Velocity Snap™

Officer-Operated, Hybrid Speed Management System

Speeding is a factor in almost one-third of all fatal crashes. In 2011, there were 32,367 fatalities on our nation's roadways, of which 9,944 were speeding related. Nearly half of speed-related deaths occur on lower-speed collector and local roads.[1]

Executive Summary

Effective speed enforcement leads to modifications in driver behavior and lower speeds result in safer roads. Reduced budgets, however, are challenging law enforcement agencies nationwide to sustain the level of service expected from their citizens. New technologies are available to act as the force multiplier needed for officers and deputies to deliver this level of service.

Peace officers and local officials charged with managing driver behavior and protecting citizens now have a next generation approach to speed management. Velocity Snap™, a hybrid speed management system, incorporates a traditional hand held LiDAR with a small high-resolution camera and a portable computer/tablet.

The Velocity Snap System is operated by a trained and certified officer positioned safely out of the traffic pattern from a motorcycle or traditional patrol vehicle. The turn-key system relies on the officer's discretion to perform a traditional traffic stop and issue a Uniform Traffic Citation (UTC) roadside or have a civil citation mailed to the vehicle owner. Operated under a purchase, lease or revenue-sharing business model with no upfront costs and modest violation fees, Velocity Snap is a safe, reliable and effective way to curb speeding with minimal financial risk.

Introduction

Advanced Public Safety Inc. (APS) is a software company that develops innovative solutions to improve the safety and efficiency of law enforcement officers. A subsidiary of Trimble, an $8 billion provider of mobile workforce solutions, APS is a conservative company operating on the premise that officer presence is the greatest crime deterrent, and public safety technologies should be designed to maximize the time officers spend in the field.

APS has historically avoided the controversial *unmanned* automated traffic enforcement market, primarily because autonomous red light and speed cameras remove the trained officer from actually witnessing the violator infraction in real time. In 2013, however, APS proudly partnered with Applied Technology Partners Inc. (ATP), developers of the Velocity Snap system, to bring this new technology to market. Velocity Snap represents an evolution of the electronic citation (e-citation) and reliably reduces speeds in high-risk areas while minimizing the public backlash historically associated with automated (unmanned) traffic enforcement.

> *"Motor vehicle accidents are one of the leading causes of death in the U.S."*
> *Centers for Disease Control.*[3]

Less-than-positive reactions from citizens have fueled the criticism of automated, unmanned devices. The high citation fees, which are often required to pay for the installation and operation of the system, have led many drivers to believe the devices were set up more for taxation than public safety purposes. In addition, the absence of an officer onsite has left citizens feeling their constitutional right to face their accuser in court has been violated.

When operated in a legitimate safety risk area, such as a school zone, construction zone or high-accident area, Velocity Snap experiences none of these stigmas while successfully improving the safety of citizens and law enforcement personnel.

Velocity Snap Components

Velocity Snap is a turnkey system comprised of a LiDAR unit, digital video camera, computer/ tablet with field software, and back-end citation processing and payment service.

The handheld LiDAR unit is an off-the-shelf product historically used for remote speed detection. Long favored over radar for these applications, LiDAR uses a narrow laser beam to pinpoint a single vehicle and accurately measure its speed. Attached to the laser is an engineered digital camera capable of acquiring continuous video or multiple high-resolution still images.

The speed and photographic data are transmitted from the LiDAR-camera unit to a GPS-enabled computer/tablet provided with the system. Running on the computer/tablet, Velocity Snap Field Capture and Management Software captures the photo(s)/video and associated

speed measurement with GPS location, infraction time and other officer-entered attributes. Data can be transferred securely from the computer/tablet for back-office review and processing.

Citation and payment processing are supported by ATP, thus minimizing efforts by the department. A civil citation is mailed to the owner for payment by credit card or check. Although possible, cash payments are not recommended to minimize the agency's administration efforts.

How Velocity Snap Works

APS and ATP have devised the following standardized implementation and deployment procedures for the Velocity Snap system:

- The Velocity Snap system (Integrated LiDAR/Camera, computer/tablet with Field Software) is supplied to a city or county typically based on a "no money out of pocket" revenue sharing model. The jurisdiction is asked to utilize the system two to three hours per day by an officer who has been certified on the use of LiDAR speed measurement equipment. ATP calibrates and maintains all equipment certifications per local requirements with the revenue sharing model.

- Prior to first deployment, APS/ATP will set up and train public safety personnel how to use the system. Initial set-up and training typically take one to two days.

- The system is deployed to a school zone, construction zone, or other area where high vehicle speeds pose threats to citizens.

- The officer verifies LiDAR functionality prior to daily deployment to ensure it is working properly before proceeding to that day's location(s).

- For safety, the officer establishes an observation position out of the traffic pattern. The officer may either hold the integrated LiDAR/camera by hand or mount it on a tripod. The system can be used outside or inside the police vehicle.

- The officer logs into the Velocity Snap Field Capture and Management Software on the dedicated computer/tablet and enters address/cross street location details. The officer then keys in the posted speed limit and sets an enforcement limit based on current environmental conditions and their professional training and experience. Consistency is considered "best practice" for enforcement and prosecution. The officer observes traffic and relies on training to identify vehicles exceeding the posted speed limit. He/she sights the vehicle in the crosshairs of the laser and pulls the trigger capturing the speed and distance of the vehicle. If the vehicle is exceeding the enforcement speed limit, the camera automatically captures a series of high-resolution images, with the option of collecting video. The officer ensures the camera captures a front or rear view of the vehicle showing its license plate.

- Upon confirming the vehicle is exceeding the speed limit, the officer uses best judgment to decide if there is probable cause (erratic driving, extremely high speed) to pull the vehicle over and issue a standard citation.

- If no traffic stop is warranted, speed and photo data are captured to the Velocity Snap software on the computer/tablet where the information is tagged with GPS location, time, posted speed limit details and other officer inputs. The software builds a database of vehicle speed data for that time and location to be used later in statistical reporting.

- After the shift, the officer uploads the data from the computer/tablet where the encrypted speed/photo data are transmitted by secure VPN connection to ATP for back office processing.

- Trained ATP personnel manually examine and process each violation photo based on business rules established by the department.

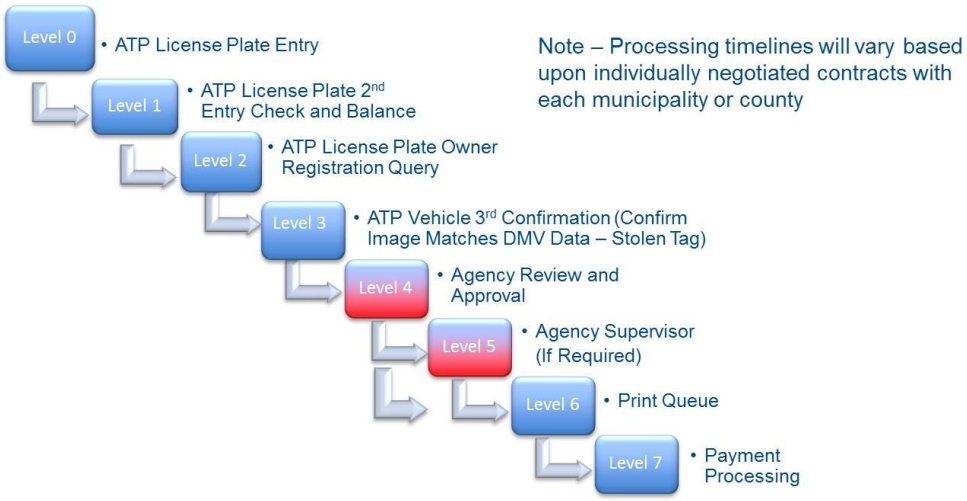
- Upon completion and verification by ATP, all citations are then returned to the department for final review and approval prior to mailing.

- The Velocity Snap software generates a ticket for mailing to the vehicle owner. The recommended civil violation penalty is $50-$100 with no points. The vehicle owner may

pay the ticket by credit card online or by mailed check. The owner also has the right to sign a Transfer of Liability (TOL) if they were not driving the car at the time of the infraction which assigns liability to the actual driver of the vehicle. The owner may also request a court date or hearing date to contest the violation. In this event, the officer who witnessed the violation can testify and will be supported with photo/video evidence from the Velocity Snap™ system.

- Revenues from paid citations are shared based on a 50/50 percentage split

- Statistical reports compiled by the Velocity Snap field management software for specific locations and times enable law enforcement personnel to confirm the system is successfully lowering speeds and changing driver behavior in the high-risk zone.



Summary of Benefits

Velocity Snap has been deployed in multiple jurisdictions. When utilized in locations where speeding vehicles pose significant danger to public safety and when enforced with modest fee structures for civil violations, Velocity Snap provides the following benefits to the participating local government:

Lasting Driver Behavior Change – Because Velocity Snap is portable and not installed in a fixed location, the system can be used in multiple high-risk zones in the community, curbing speeding in each one. If speeds tick back up, the system can return to reinforce modifications in driver behavior.

Officer Presence/Discretion – Velocity Snap requires an officer's presence, keeping him/her visible in the community as a crime deterrent. Just as importantly, the system relies on the officer's judgment to enforce traffic laws.

Enhanced Officer Safety – The laser and camera are operated at distances that keep the officer safely out of the traffic pattern.

Minimal Financial Risk – Velocity Snap is supplied to a local government with minimal risk based on the revenue sharing model "no money out of pocket". Revenues from citation payments are shared with the department.

Positive Public Support – Because the system components are extremely accurate, Velocity Snap does not experience erosion in public confidence caused by reports of poor reliability. Low violation fees prevent citizens from feeling the system is being deployed strictly to generate revenue. In addition, the manned system gives violators the right to face their accuser – an officer – in court.

Please watch the Velocity Snap video at www.aps.us/velocity.

The Velocity Snap Partnership

Headquartered in Deerfield Beach, Fla., Advanced Public Safety, Inc. develops innovative technology solutions that improve the safety and effectiveness of law enforcement officers. As the market leader in voice solutions, electronic ticketing applications, reporting and data transfer to court/RMS systems, APS has deployed technologies to over 750 law enforcement agencies throughout the U.S. and Canada. APS is a wholly-owned subsidiary of Trimble Navigation, Ltd. (NASDAQ: TRMB), and operates as the Trimble Public Safety Division. Trimble is a world leader in public safety technologies, which are used in over 100 countries around the world. Trimble is also a leading innovator of Global Positioning System (GPS) technology.

Applied Technology Partners Inc., based in Brentwood, Tenn., developed the Velocity Snap system. ATP was incorporated in 2011 by founding partners John McConnell and Bryan Lipham. ATP provides a fundamental foundation for the evolution of technology systems, including, but not limited to, hardware, software and services. ATP's focus is on leveraging proven technology modules and incorporating "software glue" to provide best practice hybrid offerings to our clients. This approach improves project success rates and eliminates points of failure associated with developing "green field" applications.

Sources

1. U.S. Department of Transportation Federal Highway Administration: http://safety.fhwa.dot.gov/speedmgt/
2. *Daily Breeze Traffic*, "Cities Closing Curtains on Red-Light Cameras," 1/21/14, from the *San Gabriel Valley Tribune*. http://www.dailybreeze.com/general-news/20140121/cities-closing-curtains-on-red-light-cameras
3. CDC. WISQARS (Web-based Injury Statistics Query and Reporting System). Atlanta, GA: US Department of Health and Human Services, CDC; 2010. Available at http://www.cdc.gov/injury/wisqars. Accessed October 12, 2010.