems and many have poor image quality. Staffs intent is to update and consolidate all optical cameras to one functioning system.



Based on the results of the pilot project, does Council feel it is appropriate to discuss expansion of the system?

Are there any concerns staff needs to address?

Staff can provide Phase Two recommendations based on the direction of Council.