ALPR SCOPE OF WORK

The Scope of Work that follows, lists the prerequisite requirements of the project in order to achieve the desired ALPR Solution for the Authority. As noted in the RFQ, the requirements in this Scope of Work shall be met or exceeded by the selected Vendor and the ALPR Solution. However, it is not the intent of this Scope of Work to preclude the Vendor from providing any additional functionality and/or features that will supplement these requirements, exceed performance minimums, and/or add-value to the Authority.

## 1. General Vendor Requirements

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| 1 | The Vendor shall provide sufficient qualified technical and professional personnel, both in number and appropriate skill level, experienced with implementations similar to that which is required by this Scope of Work to adequately address the scope, magnitude, services, and all requirements in the Request for Qualifications (RFQ) and this Scope of Work (SOW). |
| 2 | The Vendor shall be responsible for the thorough understanding of the requirements pertaining to the services required and shall work with Authority staff throughout the term of the Contract to identify and resolve any areas of ambiguity. |
| 3 | The Vendor shall become familiar with the Authority's procedures, presentation and coordinating requirements necessary for the effective performance of the provided solution. |

### 1.1. Project Management, Planning and Scheduling

The Vendor is responsible for identifying and tracking all activities necessary that meet the requirements of the Contract and that all activities are managed correctly to meet or exceed the Vendor's Authority-approved schedules and delivery timelines. A Vendor-developed project schedule will also be used by the Authority to engage Authority staff and/or partners in the implementation of the solution.

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| 4 | The Vendor shall develop and submit for Authority approval a project schedule in Microsoft Project delivered in a native .MPP format as well as in PDF listing in detail the activities required for the project. |
| 5 | The project schedule shall include an itemized list and schedule of the project for all activities from Notice to Proceed (NTP) through implementation and include a detailed list of tasks such as Authority/Vendor workshops, system and interface development, ALPR/OCR engine training, testing, integration, and production go-live. |
| 6 | The Vendor's project schedule shall include sufficient time for any 'Vendor-required / Authority-provided' materials and data, the Authority's participation in Vendor-performed testing, as well as the Authority's execution of independent testing during the test phase. |
| 7 | The Vendor shall maintain the project schedule throughout the term of the Contract and shall provide to the Authority documented updates to the project schedule on a regular, |

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| | but no less than bi-weekly, basis to communicate milestone deliveries and integration touch points. |
| 8 | The Vendor shall establish a project contact list and a communication protocol to be used throughout the Contract term so that Authority staff is informed on all project activities, any delays or issues, requests for information, decisions made, and other such information. |

## 2. ALPR Solution Requirements

The Vendor is responsible for providing a fully integrated, efficient, accurate, and cost-effective ALPR Solution. During testing and once the ALPR Solution is implemented and deployed, the ALPR Solution is expected to provide a continuous high degree of accuracy and confidence that will result in low error rates (e.g.: minimizes false positives) and significantly reduce the need for manual review of images.

### 2.1. Functional Requirements

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| 9 | The ALPR Solution shall extract and articulate Plate Data, including issuing jurisdiction, plate numbers/letters, special characters, and plate type, and any other features that will allow for differentiation of one plate/vehicle from another in an automated manner such as a digital fingerprint. |
| 10 | Plate Data shall include stacked characters and any required plate character prefixes or suffixes. |
| 11 | The ALPR Solution shall correctly process vertically, horizontally, and diagonally stacked characters. |
| 12 | The ALPR Solution shall be integrated with the existing Authority system such that images will automatically be sent to MIR or bypass MIR based on ALPR results and configurable confidence level(s). |
| 13 | The ALPR Solution shall provide a mechanism allowing the MIR process to provide feedback to improve system accuracy, e.g., by means of “truthed” images. |
| 14 | The ALPR Solution shall incorporate auditability features allowing the Authority to verify the accuracy and record the results of an audit in order to evaluate the overall performance of the ALPR Solution. |
| 15 | The ALPR Solution and its supporting hardware shall be located on premise at an Authority data center. |

### 2.2. Performance Requirements

The Vendor in their response to the RFQ should describe their approach to achieving the highest performance of the ALPR Solution, including, computations for quantity, quality, confidence, and yield through automation. This should include details of the computations for the confidence and yield definition, sources of numerator and denominator, etc.

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| 16 | The ALPR Yield shall be defined as the percent of ALPR results whose Confidence Level is above a selected value (the Confidence Threshold). |
| 17 | For determining the performance of the ALPR Solution, the ALPR Yield shall be calculated as the percentage of images of unobstructed plates whose Confidence Level is at or above the Confidence Threshold. |
| 18 | Obstructed license plates are defined as those that: |
| 18.1 | Are covered by dirt, snow, the vehicle occupant, a trailer hitch, a tailgate, bicycle rack, or other material that obscures the issuing jurisdiction, plate characters, or plate type identifier; |
| 18.2 | Are bent or damaged so as to make the plate information unreadable; |
| 18.3 | Are missing from the vehicle; |
| 18.4 | Are blocked by a towed vehicle; |
| 18.5 | Are not legally mounted; or |
| 18.6 | Are blocked by a following or followed vehicle |
| 19 | An ALPR Error is defined as an ALPR result whose Confidence Level is above the Confidence Threshold, but which contains an incorrect plate number, state, and/or plate type. |
| 20 | The ALPR Error Rate shall be calculated as the percentage of images of unobstructed plates whose Confidence Level is at or above the Confidence Threshold, but which contain an incorrect plate number, state, and/or plate type. |
| 21 | The ALPR Solution shall produce Confidence Levels such that a Confidence Threshold may be established which produces an ALPR Yield of at least 90% with an ALPR Error Rate of no more than 0.5%. |
| 22 | For any given month, for each 0.1% and any fraction thereof over the allowed 0.5% error rate, and/or for each 5% and any fraction thereof below the required 90% Yield, the Vendor shall be subject to penalties in the form of invoice adjustments such that the Authority will deduct from any amounts owed to the Vendor by the Authority, a value of 10% of the total annual payments (annual cost) charged to the Authority by the Vendor, divided by 12. |
| 22.1 | As an example, if the annual cost to the Authority for ALPR Solution usage and support services is $60,000, and the false positive rate for a month is 0.6%, the Vendor is subject to an invoice adjustment of (.1 x $60,000) / 12, or $500.00. If the false positive rate was .75% and the Yield was 85%, then invoice adjustment would be: ((.3 x $60,000) / 12) + (.1 x $60,000) / 12), or $2,000.00. Total invoice adjustments, if any, assessed in a calendar year shall be capped at 75% of the annual cost amount. |
| 23 | The ALPR Solution shall be capable of processing up to 150,000 images per day while meeting the performance requirements set forth in this Scope of Work. |

**2.3. Testing**

The Vendor shall conduct thorough onsite testing of the solution prior to integration and implementation for production use. This shall include ensuring performance expectations are agreed to, documented and attainable. The Vendor should expect that the Authority will be participating in testing activities and conducting independent validations during the testing phases as well.

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| 24 | The testing process shall validate that the system is configured correctly to meet all performance requirements, for quality and confidence as well as to handle volumes. |
| 25 | The Vendor shall provide Test Cases and Scripts and document how the testing will be conducted prior to implementation, at go live, and during maintenance. |
| 26 | All test cases shall be reviewed and approved by the Authority prior to the execution of any formal testing. |
| 27 | The Vendor shall provide the Authority any and all opportunities to witness and participate in all formal testing. |
| 28 | The Vendor shall notify the Authority a minimum of 14 calendar days in advance of any materials that are to be provided to the Vendor by the Authority such as truthed image files for testing purposes. |
| 29 | The Vendor shall notify the Authority a minimum of 14 calendar days in advance of any testing for which the Authority is expected to witness and/or participate. |
| 30 | The testing process shall demonstrate the process for applying engine and software updates. |

### 2.4. Maintenance

Once the solution is deployed, the Authority will expect to continue to manage the system during the maintenance phase, including applying engine and/or software updates. The Vendor shall continue to have responsibilities for the overall system solution and performance goals and be required to provide the necessary updates to the Authority for production deployment. The Vendor should describe in detail in their response to the RFQ their approach to the following requirements.

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| 31 | The Vendor shall support the ALPR Solution software and supply engine and/or software updates on a periodic basis (as required by new plate releases, and on a quarterly basis at a minimum) over the term of the contract to ensure the ongoing performance of the ALPR Solution meets or exceed requirements. |
| 32 | The Vendor shall coordinate with the Authority as needed to provide updates to support the addition of new syntaxes based on DMV releases of new plates. |
| 33 | The ALPR Solution shall be designed to allow periodic software updates to occur without causing reasonable downtime, and/or performance degradation. |
| 34 | The Vendor shall list and describe in sufficient detail all maintenance requirements and responsibilities, expectations, frequency and steps for tuning, service contracts, etc., so that the Authority can manage and maintain the ALPR Solution. |
| 35 | The Vendor shall provide remote technical support to the Authority as needed in the diagnosis and resolution of issues associated with the ALPR Solution. |

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| 35.1 | The Vendor shall respond within one business day of Authority requests for assistance and/or support. |
| 36 | The Vendor shall provide monthly reporting on ALPR performance including ALPR Yields, Error Rate, and Confidence Levels, broken down by plaza, lane, plate type, and jurisdiction. |

### 2.5. User Training

The Vendor is responsible for providing user training to Authority staff and their designees, providing an overview of design, operations, and Maintenance of the ALPR Solution. The number of attendees will range between five to ten people.

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| 37 | The Vendor shall provide training to the Authority sufficient to understand the installation, operation, API's, ICDs, processes, etc., of the ALPR Solution and how to acquire and apply engine and software updates. |
| 38 | One (1) training session shall be conducted by the Vendor in-person at an Authority facility, or remotely at the Authority's discretion, for up to 10 Authority staff members and/or Authority representatives. |
| 39 | The Vendor shall prepare for Authority review and approval all training materials and aids. |

### 2.6. Documentation

The Vendor is responsible for providing comprehensive documentation so that the Authority may use the documentation to install, operate, manage, and maintain the ALPR Solution.

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| 40 | The Vendor shall provide documentation describing how to install, configure, and operate the ALPR Solution including applications, background and scheduled jobs and processes, operating system and network requirements, and any third-party software requirements |
| 41 | The Vendor shall provide documentation describing the integration and interface touchpoints that may be necessary to integrate into the Authority 's current system infrastructure and processes. |
| 42 | The Vendor shall work with the Authority to develop and document an approved interface between the Authority and Vendor systems, and the Vendor shall create an Interface Control Document (ICD) that documents all the required interfaces and functionality of messages or file exchanges. |
| 42.1 | The ICD shall provide a message-level interface (including protocols used), timing diagrams, and a brief concept of operations or examples describing how the messages or files are used. |

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| 43 | The Vendor shall provide necessary process flow diagrams to describe the overall process of extraction and matching; and where, if any, configurable business rules may be applied (i.e.: expiration rules, confidence thresholds, grouping images of the same vehicle, etc.) that support the overall performance goals. |
| 44 | The Vendor shall provide operation and configuration details of syntax checkers and any other features that enhance the validation of plate data or identification of vehicles, as applicable and available. |
| 45 | The Vendor shall provide documentation of the feedback loop process and configuration between manual image review (MIR) and the ALPR Solution and any other capabilities of the ALPR Solution to enhance automation and accuracy over time. |
| 46 | The Vendor shall provide documentation describing how the system can be configured for optimal accuracy (lower error rates) and yield (higher automation) based on volumetrics provided by the Authority, including but not limited to selectable plate jurisdictions, plate types, or any other applicable attributes/criteria as part of the overall process flow and solution. |