Sensys Gatso Group

Massachusetts Department of Transportation

RFI: Roadway Safety: Request for Ideas and Information

MARCH 28, 2024

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Sensys Gatso Group

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ORIGINAL

April 2, 2024

To: Massachusetts Department of Transportation
From: Sensys Gatso USA, Inc.

Re: MassDOT RFI Roadway Safety Request for Ideas and Information

Sensys Gatso USA is pleased to provide the following information in response to your RFI for Automated Speed Zone photo enforcement services.

Sensys Gatso is the world's most established automated traffic safety enforcement company with over 60,000 photo enforcement installations in 60 countries and over 60 years of experience.

Sensys Gatso has a strong presence in the northeast. With our US headquarters in Beverly, MA, we have several contracts in the region including East Providence, RI, Pawtucket, RI, Abington, PA, Warrington Township, PA, Pelham Manor, NY and Albany, NY.

The story of Sensys Gatso and the history of automated traffic enforcement are one and the same. Gatso was founded in 1958 by the former racing driver Maurice Gatsonides, a racing champion and entrepreneur. Gatso introduced the world's first speed measurement device in 1958. It merged with Sensys, the supplier to the Swedish transport administration in 2015. Swedish Sensys was the technology provider participating in the implementation of the world-famous Swedish Vision Zero initiative, now copied by many countries and cities.

We operate successful turnkey photo enforcement programs in 12 states in the U.S., providing dedicated and comprehensive automated enforcement in support of traffic safety initiatives. We have experience implementing and managing both large and small programs for over 16 years. We have 43 contracts in the US totaling more than 300 active systems. With a comprehensive turnkey solution, we can do the heavy lifting of implementing and managing your intended program.

Our experience and professional subcontractors will guide you through the project plan with ease. We embrace our customers as a partner in a critical public safety venture.

The Sensys Gatso solution described in this packet is a robust, state-of-the-art technology system that maximizes violation capture, offender identification, and indisputable evidence for prosecution. Our S-Series camera system is an integrated, configurable enforcement unit. Our fixed system and relocatable systems are best suited for your program.

The S-Series Photo Enforcement System is modular in design and is easily configurable to the specific demands of the enforcement site. Utilizing state-of-the-art, multi-tracking mapping radar technology, and high-definition cameras, the S-Series allows for continuous vehicle tracking that is non-intrusive and does not require any in-ground detection system. In addition, the S-series is configurable to add License Plate Recognition capabilities.

In conjunction with our Xilium back-office software suite, Sensys Gatso provides an integrated end-to-end, turnkey solution allowing the agency to effectively manage its program with ease and accuracy.

Some key highlights of our proposal include:

» The ability to offer MassDOT the latest technology to provide clear, crisp violation images combined with 4k video that produces indisputable evidence of the violation.
» A fast-processing mapping radar system that can capture simultaneous, concurrent and consecutive violations.
» High resolution 20 MP to 60 MP still cameras providing clear images that eliminate the misidentification of violators.
» Live streaming and recorded 4k video that assist with public safety monitoring and criminal investigations in your community.
» All of our hardware and software is engineered, developed and produced by our company.
» Strategic partners in the region to support your program with engineering, design, and construction.
» A US-based violation call center that is staffed by Sensys Gatso employees.
» A project and implementation team with over 100 years of experience in the photo enforcement industry including local experience in establishing and managing east coast based programs.
» An assigned implementation and account manager and local field engineers to provide the customer service that you expect.
» Real-time system performance monitoring to maximize operational uptime.
» An ISO-27001, 9001 & 14001 accredited manufacturing and services organization.

We are willing to provide a demonstration of our equipment if it would be of assistance for your evaluation process. As a local partner, we are happy to discuss any other evaluation processes that could assist you.

Please call us directly if I can be of further assistance or service.

Sincerely,

William Braden

William (Bill) Braden

President and Managing Director
Sensys Gatso USA, Inc.

MASSDOT RFI: ROADWAY SAFETY
REQUEST FOR IDEAS AND INFORMATION

1. Where else has your technology been implemented? Or, to the best of your knowledge, would we be the first place to try it?

Sensys Gatso Group (SGG) is a worldwide company with over 60,000 automated traffic enforcement systems installed across over 60 countries. Our origins include two important factors regarding the history of photo enforcement. The first speed camera was developed by Maurice Gatsonides, the founder of Gatso. Additionally, Sensys was part of the initial movement and introduction of the ideals of Vision Zero.
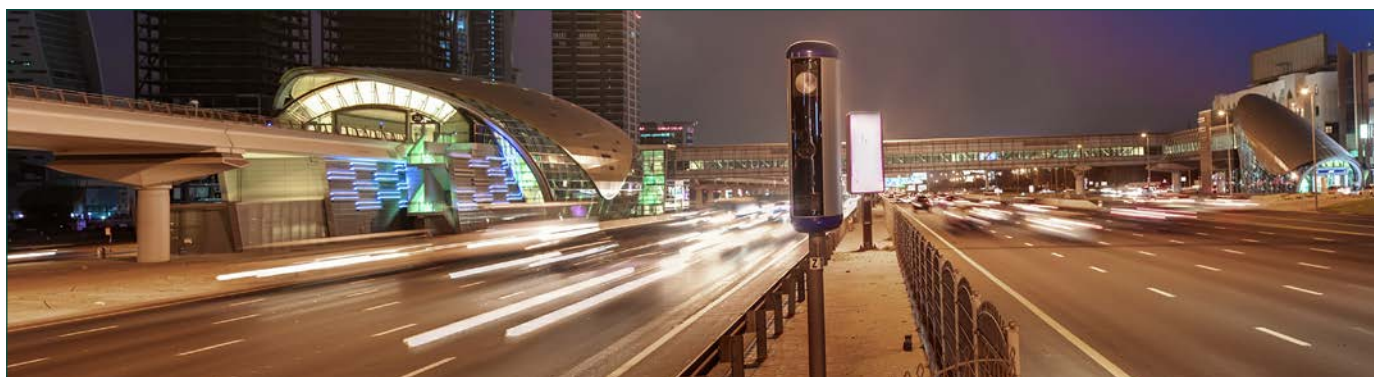
The US subsidiary of SGG, Sensys Gatso USA, is headquartered in Beverly, MA and was incorporated in 2007. Sensys Gatso USA has 43 contracts and over 300 active systems that enforce red light or speed violations. The company currently processes over 100,000 violations per month.

Primarily, our customers are in the Northeast and Midwest. Our customers include: East Providence (RI), Pawtucket (RI), Albany (NY), Abington (PA), Warrington Township (PA), Des Moines (IA), Cedar Rapids (IA) and Waterloo (IA).

As a world-wide company, we have significant experience and resources available to support a program with varying needs. Our technology offerings include fixed systems, mobile, battery-operated skids and trailers, all outfitted with our enforcement equipment. Our battery operated solutions include solar panels for constant recharging. The technology has been utilized in support of US programs. This experience allows us the flexibility to support and provide the exacting solution that would be best for your program.

2. Have any of your deployments faced challenges based on racial equity or equity concerns? If so, how did you work with partners to address these concerns?

Sensys Gatso is very sensitive about racial equity and equality of a program as it relates to our customers. As part of our system installation assessment, we encourage our customers to ensure that there is not a disproportionate

number of systems installed in economically challenged areas. It is suggested the primary basis for site selection is derived from existing driver behavior. There are existing data elements including crash reports and documented police activities to help identify such locations. Supplemental efforts can include engineering analysis and speed studies. Through this careful analysis and mapping of prospective locations, cities can avoid over saturation in economically challenged areas. Sharing the thoroughness of the evidence-based approach will help deter negative perceptions of a program. The transparency of the process can be shared through public campaign efforts ahead of site selection, during the installation process, and reinforced as the program grows. Furthermore, as the program matures the initial baseline will highlight the positive effects of your driver safety efforts.

Recently, the State of Connecticut legislated an automated traffic enforcement program. The legislation and companion DOT policy are included in this submission as reference.

Excerpts of that legislation include:

Definition

(4) "Equitable" means efforts, policies, standards, processes and any other functions of government intended to (A) ensure that patterns of discrimination and disparities of race, ethnicity and socioeconomic status, whether intentional or unintentional, are neither reinforced nor perpetuated, and (B) prevent the emergence and persistence of foreseeable future patterns of discrimination or disparities of race, ethnicity and socioeconomic status.

Evaluation Process

(2) Not later than sixty days after the date a plan is received by the department, the department shall determine if the plan is likely to improve traffic safety at the proposed locations and the distribution of such devices throughout the municipality is equitable, and shall approve or disapprove the plan, in whole or in part. If the department disapproves any such plan, in whole or in part, the department shall provide a written explanation of the reason for such disapproval and guidance to revise such plan for resubmission. Any such disapproval shall not preclude the submission of a revised plan.

The following is policy guidelines established by CT DOT:

To ensure that the ATESD distribution throughout a municipality is equitable as defined in Public Act 23-116, CTDOT will not approve more than two ATESD locations within a Qualified Census Tract (QCT) as designated by the United States Department of Housing and Urban Development. Additionally, CTDOT will not approve more than one ATESD location within a QCT that is a quarter of a square mile or less in size. Click here for a map showing the QCTs in CT.

For the purposes of this section, if a proposed ATESD location is on a road that is a border of two or more QCTs, a municipality may choose one of the QCTs with which to associate the ATESD location. If a proposed ATESD location is on a road that is a border of one or more QCTs and a census tract that is not designated as a QCT, the municipality must choose to associate the location with one of the QCTs.

The ATESD plan of any municipality that borders a neighboring municipality in which more than 55% of the census tracts are QCTs will be evaluated by CTDOT to ensure that the proposed ATESD locations are not overconcentrated at

or near the border of the neighboring municipality. If the ATESD locations are only proposed near the border with the neighboring municipality, it's likely that the ATESD plan will be rejected. Note: As of 6 January 1, 2024, municipalities where more than 55% of the census tracts are QCTs are Bridgeport, Hartford, New Britain, New Haven, New London, and Windham.

CTDOT may reject any proposed ATESD locations if it determines that the overall distribution of ATESDs throughout the municipality violates the principles of equity described in Public Act 23-116.

3. Do you have staff or a company footprint in New England?

Yes, Sensys Gatso USA is headquartered at 900 Cummings Center #316-U, Beverly, MA. The company employs a total of over 100 combined full and part-time employees. This office houses our administrative staff as well as violator call and violation processing centers.

As previously mentioned, we support programs in New York (37 systems), Pennsylvania (22 systems), and Rhode Island (57 systems).

900 Cummings Center, our Beverly, MA Headquarters

4. Does your hardware solution require a power source? Can it be solar/battery powered? Does it need network connectivity?

Our portfolio of speed enforcement systems has a variety of power sources. Our fixed system normally requires a hardwired electrical source. However, we can configure it with a roadside battery cabinet and supplemental solar panel. Our skid and trailer platforms are battery operated and supplemented with solar power. In many cases, the solar panels provide sufficient power to allow these systems to be operated for long periods of time. Please note we've engineered the trailer and skid to allow the camera housing to rotate. This allows the solar panels to be placed in the optimum position for the sun.

The mobile speed vehicle is battery powered and the power bank allows for a multi-day deployment before it needs to be recharged.

These systems use cellular network connectivity. This is used for system monitoring and violation upload to our processing platform. In areas where cellular networks are limited, our systems can be linked to cable broadband or a fiber network.

Skid

5. Describe the operational approach your company would take to validate the accuracy of your cameras.

As the manufacturer of all deployed technology, our recommended calibration, service, and maintenance schedules are directed by our factory engineers and overseen by the Maintenance Operations Team.

All checks, tests and calibrations come with accompanying log or certification documents.

- » Functional System Tests
- » Daily System Startup Test
- » Active Network Monitoring
- » Daily Event Processor QA Checks
- » Monthly Visual Preventative Maintenance
- » Periodic Scheduled Radar Self-Test
- » Yearly Radar Certification

Test 1: Daily System Startup Self-Test

Upon powering up and at assigned daily intervals, the enforcement system initiates an automated self-test. The self-test verifies normal operation of all hardware components as well as firmware and software integrity. Software integrity is tested by comparing all checksums against the saved checksums. If the self- test is OK, the results will be logged and posted. If the self-test fails, the logs will indicate failure and a system offline signal is sent to QA personnel. An associated "Out-of-Enforcement" indication is represented in the real-time operational status map for the particular unit.

Test 2: Active Network Monitoring

Real-time system health checks to manage uptime and alarm when potential issues occur. Our Active System Tool is set to continuously check the IP addresses of all devices at the approach level throughout the day. Our network utilities also confirm each system is in active enforcement.

Test 3: Daily Event Processor QA Check

Every processor will check a specified number of new events to assess image quality, the violation video is included, and the metadata integrity. An additional check includes the validation of the lane through a visual marker identifying the offending vehicle.

Test 4: Monthly Visual Preventative Maintenance

Sensys Gatso technicians and/or authorized subcontractors will perform a visual inspection of all road-side equipment. A guide is filled out and later certified for use as evidence of maintenance. All site visits are documented in a detailed Maintenance Log for reference of all work completed and available to Arlington County upon request.

Test 5: Periodic, scheduled self-test of Radar Unit

In order to test correct operation of the radar unit, a self-test signal is generated and verified during daily remote system checks by our Maintenance Operations Team. This self-test signal is based upon the simulation of the passage of a single vehicle through the approach.

Test 6: Yearly Recertification of RT4 Radar

The radar units undergo an annual factory re-certification by an independent testing facility. Minimal system downtime will occur while the radar is being recertified, and a Certificate of Correct Function is provided upon request to the customer.

Please note, we have two trained technical resources located in Massachusetts. This provides an easy deployment option for proactive and reactive maintenance activities.

6. What is the minimum resolution needed for your software to accurately determine (or 'read') a license plate?

Our systems use a variety of hi-resolution cameras based upon the deployment platform and specific need for an enforcement location. Our portable systems use a 20 MP resolution camera, and our fixed system is equipped with a 24-60 MP camera. This ensures that the violating vehicle and its attached license plate are extremely visible and legible. This provides indisputable photographic evidence to identify the offending vehicle.

Still image from S-Series 4K Red Light Camera

The credibility of your program is predicated on the accurate capture of violations and the accuracy of the license plate readings. Our systems ensure that there are no false detections or improperly issued notices of violation.

In addition, our systems have a hi-definition video camera that provides live streaming and recorded video between 1080p and 4k.

7. How does your technology handle inclement weather? License plate covers? Night-time and direct sunlight?

Our systems are designed to work in a variety of environmental conditions. Using hi-resolution cameras, our systems capture a minimum of two still images of the violating vehicle.

Complimented by either visible or infrared flash, our systems can maximize image capture that clearly identifies the offending vehicle and the attached license plate. The image sensor is a backside illuminated (BSI) FX-format full-frame CMOS image sensor with 45.7 megapixels and no optical low-pass filter.

The image processor quickly processes all 45.7 megapixels of data for lower noise, wider dynamic range, subtle tonal and textural details, high-speed continuous shooting.

Our systems also use fast processing mapping FMCW (Frequency Modulated Continuous Wave) radar which takes a few steps beyond a typical doppler radar. Our radar can measure not only speed but also distance, direction, lane, vehicle classification (small, medium, large), and can track up to 60 vehicles simultaneously. FMCW radar performs better than LIDAR in inclement weather and doesn't lose range capabilities. You can be assured that even during fog, rain and snow that your systems are capable of monitoring traffic and capturing violations.

8. If you provide physical infrastructure as part of your solution, is it mobile or fixed equipment? If mobile, how long does calibration take in a new location? Describe any relevant criteria for the use of one over the other if you offer both.

We provide fixed, portable and mobile solutions. Our mobile and portable solutions take less than 30 minutes to deploy once they are placed at an enforcement location. Based upon the contract, relocation and deployment can be handled by our field engineers.

Fixed installations are best used in high traffic volume areas where constant enforcement is desired. This might be on a parkway, highway, arterial or interstate location.

Speed Trailer

Our mobile speed vehicle and trailers are designed to supplement the fixed locations and can be rotated around the community. This provides a "halo-effect" since the motoring public will not be accustomed to a specific location of enforcement. Mobile speed vehicles are designed to be deployed for 1-4 days. The trailers can be deployed for either short periods of time or longer durations. Depending upon the amount of sun, the trailer can be deployed nearly into perpetuity. Should it be needed , the trailer can be connected to a fixed power source.

The skid is designed to be left in a location for extended periods of time but is portable enough to relocated on occasion. This solution would be beneficial for school zones and then relocated over the summer to park or recreation areas to maximize the full benefit of the system. As with the trailer, the skid may also be connected to a fixed power source to supplement battery charging.

New to the US market is our fixed speed system that also incorporates a pedestrian warning system. Areas with many pedestrians, such as mid-block crossings, school and work zones, hospitals, residential and shopping areas, often have a reduced speed for pedestrian safety and to minimize crashes. We have developed a Speed Warning Safety System not only designed to enforce the speed limit but also to act as a warning system.

The system uses an audible alarm to warn pedestrians and a visual flashing beacon to warn the speeding drivers to slow down before they reach the area with vulnerable street crossers.

After the initial warning flashes, actual enforcement by violation registration only occurs if the vehicle in question does not slow down to the posted speed limit when it gets near to the pedestrian area. The combined audible warning to pedestrians as well as the flashing alert to speeding drivers can reduce the risk of deadly pedestrian crashes and create safer crossing zones.

9. Please describe the requirements for any space or physical assets needed for installation of equipment.

Our fixed system is installed adjacent to the curb line using a concrete foundation. It also can be installed to existing infrastructure such as a light or utility pole if the governmental agency will approve its placement. The system is typically mounted approximately 12' from the ground.

For larger highways or interstates, our systems can be mounted on gantries. Placement is dependent upon proximity to a power source.

Our mobile speed vehicle solution can be parked on a street or adjacent to the street in a parkway or right of way. The mobile speed vehicle system currently is installed in a Ford Escape platform.

The skid and mobile speed trailer can be placed on a flat surface along a street right of way or parkway. The skid, with its smaller footprint, is ideal for residential and narrow right of way. The trailer is better suited for industrial areas, highways and areas where there is more right of way space. The optimum height of the adjustable camera system is 7-8 feet from the surface. It can be adjusted higher if the system is deployed behind some type of barrier.

S-Series Fixed Camera being installed in Warrington Township, PA

The trailer with the solar panels deployed has a travel footprint of 117" L by 68" W and a deployment size of 131" L by 90" W.

The skid has a travel footprint of 40" L x 40" W and is sized at 59" L x 40" W when deployed.

10. Please describe any criteria for heights and distances to ensure accuracy of the data collected.

Our system is optimized when the camera and radar is placed between 100' and 180' from the identified "capture zone". This distance provides for indisputable vehicle tracking and places the vehicle in the proper location to the camera's field and depth of view. In this capture zone, both the scene and license plate imagery are crisp and clear.

The height of the system is dependent on the type. Fixed systems are installed at a height of 10 to 30'. The provides for the proper radar angle and allows for vehicle capture across multiple lanes of traffic.

Our speed systems are capable of capturing both concurrent and consecutive violations. In addition, our single FMCW radar system can track and capture violating vehicles across up to 6 lanes of traffic. LIDAR systems are limited to 1-2 lanes of traffic per camera system.

11. Do you offer a turnkey service? If so, what is included in that service and what is the minimum scale needed to implement?

Yes, Sensys Gatso offers a full turnkey solution program. Since this would appear to be a demonstration project, Sensys Gatso would be willing to implement this program with a minimum of ONE system.

The following services would be provided:

- » Site evaluation & surveys
- » Engineering analysis
- » Engineering plans
- » Permitting
- » Hardware installation
- » Mobile/portable solutions
- » Help with deployments
- » Back-office development
- » Signage
- » Community awareness messaging assistance
- » Violation processing and DMV look up
- » Warning notices printed and mailed
- » Reporting platform
- » Maintenance
- » Radar calibrations
- » Data retention and scheduled purges

12. Does your company provide data processing, violation review and mailing services? If yes, please describe the general approach for how these services would be delivered. Please pay particular attention to the note above that we are not issuing tickets, fines, or fees in response to the observed violation.

Yes. Sensys Gatso is a full service provider of automated traffic enforcement. After each image capture we manage the event through the following steps:

a. Event is imported into our back office platform for processing
b. Each event is reviewed by our team of violation reviewers to make sure that the event meets the enforcement standards established for the agency
c. The license plate is then populated, and the registered owner information is then applied to the record
d. These violations are then placed in a review queue for the agency representative to review. In most cases, only the enforcement agency can approve or reject a violation. In this situation, since it is intended to issue warnings only, the agency review process could be eliminated.
e. Once a violation is approved, the record is sent to our fulfillment center for notice printing and mailing.
f. Sensys Gatso has a US based violator call center that answers any questions concerning the notice of violation.
g. The record of all captured events are stored and the data provides a variety of reports to assist in the management of the program.

13. What integration would you need to have with the Registry of Motor Vehicles in order to mail safety messages to drivers who are observed violating the speed limit?

Sensys Gatso is a strategic partner of the Nlets system which provides access to the DMV records of all 50 states and US territories. Access to these records would be available through this source should the law enforcement agency grant us access authority. We have an interface already established with Nlets to provide DMV record access for our customers. Once we receive the law enforcement agency authority, the interface can be established to process the violations.

14. How long would it take you to implement your solution, from signed contract to solution go-live? In other implementations, what tends to slow down the path to deployment?

The typical time period is 30 days following contract execution for a mobile solution. The implementation process for fixed systems is very dependent upon the timely review of engineering drawings and the permitting process of the respective authority for fixed system construction. Typical implementation time for fixed-system programs is 120 to 180 days.

The time frame can be compressed if the program utilizes mobile or portable units as permitting is limited to right of way access.

15. Describe the smallest high-fidelity implementation scenario you can imagine. Please include information like minimum size of a deployment, minimum suggested duration, what types of costs (not actuals) are included in your business model (e.g., installation, on-going service, mailing, deinstallation).

We support and manage programs with as few as one system. The number of systems is not as important when there are a variety of pricing options available. This could include:

» Customer purchase of equipment and a monthly service charge for the program services
» Monthly lease agreement for the equipment and program services
» Monthly lease agreement and violation processing charge

From our experience, the best way to impact driver behavior is to have the system(s) regularly deployed and provide consistent messaging to the community about the program and the placement of the mobile/portable systems.

The suggested deployment periods vary based upon the type of solution and the enforcement location. Mobile units should be placed for a minimum of 8 hours to maximize enforcement opportunities. Trailers can be deployed for longer periods of time from days to weeks again depending on the enforcement location. The skid is designed to be deployed for 4-8 weeks at a location due to its limited mobility. The skid works extremely well where your enforcement emphasis changes such as school zones and park areas.

Our offering includes installation of equipment, operation, maintenance, system deployment, violation processing, printing and mailing of notices of violation, violator call center, customer service network, program reporting and data management. When the program ends, fixed systems are removed, and the location is restored.

16. What is your approach and delivery of staff training as it relates to your proposed solution?

We are committed to providing training to all of those that may be a part of this program. With our local presence, our implementation manager would provide on-site training that would include:

» How the system works
» Deployment process (if necessary)
» Violation review
» Reporting capabilities
» Other features

This introductory training could be hosted at our Beverly office. Refresher training and new employee training can also be scheduled accordingly. In addition, due to our headquarters' proximity, a tour of our processing center can also be arranged.

17. Is your company currently providing services to the Commonwealth of Massachusetts? If so, what kind?

No.

DATA COLLECTION QUESTIONS

18. Personally Identifiable Information (PII) is any information about an individual that can be used to determine an individual's identity, including an individual's name, social security number, date of birth, medical or educational records, geolocation data, photographic images, or other information that is linked to any of the above. If your technology collects data, does your proposed data collection tool involve the collection of PII?

The only PII information that is collected is vehicle owner registration data from Nlets.

Information provided by Nlets to a license plate inquiry includes:

- » First Name:
- » Middle Name:
- » Last Name:
- » Second Owner Name:
- » Address:
- » City:
- » Zip-code:
- » State:
- » Expiration Year:
- » Vehicle Type DMV:
- » Vehicle Make:
- » Vehicle Model:
- » License Plate:
- » Plate Expiration Date:
- » Color:

As part of the purge schedule established for the program, the images of the violation and the registered owner PII as well as the pdf image of the notice of violation will be deleted from the event record.

19. Provide a brief (yes/no) answer to the following questions

a. **Would MassDOT own the raw data collected?** YES
b. **Would the raw data be anonymized?** YES
c. **Would the data be deleted periodically?** YES
   If so, how often? Based upon the MassDOT purge schedule.
d. **Would any third parties have access to the raw data collected?** NO

20.   Provide a brief table that outlines the lifecycle of the data collected.

Please indicate the following:

a. **Where will the data be stored and processed?**
   The violation events and related data are stored on our servers in Google Cloud Services and at the Phoenix Nlets headquarters.

b. **Who will own and have access to the data?**
   The records and data are the property of our customer, and we serve as a custodian of records. No data or information is released without the express written consent of the agency. Access to the records by authorized Sensys Gatso personnel is for business purposes only

c. **How will data security be maintained?**
   We have many security policies in place which include strict (need to know) access rules, encryption, audit logging and monitoring. We comply with the FBI's CJIS security policy requirements. https://www.fbi.gov/file-repository/cjis_security_policy_v5-9-1_20221001.pdf/view

d. **Whether the data will contain PII; whether and how any such PII will be anonymized?**
   Always in accordance with state and local laws and ordinances. The only PII information that is collected is vehicle owner registration data.

e. **How will the data be disposed of, destroyed, sent elsewhere, or made public?**
   This can be customized to meet the state and local laws and ordinances. If data needs to be deleted we can remove images, metadata and/or PII separately.

f. **In your previous deployments, how long the data will need to be stored before deletion, if applicable.**
   It is all circumstantial based upon the program, adjudication guidelines and legislative requirements. In some circumstances, there is an escalating penalty for habitual violators where records must be maintained for the entire enhancement period.

In other cases, the purge requirements are a specific period after final disposition of the violation. Since this program would be warning only, the personal records and images could be purged relatively soon after issuance. The only concern would be if you wanted to track the recidivism rate of those that were issued a warning. In that case, the license plate number would need to be retained for whatever your analysis period would be.

21. What risks or vulnerabilities are associated with the data collection you require to perform those tasks stated by your offering?

Like any data warehouse, there is always a risk of a breach. We are very conscious of this and take industry recommended safeguards to protect this data and information. This includes process and access compliance with the Nlets and FBI CJIS security policies. While Sensys Gatso can control access to the data through physical controls and internal access security protocols, we cannot control the security of our agency users. Since law enforcement agencies have access to PII, while reviewing and approving violations, we do not have actual physical control over the conditions under which the users access the records. We encourage our end users to use the same security precautions that are mandated by Nlets and the FBIs CJIS systems.

22. How have you ensured safe and limited access to motor vehicle registration data and systems in your previous deployments?

The systems themselves do not store any PII or motor vehicle registration information. It is not until the violation events are imported into our back office platform that such information is merged with the record.

Sensys Gatso is a strategic partner of the Nlets. Nlets – the International Justice and Public Safety Network, is a not-for-profit computer-based message switching system that links together and supports every state, local, and federal law enforcement, justice, and public safety agency for the purposes of sharing and exchanging critical information.

In simpler terms, Nlets is the information superhighway of the law enforcement community. Just like a highway exists to transport vehicles, we exist to move criminal justice information where it needs to go.

However, it is important to note that Nlets does not own any of the data that is being used in the criminal justice or public safety realm – Nlets exist solely for the purpose of securely accessing that information for the criminal justice community.

Only authorized personnel have access to DMV records associated with the program. Authorized personnel are subject to periodic criminal history checks and CJIS training as mandated by Nlets.

Data Security

Sensys Gatso processes and systems are designed according to the ISO27001 standard regarding Information Security Management, which incorporates these main elements:

» Confidentiality: Information is never disclosed to unauthorized individuals, entities, or processes
» Integrity: Accuracy and completeness
» Availability: Data is accessible and usable upon demand by an authorized entity
» Non-repudiation: Ability to prove the occurrence of an event or action and its originating entities

For evidence data specifically, the non-repudiation of the information is a very important property that requires special consideration. Information security is achieved through the implementation of an applicable set of controls. These controls are selected through the chosen risk management process and managed using an ISMS, including policies,

processes, procedures, organizational structures, and software and hardware to protect the identified information assets. These controls need to be specified, implemented, monitored, reviewed, and improved, where necessary, to ensure that the specific information security needs are met.

Security

- » ISO 15444-1 File Format Standard
- » RFC 5652 Cryptographic Message Syntax
- » SSD Private Key Storage
- » 256-Bit AES Encryption Algorithm

Cryptography

- » IP Security for Sensys Gatso VPN
- » IPSec VPN tunnels with TLS Protocol
- » MAC Verification & 2 Factor Login
- » SSAE-16 System Segregation

The camera system produces evidence files containing both images and data in a single file. Using this method there can be no doubt which data (e.g. date/time and sensor data from a vehicle detection sensor, or other sensor device) belongs to which image.

Systems that use video frame evidence cannot accurately record the exact data for the violation as the infraction is time specific. Sensys Gatso software engineers utilize secured and maintained open standards as a base format for files. It incorporates the most accepted and advanced encryption standards and enables the usage of standard tools and libraries.

The base file format is a standard J2K file containing one or more JPEG2000 code streams and accompanying XML. This format conforms to the ISO15444-1 standard. The entire file is enveloped according to the Cryptographic Message Syntax (RFC5652) standard for protecting the data.

Our Xilium back office has the capability to purge images, records, personal information, and data as established by the City. As part of the established business rules, we can establish the purge schedule as approved by the city. No information will be purged without the consent of the city.

Standard public key cryptography algorithms are used. For all algorithms the chosen key lengths provide adequate protection according to current standards (RSA2048, AES-256 and SHA-256), and the cameras have a special "Secure Memory Device" (SMD) that holds the private keys. If an attempt is made to tamper with the camera, the keys are immediately destroyed by the SSD even if the device is unpowered.

In addition to stringent application security, multiple layers of system security and redundancy provide better protection of information and data assets. Sensys Gatso implements multiple types of security technologies that create layers of security, protecting the information in the citation database. Sensys Gatso uses industrial routers that combine antivirus, firewall, intrusion prevention, and VPN technologies to protect the in-field networked camera equipment from unauthorized access and attack.