REQUEST FOR PROPOSALS

for a

COMPUTER AIDED DISPATCH (CAD) AND AUTOMATED VEHICLE LOCATION (AVL) SYSTEM

for

SolTrans

Petaluma Transit

VINE

RFP Release: May 8, 2014
Pre-proposal Meeting: May 15, 2014
Proposals Due: June 19, 2014
Table of Contents

I. Organization of Document ..................................................................................................... 1
II. Project Overview ................................................................................................................... 2
  1. Background ....................................................................................................................... 2
  2. Goals .................................................................................................................................. 2
  3. Existing Conditions ............................................................................................................ 3
III. Project Scope ..................................................................................................................... 4
  1. Proposed CAD/AVL System .............................................................................................. 4
IV. Project Schedule ................................................................................................................ 8
V. Instructions to Proposers ........................................................................................................ 8
VI. Proposer Evaluation Criteria ............................................................................................ 17
VII. General Requirements .................................................................................................... 18
  1. Project Management ........................................................................................................ 18
  2. System Design ................................................................................................................. 19
  3. Submittals ........................................................................................................................ 20
  4. Installation Plan ............................................................................................................... 21
  5. Inspection, Testing, and Acceptance ................................................................................. 25
  6. Training ........................................................................................................................... 29
  7. Spare Parts ....................................................................................................................... 34
  8. Warranty, Maintenance and Support ................................................................................ 35

Tables

Table 1: Required On Board Equipment for SolTrans. ............................................................... 5
Table 2: Required On Board Equipment for Petaluma Transit. .................................................. 6
Table 3: Required On Board Equipment for Napa VINE. ........................................................ 6
Table 4: Proposer Evaluation Criteria. .................................................................................... 17
Table 5: Required Submittals. ................................................................................................. 20
## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AES</td>
<td>Advanced Encryption Standard</td>
</tr>
<tr>
<td>ATP</td>
<td>Acceptance Test Procedures</td>
</tr>
<tr>
<td>APTS</td>
<td>Advanced Public Transportation Systems</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
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<td>AVA</td>
<td>Automated Vehicle Announcement System</td>
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<tr>
<td>APC</td>
<td>Automatic Passenger Counters</td>
</tr>
<tr>
<td>AVL</td>
<td>Automated Vehicle Location</td>
</tr>
<tr>
<td>CSV</td>
<td>Comma Separated Value</td>
</tr>
<tr>
<td>CAD</td>
<td>Computer-Aided Dispatch</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>DVR</td>
<td>Digital Video Recorder</td>
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<tr>
<td>DMS</td>
<td>Dynamic Message Sign</td>
</tr>
<tr>
<td>XML</td>
<td>Extensible Markup Language</td>
</tr>
<tr>
<td>FAT</td>
<td>Factory Acceptance Test</td>
</tr>
<tr>
<td>FCC</td>
<td>Federal Communications Commission</td>
</tr>
<tr>
<td>FTA</td>
<td>Federal Transit Administration</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>HVAC</td>
<td>Heating, Ventilation and Air-conditioning</td>
</tr>
<tr>
<td>HTTPS</td>
<td>Hypertext Transport Protocol Secure</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
</tr>
<tr>
<td>ITS</td>
<td>Intelligent Transportation Systems</td>
</tr>
<tr>
<td>IVR</td>
<td>Interactive Voice Response</td>
</tr>
<tr>
<td>ICD</td>
<td>Interface Control Document</td>
</tr>
<tr>
<td>LCD</td>
<td>Liquid Crystal Display</td>
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<tr>
<td>IVLU</td>
<td>Integrated Vehicle Logic Unit</td>
</tr>
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<td>LED</td>
<td>Light Emitting Diode</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>MAR</td>
<td>Mobile Access Radio</td>
</tr>
<tr>
<td>MS</td>
<td>Microsoft</td>
</tr>
<tr>
<td>MPEG</td>
<td>Moving Picture Experts Group</td>
</tr>
<tr>
<td>NCTPA</td>
<td>Napa County Transportation and Planning Agency</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
</tr>
<tr>
<td>NMEA</td>
<td>National Marine Electronics Association</td>
</tr>
<tr>
<td>NTCIP</td>
<td>National Transportation Communications for ITS Protocol</td>
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## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>NTP</td>
<td>Notice to Proceed</td>
</tr>
<tr>
<td>ODBC</td>
<td>Open Database Connectivity</td>
</tr>
<tr>
<td>OS</td>
<td>Operating System</td>
</tr>
<tr>
<td>OCU</td>
<td>Operator Control Unit</td>
</tr>
<tr>
<td>PDF</td>
<td>Portable Document Format</td>
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<tr>
<td>PST</td>
<td>Pacific Standard Time</td>
</tr>
<tr>
<td>PA</td>
<td>Public Address</td>
</tr>
<tr>
<td>RAM</td>
<td>Random Access Memory</td>
</tr>
<tr>
<td>RTIS</td>
<td>Real-Time Information System</td>
</tr>
<tr>
<td>RDP</td>
<td>Remote Desktop Protocol</td>
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<tr>
<td>RFP</td>
<td>Request for Proposals</td>
</tr>
<tr>
<td>RCM</td>
<td>Requirements Compliance Matrix</td>
</tr>
<tr>
<td>SSID</td>
<td>Service Set Identifier</td>
</tr>
<tr>
<td>SAE</td>
<td>Society of Automotive Engineers</td>
</tr>
<tr>
<td>SQL</td>
<td>Structured Query Language</td>
</tr>
<tr>
<td>SM</td>
<td>Systems Manuals</td>
</tr>
<tr>
<td>TCP</td>
<td>Transfer Connection Protection</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>Transmission Control Protocol/Internet Protocol</td>
</tr>
<tr>
<td>USB</td>
<td>Universal Serial Bus</td>
</tr>
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<td>UTA</td>
<td>Urban Transportation Associates</td>
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<td>VAN</td>
<td>Vehicle Area Network</td>
</tr>
<tr>
<td>VLU</td>
<td>Vehicle Logic Unit</td>
</tr>
<tr>
<td>VPN</td>
<td>Virtual Private Network</td>
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<tr>
<td>WAN</td>
<td>Wide Area Network</td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>Wireless Fidelity</td>
</tr>
<tr>
<td>WLAN</td>
<td>Wireless Local Area Network</td>
</tr>
<tr>
<td>WPA2</td>
<td>Wi-Fi Protected Access 2</td>
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I. Organization of Document

This document is organized into the following sections including appendices:

**Project Overview** – presents a high level overview and the goals of the project including a background of the agency’s operations and existing conditions.

**Project Scope** – provides a summary of the overall scope of the project.

**Project Schedule** – provide details on the anticipated schedule of the project.

**Instructions to Proposers** – provides details on what is to be included in the responses to the RFP.

**Proposer Evaluation Criteria** – provides the basis for the criteria upon which the proposals will be evaluated.

**General Requirements** – provides the requirements that are more geared towards process including the detailed design, installation and acceptance of the system.

**Appendix A – Concept of Operations**

**Appendix B – Technical Requirements and Specifications**

**Appendix C – SolTrans**

- Appendix C1 – SolTrans Compliance Matrix
- Appendix C2 – SolTrans Fleet Details
- Appendix C3 – SolTrans Price Proposal
- Appendix C4 - SolTrans Standard Agreement

**Appendix D – Petaluma Transit**

- Appendix D1 – Petaluma Transit Compliance Matrix
- Appendix D2 - Petaluma Transit Fleet Details
- Appendix D3 – Petaluma Transit Price Proposal
- Appendix D4 - Petaluma Transit Standard Agreement

**Appendix E – Napa VINE**

- Appendix E1 – Napa VINE Compliance Matrix
- Appendix E2 – Napa VINE Fleet Details
- Appendix E3 – Napa VINE Price Proposal
- Appendix E4 – Napa VINE Standard Agreement
II. Project Overview

1. Background

Solano County Transit (SolTrans), Petaluma Transit, and Napa VINE have identified the need to implement technological tools to assist in managing their operations and serving their customers through the collection, analysis and dissemination of reliable data on its existing fleet of transit vehicles. Based on this high priority need, SolTrans, Petaluma Transit, and Napa VINE will deploy a state-of-the-art Automatic Vehicle Location (AVL) System and Computer-Aided Dispatch (CAD) for fixed route and demand response fleets of vehicles (refer to Appendices C2, D2 and E2 for more details on the fleets to be included as part of this deployment).

2. Goals

The overarching goals for the new CAD/AVL system include the following:

- **Improve On-time Performance** - The AVL system shall disseminate continuous, real-time information to drivers to speed up or slow down between established time points and provide transit planners with systematic schedule adherence problems on routes, due to factors such as peak hour congestion and periodic increased passenger loading throughout the day. With this information, planners will be able to adjust routes or schedules accordingly.

- **Improve Dispatch Reliability and Efficiency** - By disseminating real-time information to the dispatchers, much of the current communications used to determine where a transit vehicle is located, how full the vehicle is, and who is driving will be eliminated. With real-time information at their desk, dispatch operators could provide this information quickly to transit agency supervisors, respond to public inquiries more proactively and make necessary adjustments.

- **Increase Ridership** - By improving on-time performance, automating on-board announcements and signs, and making transit more user-friendly by enabling 511 Transit and third party vendors to produce mobile applications. Increasing the availability of real-time information to transit riders will allow them to plan for upcoming trips, select specific stops to find real time departures, and set alarms for upcoming departures.

- **Improve Scheduling and Planning** - By providing more accurate data and reducing the schedule preparation time and staffing. The CAD/AVL system should provide access to an accurate database which enables planners and transit analysts to select more effective bus stop placements and generate more accurate ridership counts.

- **Improve Data Management and Reporting** - By automating data collection and improving the accuracy and accessibility of data for transit operators, transit planners, and National Transit Database passenger mile reporting.
3. Existing Conditions

This section describes in general terms the existing operating conditions of the participating transit agencies. For SolTrans and Petaluma Transit, please refer to Appendix A, Concept of Operations.

Napa VINE

Napa VINE currently has 42 fixed route vehicles, 21 VINEGO Paratransit vehicles, four Supervisor Vehicles, and 3 additional Paratransit vehicles ordered and pending. Additionally, they have 4 trolley/shuttle routes in the cities of Calistoga, American Canyon, St. Helena, and Yountville. The Yountville Trolley has one active and one inactive vehicle, the Calistoga Shuttle has two active vehicles, American Canyon Transit has two active and two pending vehicles, and the St. Helena Shuttle has two active vehicles. Service operates from 5:20 a.m. until 9:10 p.m. Monday through Friday, from 6:00 a.m. until 8:10 p.m. on Saturday and Route 10 and 11 is the only service running on Sundays and is available from 8:30 a.m. until 7:00 p.m. See Appendix E2 for specific details on the Napa VINE bus fleet.

Napa VINE’s fixed route service area covers Napa County and also includes fixed routes to Fairfield, Suisun City, Sonoma Plaza, and the El Cerrito del Norte BART station. VINE Go is an origin to destination, shared ride service which provides demand response, door-to-door, transportation to persons with disabilities in the cities of Calistoga, St. Helena, Napa, American Canyon, the Town of Yountville and the unincorporated areas of Napa County. VINE Go operates at the same times as the fixed route operations.

Napa VINE’s key operational facilities are the Soscol Gateway Transit Center, located at 625 Burnell Street, Napa, CA 94559, and the Bus Maintenance Facility at 720 Jackson Street, Napa, CA, 94559. Refer to Napa VINE’s website for a VINE Transit System Map. The Napa VINE permanent staff includes a Manager of Transit, Transit Planner, Manager of Finance and Accounting Technician.

Napa VINE currently does not have internal cameras installed on their bus fleet. However, there is potential for them to procure and install cameras in the near future. Their fixed-route bus fleet currently has GenFare Fareboxes, as well as UTA APC’s on board their fixed route and demand response vehicles.

Currently, communication is handled through their existing AVL system, which is owned and operated by their operations and maintenance contractors, Veolia Transportation. Napa VINE contracts all of their operations, dispatch and maintenance, safety and training, and management tasks to Veolia.

A summary of the Veolia contractor’s staffing and operations are described below.

Maintenance

Napa VINE’s maintenance facility is located at 720 Jackson Street, Napa, CA, 94559. Currently, there is one full time Maintenance Manager who is responsible for management of the maintenance department and staff; one full time Parts Clerk who is responsible for the management of parts orders and inventory; one full time bus stop tech who is responsible for bus stop maintenance; five full time utility workers, who are responsible for cleaning and
fueling the fleet; and five full time mechanics who are responsible for the maintenance, repairs and road calls of the fleet.

*Operations*

Currently, there is one full time General Manager responsible for the overall Management of the Operations and Finance, and one full time Administrative Assistant responsible for payroll, AP and HR. Additionally, there is one full time Operations Manager who is responsible for the management of the Operation and Department Staff, 6.5 Full-Time Equivalent (FTE) Dispatchers and Reservationists who are responsible for oversight of the Public Transit service including Paratransit trips, one full time Operations Supervisor who is responsible for the oversight of the Reservationist and Paratransit Dispatchers and is also responsible for data management as it pertains to invoicing, 77 full time bus operators, and three full time customer service representatives that are responsible for customer service relations and pass sales, etc.

*Safety and Training*

Currently, there is one full time Safety and Training Manager who is responsible for new hire and bus operator training to include Risk Management and Staff; and four full time Road Supervisors who are responsible for safety of the operations.

*IT*

Napa VINE does not have an IT department on site. They rely on Veolia’s to provide technical support on any needed IT services.

### III. Project Scope

The project will include the design, procurement, installation, integration and testing of a CAD/AVL system involving vehicles and facilities owned and operated by the three agencies. Additional details on the fleets and facilities are contained in Appendices A, C2, D2 and E2.

The CAD/AVL system shall consist of a traditional agency-owned model where each agency owns and operates all elements of the CAD/AVL system. All CAD/AVL equipment including all software, servers, workstations, communications equipment and peripheral equipment shall be housed in, and operated out of, agency-owned facilities and be dedicated operating the specific agency’s CAD/AVL system including all software and hardware.

For the remainder of this document, the use of the terms “Provider,” “Proposer” and “Contractor” are used interchangeably.

#### 1. Proposed CAD/AVL System

The agencies have varying needs and requirements for the deployment of the new CAD/AVL system across their fleets. This includes the deployment of CAD/AVL equipment on certain agency fleets as well as a staged deployment of certain elements of the overall system. For the proposed agency fleets, the deployment will consist of the following fleets for each agency:
### SolTrans
- Fixed Route Vehicles
- Paratransit Vehicles
- Supervisor Vehicles
- Contingency Fleet

### Petaluma Transit
- Fixed Route Vehicles
- Supervisor Vehicles

### Napa VINE
- Fixed Route Vehicles
- Paratransit Vehicles
- Supervisor Vehicles
- Shuttles

The agencies will deploy the overall system in a staged manner, creating a core system under the initial deployment and then potentially expanding this core system to add more capabilities. The staged deployment will factor the various vehicle configurations desired by the agencies.

Tables 1 to 3 below provide more details on the required on-board equipment and systems for each agency’s vehicle fleet. The contingency fleets represent each agency’s spare fleet that will also be outfitted with the following on-board systems. See Appendices C2, D2 and E2 for more information on each agency’s bus fleets.

<table>
<thead>
<tr>
<th>On-Board Equipment/System</th>
<th>Vehicle</th>
<th>Fixed Route</th>
<th>Paratransit Cutaway</th>
<th>Supervisor</th>
<th>Contingency Fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Logic Unit</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Mobile Data Terminal</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Mobile Access Router</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Global Positioning System Receiver</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Automated Passenger Counter</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cellular Radio (3G/4G)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Automated Vehicle Announcement</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Destination Headsign Interface</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Video System Interface</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Farebox Interface</td>
<td>●</td>
<td>●</td>
<td>●</td>
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### Table 2: Required On Board Equipment for Petaluma Transit

<table>
<thead>
<tr>
<th>On-Board Equipment/System</th>
<th>Vehicles</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Fixed Route</td>
</tr>
<tr>
<td>Vehicle Logic Unit</td>
<td></td>
</tr>
<tr>
<td>Mobile Data Terminal</td>
<td>■</td>
</tr>
<tr>
<td>Mobile Access Router</td>
<td>■</td>
</tr>
<tr>
<td>Global Positioning System Receiver</td>
<td>■</td>
</tr>
<tr>
<td>Automated Passenger Counter</td>
<td>■</td>
</tr>
<tr>
<td>Cellular Radio (3G/4G)</td>
<td>■</td>
</tr>
<tr>
<td>Automated Vehicle Announcement</td>
<td>■</td>
</tr>
<tr>
<td>Destination Headsign Interface</td>
<td>■</td>
</tr>
<tr>
<td>Video System Interface</td>
<td>■</td>
</tr>
<tr>
<td>Farebox Interface (future)</td>
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</tbody>
</table>

### Table 3: Required On Board Equipment for Napa VINE

<table>
<thead>
<tr>
<th>On-Board Equipment/System</th>
<th>Vehicle</th>
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<td>Fixed Route</td>
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<tr>
<td>Vehicle Logic Unit</td>
<td>■</td>
</tr>
<tr>
<td>Mobile Data Terminal</td>
<td>■</td>
</tr>
<tr>
<td>Mobile Access Router</td>
<td>■</td>
</tr>
<tr>
<td>Global Positioning System Receiver</td>
<td>■</td>
</tr>
<tr>
<td>Automated Passenger Counter Interface</td>
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<tr>
<td>Cellular Radio (3G/4G)</td>
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<td>Automated Vehicle Announcement</td>
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<td>Destination Headsign Interface</td>
<td>■</td>
</tr>
<tr>
<td>Video System Interface</td>
<td>■</td>
</tr>
<tr>
<td>Farebox Interface</td>
<td>■</td>
</tr>
</tbody>
</table>
The general scope of the CAD/AVL system will achieve the goals set forth above for each of the three agencies and will provide a complete and fully-functional traditional CAD/AVL system. Reference is made to the Concept of Operations which is provided in Appendix A. The main components of the CAD/AVL system shall, at a minimum, include the following:

- **CAD/AVL Servers** - servers will be installed at the dispatch/maintenance centers which communicate with and collect data from the fixed route bus fleet, paratransit buses, and supervisor vehicles (see Appendices C2, D2 and E2 for more details on the agency fleets that will be part of the CAD/AVL system). The CAD/AVL servers will also communicate with real-time signs at designated bus stops, and at transit centers such as the Vallejo Transit Center and Sereno Transit Center for SolTrans, the Eastside Transit Center and Copeland Transit Mall for Petaluma Transit, and the Soscol Gateway Transit Center for Napa VINE. From the dispatch/maintenance centers, the CAD/AVL servers will disseminate real-time information via the internet to 511 and other mobile applications to make real time departure information and other transit information available to the public.

- **CAD/AVL Workstations** - workstations will be installed at dispatch/maintenance centers and administration offices to enable staff to generate reports, play back routes, and allow for ad hoc analysis and planning. The CAD/AVL workstations will be key for monitoring where specific routes are running off-schedule and identify how to diagnose and correct the problem. See Appendix B for the Technical Requirements of the CAD/AVL Workstations.

- **System Data Communications** - the communications system shall be via private radio and/or cellular connections and will only involve data communications. Voice communications will be conducted via separate system and is not part of the CAD/AVL system. All computer based CAD/AVL systems require industry standard communications to and from the transit vehicles. SolTrans and Napa VINE will utilize a leased cellular connection, and Petaluma Transit will utilize a private radio system.

- **On-Board Equipment** - agency vehicles will be equipped with a variety of on-board equipment for vehicle location and monitoring, passenger counting, route and stop dissemination (via on-board voice announcements and signs) and mobile wireless communications. Additionally, several existing on-board equipment will be integrated into the new CAD/AVL system. All on-board equipment shall communicate using industry standard communications (e.g., J1708, J1939).

- **Software Applications (Mobile Devices)** - The CAD/AVL servers will collect/generate system information including vehicle location, route, schedule adherence, real-time arrival times and disseminate the information to 511 and third party vendors/developers to produce mobile applications. Mobile applications will allow transit users at a minimum to identify where bus stops are located, plan for an upcoming transit trip, select specific stops to find real time departures, and set alarms for upcoming departures.

- **Real-Time Transit Arrival/Departure Information and Displays** – real-time passenger and information displays will be installed at various local stop and transit center locations in the agency systems. The signs will communicate with the CAD/AVL servers to inform transit riders of real time departures or arrivals, or other important information regarding bus routes. Additionally, real-time predictions will be provided to the San Francisco Bay Area 511 System to allow for real-time information to be displayed on regional transit hub signs (e.g., Vallejo Transit Center).
• *Maintenance Support* - The day-to-day operations and maintenances of the CAD/AVL system will be undertaken by SolTrans, Petaluma Transit, and Napa VINE staff. The provider shall include training for the agency operational staff, maintenance assistance, and troubleshooting in a maintenance agreement in order to properly implement a new technology like an AVL system.

Reference is made to Appendices B, C1, D1, and E1 for the detailed technical requirements and specifications and compliance matrices for each agency system.

**IV. Project Schedule**

The following is the proposed schedule for the procurement of the new CAD/AVL system. The dates are subject to change, but proposers shall consider these dates as target dates.

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release of RFP</td>
<td>May 8, 2014</td>
</tr>
<tr>
<td>Pre-proposal meeting and Site Visits</td>
<td>May 15, 2014</td>
</tr>
<tr>
<td>Deadline for questions</td>
<td>May 29, 2014</td>
</tr>
<tr>
<td>Response to questions</td>
<td>June 9, 2014</td>
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<tr>
<td><strong>Proposals due</strong></td>
<td>June 19, 2014 at 4pm (PST)</td>
</tr>
<tr>
<td>Interviews (if needed)</td>
<td>June 25th and June 26th 2014</td>
</tr>
<tr>
<td>Selection of Provider</td>
<td>July 11, 2014</td>
</tr>
<tr>
<td>Notice to Proceed</td>
<td>TBD</td>
</tr>
<tr>
<td>System Design</td>
<td>Within three (3) months from Notice to Proceed</td>
</tr>
<tr>
<td>System Procurement</td>
<td>TBD</td>
</tr>
<tr>
<td>Integration/Non-Revenue Testing</td>
<td>TBD</td>
</tr>
<tr>
<td>Revenue Operations</td>
<td>TBD</td>
</tr>
</tbody>
</table>

**V. Instructions to Proposers**

This project shall include the furnishing of all labor, materials, software, licenses and services as set forth in the Scope of Work, Technical Requirements and Specifications and the Compliance Matrix sections of this Request for Proposals.

A pre-proposal conference will be conducted at 8:00 am, Pacific Standard Time, on May 15, 2014 at the SolTrans Administration Building on 311 Sacramento Street, Vallejo, CA. Attendance at this conference is highly recommended, but not required.
Additionally, site visits will be conducted at each of the transit agencies that same day. These site visits are highly encouraged, and should one decide to attend, please be prepared to spend the entire day visiting each of the agency’s facilities. The site visits will be conducted at the following facilities:

- SolTrans Operations Facility, 1850 Broadway, Vallejo, CA
- NCTPA (Napa VINE) Maintenance Facility, 720 Jackson Street, Napa, CA
- Petaluma Maintenance Yard, 555 N. McDowell Boulevard, Petaluma, CA

Please send an RSVP to David Berman (david@soltransride.com) by Tuesday, May 13th if you plan on attending the pre-proposal meeting and site visits.

Technical and Price proposals are due on or before 4:00 pm, Pacific Standard Time, on June 19, 2014, at SolTrans facilities (311 Sacramento Street, Vallejo, CA 94590). Proposals received after this day and time, or at any other place other than the place stated above will not be considered and the proposals will be returned.

Proposals shall be submitted to:

David Berman
SolTrans
Program Analyst I
311 Sacramento Street
Vallejo, CA 94590

All questions and inquiries shall be in writing and shall be sent to David Berman via e-mail at david@soltransride.com.

Upon receipt and evaluation of the proposals, the agencies will shortlist (if necessary) and conduct in-person interviews. Those proposers who are shortlisted will be notified and provided with further instructions and details for the interviews.

It is the intent of the participating agencies to select the provider and award the contract according to the process and procedures described in this RFP. The agencies intend to procure the highest quality of services and materials possible for the best value possible.

Minimum System Requirements

The proposed CAD/AVL System and software shall have been deployed (installed and operational) in at least three (3) similar transit agencies in the United States for a period of not less than three (3) years.

The proposer shall provide documentation that demonstrates this level of system deployment.

Disadvantaged Business Enterprise (DBE)

It is the policy of the US Department of Transportation that Disadvantaged Business Enterprises (DBEs) as defined in 49 CFR Part 26 shall be encouraged to participate in the performance of contracts financed whole or in part with federal funds. As a condition of
federal grant assistance, the Agencies (i.e., SolTrans, Petaluma Transit and Napa VINE) have each adopted a DBE program for federally funded contracts. No DBE goal has been established for this project. However, provider shall ensure that DBEs have the opportunity to participate in the performance of this contract and shall take all necessary and reasonable steps to obtain DBE participation. The contractor shall not discriminate on the basis of race, color, national origin, sex, disability, or age in the award and performance of subcontracts.

The Provider shall not discriminate on the basis of race, color, national origin, or sex in the performance of the contracts. Provider shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contract. Failure by the Provider to carry out these requirements is a material breach of this contract, which may result in the termination of the contracts or such other remedy as the agencies deem appropriate. Each subcontract the Provider executes with a subcontractor must include the assurance in this paragraph (see 49 CFR 26.13(b)).

The Provider will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.

The Provider is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor’s receipt of payment for that work from the Agencies. In addition, Provider is required to return any retainage payments to those subcontractors within 30 days after the subcontractor’s work related to this contract is satisfactorily completed.

The Provider must promptly notify the Agencies whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The Provider may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the Agency.

**Buy America**

All equipment including, but not limited to, hardware, software, firmware, any associated cabling, connectors, mounting assemblies and fasteners shall meet the Federal Buy America requirements - Federal Transit Administration (FTA) 49 U.S.C. § 5323(j) and 49 C.F.R. Part 661 (Buy America Requirements). The Provider shall submit written proof/evidence that all components supplied under this Contract meets the Buy America requirements. Failure to submit this written evidence will be grounds for rejection of any and all components supplied by the Provider.

**Proposal Format and Content**

Proposals shall be presented clearly and concisely, and shall reflect the Proposer’s understanding of the project objectives and convey a sound technical approach and management plan to meet the agencies’ goals and requirements. Proposals shall convey the proposer and system capabilities and qualifications to competently and cost-effectively complete the work in a timely manner.
Proposal presentation shall be construed as evidence of the proposer’s ability to develop and convey technical information in a clear and concise manner.

For ease of comparison and validating completeness of submittals, proposers must adhere to the organizational structure and section headings outlined below. Proposals are limited to 80 pages, not including required forms, the compliance matrices, the price proposal and staff resumes. Proposals that deviate from this organizational structure or are missing key information elements may be considered non-responsive. SolTrans, Petaluma Transit, and Napa VINE will not review pages that exceed the 80 page limitation.

Proposals shall contain at minimum the following information in the order that it is presented:

*Introductory Letter*

Proposers shall provide a cover letter with introductory information, such as point of contact, address and phone number. This letter should reference the RFP by name and number, provide a concise statement of the Proposer’s understanding of the goals and requirements of the project, identify the Project Manager and his/her relevant experience, and generally introduce the Agencies to the capabilities of the company and the proposed system.

The introductory Letter must confirm that the proposal and all subject offerings are valid for a period not less than 90 working days unless otherwise required in the RFP from the proposal due date. It must also acknowledge receipt of all addendums issued, and be signed by a representative of the firm authorized to enter binding contracts on its behalf.

The introductory letter shall include a statement that the Provider is willing to enter into a binding agreement with all three agencies utilizing the standard agency agreements contained herein as Appendices C4, D4 and E4. The agencies do NOT desire to negotiate any elements of their standard agreements. Proposers must be willing to execute agreements with each agency using the agency’s standard agreements “AS IS”.

The Agencies will not consider, under any circumstances, statements by the Proposer that any requirement or provision of this RFP is subject to negotiations or discussion. Any such statements may be considered basis for rejection of the revised proposal.

*Section I – Proposer Information*

Provide an introduction of the Proposer, and/or an introduction of all partner firms or sub-consultants proposed to be involved in completing the work of this Contract.

**I. Company Information**

a) Years in business and name of the parent company (if the proposer is a subsidiary)
b) Location of headquarters
c) Number of employees (full-time)
State whether the Proposer has any pending litigation, and state whether the firm has had any litigation in the last five (5) years and the outcome of such litigation.

II. Qualifications of the Proposer

The Proposer shall describe its history, experience and past projects and performance which are similar in nature, scope and complexity to that required by this RFP. The roles and responsibilities of each member of the Proposers team (Providers, subcontractors, consultants and suppliers) shall be described.

Proposal shall provide a list of similar North American fixed route transit technology system installations that have been completed within the previous five (5) years. The following shall be provided for each project at a minimum:

a) Name of agency (transit agencies)
b) Agency contact (name, address, phone and email)
c) Size of fleet under CAD/AVL
d) Fleet vehicle details (no. of fixed route, paratransit, supervisor, etc.)
e) Total system cost
f) Date of acceptance of system by agency (month and year)

The projects listed should provide evidence that the Proposer meets the minimum criteria and is qualified to successfully implement the System based on demonstrable successful implementations at other similar transit properties.

III. References

From the project qualifications and/or ongoing installations listed under the above sections, the Proposer shall provide a minimum of three (3) references for systems similar in scope and scale involving similar transit agency systems. The Agencies reserve the right to contact references to verify information and to investigate past performance.

Section II – Project Organization and Staffing

I. Key Personnel

At a minimum, Proposers shall clearly identify and describe the qualifications of the key personnel listed below (at a minimum). Proposers are encouraged to include other categories and staff leads as deemed necessary for the successful implementation of the systems. Note that the Proposer may not substitute key personnel at any time without prior written consent by the owning Agency or Agencies.

a) Project Manager
b) On-Board Systems Lead
c) Central Systems Lead
d) Communications System Lead

e) Installation and Integration Lead

II. Organizational Chart

Provide an organizational chart that clearly identifies the Key Personnel described above, other personnel who will be assigned to the work under these contracts, and their roles. Brief descriptions of additional personnel may be included.

III. Availability and Location of Project Staff

Indicate the primary work location(s) and percentage time commitment of the Project Manager and other key personnel for this project. Discuss how responsibilities of the Project Manager, key personnel and other project staff will be managed and balanced over the course of the project, and how support will be provided to the Agencies during the design, implementation, testing, training and acceptance stages of the project. Identify where the key personnel are located, i.e., their primary office location(s).

IV. Resumes

Resumes shall be submitted for the Key Personnel. Resumes must be complete and concise, including, at a minimum, projects completed, education, training, degrees and certificates earned. Resumes should indicate experience directly relevant to the work to be performed under this Contract, and will not count toward the 80 page limitation.

Section III – Management Plan

I. Management Plan

Discuss the proposed management approach to ensure adequate technical and administrative oversight over the work and to manage project schedule and budget. Describe the proposed procedures for technical and administrative communications between the Proposer and The Agencies. Discuss proposed Quality Control (QC)/Quality Assurance (QA) measures procedures and any certifications pertaining thereto. Discuss tools and procedures for engineering management of System design, revisions and change management, software configuration, etc.

II. Project Schedule

The Proposer shall provide in its response a Gantt chart showing the major activities, primary sub-activities, milestones, and timelines required to implement the System. The Successful Proposer shall submit for approval a Master Schedule for the overall project for each Agency.

All project events and/or milestones, which the Proposer views as the responsibility of the Agency or Agencies shall be clearly identified in the Project Schedule.
The project schedule shall include, at a minimum, the following activities for each of the Agencies:

a) Notice To Proceed  
b) System Design Document Approved  
c) Acceptance Testing Procedures Approved  
d) Factory Acceptance Testing Completion  
e) Fleet Installation (start and end)  
f) Pilot Fleet Testing Completion  
g) Full Fleet Testing Completion  
h) Training Completion  
i) System Documentation Approved  
j) System Acceptance Testing Completion  
k) Operation Period Testing Completion  
l) System Acceptance

III. Implementation Plan

Proposers shall include an initial implementation plan in their response describing the sequence of work and how they propose to plan, design, install and implement the new CAD/AVL system. The plan shall minimize disruption to existing operations. Disruptions expected shall be described in the proposal.

Section IV – Technical Approach and Work Plan

I. Project Understanding

Describe Proposer understanding of the scope of services, and how the proposed System and approach fulfills that scope including any major assumptions.

II. System Description and Architecture

Describe the overall technical approach and the primary subsystems and components to be deployed, their relationships to one another, network requirements and their relationship to existing The Agencies’ systems and infrastructure.

Proposers shall provide a ten (10) year vision for recommended hardware and software refreshes and replacements that will be necessary to keep the system in optimal operating condition. The vision shall include what of such future efforts will be covered by the Provider under that warranty and subsequent maintenance and support agreements, and identify any expectations for the Agencies for ongoing maintenance.

a) Licensing
Describe all third-party licensing necessary for the proposed system, to include: Simultaneous users, total defined/configured users, system consoles, total defined/configured vehicles

b) Central System

Proposers shall describe their standard, off the shelf service restoration function. Describe the proposed central system, its principal features and functionality, and its relationship with other Agency systems to fulfill the requirements outlined in this RFP.

c) Testing and Training

Proposal shall describe their proposed testing and training process. This includes the overall features and functions of the testing/training, proposed hardware, software and licenses needed for a fully functional testing and training environment.

d) On Board Systems

Discuss the proposed on board system architecture and technical approach, including the integration of new and legacy sub-systems as described in the Technical Requirements and Specifications.

e) Expectations of the Agencies

Identify any assumptions regarding work, services, information, facilities to be provided by the Agencies or the third-party providers of systems or services to the Agencies.

f) Documentation, Testing, Training, Installation, and Integration

Provide a comprehensive description of the proposed documentation, testing, training, installation, and cutover plan and procedures. Note that on-site design, installation, testing, commissioning, and cutover activities of the Proposer shall pose minimal disruption to normal Agency activities and be in accordance with specific requirements outlined in this RFP.

g) Communications Integration

Describe the proposed technical solutions to integrate the new cellular data communications and private radio system (Petaluma Transit) into the CAD/AVL system.

Section V – Compliance Matrices

I. Proposers shall complete and submit the Compliance Matrices with responses for each requirement identified in the matrices. Since each agency has a tailored Compliance Matrix, the proposers shall submit the Compliance Matrices with responses as provided in Appendices C1, D1 and E1, i.e., one for each agency. Word versions of the Compliance Matrices are available upon request. Please contact david@soltransride.com to request the Word files.
Submitted proposals that do not adhere to these instructions may be considered non-responsive. The Agencies reserve the right to request more information for any and all responses provided. The matrices will not count towards the 80 page limit. The Successful Proposer shall submit a final Compliance Matrix for each agency which will be used for traceability and testing purposes.

Section VI – System Warranty and Maintenance Support

I. Describe the terms and conditions of the proposed System Warranty and Maintenance Support which shall include one for each Agency in a manner that is consistent with, and elaborates on the warranty-related requirements (see Appendix B, Technical Requirements and Specifications). Describe processes and procedures for:

   a) Preventative and remedial maintenance, including assumptions regarding responsibilities of Proposer and each of the Agencies.

   b) Responsible parties for performing System Warranty obligations and their locations.

   c) Any items proposed for exclusion from the System Warranty.

   d) Provisions for telephone and/or help desk support during the System Warranty.

   e) Proposed software update, upgrade and support process during the System Warranty.

Section VII – Price Proposal

I. Proposers shall submit the Price Proposal Forms as provided in Appendices C3, D3 and E3. These forms shall include prices for all items indicated in the price proposal forms including all optional items. Submitted proposals that do not adhere to these instructions may be considered non-responsive. The price proposals will not count towards the 80 page limit. Word versions of the Price Proposals are available upon request. Please contact david@soltransride.com to request the Word files.
VI. **Proposer Evaluation Criteria**

The proposals will be evaluated using the criteria and points indicated in the table below.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
</table>
| Qualifications of Organization  | • Overall qualifications including experience references and capabilities for providing the required services  
   and location of key personnel  
   • History and years of experience of organization  
   • Demonstrated financial capacity to complete the system  
   • Project descriptions of the provider’s related projects  
   • Experience in working with local transit agencies  
   • Management practices including project management processes and tools, quality control procedures, and schedule adherence. | 40     |
| and Staff                       |                                                                                                                                                                                                          |        |
| Technical Approach and          | • Overall quality and responsiveness of the proposal and meeting the project’s objectives including functionality, features and suitability for transit operators.  
   • Tenure/maturity of the proposed CAD/AVL system  
   • Features of the proposed CAD/AVL system  
   • Performance characteristics and reliability of components  
   • Compliance with the System Requirements and Specifications  
   • Terms of the System Warranty and Technical Support | 40     |
| Compliance                      |                                                                                                                                                                                                          |        |
| Price Proposal                  | • Price proposal score will be calculated based on a “weighted score” that considers the base prices of all proposers. Each proposer’s price score will be calculated using the following formula:  

\[
\frac{\text{Lowest Base Price}}{\text{Proposer’s Base Price}} \times 20
\]

The Proposer’s Base Price will be based on the prices that are provided as part of the Price Proposals as outlined in Appendices C3, D3, and E3. | 20     |

**TOTAL POSSIBLE POINTS** 100
VII. General Requirements

1. Project Management

Agency Responsibilities

Each agency shall be responsible for the following during each process of this project:

*Design and Procurement*

- Oversight of the design and procurement documents and working with the selected provider on the implementation of the system.

*Installation and Integration*

- Oversight of the installation and integration of the system. Receive training on the use and operations of the system.
- Oversight of installation of the system’s technology elements (hardware and software). Receive training on the use, operations and maintenance of the system.
- Receive comprehensive training on the use and operations of the system and how to properly maintain the on-board hardware.

*System Commissioning*

- Conduct live testing of the system prior to going live. Actively monitor system during burn in and initial system commissioning periods.

*Operations*

- Conduct live testing of the system prior to going live. Actively monitor system during burn in and initial system commissioning periods.
- Work with provider on troubleshooting and repairs of technology components of the system. Maintain the AVL servers and ensure the quality of data. Pull reports and set up and implement new queries as necessary for transit operations monitoring and reporting.
- Operate and maintain system elements and work with provider on troubleshooting and repairs.

Provider Responsibilities

The provider shall be responsible for the following during each process of this project:

*Design and Procurement*

- Complete design of the system based on the project goals and objectives and Agency feedback.

*Installation and Integration*
- Complete installation, integration and testing of the system. Ensure that current bus features are integrated and operating into the new system properly.

**System Commissioning**

- Respond, troubleshoot and correct any deficiencies during the burn in and system commissioning periods.

**Operations and Maintenance Support**

- On-going maintenance checks and troubleshooting. Pending contract terms, provide repairs of the system in a timely manner and provide technical support for CAD/AVL elements.

2. **System Design**

The design process for the system shall be comprised of three stages as described in the following requirements.

- Preliminary Design;
- Draft Final Design; and
- Final Design

Each design stage shall include submission of the System Design Document.

The System Design Document shall be comprised of documents relating to the design and implementation of the desired system so that the intent of the design may be reasonably reviewed by the Agencies. At a minimum, the System Design Documents shall include details on the system interfaces with each and every component of the CAD/AVL system and any appropriate shop drawings to illustrate detailed connections and hardware interfaces, particularly with the on board equipment.

Should there be interfaces with equipment and/or software supplied by different manufacturers, the Provider shall submit an Interface Control Document (ICD) which shall describe all of the proposed hardware and software interfaces with each of those components. The Proposer shall include as part of the System Design the interface with the 511 System for the exchange of static and real-time information.

The Proposer shall attend Preliminary and Draft Final Design meetings with each Agency to discuss the comments and proposed responses. Such meetings shall be scheduled to take place shortly after the Proposer has responded to comments. The meeting will be used to reach agreement on any outstanding issues raised through the review process. The Proposer shall be expected to issue notes with agreed action items following from the meeting.

The Proposer may only proceed from one phase of the project to the next following written approval from the respective Agency. The Proposer shall assume at least two (2) meetings for each of the design phases. The Proposer shall provide software display screen samples in all submissions to illustrate the look and feel of the system.
The Proposer will not be able to proceed with the installation or commissioning contained in each document until it has been reviewed by the owning Agency and the document approved. It is the responsibility of the Proposer to secure appropriate approvals prior to installation and commissioning.

All drawings submitted shall be in U.S. English only and shall use inches and feet, as well as meters, for all measurements.

The drawings shall be submitted and approved by the Agencies prior to production and shall include photos or AutoCAD drawings of the equipment locations and electrical wiring routing, and electrical schematics of wiring. The shop drawings shall establish the actual detail of the work, the location and method of attachment of the equipment on the buses shall be approved by each agency’s Project Manager and should be replaceable with a "plug-in" feature allowing rapid change-out.

Final shop drawings shall reflect the actual “as built” conditions and shall be submitted in both print & electronic format.

3. Submittals

The Provider shall submit for approval a list and delivery schedule for all called for under the deliverables indicated in the table below and others requested by the Agencies. The table provided below is for reference only, and the Successful Proposer shall submit a final list of submittals for approval by the agencies.

<table>
<thead>
<tr>
<th>Submittal</th>
<th>RFP Reference Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Master Schedule</td>
<td>Section V</td>
</tr>
<tr>
<td>Final Compliance Matrices</td>
<td>Section V</td>
</tr>
<tr>
<td>System Design Documents</td>
<td>Section VII.2</td>
</tr>
<tr>
<td>Equipment Documentation</td>
<td>Section VII.4</td>
</tr>
<tr>
<td>Interface Control Document</td>
<td>Section VII.2</td>
</tr>
<tr>
<td>Installation Plan</td>
<td>Section VII.4</td>
</tr>
<tr>
<td>On Board Systems Integration Test Plan</td>
<td>Section VII.5.3.2</td>
</tr>
<tr>
<td>Factory Acceptance Test Plan</td>
<td>Section VII.5.3.1</td>
</tr>
<tr>
<td>Pilot Fleet Test Plan</td>
<td>Section VII.5.3.3</td>
</tr>
<tr>
<td>System Acceptance Test Plan</td>
<td>Section VII.5.3.5</td>
</tr>
<tr>
<td>System Manuals</td>
<td>Section VII.6.10</td>
</tr>
</tbody>
</table>


**Table 5: Required Submittals**

<table>
<thead>
<tr>
<th>Submittal</th>
<th>RFP Reference Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Documentation</td>
<td>Section VII.6</td>
</tr>
<tr>
<td>Final Shop Drawings</td>
<td>Section VII.2</td>
</tr>
<tr>
<td>Spare Parts List</td>
<td>Section VII.7</td>
</tr>
</tbody>
</table>

4. **Installation Plan**

The installation plan and installation procedures shall be submitted to the Agencies for approval at least 30 days prior to installation for review and commenting. Unless otherwise specified, the Provider shall provide a turn-key installation solution, including all labor, materials, parts, interconnect cables and connectors. This includes any and all mounting brackets, stanchion extensions, hardware, cable labels, grommets, cable clamps and harnesses, and other materials required to install the equipment in Agency approved locations and orientations. The Provider shall ensure that all onboard and central system materials and components are delivered to the installation site(s). The Provider shall be responsible for providing their own secure storage.

At the Agency’s option, an Agency representative shall be present during the onsite installation to monitor quality control of the installation process. Equipment shall be installed in a neat and workmanlike manner, in accordance with good practice, by competent technicians and mechanics. Resumes of key installation staff shall be provided to the Agency for approval no less than 30 days prior to installation.

All installers shall be properly trained by the Provider. The Agency reserves the right to require the Provider to immediately replace any unqualified installer.

Notwithstanding the details presented in the Scope of Work, it is the responsibility of the Provider to verify the correctness of the material lists and suitability of devices proposed to meet the intent of the Scope of Work.

The Provider shall be responsible for providing or arranging the provision of all parts and labor necessary for the equipment and its installation up to and including system acceptance. The Provider shall be responsible for the equipment until it has been installed or received by the Agency into inventory as a spare component. The Agency is not responsible for damage during shipping and prior to acceptance.

Any equipment or parts required to provide a complete and operational system, and not specifically mentioned herein, shall be provided by the Provider without any claim for additional payment. It shall be understood that the contract and agreement contemplates and requires the “turnkey” construction and installation of a completely operational communication and dispatch system that meets the standards set by the Agency.

All rubbish and debris associated with site preparation, unpacking of shipping materials, and/or installation of new equipment related to this project shall be removed from the premises by the
Provider and properly disposed of. All dumpsters and related containers used for disposal, are
the responsibility of the Provider. Removal of rubbish and debris shall be performed daily.

For purposes of quality control and efficiency, to the greatest extent possible the Provider shall
maintain the same installation crew(s) throughout completion of all vehicle installations.

The Provider shall bear responsibility for the safety of their workmen and all others involved
with the installation phase.

A prototype installation for each vehicle type shall be performed by the Provider. The
prototype installations shall be approved by the Agency or its representative(s) before
proceeding with installation of remaining buses of that vehicle type.

The Provider shall implement a Quality Assurance (QA) program to ensure the quality of the
equipment installation. The Provider shall provide an installation checklist for each vehicle
installation. For each installation the installers shall fill out the checklist and certify that all
required installation steps, operational checks, and quality control (QC) reviews have been
performed. The checklists shall be submitted to the Agency at least weekly and will be
considered a required item for system acceptance.

The Provider shall ensure regular, clear, and consistent communication between the installers
and the Agency vehicle maintenance personnel during the installation process. Installers shall
check in with the Agency Maintenance Supervisors at the start of each work day and check out
to report the work progress at the end of the work day. All Provider, SubProvider, and Supplier
employees shall comply with the Agency policies and procedures while on Agency property.

The equipment installation shall not result in a decrease in seating or standing capacity of the
vehicle. Equipment, electrical connections, and wiring shall be protected and concealed from
view as much as possible and shall be designed so that there is no hazard to the passenger in
the event of incidental contact. Potential damage to passengers, their clothing, and their
property shall be minimized.

The equipment shall be firmly secured to the bus to prohibit tampering and to avoid damage by
accidental abuse of the equipment including routine bus washing processes. Tamper-proof
hardware to secure the equipment shall be required.

Any damage to the vehicle or its equipment due to the mistake or negligence of the Provider
during installation shall be corrected at Provider expense.

The Agency reserves the right to suspend installations upon significant failures during
installation or testing.

The Provider shall provide detailed electronic information (i.e., equipment cut sheets and other
detailed information) documenting the following for all equipment provided under this
Contract:

1. Agency asset tracking number,
2. Manufacturer,
3. Manufacturer Model Number,
4. Manufacturer Part Number,
5. Provider Model Number (if different from Manufacturer Model Number),
6. Provider Part Number (if different from Manufacturer Part Number),
7. Serial number,
8. Make,
9. Model,
10. Description,
11. Battery Type (if applicable),
12. Firmware and programming versions,
13. Date of Installation,
14. Vehicle installed into (if applicable), location (if fixed), or assigned person if portable,
15. Warranty Provisions (e.g. type, expiration date), and

These records shall be in formats useable by Microsoft products and databases in use by the Agency for tracking controlled assets.

4.1 Installation Systemic Failures (Pre-System Acceptance)

If during the installation period, component failures occur to an extent of 5% of the same components used for the same function in the same assembly or subsystem among all system elements furnished under this Contract, the Provider shall, within 30 days of notification of such instance, commence a modification program to repair or replace all such components to correct the cause(s) of such failures at no additional cost to the Agency. The Agency may, at its sole discretion, prohibit additional installation of such components until issue is corrected.

The design of the repair or replacement of the component(s) involved in each such modification program shall be developed by the Provider to remedy the nature and probable cause of the component failures and shall be approved in advance of the repair or replacement by the Agency.

Repair and/or replacement of components pursuant to each modification program shall be according to the same provisions herein as if such components were failed components requiring repair and/or replacement, whether or not actual failures for some or most of the involved components have occurred following notification of a requirement for a modification program.

4.2 On Board Equipment

The Provider shall prepare, install, test, and commission onboard CAD/AVL components for all vehicles to be included under the CAD/AVL system. All equipment shall be installed in a manner that allows for simple, component-level replacement of failed equipment by Agency maintenance personnel.

For touch-screen MDTs, the touch-screen is considered a component of the MDT for this purpose and shall be replaceable. Equipment shall allow for easy installation/removal in transit vehicles through the doors without requiring door disassembly.
In-vehicle (onboard) system devices shall be identical in installation characteristics for each vehicle type and model. Equipment components shall be able to be replaced in a vehicle in ten (10) minutes or less by a trained technician, when the proper tools and a spare unit are available.

Unless otherwise approved by the Agency, all connectors, fasteners and connections shall be water-tight and solvent-resistant. All connectors shall provide for positive and secure connections which will not be impacted by vibration, cable movement/kinking, and normal operating activities.

The Provider shall recommend the final location of all onboard components installed on each different vehicle type and configuration, for approval through the design review process and documented via shop drawings (see Section VII.3, Submittals).

The Provider shall use new wiring and connectors and shall properly dispose of all old wiring and connectors. The Provider shall remove all decommissioned equipment, and properly dispose of all equipment not eligible for resale.

Sellable decommissioned equipment shall be inventoried, placed on pallets, labeled, wrapped and readied for shipment. Items identified as scrap (as having no value except for basic material content) will be considered eligible for resale for this purpose. Wrapped pallets shall be stored in an Agency approved location.

Extreme care must be taken when drilling into the vehicle body panels and structure to prevent damage to components hidden behind the drilling surface. Drill stops must be used to prevent unnecessary penetration of drill bits. Drill shavings shall be contained to prevent contamination or shorting out of other bus equipment. Drilling into the bus structure shall require prior approval by the Agency.

All cables and wiring shall be routed inside conduits located in electrical panels or behind body panels. These conduits may be rigid or flexible, and must be non-conductive. Any exposed cables and wiring must be protected by cable loom or equivalent device, secured to a solid point on the vehicle at intervals that prevent cable damage, and shall be approved by the Agency.

All wiring shall be secured but with sufficient slack to allow movement without strain on wire terminals, connectors, or other wire termination hardware, and must be protected against chafing, and any contact with conductive, sharp or abrasive objects. Wiring shall be located such that normal equipment motions, maintenance access, heat sources, radiation, and the environment do not damage or reduce the life of the wiring.

Wire dress shall allow for sufficient slack at terminals to provide for shock and vibration induced movements, equipment lifting, alignment, cover removal and component replacement. All cables, wiring, inter-connectors, switches, circuit breakers shall be heavy duty and specifically designed for their purposes and for transit automotive applications. They shall meet all applicable industry standards and shall meet the SAE J1292 recommended practice.

All circuits shall be protected by circuit breakers. The main power circuit from the vehicle to the system shall be protected by a circuit breaker similar to what already exists in the vehicle. All circuit breakers shall be permanently labeled to show their functions.
4.3 Central Computer System

The Provider shall be responsible for the installation, local configuration, network configuration, commissioning, and testing of all central computer system equipment. This shall include the backup and test environment systems and the backup system option if selected, in addition to the primary central system.

The Provider, as part of the design phase, shall prepare design drawings, elevations and wiring connection diagrams illustrating the location of all central computer system and related components and their interconnection, including any network and central system equipment to be located at remote sites or vehicle depots.

The Agency will provide power and a network demarcation point at all central computer system sites. The Provider shall be responsible for any local cabling requirements to connect to the demarcation points.

Central CAD/AVL workstations, monitors, and other related hardware shall be installed at each agency’s Dispatch/Maintenance offices.

All servers and associated racks and other hardware shall be installed at designated locations as per the Agency’s explicit instruction.

The Agency will provide access during normal business hours for central system installation work that does not disrupt normal operations. All installation and cutover work that disrupts normal operation shall be conducted at night, weekends, or during other off-hours with Agency approval.

5. Inspection, Testing, and Acceptance

5.1 Inspection

The Provider shall permit Agency staff or its representative’s access to the Provider’s facilities while system manufacturing and testing are taking place and to any facility where hardware or software is being produced for the CAD/AVL System.

The Agency will perform inspections that include visual examination of hardware, cables, and equipment. Provider documentation may also be examined to verify that it adequately identifies and describes all hardware and software.

The inspection rights described above shall not apply to sub-Providers supplying commercial off-the-shelf components such as servers, network equipment, and third-party software products. Standard hardware and software products shall be tested as part of the Functional Performance Test. However, inspection rights shall apply to sub-Providers that are developing new hardware or software for inclusion in the CAD/AVL system.

5.2 Testing

The Provider shall be responsible for conducting all testing as described herein. Work under this section shall include all labor, materials, and support services required to completely test all hardware and software of the installed system.
No adjustments, modifications, or substitutions shall be made to the system by the Provider during testing, except with written approval by the Agency.

Where mutually agreed by the Agency and the Provider, system components, subsystems, interfaces and software processes shall be tested individually and as a whole to demonstrate that the system meets contract requirements.

The Provider shall perform all testing so as to satisfy the objectives of each testing stage as per the Agency approved test plan.

Each Agency or its representatives shall have the right to witness any and all tests. No test shall be considered complete until results are signed off by an authorized Agency representative.

Unless otherwise specified, all test plans shall include at a minimum the following:

1. Overview of testing including test objectives
2. Pass/fail criteria
3. Test setup and test measuring equipment (including descriptive diagrams)
4. Listing of tools, test applications, simulators, etc. required to perform the test
5. Entry/startup conditions
6. Exit/closing conditions
7. Test procedures and scripts to be executed
8. Traceability matrix linking each requirement proposed to be demonstrated to applicable test procedure(s)
9. Test recording form
10. Test comments form
11. Sign-in sheet or list of all individuals present for testing
12. Signatures and verification form

The Provider shall provide written notification of readiness to test for each required testing stage a minimum of 10 days in advance or 15 days when/if travel by Agency personnel or representatives is required to witness the tests. Readiness to test shall include dry run results performed by the Provider.

Upon completion of any test, the Provider shall prepare and submit within 10 days, a report summarizing the results with relevant test records and any actions required by the Provider or Agency. All such test reports will be reviewed and approved by the Agency prior to acceptance of the test results.

Immediately upon completion of each vehicle installation, the Provider shall test that the onboard system and general operating features (e.g., turn signals, doors, APC) of the vehicle is fully functional. The Provider shall also be prepared to demonstrate that the onboard system is fully functional upon request whenever an Agency Inspector is available.
5.3 Test Stages

The following are the minimum test stages that shall be completed as part of the contracts:

1. Factory Acceptance Test
2. On Board Systems Integration Test
3. Pilot Fleet Test
4. Burn-In Test
5. System Acceptance Test

Each of these tests are described below.

5.3.1 Factory Acceptance Test (FAT)

A Factory Acceptance Testing (FAT) shall be performed to ensure that the supplied and developed components meet all functional and environmental requirements and specifications. FAT shall be performed at the Provider’s manufacturing or development site prior to any delivery of equipment to the Agency. At a minimum the Provider Project Manager and Engineers shall be present during the FAT.

The Provider shall develop and submit for approval by the agencies a comprehensive FAT program consisting, at a minimum, of the following individual test programs:

1) Hardware test to verify the operating parameters of all equipment are per the requirements of this Contract, Original Equipment Manufacturer (OEM) specifications, and System Design Document;

2) Functional test to demonstrate that all functional and operational requirements and specifications applicable to the device/subsystem have been delivered;

3) Submit documents supporting appropriate certifications showing environmental and electrical compliance; and

4) Human factors test for all devices/subsystems with a user interface.

5) Scenario or use-case testing to demonstrate end-to-end connectivity and correct processing/handling of data.

All equipment types shall be tested. A minimum of two (2) units of each equipment type, identically configured to all other units of that same equipment type, shall be subject to FAT unless waived by each Agency’s Project Manager or designated representative.

Any device certifications required by regulatory agencies shall be the responsibility of the Provider.
All required certifications shall be submitted with each shipment of devices or subsystems. Any changes to the hardware or hardware configuration shall require a FAT retest.

5.3.2 On Board Systems Integration Test

The Provider shall install the fixed end systems onsite and, in conjunction with the completed data communications systems and the pre-revenue onboard integrated configuration, demonstrate the integrated operation of all System components onsite (along with simulated data loading) but prior to use of the system in pilot testing. The integrated operation of all System components shall be demonstrated both when the system is running on the primary central system hardware and after it has automatically been failed over to the backup central system hardware. Pilot-Fleet Testing shall not commence until Onboard System Integration Testing has been successfully completed.

The on-board testing shall include time and provisions for Agency staff to conduct independent system integration testing using their own or ad-hoc scripted test cases. Provider support during these tests shall be provided.

The on-board testing shall be conducted using approved Agency vehicles on the Agency network but not in revenue service.

To be approved by the Agency, the Provider shall identify a subset of the on-board testing to be re-run once a limited number of vehicles have been equipped.

5.3.3 Pilot-Fleet Testing

The Provider shall complete the pilot-fleet testing. The Agency will designate at least 10% of the vehicle fleet to receive CAD/AVL equipment and representative of a mixture of the entire fleet and non-revenue vehicles to be equipped to enable pilot-fleet testing with all components as will be installed and interfaced to existing transit hardware. The test shall demonstrate all vehicle-related aspects of required system functionality. The Provider shall prepare and submit a Pilot Fleet Test Plan for the agency’s approval.

Pilot-fleet testing shall be completed after installation of the central system and the initial set of agreed vehicle installations, and deficiencies shall be rectified before the completion of any additional vehicle installations.

The Pilot Fleet shall run without errors or interruptions for a minimum of twenty-one (21) calendar days. Should there be any substantial errors as determined by the agencies during this period, the Provider shall correct the deficiency immediately and re-run the Pilot Fleet test. The testing shall start over and shall not be deemed completed until the full 21 day test period is satisfied without any substantial errors.

Pilot-fleet testing shall be witnessed by the Agencies representatives (Agency staff and/or designated support consultants).

5.3.4 Burn-In Test
Once the Pilot Fleet has been completed through testing, each subsequent vehicle shall undergo a burn in test. This burn in test shall consist of running each vehicle connected to the central system, for a minimum of ten (10) calendar days. Any errors during this period shall be corrected and the test re-started.

5.3.5 System Acceptance Test (SAT)

SAT will only be initiated once all of the system elements have been installed and configured and all pre-installation and installation tests have been successfully completed. The SAT will test the entire system where the tests are completed to ensure that the functional requirements are met to the satisfaction of the agencies.

The SAT shall be an end-to-end test that is typically performed from the central system software out to each device. Where software interfaces with other software, this interface shall be tested through the SAT for each software subsystem.

Each requirement listed in the requirements and specifications shall be tested. The SAT will also include those cases where a test procedure is not feasible. In these cases, the SAT will document what form of verification will be performed to confirm the requirement and/or specification is satisfied.

The SAT shall be tested for a period of no less than 15 consecutive calendar days without any errors that interrupt CAD/AVL operations and reporting.

SAT shall be witnessed by an Agency representative (Agency staff and/or designated support consultants).

The provider shall provide a SAT Plan for review and approval by the agencies at least three (3) weeks in advance of the planned start of the acceptance testing.

5.4 System Acceptance

Final acceptance of the CAD/AVL System shall occur after the following items are completed:

1) Completion of all contractual requirements to each Agency’s satisfaction
2) Successful completion of all tests as measured by Agency acceptance and approval of all test reports
3) Agency acceptance of all delivered equipment as listed in the Provider-supplied hardware inventory
4) Agency approval of all drawings, manuals, and all other documentation
5) Integration of all on-board equipment and systems
6) Agency approval of all Provider-supplied training

6. Training

The Provider shall be responsible to train Agency designated personnel according to the requirements specified herein. Training shall take place at Agency designated facilities. The training presentations and material shall be in English. Instruction shall cover
equipment familiarization and systems operation. The minimum training is that which is necessary to bring those employees designated to the level of proficiency required for performing their respective duties.

The Provider shall provide experienced and qualified instructors to conduct all training sessions. The Provider is responsible for ensuring that the instructors teaching these courses are not only familiar with technical information but are able to utilize proper methods of instruction, training aids, audiovisuals and other materials to provide for effective training. Resumes for all training instructors shall be provided to the Agency for approval prior to the training class.

The Provider is responsible for providing all training materials, training aids, audiovisual equipment and visual aids for the conduct of these courses.

Instructional materials consisting of applicable equipment operation and maintenance manuals, and supplemental notebooks consisting of additional drawings, procedures, and descriptive information shall be provided.

Student guides shall include full topic descriptions, illustrations as needed to enhance content presentation, and common problems with comprehensive solutions given. Student guides shall mirror the instructor guides.

All training materials are to become the property of the Agency at the conclusion of training. Maintenance training shall commence during the time when equipment is stored on the buses. At the request of Agency, the Provider shall provide additional training sessions at the contract price per session.

The Provider shall submit the training curricula, presentations, and materials for review and approval by the Agency. No training shall commence until these items have been approved by the Agency.

Training curricula shall meet all training requirements and indicate trainee prerequisite knowledge, course content, training time requirements, and who should attend. Training curricula shall be provided to the Agency for review a minimum sixty days prior to commencement of equipment installation. Level of competency required to pass course examinations shall be determined by the Agency.

As a minimum, training should be provided on the following systems:

1) Computer-Aided Dispatch Training;
2) Data Analysis and Report Generation;
3) Laptop Training;
4) System Administration Training; and
5) Maintenance Training.

Provider shall provide 6 fully functional CAD/AVL units (i.e. bus in a box) for training purposes.

6.1 Computer Aided Dispatch Training
Provider shall provide Computer Aided Dispatch training for each Dispatcher and Road Supervisor.

The Provider shall work with the Agency’s Operations Manager to define a training program that will minimize impact to operations.

### 6.2 Onboard Systems Training

Provider shall provide a “Train the trainer” approach for onboard systems.

Provider shall provide hands on training on the operation and appropriate use of onboard equipment.

Training shall include operational scenarios that incorporate new features and functionality of the CAD/AVL system.

### 6.3 Desktop Web Application Training

Provide training for various agency departments for AVL viewing and playback as well as incident entry.

### 6.4 Service Planning and Scheduling

Provider shall provide training for experienced staff on the service planning and scheduling aspects of the systems.

### 6.5 System Administration Training

Training shall be provided for experience staff on the configuration, administration and troubleshooting of the system.

### 6.6 IT Training

Training shall be provided to fully familiarize IT personnel with all aspects of the system including the structure of the applications, tables utilized, network connections and settings, and other similar information.

The trainer for this course shall be technical in background as this training will be highly technical “back end” information and not end-user type training.

At the conclusion of training, personnel involved, including database administrators, developers and system analysts shall have a thorough understanding of the following as applicable:

1) Applications’ architectures
2) Data flows
3) Interfaces
4) Development tools
5) Development assumptions
6) Directory structures
7) Processing scripts
8) Data dictionaries
9) System flows
10) Table relationships
11) Table growth
12) Data conversion methods
13) Recommended backup strategies
14) Application programs

All programs shall be defined and described fully, showing all inputs/outputs, samples of reports, logic flows and major functions described.

### 6.7 Reporting Training

Training for reporting capabilities of the system and on the mechanics of creating reports and/or developing ad hoc reports.

### 6.8 Maintenance Training

First Line Maintenance training shall commence during the time when equipment is installed on the coaches.

Provider shall provide First Line (diagnostics, troubleshooting, configuration and remove and replace) maintenance training.

Provider shall provide preventative maintenance training during first line maintenance training.

Provider shall provide Second Line (subassembly or board-level troubleshooting, diagnostics, configuration, and replacement) maintenance training two months prior to the end of the warranty period.

Provider shall provide manufacturer certified training for radio/electronics maintenance technicians on the following:

Provider will provide integration and line replaceable unit level training on the Vehicles such that a radio/electronics technician can safely and efficiently:

1) Diagnose Failure
2) Isolate troubles in the integrated system to the CAD/AVL system components or the Radio system components
3) Determine and identify faulty equipment (subscriber units)
4) Repair, replace, remove as indicated the faulty device or devices
5) Provide schematics, block diagrams, test points, test equipment, specialized tools or other items as need to maintain the onboard equipment

Provider will provide training to radio/electronics maintenance technicians, Dispatchers, Supervisors and IT staff on the use of the CAD/AVL system to include:

1) Integration of radio dispatch functions into the CAD/AVL system
2) All screens, geo displays, messaging, and other functions in the CAD/AVL to facilitate text messaging.
3) All adjustments and configuration changes allowed to items such as lists, volumes, priorities, alerts, messages and other features provided by the Provider.
4) Operation of the system for day-to-day transit operations
5) Operator level fault clearing and error notices

Provider will provide detailed hands-on training in repair and maintenance of the CAD/AVL back office implementation to include:

1) Line Replacement Unit remove and/or repair
2) Detailed System diagnostics
3) Operating Systems
4) File systems
5) Automated Tests
6) Theory of Operation
7) Systems and Subsystems fault isolation

6.9 Follow-Up Training

Follow-up training sessions shall be provided six (6) months after the initial sessions and shall consist of the same modules as the initial training. Sessions shall be at least half the length of the initial training sessions.

6.10 Manuals

The Provider shall provide Maintenance Manuals documenting how the system components were installed, how to install and configure spare components, and the schedule/procedures for preventative maintenance, inspection, fault diagnosis, component replacement and warranty administration on each system component.

The Provider shall provide User Manuals for Dispatchers, documenting use of all functions of the software.

The Provider shall provide Operator Manuals for all operators, documenting the use of the MDTs and other on-board equipment.

The Provider shall provide Systems Manuals, documenting the configuration and topology of central systems hardware and software, central systems software functions
and operations, scheduled maintenance required for the central systems, and database structure and data dictionaries.

7. **Spare Parts**

The Provider shall propose for consideration a list of spare parts to be provided (Spare Parts List). This list shall include replacement parts, components or sub-assemblies for all items of equipment provided, in sufficient quantities to meet the estimated need for warranty and maintenance purposes for a period of two years, including a minimum of 10% of the installed quantity for each component. The Spare Parts List shall include complete sets of all necessary replacement parts, including, but not limited to:

1) VLU  
2) GPS receiver  
3) Antenna  
4) MDT  
5) MAR  
6) Cellular router and WLAN communications card  
7) APC  
8) AVA

This list is a master list of all possible spare parts items. Each agency will have a different need for spare parts depending on which items are deployed as part of their specific CAD/AVL system. Please refer to other Section III, Project Scope of this RFP, the Technical Requirements and Specifications and the Compliance Matrices for more details on the minimum required spare parts list for each agency.

The Spare Parts List shall contain a set of all specialized tools and equipment necessary to install, calibrate, test and maintain the system. All wiring, cabling and adapters shall also be provided. Each item on the spare parts list shall include all ancillary components (e.g., cables, hardware) needed to complete a rapid onboard replacement for the component.

The Provider shall provide spare parts in accordance with the agreed Spare Parts List, the full cost of which shall be included in the Contract Price.

The Spare Parts shall be placed into the spare parts inventory and become the property of the Agency upon handover.

The Agency shall receive replacement spares within 7 calendar days of notice of shipment of the defective part to the Provider.

The Agency shall have the option to purchase additional spare components are the proposed price at any time within the warranty period. Additional purchased spares shall be received within 7 calendar days of order.
8. Warranty, Maintenance and Support

All materials, components, and parts furnished under this Contract shall be new and of high quality and in conformance with this contract.

The Provider shall represent that all equipment offered under these specifications is new. Used, shopworn, demonstrator, prototype, remanufactured, reconditioned, or discontinued equipment shall not be supplied under this contract. Reuse of existing Agency material, equipment, or software will not be accepted, with the exception of hardware, software, or infrastructure interfaces permitted by this scope of work.

All workmanship provided under this contract shall be of high quality, and in conformance with this contract.

The Provider warrants that all hardware and software meets the functional and performance requirements as described in the requirements.

The Provider warrants that all materials, components, parts and workmanship of CAD/AVL elements, spare parts or assemblies, and all special tools and diagnostic test equipment provided under this Contract to be free of defects and faults in material, design and workmanship. Such warranties by the Provider shall apply to all CAD/AVL software, components, parts and workmanship, whether performed or provided by the Provider, Provider’s SubProviders, or suppliers at any tier. Such warranties shall not apply to CAD/AVL elements or components abused or neglected by the Agency, or damaged by some unusual and unforeseeable supervening cause occurring after System Acceptance.

This system warranty shall commence upon System Acceptance, and shall be for a period of not less than three (3) years, except for any longer period provided in this Contract.

The Provider shall furnish, at its own expense, all material, parts, labor, shipping costs, remote access equipment and services, and all other expenses required to fulfill its CAD/AVL warranty obligations.

All software, keys, equipment, and warranties shall be in the Agency’s name.

8.1 Period

All installation and hardware provided by the Provider shall be covered by a parts and labor Warranty, which shall commence upon System Acceptance, and shall be for a period of five (5) years, except for any longer period provided in this Contract.

All software warranties shall be extended to cover the System warranty period at no additional cost to the Agency.

Onboard equipment failures shall be repaired or replaced by the Provider on a seven (7) calendar day turnaround throughout the warranty period.

Central system equipment and server failures shall be diagnosed within four (4) hours of being reported, and repaired or replaced by the Provider within twenty-four (24) hours.
For all onboard vehicle components, the Agency shall attempt to resolve problems prior to contacting the Provider. If the Agency cannot resolve the problems, upon notification the Provider shall provide seven (7) days per week, 24 hours per day phone support and a four (4) hour response time for the agencies. All defective elements that are under warranty will be swapped out by the Provider unless the agency decides to perform the swap.

Any warranty from the Provider’s SubProvider or supplier to the Provider exceeding the periods described herein shall be extended to the Agency for the same period of time as given to the Provider.

Hardware and software manufacturer’s warranties shall be extended through the System Warranty period, including any extended warranty the Agency chooses to purchase.

The Agency shall be notified of all updates to provided hardware and software until end of the warranty period.

During the warranty period, the Agency shall receive all updates at no cost for all software applications, interfaces, and/or modules provided by the Provider to the Agency prior to System Acceptance, including those which correct bugs or enhance system functionality).

All issues identified during the warranty period shall be resolved under the warranty even if the warranty period expires before the issue is resolved.

8.2 Repair and Replacement

For each system component or workmanship failure during the warranty period, the Agency shall determine whether to correct the failure by repair or replacement of part(s) within an assembly, or by replacement of the entire assembly.

For onboard equipment, the Agency shall perform removal of failed parts or assemblies and installation of spare parts or assemblies for accepted system elements under warranty, unless the Agency and the Provider agree to other arrangements for such work.

The Provider may provide technical supervision for such removal or installation work by the Agency. The Provider shall receive such removed failed parts or assemblies at a location on Agency premises to be designated, unless the Provider requests shipment of such failed parts or assemblies to its facilities; in such case, the Agency will ship such failed parts or assemblies at the Provider’s expense.

The Provider shall deliver to the Agency a replacement or repaired part or assembly for each such returned failed part or assembly within 7 days of notice of shipment of a failed part or assembly.

In the event that a failed onboard part or assembly is manufactured to order only and cannot be repaired or replaced within the seven (7) day period, the Provider and Agency mutually shall consider whether the defective unit is to be repaired or replaced. The decision as to which alternative will be used shall be based on minimizing down time of the system, and the Provider shall return the repaired or replaced unit at the earliest possible date.
The Provider shall provide during the warranty period the latest compatible version of the failed part/hardware with the latest firmware.

The Provider shall retain full responsibility for replaced or repaired parts or assemblies throughout the duration of the warranty coverage period for all parts and assemblies replaced by the Agency.

**8.3 Failure Analysis Report**

All parts or material returned to the Provider for repair or replacement shall be accompanied by a Failure Analysis Report Form, which will be provided by the Agency. The Provider shall complete this form and shall deliver to the Agency a full and complete report of the exact nature and probable cause of each system component failure within ten (10) days of the Provider’s receipt of such failed component.

**8.4 Systemic Failures**

Systemic failures shall be defined as the occurrence of component failures in excess of 5% during the warranty period.

In the event of systemic failures during the warranty period, the Provider shall at their expense, within 30 days of notification of such instance, commence a modification program to repair or replace all such components, including those that have passed beyond the warranty period, to correct the cause(s) of such failures. The design of the repair or replacement for the component(s) involved in each such modification program shall be developed by the Provider to remedy the nature and probable cause of the component failures and shall be approved by the Agency. Repair and/or replacement of components pursuant to each modification program shall be according to the same provisions herein as if such components were failed components requiring warranty repair and/or replacement, whether or not actual failures for some or most of the involved components have occurred following notification of a requirement for a modification program.

In no case shall the correction of defects in design, material or workmanship result in an increase in maintenance requirement beyond that specified in the Contract Documents.

The Provider shall warrant replacement of part or assemblies due to systemic failures for three (3) years from replacement. Warranty terms and conditions shall be the same as for the original system warranty.

**8.5 Replaced Parts**

Any materials, parts or components used for replacement under the initial warranty period shall be warranted again, such that the new warranty period shall begin upon date of replacement as recorded in the Agency’s system maintenance records, and be of the same duration as the original warranty period (i.e. three years from replacement if the original warranty period was three years), regardless of the timeframe of the failure. In the case of components that are replaced pursuant to a modification program but have not yet failed, the new warranty period shall be computed from the date of the Agency’s notification to the Provider of a requirement for the particular modification program.
8.6 Software Updates and Support

All software provided by the Provider shall be covered by the Warranty from installation until three (3) years from System Acceptance.

The Provider shall supply compatible hardware and software versions across the fleet over the term of this contract including the warranty.

As part of the proposal, the Provider shall provide the migration path or schedule for compatibility with updates to 3rd party software.

During the warranty period, the Provider shall update all applicable systems with the then-current version of software at no additional cost to the Agency.

Any “patches” recommended by the hardware or software Providers, (including operating systems), shall not void the system warranty.