

**To the Mayor and Members of the City Council****May 2, 2023**

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SUBJECT: SMART STREET LIGHTS AND GUNSHOT DETECTION AS COLLABORATIVE TECHNOLOGIES

The purpose of this informal report is to provide an update on the implementation of gunshot detection technology in conjunction with smart street lights.

In cooperation with the Transportation and Public Works Department (TPW), Police have the ability to mount gunshot detection equipment onto streetlight poles from which that equipment can draw the continuous power that it needs to operate 24 hours per day and seven days per week. However, this arrangement is problematic because it tends to be energy-inefficient and reduces the lifespan of light fixtures. Newer technology, known as "smart streetlights," would resolve this issue by providing integrated power taps for gunshot detection equipment, security cameras, and other devices that require Internet connections. The Police Department is in the process of implementing two different brands of gunshot detection equipment: Flock and Acoem. Acoem equipment is compatible with smart streetlight technology, whereas Flock units are solar-powered and do not require an external power source. Furthermore, the vast majority of security cameras in use by the Police Department are compatible with smart streetlight technology. Currently, the city has 69,000 streetlights and the plan is to install a smart node on each light or circuit throughout the city. This will be a citywide implementation.

To generate investigative leads, gunshot detection should be paired with a security camera and/or license plate recognition technology. Notification of gunshots alone, even in specific locations, is not necessarily beneficial to investigators. Smart streetlight technology can incorporate the use of pan/tilt/zoom cameras (PTZ), license plate recognition devices, and many other forms of equipment. If the City was to use a fiber optic infrastructure as part of its smart streetlights, there could be some operating cost savings associated with the use of security cameras, license plate recognition, and gunshot detection technology. These systems currently use cellular technology, which requires a monthly data plan.

The first of the two gunshot detection technologies is the Flock Raven Gunshot Detection system. The Flock Raven system costs \$50,000 per square mile of coverage for a two-year lease. The Flock Raven system we are purchasing was funded through a Texas Anti-Gang (TAG) grant. The areas identified for the deployment of the Flock Raven system also currently have Flock cameras and city PTZ cameras. The Flock and PTZ cameras work in conjunction with the Flock Raven system to collect suspect vehicle leads. Flock Ravens do not need a power source as they are self-powered via solar panels which allows them to be deployed anywhere. The department's purchase of Flock Ravens allows for coverage of four square miles, divided into one-square-mile areas. The Las Vegas Trail Neighborhood Improvement Project (NIP) funds an additional square mile of coverage. The Las Vegas Trail NIP will also be providing additional cameras and license plate recognition Flock cameras to support the gunshot detection technology.

The other gunshot detection technology is Acoem Gunshot Detection. Acoem Gunshot Detection involves purchasing sensors and two years of licensing for \$74,818. This technology is also

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currently being funded by a Texas Anti-Gang grant. The Acoem system requires a power source, thus limiting where it can be deployed. Each unit is self-contained and can be independently deployed. The units are portable, but mounting and sensor configuration will need to be accomplished with any new deployments. Each sensor will cover 500 feet and the department currently has nine sensors ordered. The Acoem system is more commonly deployed during planned mass events or in an area that has a large concentration of violent crime.

The neighborhoods where gunshot detection technology will be installed and deployed will depend on violent crime and gun crime statistics, population density, funding sources, available power sources, and existing cameras. Preliminarily we have decided on areas for deployment in Stop Six, South Riverside near Cobb Park, the Historic Northside west of the Stockyards, Rosemont near Rosemont Park, and Las Vegas Trail between Cherry Lane and Las Vegas Trail. Exact areas of deployment will depend on up-to-date crime data when the resources are acquired.

With the implementation of gunshot detection technology in conjunction with smart streetlights, our goal is to be able to provide gunshot detection in more places when needed. The result would be a more effective and efficient approach to the reduction of gun violence. We have not implemented gunshot technology anywhere in the city, outside of initial testing, so we do not have any data available to report on that type of flock technology specifically. However, in the last 365 days, we have had 1,992 incidents generated by the Real Time Crime Center that can be attributed to the department's current Flock technology. Of those Flock related incidents, 406 resulted in an arrest. The goal we hope to achieve with gunshot detection technology implementation is a higher percentage of arrests and successful prosecutions for fatal and non-fatal shootings in the area where this technology is implemented.

In summary, the City's streetlight infrastructure provides the backbone for smart city technologies. The two technologies can work independently of each other, but smart streetlights with dedicated power and the Internet would enable the Police Department to investigate crime more effectively.

If you have any questions about smart streetlight technology, please contact Julius White, Senior Capital Projects Officer for TPW, at julius.white@fortworthtexas.gov or 817-392-7686.

If you have any questions about gunshot detection technology, please contact Deputy Police Chief David Carabajal at david.carabajal@fortworthtexas.gov or 817-392-4311.

**David Cooke
City Manager**