Lease of AVL Devices

Radio Satellite Integrators, Inc.

Proposal to

State of West Virginia

RFP# FLT12014

February 21, 2012

Radio Satellite Integrators, Inc.

19144 Van Ness Avenue
Torrance, CA 90501
310-787-7700
Fax 310-787-7435
www.radsat.com

February 21, 2012

Krista Ferrell
Department of Administration
Purchasing Division
Building 15
2019 Washington Street, East
Charleston, WV 25305-0130

Re: RFP# FLT12014 – Lease of Automatic Vehicle Location Devices

Dear Ms. Ferrell,

Please find our attached response for **RFP# FLT12014 – Lease of Automatic Vehicle Location Devices.** Radio Satellite Integrators (RSI) is a world leader in the manufacturing and implementation of vehicle tracking systems using GPS technology. We have a long history of experience with GPS-based Automatic Vehicle Location systems and have been manufacturing and implementing systems since 1990. RSI has unparalleled experience implementing systems for all types of vehicle fleets. We currently have systems in place all over the country with large municipal governments such as: City of Houston, City of Oklahoma City, Miami-Dade County, City of Phoenix, Boston Water & Sewer, among many others.

With more than 250 systems and thousands of mobile units in place throughout the world, we urge you to learn more about how our approach allows us to offer a superior product that will best suit your needs at a great value.

Please feel free to contact me with any questions, concerns, or requests.

Proposer Contact:

Brett Lim
Phone: (310) 787-7700
Fax: (310) 787-7435
email: blim@radsat.com
Web page: www.radsat.com

Sincerely,

Brett Lim
Director of Marketing

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
FLT12014	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:

KRISTA FERRELL
304-558-2596

RFQ COPY
TYPE NAME/ADDRESS HERE

VENDOR

Radio Satellite Integrators
19144 Van Ness Ave
Torrance, CA 90501

SHIP TO

PURCHASING DIVISION
FLEET MGMT UNIT (IN CARE OF)
SURPLUS PROPERTY
2700 CHARLES AVENUE
DUNBAR, WV
25064   304-766-2626

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
01/05/2012				

BID OPENING DATE:	02/08/2012	BID OPENING TIME	01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	EA		550-91		

LEASE OF AUTOMATIC VEHICLE LOCATION DEVICES

REQUEST FOR QUOTATION
(RFQ)
OPEN END CONTRACT

THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE
AGENCY, THE WEST VIRGINIA FLEET MANAGEMENT OFFICE,
IS SOLICITING BIDS FOR AN OPEN END CONTRACT TO
PROVIDE THE LEASE OF AUTOMATIC LOCATION DEVICES (AVL'S)
DATA TRANSMISSION SERVICES, ANCILLARY EQUIPMENT, AND
BROWSER CLIENT-SERVER APPLICATION PER THE ATTACHED
SPECIFICATIONS.

A MANDATORY PRE-BID WILL BE HELD ON JANUARY 20, 2012
AT 1:00 PM AT THE AGENCY'S LOCATION AT 2101 WASHINGTON
STREET, EAST IN CHARLESTON, WEST VIRGINIA. ALL
INTERESTED PARTIES ARE REQUIRED TO ATTEND THIS MEETING
FAILURE TO ATTEND THE MANDATORY PRE-BID SHALL RESULT IN
DISQUALIFICATION OF THE BID. NO ONE PERSON MAY
REPRESENT MORE THAN ONE BIDDER.

AN ATTENDANCE SHEET WILL BE MADE AVAILABLE FOR ALL
POTENTIAL BIDDERS TO COMPLETE. THIS WILL SERVE AS THE
OFFICIAL DOCUMENT VERIFYING ATTENDANCE AT THE MANDATORY
PRE-BID. FAILURE TO PROVIDE YOUR COMPANY AND
REPRESENTATIVE NAME ON THE ATTENDANCE SHEET WILL RESULT
IN DISQUALIFICATION OF THE BID. THE STATE WILL NOT
ACCEPT ANY OTHER DOCUMENTATION TO VERIFY ATTENDANCE.
THE BIDDER IS RESPONSIBLE FOR ENSURING THEY HAVE

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE 310-787-7700	DATE 2/16/2012
TITLE Director of Marketing	FEIN 33-0477102	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

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COMPLETED THE INFORMATION REQUIRED ON THE ATTENDANCE
SHEET. THE PURCHASING DIVISION AND THE STATE AGENCY
WILL NOT ASSUME ANY RESPONSIBILITY FOR A BIDDER-S
FAILURE TO COMPLETE THE PRE-BID ATTENDANCE SHEET. IN
ADDITION, WE REQUEST THAT ALL POTENTIAL BIDDERS INCLUDE
THEIR E-MAIL ADDRESS AND FAX NUMBER.

ALL POTENTIAL BIDDERS ARE REQUESTED TO ARRIVE PRIOR TO
THE STARTING TIME FOR THE PRE-BID. BIDDERS WHO ARRIVE
LATE, BUT PRIOR TO THE DISMISSAL OF THE TECHNICAL
PORTION OF THE PRE-BID WILL BE PERMITTED TO SIGN IN.
BIDDERS WHO ARRIVE AFTER CONCLUSION OF THE TECHNICAL
PORTION OF THE PRE-BID, BUT DURING ANY SUBSEQUENT PART
OF THE PRE-BID WILL NOT BE PERMITTED TO SIGN THE
ATTENDANCE SHEET.

TECHNICAL QUESTIONS CONCERNING THIS SOLICITATION MUST
BE SUBMITTED IN WRITING TO KRISTA FERRELL IN THE WEST
VIRGINIA STATE PURCHASING DIVISION VIA FAX AT 304-558-
4115 OR VIA EMAIL AT KRISTA.S.FERRELL@WV.GOV.

DEADLINE FOR ALL TECHNICAL QUESTIONS IS JANUARY 24,
2012 AT THE CLOSE OF BUSINESS.

ANY TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY
FORMAL WRITTEN ADDENDUM TO BE ISSUED AFTER THE
DEADLINE HAS LAPSED.

VERBAL COMMUNICATION:ANY VERBAL COMMUNICATION BETWEEN
THE VENDOR AND ANY STATE PERSONNEL IS NOT BINDING,
INCLUDING THAT MADE AT THE MANDATORY PRE-BID MEETING.
ONLY INFORMATION ISSUED IN WRITING AND ADDED TO THE RFQ
SPECIFICATIONS BY FORMAL WRITTEN ADDENDUM IS BINDING.

NO CONTACT BETWEEN THE VENDOR AND THE AGENCY IS
PERMITTED WITOUT THE EXPRESS WRITTEN CONSENT OF THE

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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304-558-2596

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STATE BUYER. VIOLATION MAY RESULT IN THE REJECTION
OF THE BID. THE STATE BUYER NAMED ABOVE IS THE SOLE
CONTACT FOR ANY AND ALL INQUIRIES AFTER THIS RFQ HAS
BEEN RELEASED.

EXHIBIT 10

                    REQUISITION NO.: ....

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED
ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO
MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 ..X

NO. 2 X

NO. 3 ....

NO. 4 ....

NO. 5 ....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF
THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL
REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY
ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES
AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE
INFORMATION ISSUED IN WRITING AND ADDED TO THE
SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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SIGNATURE

Radio Satellite Integrators

COMPANY

2/16/2012

DATE

NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED
WITH THE BID.

REV. 09/21/2009

EXHIBIT 3

LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE ON
AWARD AND EXTENDS FOR A PERIOD OF ONE (1)
YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS
NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE
ORIGINAL CONTRACT.   THE "REASONABLE TIME" PERIOD SHALL
NOT EXCEED TWELVE (12) MONTHS.   DURING THIS "REASONABLE
TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY
REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS
WRITTEN NOTICE.

UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE
IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS AND
PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE
CONTRACT.

RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL
WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR,

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE 310-787-7700	DATE 2/16/2012
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Request for Quotation

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KRISTA FERRELL
304-558-2596

VENDOR

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SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30)
DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL
BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE
ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE
(1) YEAR PERIODS.

CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE
RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN
NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES
SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM
TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.

OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY
AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN
MARKET, WITHOUT THE FILING OF A REQUISITION OR COST
ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR
IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN
CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANS-
PORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME
OF WORK.)

QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE
APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY
THE STATE SPENDING UNIT. IT IS UNDERSTOOD AND AGREED
THAT THE CONTRACT SHALL COVER THE QUANTITIES ACTUALLY
ORDERED FOR DELIVERY DURING THE TERM OF THE CONTRACT,
WHETHER MORE OR LESS THAN THE QUANTITIES SHOWN.

ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A
WRITTEN STATE CONTRACT ORDER (FORM NUMBER WV-39) TO
THE VENDOR FOR COMMODITIES COVERED BY THIS CONTRACT.
THE ORIGINAL COPY OF THE WV-39 SHALL BE MAILED TO THE
VENDOR AS AUTHORIZATION FOR SHIPMENT, A SECOND COPY
MAILED TO THE PURCHASING DIVISION, AND A THIRD COPY
RETAINED BY THE SPENDING UNIT.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE 310-787-7700	DATE 2/16/2012
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BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES
FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE
CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT
WITHOUT FURTHER ORDER.

THE TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT
SHALL SUPERSEDE ANY AND ALL SUBSEQUENT TERMS AND
CONDITIONS WHICH MAY APPEAR ON ANY ATTACHED PRINTED
DOCUMENTS SUCH AS PRICE LISTS, ORDER FORMS, SALES
AGREEMENTS OR MAINTENANCE AGREEMENTS, INCLUDING ANY
ELECTRONIC MEDIUM SUCH AS CD-ROM.

REV. 05/26/2009

PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA
CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH
IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR
MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING
CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE
AGENCY AS A CONDITION OF AWARD.

ANY INDIVIDUAL SIGNING THIS BID IS CERTIFYING THAT:
(1) HE OR SHE IS AUTHORIZED BY THE BIDDER TO EXECUTE
THE BID OR ANY DOCUMENTS RELATED THERETO ON BEHALF OF
THE BIDDER, (2) THAT HE OR SHE IS AUTHORIZED TO BIND
THE BIDDER IN A CONTRACTUAL RELATIONSHIP, AND (3) THAT
THE BIDDER HAS PROPERLY REGISTERED WITH ANY STATE
AGENCIES THAT MAY REQUIRE REGISTRATION.

NOTICE

A SIGNED BID MUST BE SUBMITTED TO:

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE

TELEPHONE 310-787-7700   DATE 2/16/2012

TITLE Director of Marketing   FEIN 33-0477102   **ADDRESS CHANGES TO BE NOTED ABOVE**

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State of West Virginia Department of Administration Purchasing Division 2019 Washington Street East Post Office Box 50130 Charleston, WV 25305-0130	**Request for Quotation**

RFQ NUMBER
FLT12014

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DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF
THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER: KRISTA FERRELL-FILE 21

RFQ. NO.:   FLT12014

BID OPENING DATE: 02/08/2012

BID OPENING TIME: 1:30 PM

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY
TO CONTACT YOU REGARDING YOUR BID:
          310-787-74435

CONTACT PERSON (PLEASE PRINT CLEARLY):
          Brett Lim

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE 310-787-7700	DATE 2/16/2012
TITLE Director of Marketing	FEIN 33-0477102	**ADDRESS CHANGES TO BE NOTED ABOVE**

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****** THIS IS THE END OF RFQ FLT12014 ****** TOTAL:						

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FLT12014

State of West Virginia
VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

Application is made for 2.5% resident vendor preference for the reason checked:
Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

Application is made for 2.5% resident vendor preference for the reason checked:
Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

Application is made for 2.5% resident vendor preference for the reason checked:
Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

Application is made for 5% resident vendor preference for the reason checked:
Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:
Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:
Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: RADIO SATELLITE INTEGRATORS   Signed: _____

Date: 2-16-2012   Title: DIRECTOR OF MARKETING

Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

FLT12014

RFQ No. _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (**West Virginia Code** §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: _Radio Satellite Integrators_

Authorized Signature: _____ Date: _2/16/12_

State of _California_

County of _Los Angeles_ , to-wit:

Taken, subscribed, and sworn to before me this _16th_ day of _Feb_ , 20 _12_.

My Commission expires _Jul 30_ , 20 _12_

AFFIX SEAL HERE

NOTARY PUBLIC _____

DONG GUYN KIM
Commission # 1805718
Notary Public - California
Los Angeles County
My Comm. Expires Jul 30, 2012

Purchasing Affidavit (Revised 12/15/09)

Radio Satellite Integrators, Inc.

Automatic Vehicle Location

State of West Virginia

Lease of Automatic Vehicle Location Devices

RFP# FLT12014

February 22, 2012

ESRI Technology

AUTHORIZED BUSINESS PARTNER

Title Page

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Date:

February 22, 2012

Subject:

RSI Response to State of West Virginia RFP# FLT12014: Lease of Automatic Vehicle Location Devices.

RSI AVL

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Executive Summary

Our Commitment

Radio Satellite Integrators (RSI) has provided Automatic Vehicle Location (AVL) and mobile data systems that work to the highest levels of performance, reliability, and scalability since 1990. We are one of the oldest and most experienced AVL systems manufacturers and integrators in the industry and we have notable experience with local government and various utility fleets. Radio Satellite Integrators stands ready to support our services and products with the high standards demanded by entities like the State of West Virginia.

Our AVL Experience

RSI has implemented over 250 AVL systems in several thousand vehicles and has the largest breadth of AVL experience of any company in the world. RSI leverages this real world experience with municipal and government fleets similar State of West Virginia to offer you the highest performing and most reliable systems on the market.

State of West Virginia Objectives:

State of West Virginia seeks an Automatic Vehicle Location system to meet the unique requirements of its vehicle and dispatch operations for its vehicles. In addition, the customer can have this enterprise system fully integrated with ESRI ArcGIS, work order, or other fleet management systems. These systems provide the customer with the tools for faster and more efficient dispatching along with real-time and historical data that can be used for a variety of administrative tasks or analysis.

State of West Virginia desires to implement an AVL system to enhance the ability to efficiently manage the assignment of vehicle operations; to use the AVL and Mobile Data system to increase safety, productivity, and service to the citizens in your area of operations.

The RSI Solution:

The RSI AVL system will establish a wireless gateway between your vehicle fleet and your base dispatch. The RSI AVL system will provide real-time vehicle location and status data on an ESRI ArcGIS Server based map interface (hosted servers).

An RSI Mobile unit will provide vehicle location and status data for the system as well as serve as the wireless link between vehicle and base. The mobile GPS device can be equipped with serial ports and sensors to integrate to virtually any devices and external status signals, such as ignition on/off, door open/shut, lights, arm, data terminal, navigation device, etc.

RSI System Equipment

An RSI AVL solution consists of in-vehicle equipment and base applications and equipment.
The *In-Vehicle Equipment* is centered on the RSI Mobile Unit, a self-contained unit integrating
GPS location and sensor technologies, as well as wireless communications. The GPS unit can be
connected to any devices or sensors including lights, ignition, doors open/closed, alarms, etc. In
addition, any variety of in-vehicle computing devices such as Navigation Devices or MDT's can
be connected to the mobile unit and mounted for a driver interface to the system in the future.

The *Base Application* is based on ESRI ArcGIS Server and can be implemented in a variety of
configurations including either hosted or local Web browser based applications. Users interact
with the system through industry-standard ESRI GIS mapping tools as well as customized
reporting applications. The base application servers are typically hosted off-site by RSI.

The In-Vehicle Equipment and Base Application are linked via two-way cellular wireless
communications, allowing for timely data transmission between the field and dispatch center.

Wireless Communications

- **RSI can use virtually any wireless carrier for the communications portion of this
  system. We are proposing both GPRS from AT&T and CDMA from Verizon.**

RSI has worked with more communications technologies in our 20 years of technology
leadership than any other vendor in this marketplace. RSI AVL systems can use any type of
public data network (cellular) including: GPRS, GSM, EV-DO, Nextel/iDEN, CDMA, and many
others.

Using various types of mobile units, RSI also has the capability to field hybrid solutions, which
use a combination of multiple communications mediums simultaneously such as satellite, WiFi,
two-way radio, and others.

Please see the Wireless Communications Section in the proposal.

Third Party System Integration

One of the main differences between RSI and other AVL providers is our unparalleled experience with integrating our AVL and mobile data systems with third party applications. RSI has worked with dozens of third party providers of scheduling, dispatch, work order management, maintenance, as well as "home-grown" applications for various agencies.

RSI has extensive experience interfacing with all types of third party applications such as:

- Work Orders
- Maintenance
- Scheduling
- Dispatch
- Routing
- GIS

RSI is able to leverage its vast engineering experience to allow for the easy integration and real-time sharing of all system data with third party applications. In addition, the RSI AVL system provides a wireless gateway for these systems to share and update data from a driver interface in the vehicle. RSI has written interface programs specific to a number of such applications (using methods such as COM/DCOM, ODBC, XML, SOAP, TCP/IP sockets, CORBA, data queues in an AS/400 environment, network files, etc.).

With dozens of customized integrated systems in place throughout the world, full system integration is just par for the course with the RSI system.
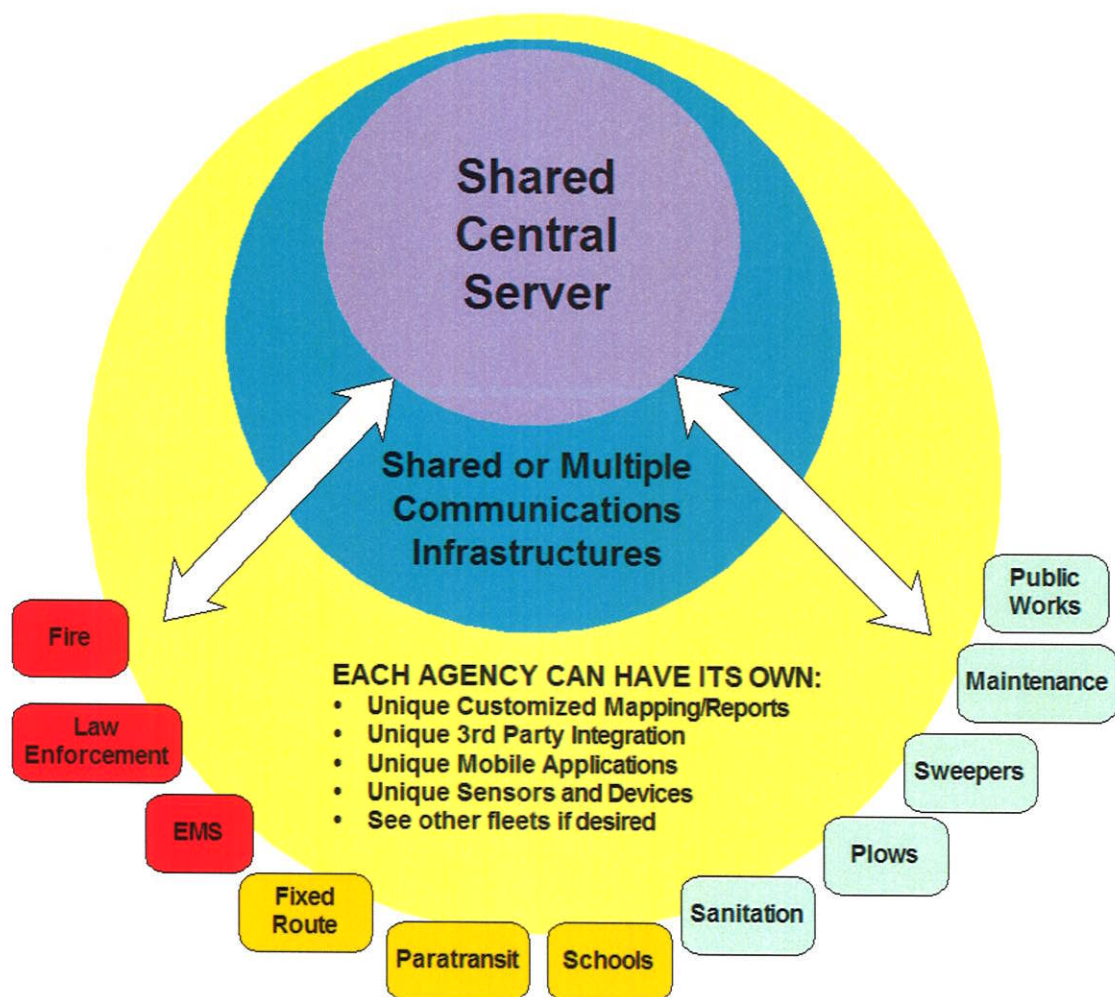
Enterprise Shared Multi-Agency Systems

RSI has extensive experience implementing large enterprise systems that can be shared by several agencies within one organization, city, county, etc. The RSI system can be configured so that specific users only view their own vehicle fleet group, but the system will share the same backbone, servers, communications, etc.

For instance a city may only have to invest in one system yet their fire, transit, and public works departments can all use and share that same system.

RSI has implemented these shared enterprise systems for a variety of cities and counties through out the country including many of the largest metro governments in the country.

Shared Central Server

Shared or Multiple Communications Infrastructures

EACH AGENCY CAN HAVE ITS OWN:
- Unique Customized Mapping/Reports
- Unique 3rd Party Integration
- Unique Mobile Applications
- Unique Sensors and Devices
- See other fleets if desired

Fire

Law Enforcement

EMS

Fixed Route

Paratransit

Schools

Sanitation

Plows

Sweepers

Maintenance

Public Works

Company Profile

Company Overview:

Radio Satellite Integrators, Inc. (RSI) designs, manufactures and implements integrated vehicle tracking and mobile data systems utilizing the Global Positioning System (GPS) and wireless communications. Based in Torrance, California, the company was founded with the mission of providing high-performance, low-cost systems for tracking mobile assets with GPS. RSI has focused its research, product engineering, and design efforts on the development of systems that are reliable, easy to use, and fully customizable.

Company History:

RSI was founded in 1990 to address the emerging needs of integrating GPS technology with wireless communication systems and Geographic Information System (GIS) digital mapping technology. The company has more than 250 tracking systems and thousands of mobile units in place worldwide.

Company Products:

RSI is continually developing, upgrading, and customizing its core product: The RSI AVL System featuring the RSI Mobile unit. RSI currently ships several different models of mobile units which represents the most advanced vehicle tracking technology on the market for fleet management and AVL systems. Designed to keep one step ahead of the ever-evolving world of wireless communications, RSI has the capability to use multiple communications systems for vehicle data reporting. An upgrade path is also provided to new or additional communications methods as they are developed. The RSI unit can utilize virtually any communications link including: cellular, GSM/GPRS, CDMA, two-way radio, and satellite solutions.

RSI Mapping applications offer a choice of true client/server or browser based Web applications. RSI has extensive expertise customizing ESRI GIS mapping products as well third party application integration.

Company Background:

RSI is privately held with senior management and outside investors as the primary shareholders. It has maximized its capabilities by building key strategic relationships with other vendors to allow for an end product that is truly the result of the combined efforts of hundreds of individuals. Products are developed and designed by RSI and its partners and manufactured in state of the art facilities for guaranteed low cost and reliability. Installation and implementation is typically overseen by RSI staff at a client's site.

Experience

Miami-Dade County: Miami-Dade County has the largest population in Florida and the 8th largest in the United States. RSI is implementing a large countywide AVL system for several departments and agencies including Public Works, Building Inspectors, Neighborhood Compliance, Solid Waste, Fire, Consumer Services, Water, and Community Action. Using RSI's new ESRI ArcGIS Server based Web browser interface, county departments are able to better manage their mobile assets and provide improved customer service. With over 1000 vehicles installed, the system is constantly growing department by department.

State of South Carolina- Department of Education: RSI is currently installing a state-wide AVL system for the State of South Carolina DOE that will encompass 6000 school buses across the state. The State owns all 6000 school buses and is going to use the RSI AVL system to insure the districts are operating and reporting on the buses in a satisfactory manner. Some of the several dozen school districts will have the option to use the AVL system for their own operations if desired. The RSI system will track virtually every device and sensor imaginable on each bus including doors, lights, arms, emergency exits, etc.

City of Phoenix: RSI has installed a customized AVL and Mobile Data system to the City of Phoenix Department of Public Works. The system is equipped on the City's solid waste fleet and publis works fleet of approximately 400 vehicles. Each vehicle is equipped with an RSI mobile unit as well as a customized Garmin unit that will be used for messaging as well as individual route navigation for the drivers. The system allows fleet administrators to monitor the vehicles in real time as well as view reports on vehicle activity such as speed and location of armature lifts. The messaging terminals give the drivers the ability to instantly mark/record locations where there is a damaged or missing container.

City of Houston: The City of Houston, Texas is the fourth largest city in the United States centered in a metro area of nearly 6 million residents. RSI currently has a city-wide contract for multiple departments including Solid Waste, Fire, Public Works, Parks & Recreation, and others. The Web browser based AVL system is accessible by the individual departments and used in their own unique ways. Some of the various departments even have different reports, mobile hardware, and system configuration customized for their own unique needs.

City of Oklahoma City: The City of Oklahoma City has implemented an RSI AVL system over several departments including Water, Solid Waste, and Street Maintenance. Encompassing a wide variety of vehicles, the RSI AVL system provides different reports for different groups and vehicles. Some departments are using the RSI customized Garmin messaging terminal to provide instant communication between driver and dispatcher. In addition the RSI AVL system is tracking various sensor and events on certain vehicles such as lights, signs, and PTO activation.

City of Jacksonville: RSI has implemented a <u>city-wide</u> Automatic Vehicle Location system for the City of Jacksonville. The multi-agency system spans across several departments and various types of vehicle fleets including public works and various city agencies. Each department will has their own AVL interface to the system but will share some of the more expensive and transparent aspects of the system such as the communications backbone and centralized servers. The system is currently being expanded to additional city departments and agencies.

City of Fresno: RSI has implemented a full scale multi-agency AVL system for the City of Fresno. With a fast growing population around 1 million people in the greater metro area, the city looked to RSI to provide a customized AVL system for the Water, Sewer, and Planning agencies within the City. Spanning over 300 vehicles and dozens of computer workstations, the system is integrated with the City's extensive ESRI GIS mapping programs. The system has several key features including sensors on the sanitation vehicle loading arms.

Boston Water and Sewer Commission: RSI has implemented a turn-key Automatic Vehicle Location system for Boston Water and Sewer Commission. The (BWSC) currently operates water and sewer services for the City of Boston. RSI is implementing full end-to-end AVL system utilizing 2-way radio for wireless communications. With over 200 vehicles in the service fleet, the RSI AVL system uses a combination of ArcView and ArcGIS 9 for vehicle tracking using BWSC base maps.

Dallas Area Rapid Transit (DART): Dallas Area Rapid Transit (DART) serves Dallas and 12 surrounding cities with public transportation including rail and bus services. The DART network of services moves more than 200,000 passengers per day across the 700-square-mile service area. Each of the 800 DART buses is installed with the RSI V-Track™ unit. Each V-Track™ unit is interfaced with a GFI GenFare fare box and also prompts the on-board headsigns and annunciators.

Erie County Water Authority: The Erie County Water Authority (ECWA) is responsible for the upkeep and supply of water to 640,000 residents in the greater Buffalo, NY area. Using the RSI AVL system and Kenwood two-way radios, the ECWA is able to track and monitor its fleet for a variety of dispatching, supervisory, and security uses. Viewed on RSI's powerful mapping software, ECWA administration can see detailed real-time and archived location data for the fleet of technician, supervisor, meter reader, emergency, and other operations vehicles.

Consolidated Utility District: The Consolidated Utility District of Rutherford County supplies water to over 30,000 residents of Rutherford County, Tennessee- one of the fastest growing counties in the nation. Radio Satellite Integrators installed a turn-key AVL system for their vehicle fleet using a stand-alone 2-way radio system. The Steuben County AVL system uses the ESRI ArcGIS mapping software as the underlying engine to the RSI AVL customized application.

Town of Mansfield Public Works: The Town of Mansfield, Connecticut is located in the northeast corner of the state of Connecticut. With a population of 21,000 covering 45 square miles, public works are just as important to this small town as they are to any city, especially with their harsh winters. Mansfield has the RSI AVL system in their multi-use public works vehicles for snow plowing, spreading, salting, sanding, and various public works duties. The system uses a public data network for wireless communications.

Richland County, SC: Richland County is home to the state capitol of Columbia and is the second most populous county in South Carolina with approximately 340,000 people. The RSI AVL System will provide county-wide GPS tracking of their vehicles, concentrating on their public works fleets. The RSI AVL system combines GPS, two-way radio, and customized mapping software to provide real-time vehicle fleet location data to dispatchers and administrators. The AVL project was spearheaded by the County's GIS (Geographic Information Systems) department, who selected RSI based on several factors including RSI's expertise in using ESRI ArcGIS 9 software.

British Petroleum (BP America Production Company): RSI has implemented the first phase of a highly customized AVL system for a set of BP's vehicles that maintain wellheads in various remote areas of the southwest United States. Often times off paved roads or out of cellular coverage, the RSI AVL system uses a highly rugged hybrid mobile unit that can switch between cellular and satellite communications networks. These irregular conditions made it imperative that the system utilize BP's actual ESRI GIS map data as well guaranteed wireless communications. The system also incorporates multiple emergency panic buttons including a wireless handheld panic button that can be relayed via satellite when necessary.

St. Lucie County Fire Rescue: Radio Satellite Integrators has been selected by the St. Lucie County Fire Rescue to implement a fully integrated Automatic Vehicle Location (AVL) and mobile data system. The turn-key system will include 43 of the District's fire rescue vehicles and operate over a standard 2-way radio system that covers the entire county. The system will also include fully ruggedized Mobile Data Computers running RSI's SPOT (Site Preplan On-board Technology) mobile fire response software. The AVL system will be integrated with the existing CAD system from HTE Inc.

City of Visalia – Department of Public Works: Located in California's San Joaquin Valley, the City of Visalia is a central hub for the state's thriving agricultural industry and home to more than 123,000 people. As one of the fastest growing cities in the country, Visalia needed help managing its fleet of public works and solid waste vehicles. Using a combination of RSI AVL and ESRI ArcGIS, the city can monitor and manage vehicle fleet activity to improve operational efficiency as well as customer service.

Hawaii County Mass Transit: Based in Hilo on the Big Island of Hawaii, The Hele-On buses run by Hawaii County Mass Transit provides public transportation all around the island servicing approximately 400,000 passengers per year. RSI has provided Hawaii County Mass Transit an AVL and Mobile Data Terminal System allowing administrators to track as well as communicate with the buses in real time using a Web based interface. RSI's newly updated Web based AVL interface uses ESRI ArcGIS Server as the underlying mapping engine for the AVL map interface.

District of Columbia Public Schools: As the local school district for our nation's capitol in Washington D.C., DCPS faces unique challenges in transporting its students throughout the year. In order to optimize the operation of nearly 800 school buses over this sprawling urban city, DCPS enlisted the help of vehicle tracking and routing technologies from Radio Satellite Integrators and the Trapeze Group. RSI and Trapeze were brought in to immediately take over and replace a competitor's routing and AVL solution that was not meeting the District's needs. The new integrated solution now provides valuable operational data such as planned versus actual route performance as well as door and light/arm activity on the buses.

City of Tampa Fire Rescue: RSI implemented a complete AVL and Mobile Data system for the City of Tampa, Florida. The system operates over existing Tampa frequencies and towers, and is fully integrated to the Astra CAD system running on an IBM AS/400 system. RSI was able to implement its SmartSlot technology utilizing GPS time synchronization which allows for vehicle updates as fast as 5 per second using the City's existing Ericsson voice radios and allocated voice frequencies. Another critical project component was interfacing to the City's Computer Aided Dispatch (CAD) system from Astra software of North Carolina.

Horry County, SC: Horry County is located on the eastern most tip of the South Carolina coast and is home to the popular tourist destination city of Myrtle Beach. The Horry County government is currently implementing a multi-department AVL system for various fleets and agencies within the County. After witnessing the overwhelming success of the RSI AVL system in nearby Richland County, Horry County procured a system of their own.

CEMIG: Supplying energy to 17 million people, CEMIG is Brazil's largest electric utility company and one of the largest in all of Latin America. CEMIG covers the State of Minas Gerais expanding 560,000 square kilometers, which is equivalent in size to the entire country of France. To efficiently manage a utility workforce that can service this entire state requires a complex yet cost-effective logistical solution. In order to take on this gargantuan task, CEMIG contracted Radio Satellite Integrators to implement an AVL and mobile data system utilizing their existing E.F. Johnson MultiNet Trunking radio system. The initial phase of the project encompasses 400 of CEMIG's 2000 vehicles.

Duval County Public Schools: Duval County Public Schools is the 15th largest school district in the country with an enrollment of more than 155,000 students. Mainly consisting of the City of Jacksonville, DCPS contracted STA Inc. to handle its student transportation services. STA uses a combination of Trapeze software and RSI's AVL solution to track nearly 300 district school buses. Using the AVL system provided by RSI and Trapeze Software, the integrated solution provides valuable data to transportation operations such as doors sensors and also allows them to compare planned versus actual route performance.

Chugach Electric Association: Based in Anchorage, Alaska, the Chugach Electric Association provides power and electrical services to over 81,000 retail customers in the state of Alaska. The Chugach Electric Association ranks among the largest of the more than 900 electric cooperatives in the country. Utilizing RSI's AVL system, Chugach Electric is able to monitor their vehicle fleet in relation their own ESRI GIS data and infrastructure.

City of Torrance Fire Department: RSI has implemented a custom GPS-based Vehicle Tracking System for the Torrance FD using existing VHF frequencies. The system is integrated with the City's Tritech CAD system and includes RSI's SPOT (Site Preplan On-Board Technology) software for Pre-Incident Planning and In-Vehicle Navigation running on ruggedized mobile computers in the vehicles. Torrance FD has seen a significant decrease in on-site response times since the implementation of the AVL system.

South Coast Air Quality Management District (AQMD): The South Coast Air Quality Management District (AQMD) serves as the air quality regulation and enforcement agency for an area of 12,000 square miles covering four counties in southern California. RSI has implemented two separate GPS systems for AQMD, first in the late 1990's and more recently in 2008. RSI initially tracked AQMD inspector vehicles and now has implemented a customized AVL system to monitor hundreds of heavy duty vehicles for Carl Moyer funding compliance reports. These reports show the AQMD the exact engine hours and mileage of these vehicles (and thereby emission/pollution levels) within the South Coast basin.

References

Miami-Dade County
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City of Phoenix
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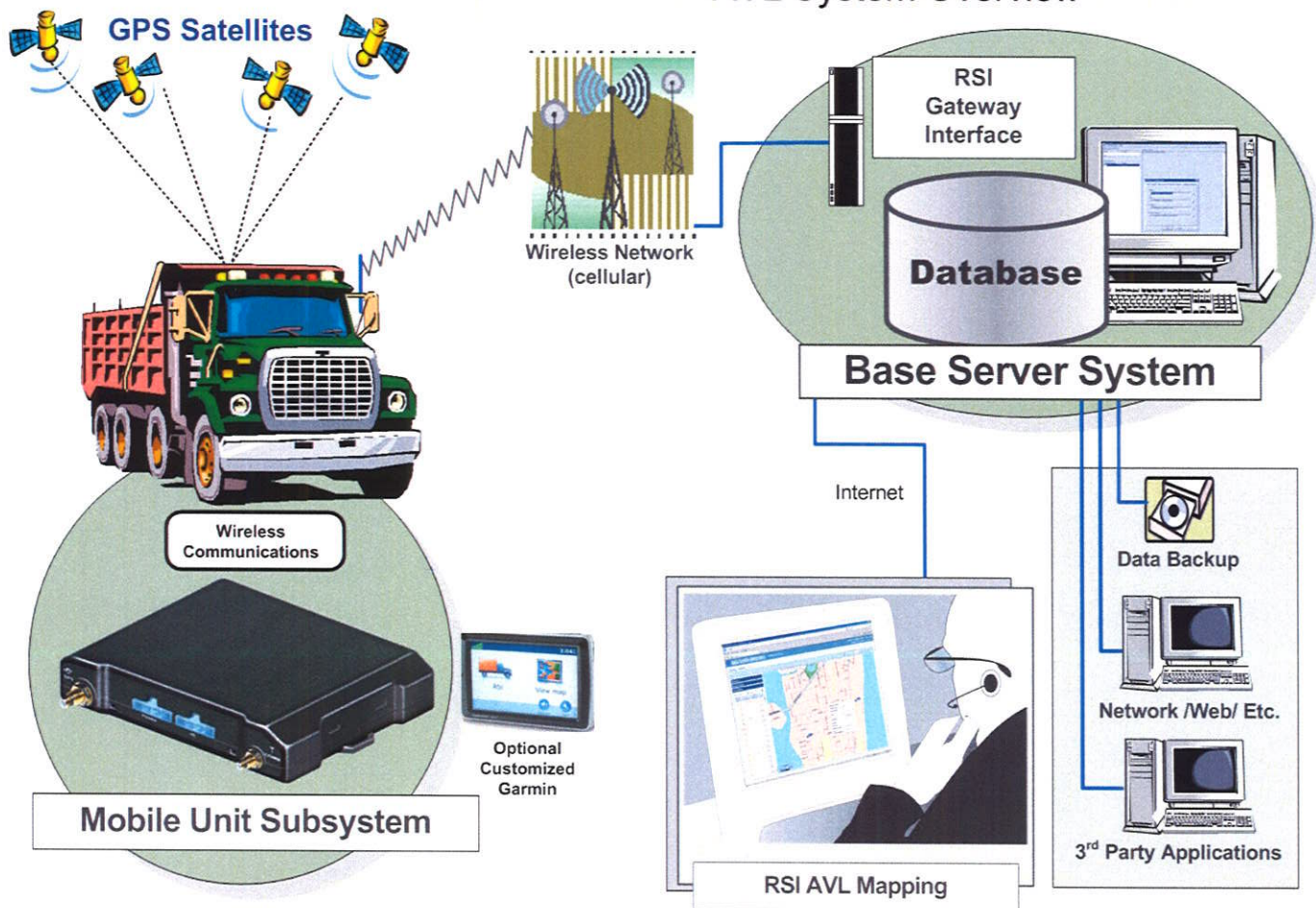Contact: Larry Lasco
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Technical Overview

AVL System Overview

Radio Satellite Integrator's AVL System

An RSI AVL solution consists of in-vehicle equipment and base applications and equipment. The **In-Vehicle Equipment is centered on the RSI Mobile Unit,** a self-contained "black box" device integrating GPS location and sensor technologies, as well as wireless communications. The mobile device can be connected to any device or sensor including lights, ignition, doors open/closed, alarms, etc. In addition, any variety of in-vehicle computing devices such as laptops or MDT's can be connected to the unit and mounted for a driver interface to the system.

The Mobile unit is responsible for the reporting of vehicle location and status information in addition to acting, if desired in the future, as a transparent communications gateway between the Base and Mobile Data or other onboard devices such as alarms, etc.

The **Base Application** will be a configurable Web-browser based application based on ESRI ArcGIS Server hosted offsite by RSI. Users interact with the system through industry-standard mapping tools as well as customized reporting applications. The RSI AVL program will use the client's existing ESRI GIS map data if it's available.

The Base Server manages all fleet communications and configuration, acts as a messaging and data transfer gateway between base-side applications and in-vehicle devices, and archives and distributes the vehicle location and status information to the mapping application over the Internet. The Base Server will be hosted by RSI in our state-of-the-art server hosting facilities.

Wireless Communications Options

RSI has worked with more communications technologies in our 20 years of technology leadership than any other vendor in this marketplace.

There are several options for wireless communications and RSI is proficient with all of them.

Public Data Network (Cellular)	• GPRS/GSM/EDGE (AT&T, T-Mobile, Rogers, etc.) • CDMA/EV-DO/1xRTT (Verizon, Alltel, etc.) • Others: Sprint/Nextel/iDEN/ • High Speed Broadband Networks (3G/4G)
Other Options (hybrid communications)	• WiFi (802.11) • Satellite (Iridium, Inmarsat, etc.) • Two-way radio (AVL data dedicated systems)

- **RSI can use virtually any wireless carrier for the communications portion of this system. We are proposing both AT&T GPRS and Verizon CDMA.**

Hybrid Communications Option

RSI specializes in engineering customized AVL systems that can use a combination of wireless communications technologies. Our mobile units can support any combination of: cellular, satellite, two-way radio, WiFi, as several others. RSI has unparalleled experience in the design and implementation of these complicated customized hybrid systems.

Public Data Network Options

The recommended and most cost efficient means to send wireless data is through a cellular or public data network. Public data networks are wireless data networks that are provided by all the major cellular phone companies. The wireless data networks generally have the same coverage areas as their voice and mobile phone coverage areas.

Wireless Carriers

RSI has partnerships and capabilities with every major wireless carrier. Choosing a carrier depends on several factors including availability in your area, quality of coverage, rate plans, and existing contracts/discounts. Some technologies have higher upfront equipment costs but lower data plans, and vice versa.
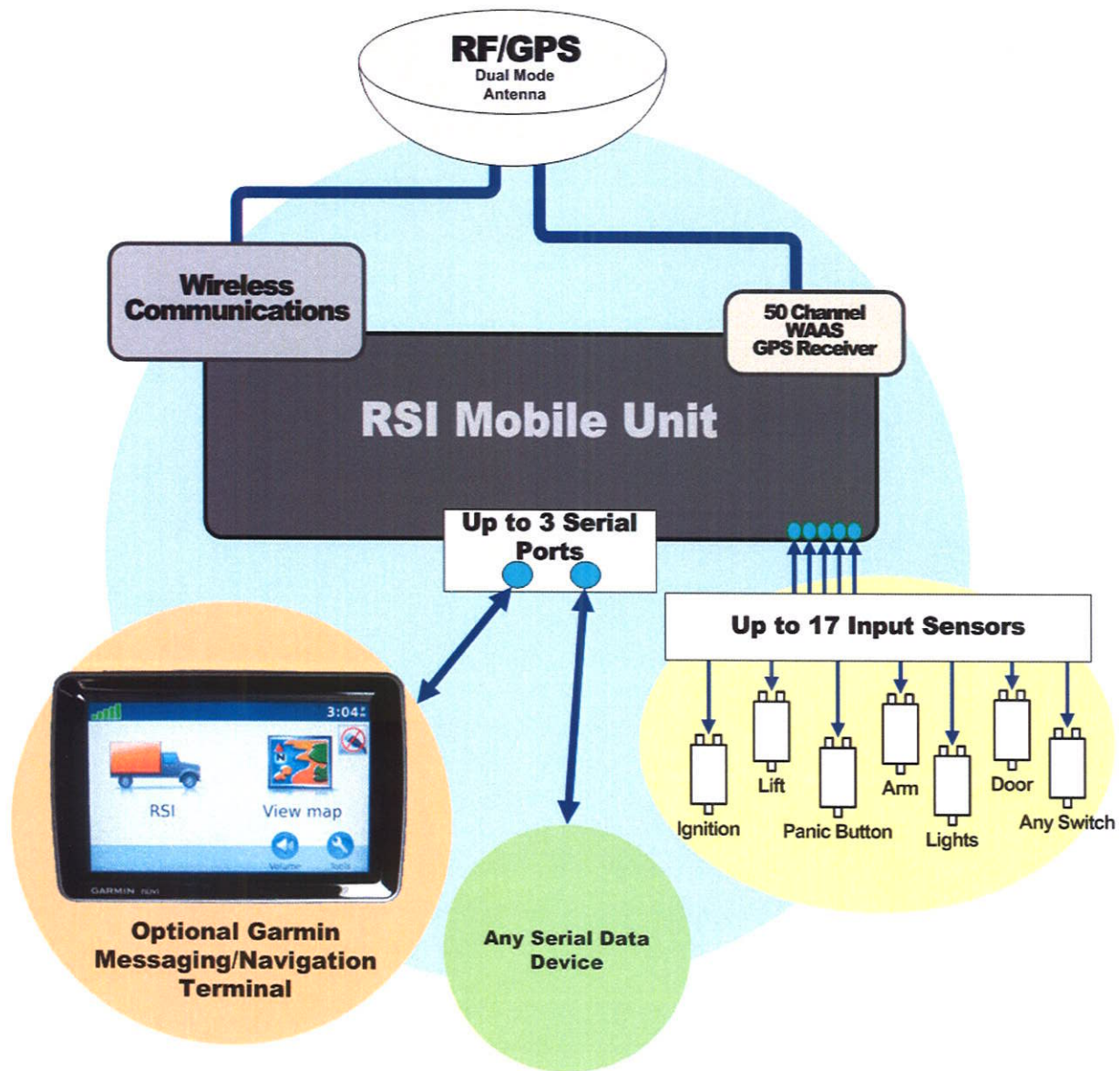
Update Rate

The update rate you need will depend on how frequently you want your location and other data from the vehicles. Update rates can adjust dynamically depending on factors such as vehicle status or the triggering of an on-board sensor.

RSI will work with you to help determine a wireless technology, carrier, and update rate for you as we have extensive experience implementing AVL systems with fleets just like yours.

RSI Mobile Unit

RF/GPS
Dual Mode Antenna

Wireless Communications

50 Channel WAAS GPS Receiver

RSI Mobile Unit

Up to 3 Serial Ports

Up to 17 Input Sensors

Ignition

Lift

Panic Button

Arm

Lights

Door

Any Switch

Optional Garmin Messaging/Navigation Terminal

RSI

View map

Any Serial Data Device

RSI Mobile Unit

The recommended RSI Mobile Subsystem consists of a RSI Mobile Unit; GPS and RF antennas and associated cabling; all required data, sensor, and power connections.

Each RSI Mobile Unit contains a 50 channel GPS receiver (or greater), wireless communications, and multiple external data and sensor ports. To ensure reliability and availability of the entire system, the critical mobile units are built to exacting military standards to resist vibration, climate, and electromagnetic interference. First-quality components, extensive RF/EMI shielding, and specialty power conditioning circuits protect the GPS receiver and micro-controller in the "computer hostile" vehicular environment.

Each RSI Mobile Unit will be equipped with a state-of-the-art 50 channel, WAAS enabled, all-in-view GPS receiver. This GPS receiver delivers superior performance and field-proven reliability and provides for fast signal reacquisition, position accuracy, and the filtering of spurious and erroneous data. The GPS accuracy is 2 meters (7 feet).

RSI is offering two types of mobile units with similar functionality that support different amounts of inputs/outputs: up to 5 (standard) and up to 17 (optional).

Interface to Devices and Sensors

The RSI Mobile Unit is capable of interfacing to a wide variety of external mobile data terminals, mobile computing devices, in-vehicle peripherals, and various sensor systems. The RSI Mobile Unit serves as a mobile gateway, paying particular attention to supporting a variety of devices. The RSI Mobile Unit will be connected to the on-board vehicle power and any sensor signals as desired such as:

- Ignition on/off
- Door open/locked
- Lights on/off
- Any device/event/switch/data source
  - Armature/device up/down
  - RF ID or Card Swipe Reader
  - Vehicle Engine Diagnostics
  - Brooms/Plows/Spreaders
  - Landmarking
  - Siren/Light Bar/Flashers
  - PTO
  - Etc.

Vehicle Diagnostics Option

As an option, an interface to engine diagnostics can be added to the RSI AVL system giving you real-time access to engine trouble codes and other vehicle information for either light duty or heavy duty vehicle types.

Panic Button Feature

The RSI Mobile Unit can be equipped with an emergency panic button configuration that is a dashboard-mounted button that sends a priority signal over-the-air to the dispatch interface or real-time alert. RSI can also offer a wireless handheld panic button that can be activated up to 300 feet from the vehicle.

Antennas, Cables, and Connectors

The GPS/RF antenna is typically an active low-profile micro-strip, two-in-one "hockey-puck" type and is connected to the RSI Mobile Unit with low-loss coaxial cable. The high gain antenna increases the ability for the GPS to receive weak signals under trees or canopy, while its very small design presents little or no profile for tampering or inadvertent damage. The RSI Mobile Unit can use any type of GPS antenna that is required or specified. The RSI Mobile Unit comes with all bracketing, cabling, and connectors required for full installation. RSI configures the system so it cannot be easily disabled by the driver and/or user.

RSI Mobile Unit (5 I/O)

- GSM/GPRS or CDMA 1xRTT radio configurations
- Internal or External Cellular and GPS antenna options for easy installation
- High Sensitivity GPS
- 3-Axis Precision Accelerometer
- 20,000 Buffered Message Log
- 32 Geo-fence capability

- 5 Inputs/3 Outputs/1-wire® Interface for Driver ID, Temperature Sensors, and more.
- Dual serial ports
- Garmin® FMI support
- Power management sleep modes
- Automatic, over-the-air configuration, firmware download, and device management

Communication Specifications

GSM/GPRS Quad-Band	850/900/1800/1900 MHz
GSM/GPRS Output Power	850: 2 Watts (Class 4)
	900: 2 Watts (Class 4)
	1800: 1 Watt (Class 1)
	1900: 1 Watt (Class 1)
CDMA Dual-Band	800/1900 MHz
CDMA Output Power	800: +24 dBm
	1900: +24 dBm
Data Support	SMS, GPRS or CDMA 1xRTT packet data

Certifications

Fully certified FCC, CE, IC, PTCRB, Cellular Carriers

Location Specifications

Location Technology	50 Channel GPS
	SBAS: WAAS, EGNOS, MSAS
Location Accuracy	2.0 meter CEP (with SBAS)
Tracking Sensitivity	-162 dBm
Acquisition Sensitivity	-147 dBm
AGPS capable	

Comprehensive I/O

Inputs	5 (2 fixed bias low, 3 fixed bias high)
Outputs	3 Relay Driver (150 mA)
Serial Interfaces	2 (1 TTL serial, 1 switched power TTL)
A/D Inputs	2 (1 internal, 1 external)
1-Wire® Interface	Driver ID
	Temperature Sense
Status LEDs	GPS and Cellular

Connectors, SIM Access

I/O, Power, Programming	20-pin Molex-type fused power harness
GPS Antenna	External SMA (w/ tamper monitoring, 3V) or Internal
Cellular Antenna	External SMC or Internal
SIM Access	Internal (GSM/GPRS variant only)

Electrical Specifications

Operating Voltage	6-32 VDC
Power Consumption	<3 mA @ 12 V (Deep Sleep)
	<10 mA @ 12 V (Sleep on Network with SMS)
	<20 mA @ 12 V (Sleep on Network with GPRS)
	< 70 mA @ 12 V (Active Tracking)

Physical Specifications

Dimensions	2.0 x 4.0 x 0.85 inches (51 x 102 x 22 mm)
Weight	74 g (external), 85 g (internal)

Environmental Specifications

Operating Temperature	-30° to +75° C
Storage Temperature	-40° to +85° C
Humidity	95% R.H. @ 70° C non-condensing
Shock and Vibration	U.S. Mil. Std. 202G and 810F, SAE J1455
EMC/EMI:	SAE J1113

Mounting

Tie-wrap, Adhesive, or Velcro
Screw Mounting Bracket

Optional Features/Functions

- Driver ID with 1-Wire® protocol
- Temperature Sensing via 1-Wire® protocol
- Backup Battery
- External GPS and Cellular Antennas
- Internal GPS and Cellular Antennas
- NMEA data via serial
- External A/D input
- Serial Cables
- jPOD™ truck ECU interface
- Garmin® FMI compatible interface cable
- Piezo speaker, panic button, and privacy button
- Power harness with two (2) 3A Fuses

Specifications Subject to Change.

RSI Mobile Unit (17 I/O)

- GSM/GPRS, CDMA 1X, or HSPA cellular configurations
- Dual reporting 20,000 buffered message log
- Built-in 3-axis accelerometer for motion sensing, hard braking, impact detection
- 32 built-in Geo-Zones, plus any combination of circle or polygon zones, up to 5400 points
- Web-Based Device Management diagnostic tools
- Garmin, MDT, and other advanced peripherals support

Location Specifications

Location Technology	50 Channel GPS (with SBAS)
	SBAS: WAAS, EGNOS, MSAS, GAGAN
Location Accuracy	2.0 meter CEP (with SBAS)
Tracking Sensitivity	-160dBm
Acquisition Sensitivity	-147dBm
Kick Start	3 Sec @ -130dBm
AGPS capable	

Communications Specifications

Data Support	SMS, GPRS (UDP), CDMA 1X packet data
Cellular/PCS:	FCC– Parts 22, 24; PTCRB
GPRS	Up to class 12
GPRS Quad-Band	850/900/1800/1900 MHz
CDMA Dual-Band	800/1900 MHz
HSPA/UMTS Tri-Band	850/1800/1900 MHz
	HSUPA 2.0 Mbps
	HSDPA 7.2 Mbps

Comprehensive I/O

Ignition Input	1
Inputs	7 (high/low selectable 0-30 VDC)
Outputs	5 (open collector relay 150mA)
Current Limited Outputs	2 (20mA)
A/D Inputs	4 (0 - 30VDC, +/-0.1V accuracy)
1-Wire® Interface	Driver ID
	Temperature Sense
Status LEDs	GPS and Cellular

Optional Features (with add-in daughter boards)

WiFi	802.11b/g/i
jPOD Truck ECU Interface	J1708, J1939

Certifications

Fully certified FCC, CE, IC, PTCRB, CARRIERS

Electrical Specifications

Operating Voltage	6 - 32V DC
Power consumption	< 4 mA @ 12VDC (Deep Sleep)
	< 10 mA @ 12VDC (Sleep on Network (SMS))
	< 20 mA @ 12VDC (Sleep on Network (GPRS))
	< 70 mA @ 12VDC (Active Tracking)

Physical Specifications

Dimensions	4.3 (L) x 3.2 (W) x 0.86" (H), (110 x 81 x 22mm)
Weight	4 oz, (113 g)

Environmental Specifications

Temperature	-30° C to 70° C (Operating), -40° C to 85° C (Storage)
Humidity	95% RH @ 50° C non-condensing
Shock and Vibration	U.S. Military Standard202G and 810G, SAE J1455
EMC/EMI	SAE J1113

Connectors, SIM Access

SIM Access	Internal
External Cellular	SMC
External GPS	SMA (with tamper monitoring, 3.0v)
WiFi option	RP-SMA
Vehicle Bus option	DB-15
4-Pin Molex	Power, Ground, Ignition, A/D
2 5-Pin Molex	Switched Power Serial
16-Pin Molex	Expansion port
22-Pin Molex	I/O connection

Optional Features/Functions

- External antennas (GPS, cellular, combined GPS/cellular)
- Serial adapter cable RS-232 8-wire (PPP, AT Commands, NMEA GPS output)
- jPOD dongle for truck ECU interface
- Connectorized I/O wiring harnesses

Specifications subject to change

RSI Mobile Unit   (w/Battery Backup)

General

Communication Modes	GPRS packet data and SMS
Location Technology	50 Channel GPS
Operating Voltage	6-32 VDC

Location Specifications

Location Technology	50 Channel GPS (with SBAS)
	SBAS: WAAS, EGNOS, MSAS, GAGAN
Location Accuracy	2.0 meter CEP (with SBAS)
Tracking Sensitivity	-160dBm
Acquisition Sensitivity	-147dBm
AGPS capable	

Battery Pack Specifications

Battery Capacity	3.8 Amp Hour
Battery Operating Voltage	3.6 Volts
Battery Technology	Lithium Ion

GSM Specifications

Data Support	SMS, GPRS (UDP)
Cellular/PCS:	FCC– Parts 22, 24; PTCRB
GPRS	Up to class 10
Quad-Band	850/900/1800/1900 MHz
Output Power	850 (Class 4) 2W
	900 (Class 4) 2W
	1800 (Class 1) 1W
	1900 (Class 1) 1W

Comprehensive I/0

Inputs	3
Outputs	3 Relay Driver (150mA)
Status LEDs	GPS & Cellular

Electrical Specifications

Operating Voltage	6-32 VDC
Power Consumption	< 1 mA @ 12V (Deep Sleep)
	< 10 mA @ 12V (Sleep on Network)
	< 70 mA @ 12V (Active Standby)

Physical Specifications

Dimensions	4.3 x 3.2 x 1.6", (110 x 80 x 40 mm)
Weight	9.6 oz, (272 g)

Environmental Specifications

Operating Temperature	-30° to +75° C
Storage Temperature	-40° to +85° C
Humidity	95%RH @ 50° C non-condensing (verify)
Shock and Vibration	U.S. Military Standards 202G and 810F, SAE J1455
EMC/EMI:	SAE J1113; FCC–Part 15B; Industry Canada
RoHS Compliant	

Connectors, SIM Access

SIM Access	Internal

Mounting

Screw Mount
Magnet Mount
Tie Wrap

Key Features

- 6 months with single message cycle per day on fully charged batteries
- 3.8 AH Lithium Ion re-chargeable battery pack
- IP66 sealed enclosure
- GPRS and SMS-Based Messaging
- Internal GSM and GPS Antennas
- Super Sensitive GPS (-160 dBm tracking)
- Ultra-Low Power Safe Mode (<1mA)
- 3 axis accelerometer for motion sensing
- 3 inputs/3 outputs
- Voltage Monitoring and Low Battery Notification
- 2,000 Buffered Messages
- 4 Built-in Geo-fences

Mapping and Display Application

Our powerful mapping and display application, RSI AVL, will provide operations personnel the capability to rapidly, geographically analyze the GPS information and make critical decisions. This application is based on an ESRI ArcGIS Server Geographic Information System (GIS), which displays data collected from the mobile units at the Base Server. They run the tools and controls that enable the operations personal to quickly adapt the information they are collecting and analyzing the views they are using to manage evolving situations.

The Mapping and Display Application provides valuable AVL Management tools:

- Real-Time Vehicle Tracking (map-based)
- Report Generation (tabular or map-based)

The assignment of user-permission levels allows access to appropriate sub-sets of the installed functionality.
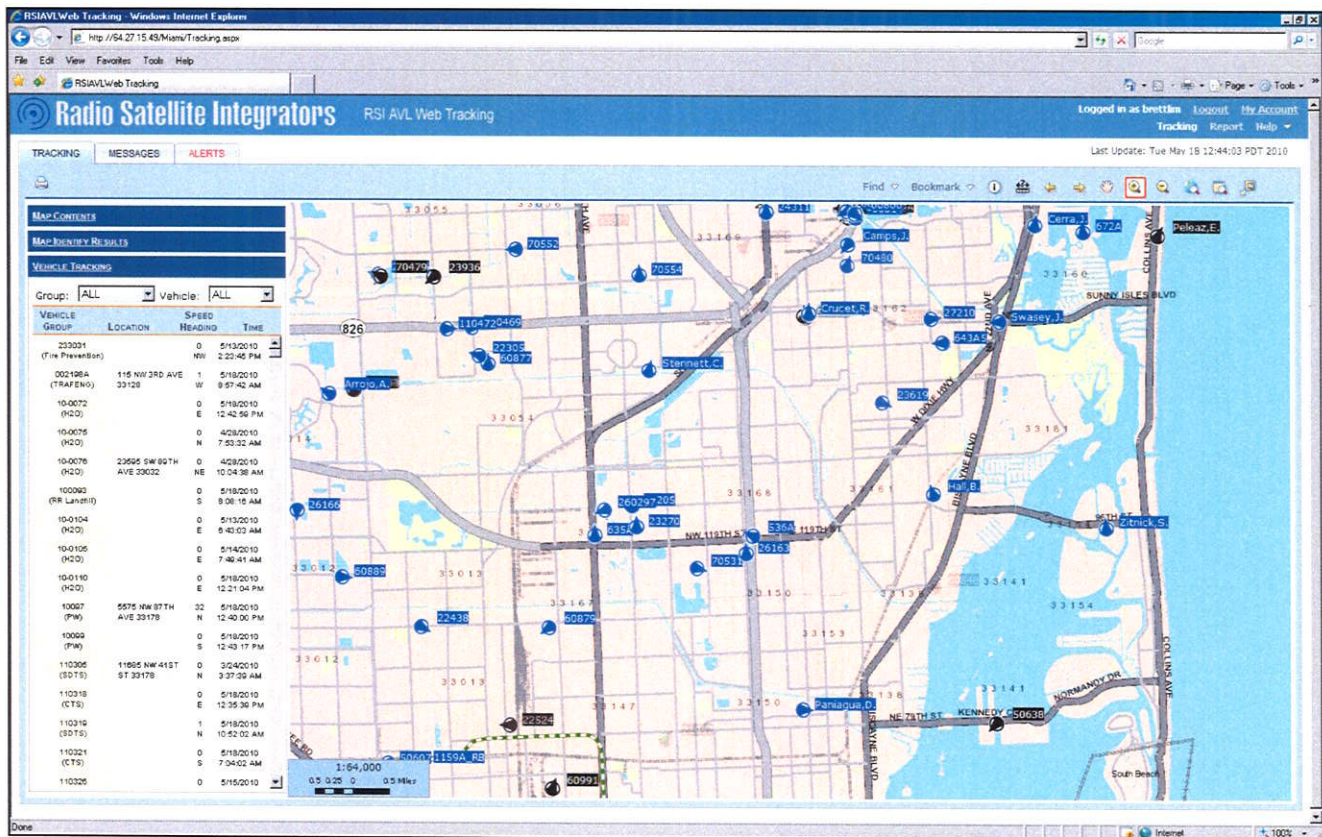
Note: Your user interface will differ depending on customized configuration and preferences.

Real-Time Vehicle Tracking

The RSI AVL Application displays the current location and status of the vehicle fleet, along with address, route, and other attribute information, over both raster and vector-based maps (as desired). The use of a powerful ESRI ArcGIS Server engine along with the incorporation of vector map data allows for almost endless display and analysis possibilities. A wide variety of customizable functionality is available and is described below.

The vehicle icons may be configured to indicate (using colors, directional symbols, labels, and size) various vehicle attributes (such as ID, status, speed, heading, etc.). All of the vehicle attribute data may be instantly queried and displayed in a pop-up box using a standard identify tool. Further, alarm and event notification may be set to notify the user of a status change for a particular vehicle.
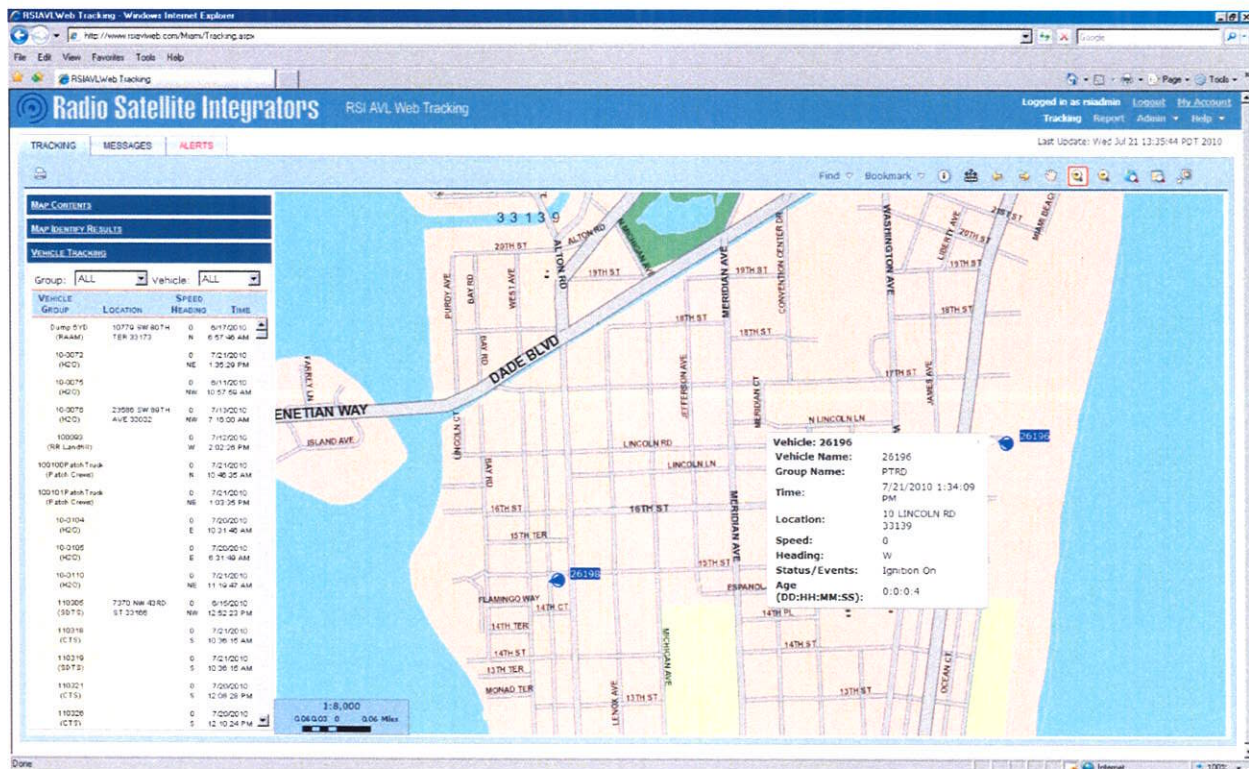
Clicking on a vehicle from the menu bar list will reveal more options for that specific vehicle.

Map Viewing Features

The RSI AVL Application displays the vehicle data in a "map window." The map window can be set to display a particular area, route, stop, or address, or to track a specific sub-set of the entire fleet (from the entire fleet to an individual vehicle). In RSI AVL the map display window possesses a full-set of map manipulation and query functionality. Map manipulation tools and buttons are available to zoom, pan, and center the display on a particular vehicle, route, stop, or address. Additional tools are available to enable or disable labeling, to customize the map display according to user preferences, and to enter points and attributes (for incidents, etc.). Map query options include the ability to locate an address, vehicle, or stop, along with the capability to identify the closest available vehicle(s) to any entered point, address, or incident.

GeoFencing

The RSI AVL system allows the user to set geo-fences on the map display. This geofence will create an alert and/or exception report when breached and will appear as another item of status data with each vehicle position report. Geofences can be created as polygons or a configurable radius from a specific point, as well as created from existing boundaries, landmarks or zones within your GIS.
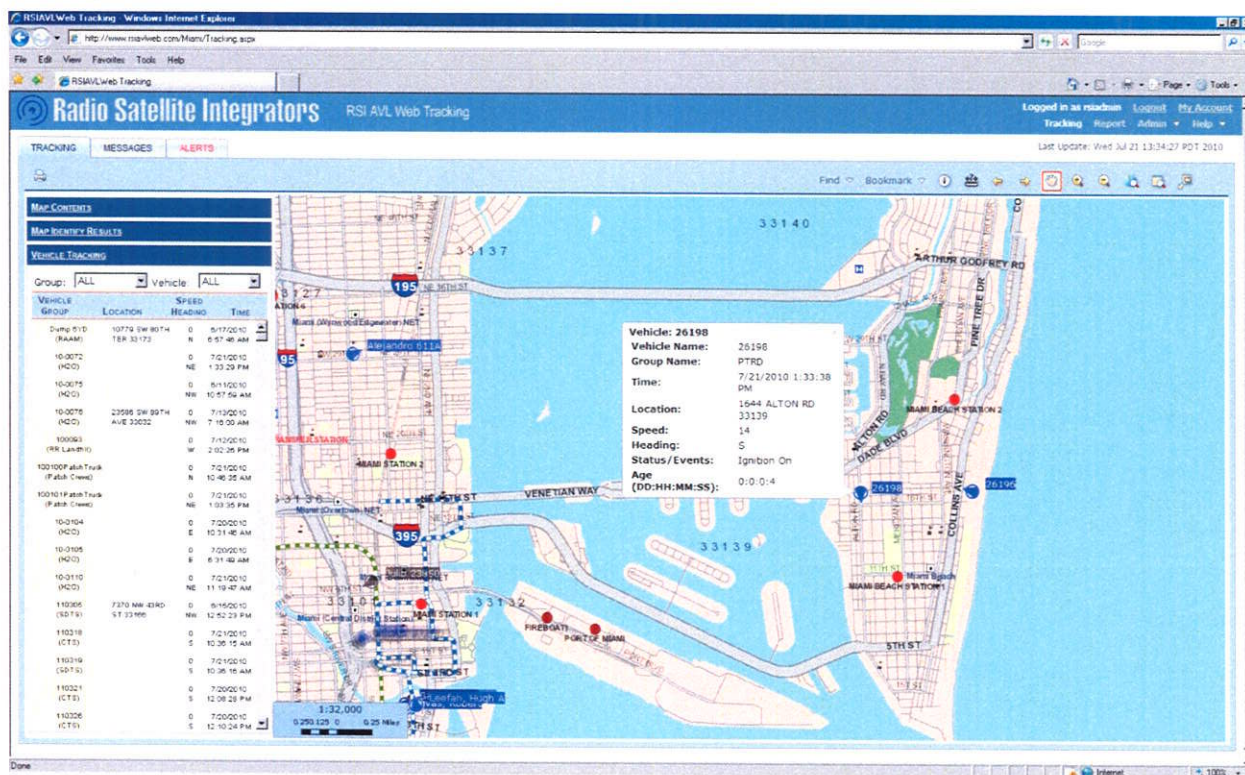
Real-Time Alerts

The RSI AVL system allows authorized administrators extensive control over system features including alerts and alarms. The system can be configured to notify selected users when specific events occur with any of the vehicles. This includes geofences, hours of operation, idle, panic buttons, etc. Notifications can be sent as an e-mail, SMS, or to the alert screen on the software.

ESRI

The RSI AVL Mapping application is based on mapping and GIS engines from ESRI, the largest GIS software vendor in the world, and a pioneer of the technology. Their systems are in use throughout the world by utilities, governments, and large companies, in thousands of applications, which rely on analysis of spatially referenced data. RSI AVL was the first system in the world to implement a real-time GPS interface into ArcView. The RSI AVL application is based on the actual ESRI ArcGIS Server software, but no licenses are needed by the customer.

ESRI
Technology

AUTHORIZED
BUSINESS PARTNER

Using YOUR Map Data

The RSI AVL system can use virtually any type of map data, but in particular our software can overlay our AVL information on your own ESRI GIS maps. RSI allows you to utilize your existing investment of time and labor that went into your ESRI map data. The RSI AVL system relates real-time vehicle location and status data to the infrastructure, assets, boundaries, updates, routes, parcels, landmarks, and other critical elements of your constantly changing GIS map data. RSI has extensive experience working with ESRI data and environments in all forms (.shp files, SDE, etc.). As an option, RSI can actually access your GIS map data in real time via Map Services.
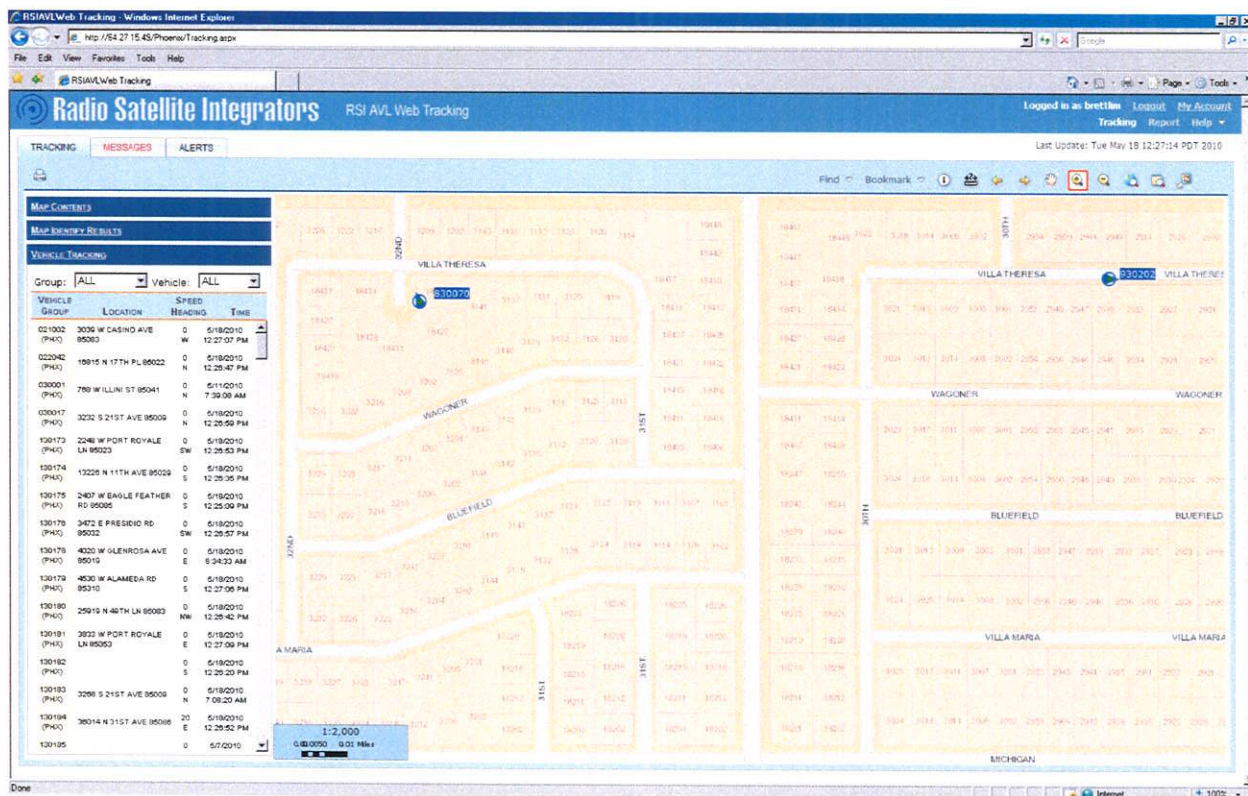
Leveraging GIS Technology

Because Radio Satellite Integrators uses a powerful ESRI GIS as the basis for both display and analysis, operations has the capability to perform complex "spatial query" analysis that capitalizes on the geographic referencing or correlation of the GPS location and velocity data collected with the base map. Our use of vectorized maps allows the user to analyze space and time components in entirety. Query capabilities are virtually unlimited. For example, RSI AVL includes a unique algorithm developed by RSI, which selects and recommends a vehicle for dispatch based on real-time location.

All of the real-time tracking functionality is available through the menus, buttons, and tools of the graphical user interface (which is easily customized to accommodate specific desires and requirements).
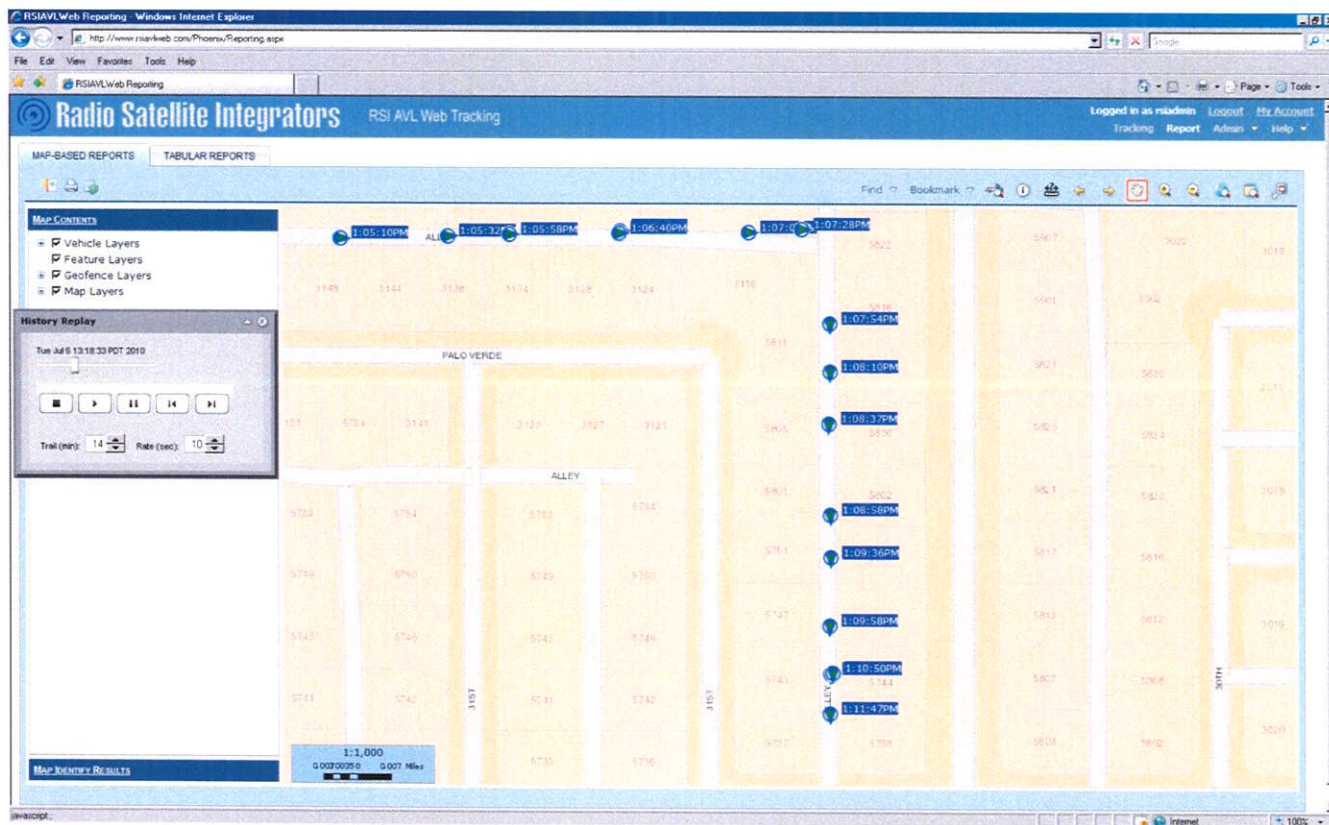
Reporting Functions

The Report Generation Application is an extension to the Real-Time Vehicle Tracking Application described above, and can generate both tabular and graphical map-based reports based on archived vehicle location and status data. Reports may be produced for selected vehicles (or groups of vehicles) according to time, location, and status criteria. The **Map-based report** displays allow users to visually display or re-trace a vehicle's route and status, and include the same map manipulation and query functionality as the real-time vehicle tracking displays. **Tabular reports** display unit location and activity in a text-based spreadsheet or table. Such reports may be exported into virtually any format including .CSV and MS Excel files.

 Specific types of reports will be customized to the customers' guidelines as part of initial system design review.
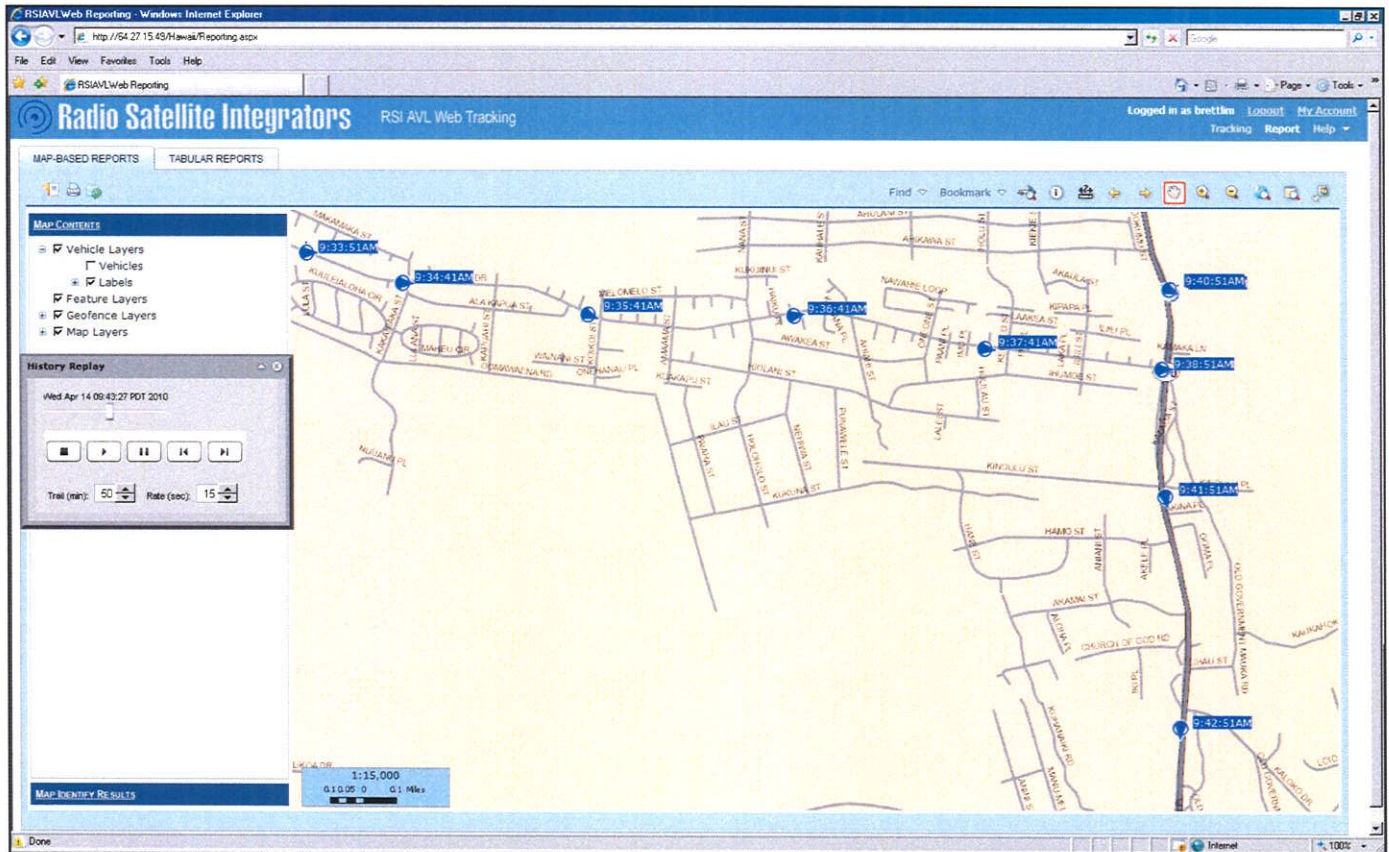
Breadcrumb Replay Feature

The RSI AVL system allows you to watch a historical "replay" of any portion of a vehicle's activity history at various speeds. Controls let you play, pause, rewind, and fast forward the replay allowing you to watch the vehicles' movement and behavior including location, device activities, alerts, status changes, events, etc. Each breadcrumb icon represents a vehicle position and all its underlying data including address, direction, speed, and status. Breadcrumb icons can be customized to represent various statuses and events, such as ignition off/on, or a device is activated (broom, plow, armature, PTO, etc.)

Note: Your user interface will differ depending on customized configuration and preferences.

Reports

The RSI AVL system comes with a suite of standard graphical and tabular reports that cover all the main vehicle activities that one would expect from an industry leading AVL system. We have spent years working with hundreds of fleet customers to refine our report offerings to encompass the most useful and important reports. Some of our standard reports are:

- Vehicle Activity
- Travel & Stop
- Speed
- Geofence
- Vehicle Usage (Mileage & engine hours)
- Vehicle Inactivity (Idle time)
- Sensor Reports (armatures, PTO, broom, plows, etc.)

Custom Reports

RSI will work with the customer to supply a number of customized reports with the system. RSI uses industry standard database and reporting tools (Crystal Reports) so the customer can generate their own customized reports if desired.

Radio Satellite Integrators

Vehicle Activity Report

2004-09-04
Vehicle ID: **M01**
Group: **A**

Generated On: 11/11/2004 12:50:52PM

Time	Description	Location	Stopped Time	Moving Time	Dwell Time
00:00:27	En Route	12874-12949 Ext - 44111		00:01:55	
00:02:22	Stopped	4234-4251 130th St - 44135	00:00:14		
00:02:36	En Route	4234-4251 130th St - 44135		00:00:47	
00:03:23	Stopped	12700-12799 Leeila Ave - 44135	00:02:39		
00:06:02	En Route	12700-12799 Leeila Ave - 44135		00:01:23	
00:07:25	Stopped	12900-12999 Bellaire Rd - 44135	00:00:25		
00:07:50	En Route	12900-12999 Bellaire Rd - 44135		00:07:35	
00:15:25	Stopped Ignition OFF	17909-17909 Groveland Ave	00:28:56		
00:43:20					
00:43:41					
00:43:51					
00:44:21					
00:45:39					
00:46:09					
00:49:35					

Radio Satellite Integrators

Vehicle Armature Report B (Tabular)

Start Time: 2007-01-26 06:00:00   Stop Time: 2007-01-26 12:00:00

Group Selection: 3800046

Generated On: 1/26/2007 12:13:49PM

Vehicle ID: 3800046	Group: A

TIMEFIX	LOCATION	COUNT
2007-01-26 06:00:04	0-1235 GRIFFITH WAY - f	1
2007-01-26 06:00:29	905-1070 GRIFFITH WAY - f	4
2007-01-26 06:03:53	0-3992 TEILMAN AVE - f	2
2007-01-26 06:04:34	0-3946 TEILMAN AVE - f	1
2007-01-26 06:04:59	0-0 TEILMAN AVE - f	3
2007-01-26 06:06:25	0-3745 TEILMAN AVE - f	1
2007-01-26 06:07:39	1006-1036 DAKOTA AVE - f	2
2007-01-26 06:08:19	1046-1105 DAKOTA AVE - f	1
2007-01-26 06:08:42	1106-1146 DAKOTA AVE - f	3
2007-01-26 06:09:59	0-3795 WEST AVE - f	2
2007-01-26 06:10:23	0-3709 WEST AVE - f	1
2007-01-26 06:10:50	1317-1448 GARLAND AVE - f	2
2007-01-26 06:11:46	1508-1648 GARLAND AVE - f	8
2007-01-26 06:14:05	0-3753 CRYSTAL AVE - f	5
2007-01-26 06:15:50	0-3753 CRYSTAL AVE - f	1
2007-01-26 06:16:05	0-0 WARREN AVE - f	5
2007-01-26 06:17:40	0-3795 WEST AVE - f	3

Radio Satellite Integrators, Inc.

Start Time: August 4, 2008   Stop Time: August 8, 2008

Vehicle Mileage and Idle Time Report

Group Selection: Group A

Generated On: 8/15/2008 4:45:30PM

VEHICLE ID	TOTAL MILEAGE	ENGINE HOURS	IDLE TIME (>2 min)
360045	23.2	2:12:00	0:52:10
360055	156.7	19:10:34	0:58:00
360056	98.0	15:05:40	0:35:30
360061	80.5	14:30:04	0:29:51
360063	134.8	20:13:30	1:07:56
360069	130.1	13:37:13	2:42:03
360070	17.6	5:30:10	0:56:04
360071	202.9	17:25:21	1:24:30
360072	0	0:00:00	0:00:00

Radio Satellite Integrators

Vehicle High Speed Report (Tabular)

Start Time: 2008-01-02 03:45:00   Stop Time: 2008-01-02 22:15:00

Group Selection: ALL VEHICLES

Generated On: 6/23/2008 2:23:41 PM

VEHICLEID	TIMEFIX	LOCATION	SPEED	HEADING
200209	2008-01-02 07:16:53	5216 E THOMAS AVE	78.90	272.00
200209	2008-01-02 07:17:53	910 N SIERRA VISTA AVE	77.51	269.70
200209	2008-01-02 07:18:53	3601 E LEWIS AVE	80.17	269.90
200209	2008-01-02 07:19:53	1940 E HARVEY AVE	77.58	255.50
200157	2008-01-02 05:28:52	6255 N BRYAN AVE	75.90	314.70
200149	2008-01-02 04:46:05	2207 E NORWICH AVE	76.48	180.60

Vehicle Spreader Utilization

Group Selection: ALL VEHICLES | Start Time: 2011-03-01 00:00:00   Stop Time: 2011-03-31 23:59:59 |

Timefix	Spreader Status	Granular			Direct		
		Spread Rate Index	Material Setting (lbs/mi)	Material Total (lbs)	Spread Rate Index	Setting (gal/mi)	Total (gal)
PLOW							
Vehicle ID: **42356**							
03/29/11 08:34:07	P	0	0	0	0	0	72657
03/29/11 08:34:08	O	0	0	0	0	0	72657
03/29/11 08:34:42	S	0	0	0	9	100	72657
03/29/11 08:34:55	S	0	0	0	6	60	72660
03/29/11 08:34:55	S	0	0	0	6	60	72660
03/29/11 08:34:55	S	0	0	0	6	60	72660
03/29/11 08:34:56	S	0	0	0	0	140	72661
03/29/11 08:35:12	S	0	0	0	0	140	72662
03/29/11 08:36:01	O	0	0	0	0	0	72691
03/29/11 08:36:08	S	0	0	0	0	140	72691
03/29/11 08:37:09	S	0	0	0	9	100	72762
03/29/11 08:37:19	S	0	0	0	0	140	72770
03/29/11 08:39:12	O	0	0	0	0	0	72902
03/29/11 08:40:29	S	0	0	0	0	140	72902
03/29/11 08:43:10	O	0	0	0	0	0	73089
03/29/11 08:43:10	O	0	0	0	0	0	73089
03/29/11 08:44:50	S	0	0	0	8	80	73094
03/29/11 08:44:51	S	0	0	0	7	70	73094
03/29/11 08:44:52	S	0	0	0	8	80	73095
03/29/11 08:44:52	S	0	0	0	9	100	73096
03/29/11 08:49:05	O	0	0	0	0	0	73307
03/29/11 08:54:28	S	0	0	0	9	100	73307
03/29/11 08:57:59	B	0	0	0	0	100	73307
03/29/11 08:58:04	S	0	0	0	9	100	73310

Optional Custom Garmin Messaging Terminal

For systems that require integrated messaging and navigation capabilities for its drivers, RSI offers a customized Garmin navigation solution. This customization process allows us to use the Garmin unit as a messaging terminal providing both free form and pre-programmed status messages between the driver and the dispatch user. Leveraging the universally familiar Garmin color touch screen interface, RSI creates a powerful messaging and data terminal for your drivers. In addition to providing the standard Garmin navigation tools, the RSI customization allows the mobile user to receive dispatched destinations, way points and routes from the base directly to the Garmin unit, which will then navigate them to that location. Drivers can login to the system using a Driver and Route Login form, as well as send any variety of free form or preprogrammed status message to the base. The customization options are endless. RSI will work with you to determine how we can implement a system that fits your needs at the lowest cost possible.

Customized Messaging Terminal
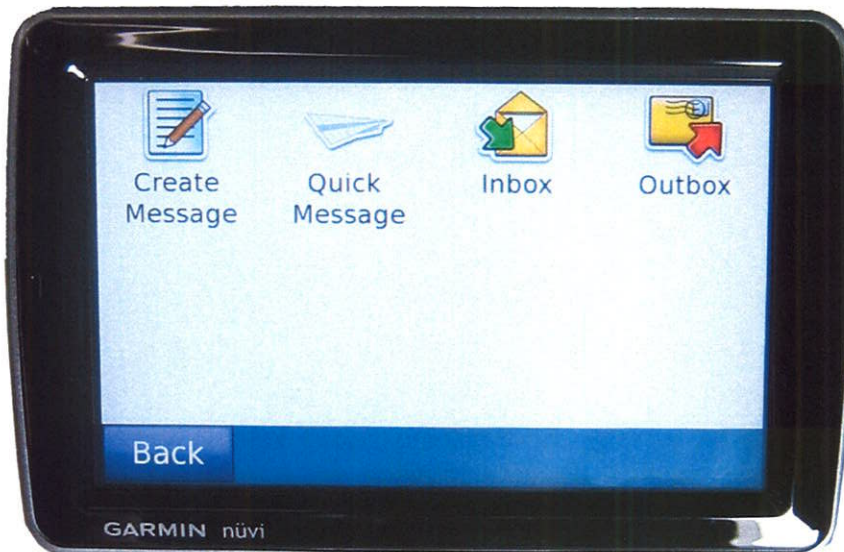
The RSI Garmin Unit can be configured to provide a simple two-way messaging interface between the driver and AVL mapping operator. All messages sent by the driver are time and location tagged and can be used for a variety of status updates and activity reporting.
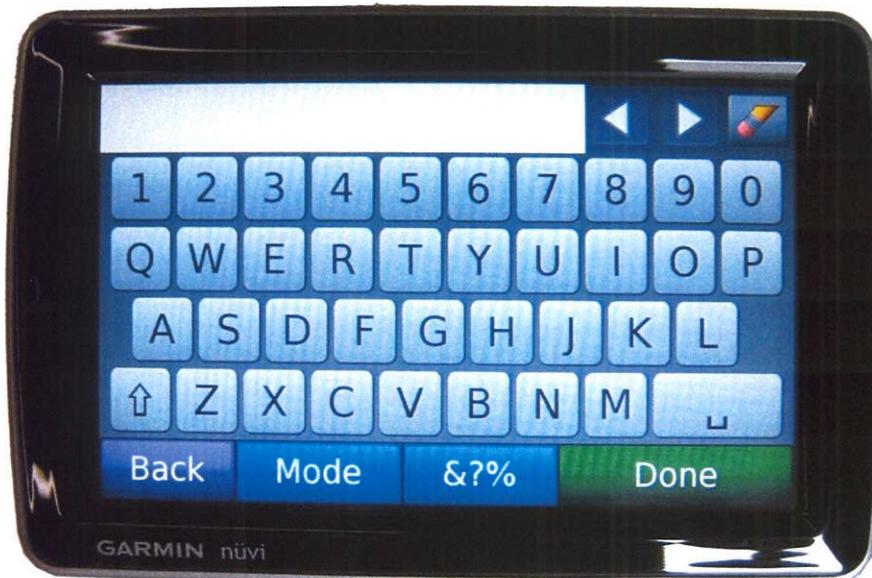
Messaging can be either free form text messages or preprogrammed (canned) status messages.

Canned messages can be custom created by RSI for any of your fleet's unique operations, priorities, and terminology. The driver simply selects a preprogrammed message to be sent back to the operator and system.
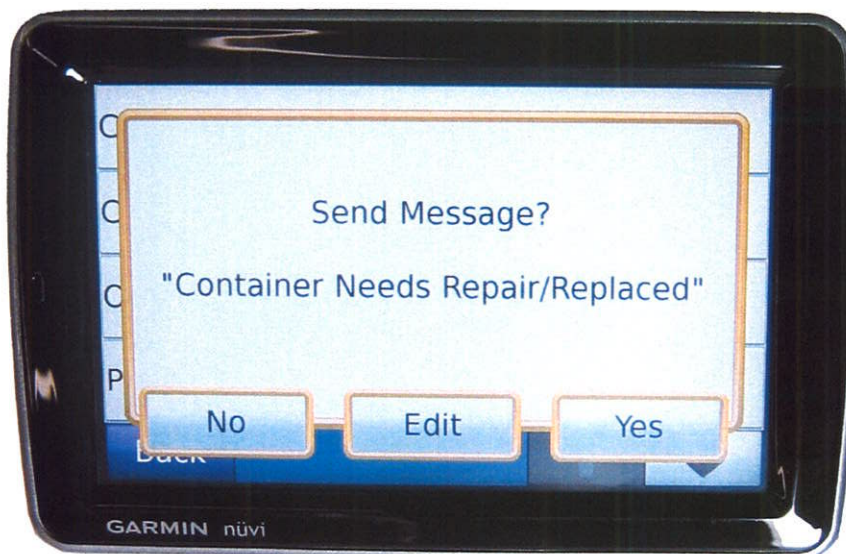
Garmin Navigation Tools
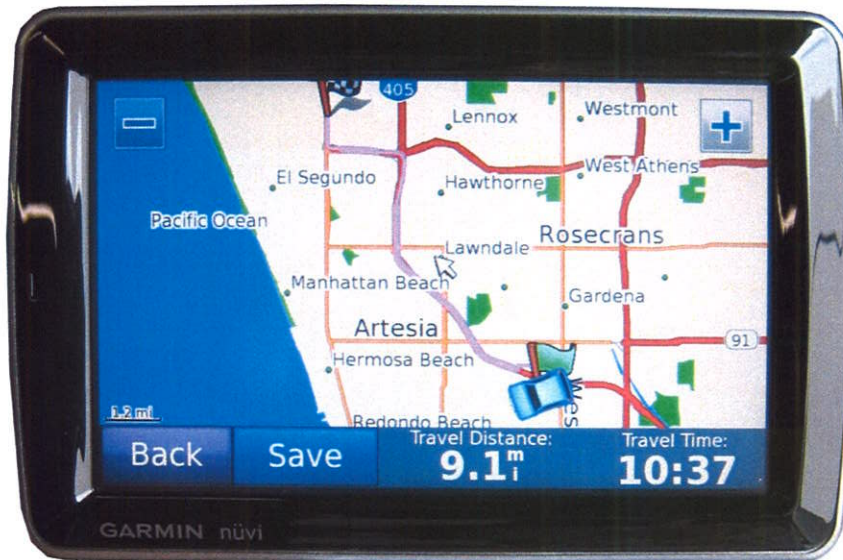
The RSI Garmin Unit also retains its core Garmin navigation functionality that provides voice guided turn by turn directions to the desired destination.

The RSI Garmin Unit has multiple settings for a viewing the map and route as the driver is guided to the destination

Driver ID Entry
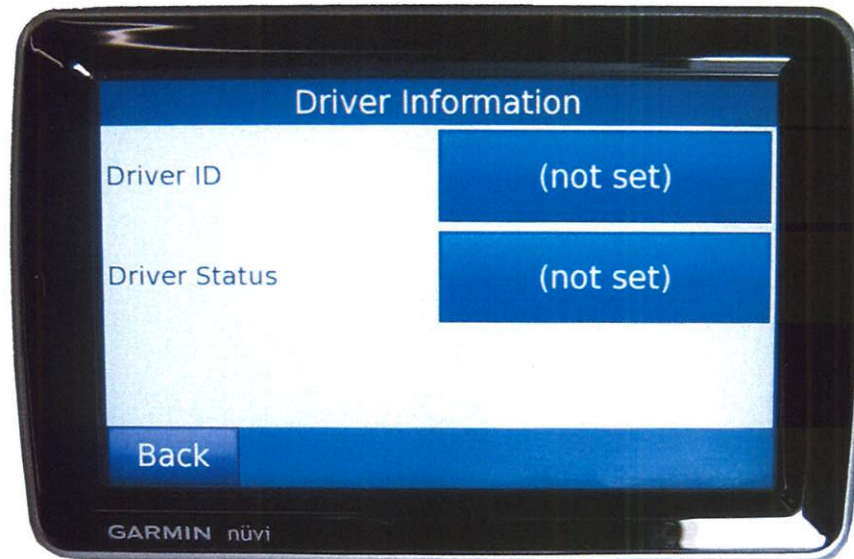
The RSI Garmin Unit allows the driver to log in to a vehicle with a unique ID as well as status.

Proposed Work Plan

Radio Satellite Integrators will determine an appropriate implementation schedule for each specific project and customer. Here is a typical schedule to implement the system as outlined below. Some key milestones follow. (This is an example subject to change. A detailed and accurate project work plan cannot feasibly be created without meeting with the customer to determine specific configurations, preferences, processes, priorities, resources, etc.)

Pre-Implementation Planning and Engineering

- Contract Award
- Develop Statement of Work
  o Requires Agency Assistance
- Kick Off Meeting (TBD)
- Final Design Review (TBD)

Hardware and Component Sourcing

- In-House Testing & Configuration
- Shipping

Initial System Field Test

- Test Units

Final Installation and Implementation

- Full Installation
- Training

Acceptance

Typical Base Project Plan

1	0%	**AVL Project Completion**	**101 days**	Dpd	
2	0%	Receipt of Order	1 day		Customer
3					
4	0%	**Initial Phase**	**15 days**		
5	0%	**Design Review**	**15 days**		
6	0%	Develop Design Review	10 days	2	RSI
7	0%	Submit Design Review	5 days	6	RSI
8	0%	Design Review Acceptance	0 days	7	Customer PM
9	0%	**Base station System Install/Config**	**10 days**		
10	0%	Base Servers	10 days	2	RSI
11	0%	GIS Map Data	5 days	2	Customer GIS
12					
13	0%	**Acceptance Test Plan (ATP)**	**15 days**		
14	0%	Develop ATP	10 days	2	RSI
15	0%	Submit ATP	5 days	14	RSI
16	0%	ATP Acceptance	0 days	15	Customer PM
17	0%	**Rollout Phase**	**100 days**		
18	0%	**System Delivery**	**29 days**		
19	0%	**Mobile Unit Build Procurement**	**24 days**		
20	0%	**Building and Procurement**	**19 days**		
21	0%	Mobile Units	19 days	2	RSI
22	0%	**Testing**	**5 days**		
23	0%	Mobile Units	5 days	24	RSI
24	0%	**Shipping**	**5 days**		
25	0%	Mobile Units	5 days	26	RSI
26	0%	**System Completion**	**71 days**		
27	0%	**Configuration**	**10 days**		
28	0%	**AVL Software Customization**	**10 days**		
29	0%	Base Station (Software)	10 days	27	RSI
30	0%	**Installation**	**60 days**		
31	0%	Mobile Units	60 days	31	RSI/Sub Contractor
32	0%	**Testing**	**1 day**		
33	0%	Complete ATP	1 day	33	All
34	0%	**User Training**	**8 days**		
35	0%	Develop User Training Plan	5 days	32	RSI / Customer PM
36	0%	Complete User Training Plan	3 days	39	RSI

RSI will work with your team to determine specific timelines based on your particular project scope. Your actual project plan will differ from this one.

Key RSI Staff

Project Manager

Brian Burda, Vice President Technology

Education: B.S. Computer Science, University of Southern California

Experience:

Consultant, Process Control and Software Development, Clients include H.J. Heinz, United Airlines, ORE-IDA Foods, Weight Watchers, and the Marriott Hotel Corporation

       *Brian has 20 years of experience implementing AVL and tracking systems using GPS.

Brian will serve as the lead project manager for the AVL implementation. Brian has extensive experience implementing AVL systems and will oversee the development of the Scope of Work and Implementation Work Plan.

Lead Software and Hardware Integration Manager

Mark Holzworth, Director of Software Engineering

Education: B.S. Electrical Engineering, University of California at Santa Barbara

Experience:

Software engineer, Professional Products, Magellan Systems Corporation

       *Mark has over 18 years of experience in developing software to interface GPS and GIS, and embedded network communications control systems for AVL.

Mark will oversee all integration efforts for this system. Mark has extensive experience interfacing various back end applications with the RSI AVL system.

Executive Contact

Jonathan Michels, President

Education: B.S. Economics, Wharton School of the University of Pennsylvania

                M.B.A., AGSM, University California at Los Angeles

Experience:

Director, Professional Products Division, Magellan Systems Corporation (GPS Manufacturer)

Vice President, Cellularm, radio frequency data network operator

GIS Analyst, Toyota Motor Sales, USA

*Jon has over 24 years of experience in GIS, 21 years in RF communications and data, and 20 years in GPS technology.

Jon will serve as the main point of contact for all contractual and administrative matters for this system.

Installation

If desired, RSI can be responsible for the installation of all equipment furnished under this contract. RSI will perform the installation and provide local support. RSI will require the client's cooperation and assistance in coordinating vehicle access and availability.

All work will be executed in the manner best calculated, according to local conditions, to promote rapidity and accuracy; to secure safety to life, personnel and property; to assure safe and continuous operation of the existing dispatch, computer, and daily operations; and, to reduce to a minimum any interference with the public and with other contractors in or about the property.

Management and Installation

The installation team manages all aspects of the installation of these units by working closely with client representatives. Together, the installation team and client will identify vehicles and schedule installations on a on a non-intrusive basis. Installation of RSI Mobile hardware units will be verified by inspections. Typically, we perform a physical checkout of the installation, which includes ensuring proper form, fit, security, and location of the unit. In addition, a communications check is performed to ensure that the modem is operational.

Operational Checkout

Upon completion of a small subset of the entire installation, we will perform a complete operational checkout of the hardware and firmware. This checkout will ensure bi-directional communication between the RSI Mobile hardware unit and RSI Base Server and verify the accuracy of receive/transmit (RX/TX) event data shared between the RSI Mobile hardware units and The RSI Base Server software. Upon successful completion of this test, the units and vehicles are tagged as "ready for integration."

Training

RSI Training Methodology

RSI will provide live training sessions on the entire AVL system sufficient to ensure complete understanding and operations proficiency by the desired client staff and administrative personnel. The client will receive training to be provided to the entire staff exposed to the system, with an intensive "train-the-trainer" approach for selected personnel in order to maximize long-term worker productivity. The training sessions shall be held at locations specified by the client for administrative, driver, dispatch, executive, maintenance, and all other relevant parties. All materials and manuals will be provided in both printed and electronic format.

Training Program Overview

RSI and the other team members will work with the customer's team to define the required courses and a reasonable number of attendees/course duration during the implementation phase of the project.

Train-The-Trainer Training
• On-Site
• Hands-On
• Users & Administration

Daily
System Health Check
& Prelim. Validation

Help Desk Support
Multi-Level
8x5; 12x5; 24x7

Project Book
& Solution Documentation
• User Guide
• System Admin Guide

• Production Architecture Spec.
• Training Materials
• Project Activities Log

Mobile Unit Installation

Data Center

Field Support/
Critical Trouble
Shooting

Monthly Report

Training Program

The RSI AVL Training Program is designed to indoctrinate all employees in the use of the RSI AVL System.

All training will be specific, where appropriate, to the RSI AVL system, and will include practical user instruction, hands-on sessions using RSI AVL specific equipment and data, and vendor observation of live operations following system startup. The training sessions will be presented over the course of the project, and will enable customer personnel to assume the responsibility of the system upon Substantial Completion.

In concert with the customer Project Manager, RSI will develop and conduct a one-time operational overview of the entire RSI AVL operating system, which will provide Management with a practical, working knowledge of the RSI AVL system and its operational, customer, and functional capabilities.

The development of the Training and Orientation Program and the scheduling of the actual training sessions will take into consideration customer staff availability due to shift assignments and logistics. RSI AVL will coordinate with the customer Project Manager to ensure that personnel are available when the Training Programs are to be conducted. Furthermore, it is assumed that all attendees will be familiar with the basic concepts of the Windows Operating System, knowledge that is essential in order to be able to take full advantage of the courses offered. A workable understanding of Windows will be a pre-requisite for all attendees.

Advanced Training

During the installation and testing process there will be a need for certain customer personnel (drivers, dispatchers and supervisors) to become familiar with some of the fundamental aspects of the system so they can participate in the testing process and in the evaluation of the software and system's performance. For this reason, a number of courses will be provided in advance of the Regular Training program. The content of the courses will focus on familiarizing select RSI AVL staff with the basic functionality and operational features of the system, together with 'hands-on' training in the use of the hardware to the extent necessary to support the initial Testing. RSI will provide Advance Training as necessary to support initial testing and integration.

The customer's Project Manager will designate the specific individuals who will participate in this training when RSI indicates it is time to begin the Advance Training Course.

RSI will supply the specified manuals and documentation in both hard and soft copy.

Instruction Manuals

User/Operating Procedure manuals, specific to the RSI AVL System, will be provided to each trainee. The User/Operating Procedure manuals will consist of the generic capabilities for each component as well as all the necessary amendments that describe customer's specific modifications and enhancements. Course Training Manuals, for each functional or technological area of training, will be provided to the customer Project Manager, along with master copies of all training and orientation documents in order to facilitate duplication of materials for future training purposes. Vendor equipment manuals relating to the specific software and hardware utilized in the project will also be delivered to the customer's Project Manager. (Note: Any duplication of materials is for internal use on the RSI AVL Project and may NOT be distributed to outside sources without the written approval of the vendor.)

All such printed training/orientation materials will be:

- Approved by the customer Project Manager prior to their use or distribution

- Customized and specific to the RSI AVL Project and the products used therein and the systems operating therein.

- Complete and current as of the date of Substantial Completion of the RSI AVL Project.

- Easily understandable, detailed and focused to the inherent knowledge levels of each of the below-described staff categories based on their individual 'need to know'.

- Updated, as necessary, consistent with any maintenance and support agreements to this Project.

Personnel To Be Trained

There will be several levels of staffing associated with the RSI AVL operation; therefore, the training and orientation program will focus on both the required ('need to know') and inherent technical expertise of each of the employee groups or individuals, as follows:

Drivers

Anticipated staff (final count TBD)

An in depth orientation in the AVL System function, usage, and dispatching requirements at the vehicle level.

A basic orientation in AVL System functionality and trouble shooting (when to ask for help).

A practical orientation in System capabilities as they relate to overall operations and customer services.

Dispatchers

Anticipated staff (final count TBD)

An in-depth orientation in the usage and a practical orientation in the features relating to operations and customer services of all AVL equipment at the vehicle and Dispatch Center levels.

A basic orientation in function trouble shooting (when to ask for help) at both the vehicle and dispatch center levels.

An in-depth orientation in data entry and retrieval, report design, generation and production.

Supervisors

An anticipated staff (final count TBD)

An in-depth orientation in the usage and a practical orientation in the features relating to operations and customer services of all AVL equipment at the vehicle and Dispatch Center levels.

A basic orientation in function trouble shooting (when to ask for help) at both the vehicle and Dispatch Center level.

The ability to train new drivers, dispatchers and supervisors in the use of and overall understanding of system functionality as it relates to all components and features of the RSI AVL technology.

Operator Management

An anticipated staff (final count TBD)

An in-depth orientation in the usage and a practical orientation in the features relating to operations and customer services of all AVL equipment at the vehicle and Dispatch Center levels.

A basic orientation in function trouble shooting (when to ask for help) at both the vehicle and Dispatch Center levels.

An orientation in systems management, the interoperability of the overall RSI AVL system capabilities, customer service features and potential report development and generation.

Maintenance monitoring requirements of the equipment and software and system repair and service procedures.

Client Management

An anticipated staff (final count TBD), including the Director, Information Systems Manager and administrative staff. (final count TBD)

An in-depth orientation in the usage and a practical orientation in the features relating to operations and customer services of all AVL equipment at the vehicle and Dispatch Center levels.

A basic orientation in function trouble shooting (when to ask for help) at both the vehicle and Dispatch Center levels.

An orientation in systems management, the interoperability of the overall RSI AVL system capabilities, customer service features and potential report development and generation.

Maintenance monitoring requirements of the equipment and software and system repair and service procedures.

Note: The Information Systems Manager will be trained to a significantly higher technical level. This individual will perform technical maintenance, hardware repair/replacement, troubleshoot problems, investigate communication system problems (LAN, WAN, etc.) and deal with all technical problems and upgrades in cooperation with RSI.

Test and Implementation Plan

The major purpose of the Implementation Plan is to define a process for deploying the technical elements of the RSI AVL Project, and then schedule the integration of these elements into each agency's operating system. This transition not only calls for a partial re-deployment and enhancement of the current rolling stock, but also for the smooth integration and deployment of the AVL technology that is specified in the Scope of Work. In order to make the transition as smooth as possible and overcome any functional, technical, operational, and communication difficulties as they arise, RSI will utilize a phased approach.

At the same time, in order to ensure the final delivery of a system that conforms to the Project requirements, significant emphasis will be placed on the importance of achieving the operational and technological functionality defined in this Scope of Work and other 'Contract Documents'. The Implementation and Test Plan represents the vehicle through which RSI shall examine each operating function of the RSI AVL system to:

- Verify compliance with the system specifications, level of service standards and operating performance criteria

- Obtain client's acceptance.

RSI will be responsible for component specific testing. As integration of the technical components begins, client's Project Manager (& necessary staff) will oversee and coordinate the implementation of the integration testing in order to ensure compliance with the overall project and performance objectives set forth herein. The anticipated dates for conducting the required testing are defined in the Project Work Plan and will be finalized during the Design Review.

Two levels of system testing will be employed during the course of the RSI AVL Project, as follows:

> Laboratory: individual module testing followed by integration testing to ensure the functionality of the components and the interoperability of the data interfaces between each component prior to deployment.

> Acceptance Testing: the final test to ensure that each technical component of the system as well as the total system (technical components and operating services) conforms to system specifications, level of service standards and operating performance criteria.

As each service element comes on-line during the Test, it will remain on-line at the conclusion of the test and be operated in parallel by the Dispatch Center with the other elements that are already operational. The same will hold true for the activated functionalities of the project technologies mentioned above. Due to the linear approach of the project plan, if any of the elements fail during testing, further elements cannot be deployed until the problem has been resolved.

At the conclusion of each formal testing phase, RSI will provide client with written certification of the test results and performance compliance for each of the system components. In the event of testing problems, client, RSI and the appropriate agencies will meet and confer on the results of the testing performed. Subsequent decisions to proceed with the project must be approved by all parties. All the participants must attend scheduled meetings through means of conference calls or on-site visitations.

Also, final details of the Laboratory and Acceptance Tests will be confirmed with the Stakeholders before implementation of the testing in order to ensure client service level does not degrade below current service levels during the testing process.

Finally, in addition to the above formal testing procedures, there will be a comprehensive demonstration of the operating system to client. This demonstration (Acceptance Test) is necessary in order to satisfy the parties that Substantial Completion has been achieved.

Acceptance Testing

There are two fundamental aspects to the Acceptance Testing – functional and operational. The functionality of the RSI AVL System will have been completely tested by the Test phase of the project. To a lesser extent, the ability of the user to change the operational parameters in order to change the service provided will have also been demonstrated. As a consequence, the Acceptance Test is largely a confirmation of the functional requirements and a stress / full loading test of the operation as the service parameters are changed based upon real time public demand.

Because of the inherent inability to predict the need for service changes, it is only by observing the system over a period of time that we can be reasonably assured that all the possible combinations and scenarios have been considered. During the Acceptance Testing the performance of the System will also be evaluated, with regard to the ability of the system to respond in a timely and efficient manner to customer oversight and customer requests.

Warranty

As an expression of confidence in our products to continue meeting the high standard of reliability and performance that our customers have come to expect, Radio Satellite Integrators products are covered by the following warranty.

Radio Satellite Integrators warrants all products against defects in materials and workmanship for a period of one year from the date of factory sale, or the term outlined in an extended warranty agreement. During the warranty period Radio Satellite Integrators provides the warranty service. Radio Satellite Integrators will, at its option, either repair or replace products which prove to be defective. The Customer shall prepay shipping charges for products returned to Radio Satellite Integrators for warranty service and RSI shall pay for return of products to Customer. However, the Customer shall pay all shipping charges, duties, and taxes for products returned to Radio Satellite Integrators from outside the United States. This warranty shall not apply to damage resulting from:

• Improper or inadequate maintenance by the Customer

• Customer-supplied interfacing

• Unauthorized modification or misuse

• Operation outside of the product environmental specifications

• Improper installation, where applicable

No other warranty is expressed or implied. Radio Satellite Integrators specifically disclaims the implied warranties of merchantability and fitness for a particular purpose. Remedies provided herein are Customer's sole and exclusive remedies. Radio Satellite Integrators shall not be liable for any direct, indirect, special incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

Service Response Plan

The following is RSI's standard Customer Support Plan:

RSI will maintain all equipment and support software for one year, parts and labor. In addition, RSI will provide two options to help ensure smooth operation of the system:

1) Phone Support During the warranty period, RSI will provide unlimited phone support via our toll-free number [(866) 869-7700]. After hours support is available 24/7 through the 911 option on our telephone system.

2) Remote Access Support

This option allows RSI staff to check in on system health, troubleshoot problems on-line with customer staff and monitor the system remotely via dial-up or TCP/IP (VPN) access.

Any travel required to support on-site service is not included.

Severity	Time Reported	Target Response Time	Response Method
1	7x24	<4 Hours	Phone Call (Follow-up with Remote Access Troubleshooting as Necessary)
2	Regular Hours	<3 Hours	Phone Call (Follow-up with Remote Access Troubleshooting as Necessary)
2	After Hours	Next Business Day	Phone Call (Follow-up with Remote Access Troubleshooting as Necessary)
3	Regular Hours	<8 Hours	Phone Call (Follow-up with Remote Access Troubleshooting as Necessary)
3	After Hours	Next Business Day	Phone Call (Follow-up with Remote Access Troubleshooting as Necessary)

The Customer acknowledges and understands that the Service Provider's ability to respond within these times is dependent on the Customer's fulfillment of its obligation to provide remote access. * Response time targets are measured from receipt of first notification by telephone to our Main Office Number [(310) 787-7700] or toll-free number [(866) 869-7700]. For after hours calls follow our instructions for Emergency Service, directory 911. A page will go out to an on-call support provider.

**Regular Hours are defined as Monday through Friday, 9 A.M. to 5 P.M. Pacific Time, excluding holidays. After Hours are all non-Regular Hours.

Problem Severity Definitions

a. **Severity 1** – A Severity 1 Problem is a catastrophic failure that severely impacts the Customer's ability to conduct its core business – i.e., the Customer's Automatic Vehicle Locator and/or Mobile Data System are down or not functioning and no procedural workaround exists.

b. **Severity 2** - A Severity 2 Problem is a high-impact Problem that disrupts important functions of the Customer's operation, but the Customer can still remain productive and maintain necessary business-level operations.

c. **Severity 3** - A Severity 3 Problem is a Problem that is of lesser magnitude than a Severity 1 or 2 Problem.

Problem Resolution Targets

a. **Severity 1** - When working a "Severity 1" Problem, the objective is to resolve the Problem entirely or to downgrade the Problem's Severity designation (*i.e.*, provide Customer sufficient functionality so that the Problem may be reclassified as Severity 2 or 3) within 24 hours after the Problem is reported. Efforts to isolate, diagnose, and effect a work-around for, repair, or downgrade a "Severity 1" Problem shall be continuous (i.e., around-the-clock) between Customer, Service Provider and RSI (as needed), provided that Customer performs all of its obligations hereunder, including providing remote access to its systems. Periodic phone contact and progress updates will be provided at regular intervals during problem resolution. When the severity level has been changed to "Severity 2" or "Severity 3," the guidelines cited below are followed.

b. **Severity 2** – When working a "Severity 2" Problem, the objective is to have a solution and/or fix to the Customer within fifteen (15) business days. Efforts to isolate, diagnose, and affect a work-around or repair to a "Severity 2" Problem shall be continuous during Regular Hours. Customer resources may need to be available after hours and/or weekends upon mutual agreement between Customer and Service Provider, on a case-by-case basis.

c. **Severity 3** - When working a "Severity 3" Problem, the objective is to get the Customer a fix to the Problem or develop a workaround acceptable to the Customer within thirty (30) business days. Such a fix will typically be provided via a software patch or upgrade from RSI.

Response to Specifications

4   SCOPE OF WORK

4.1   AVL Device Categories: Vendor must lease one or more item or service from the following AVL device categories to FMO. Cost of leasing an item or service from a device category must be identified on the Cost Proposal Bid Sheet.

> 4.1.1   Employee tracking device (key fob) with panic feature
> **Not bidding**

> 4.1.2   Data logger without engine diagnostics
> **Comply.**

> 4.1.3   Data logger with visual/audible driver alerts and engine diagnostics
> **Comply.**

> 4.1.4   Data logger with video capture and without engine diagnostics
> **Not bidding.**

4.2   AVL Device Category Requirements:
4.2.1   Any Lease of an AVL Device Category shall include:

> 4.2.1.1 A statewide AVL device data transmission service plan based on a device "ping" interval rate of five (5) minutes, and
> > **Comply.   The RSI AVL system can update at virtually any rate. Update rates can adjust dynamically depending on factors such as vehicle status or the triggering of an on-board sensor. RSI will propose a 5 minute update rate as a default as specified in this RFQ.**

> 4.2.1.2 A browser client-server application that can be used to pinpoint the location of an AVL device, provide real-time reporting, modify organizational hierarchy/device/employee, use dynamic application filtering, and ad-hoc reporting interface including breadcrumb, geofence, landmark, odd-hours, inspection compliance (RFID equipped vehicle) etc.
> > **Comply.RSI AVL is a Web browser based AVL system hosted by RSI. The RSI AVL system is accessed via Internet. The RSI AVL system monitors, displays, and logs real time vehicle location and status data. Reports may be produced for selected vehicles (or groups of vehicles) according to location.**
> >
> > **The RSI AVL system can support unlimited simultaneous users. The RSI AVL System provides for multiple access levels**

for users. The RSI system can be configured so that specific users only have access to specific functionality or vehicle information.

The RSI AVL system allows you to watch a historical "replay" of any portion of a vehicle's activity history at various speeds. Controls let you play, pause, rewind, and fast forward the replay allowing you to watch the vehicles' movement and behavior including location, device activities, alerts, status changes, events, etc.

The RSI AVL system allows the user to set geo-fences on the map display. This geofence will create an alert and/or exception report when breached and will appear as another item of status data with each vehicle position report. Geofences can be created as polygons or a configurable radius from a specific point, as well as created from existing boundaries, landmarks or zones within your GIS.

4.2.2 AVL device data transmission services shall include:

4.2.2.1 Logging and retention of data,

> **Comply. RSI typically archives all data indefinitely and keep about 6 months of data live for reporting. Specific dates from historical data can be restored upon request. The RSI Base server is based on SQL Server and we can arrange to have periodic FTP data transfers to the Customer of raw SQL tables for historical archiving.**

4.2.2.2 Wireless transmission of data

> **Comply. The In-Vehicle Equipment and Base Application are linked via two-way cellular wireless communications, allowing for timely data transmission between the field and dispatch center. RSI can use virtually any wireless carrier for the communications portion of this system. We are proposing GPRS from AT&T, as well as CDMA from Verizon.**

4.2.2.3 Browser client-server application services

> **Comply.RSI AVL is a Web browser based AVL system hosted by RSI. The RSI AVL system is accessed via Internet**

4.2.2.4 CDMA or GPRS data transmission, and

> **Comply.RSI AVL systems can use any type of public data network (cellular) including: GPRS, GSM, EV-DO,**

Nextel/iDEN, CDMA, and many others. We are proposing GPRS from AT&T, as well as CDMA from Verizon.

4.2.2.5 Data transmission service plan.

Comply. As required we are proposing a 5 minute update rate as a default. Other update rates are available as an option.

4.2.3   AVL devices, ancillary equipment, and accessories shall include:

4.2.3.1 OBD-II and SAE J-1708/j-1939 schema compliance,

Comply. For equipment that is required to have "diagnostic capabilities", the devices will be complaint with either OBD-II or J1708/1939.

4.2.3.2 Maintenance, and

Comply, all hardware comes with a one year warranty.

4.2.3.3 Support Services

Comply. all hardware comes with a one year warranty. RSI will either provide phone support or remote support to help ensure smooth operation of the system. See Service Response Plan.

4.2.4   Any purchase of a device from an AVL Device Category shall include a basic equipment package for month-to-month lease to the State. The basic equipment package shall include:

4.2.4.1 A state-selected AVL device,

Comply. RSI offers a variety of in-vehicle AVL mobile devices with various options and add-ons.   The devices have a variety of sensor inputs and serial ports that can be customized to accommodate optional features such as diagnostics, panic buttons, various types of antennas, and other ancillary equipment.

4.2.4.2 Mounting set/kits/outfits,

Comply. RSI will provide mounting set, kits, and outfits.

4.2.4.3 External antenna if required by the device,

Comply. The RSI Mobile Unit can use any type of GPS antenna that is required or specified. The RSI Mobile Unit comes with all bracketing, cabling, and connectors required for full installation.

4.2.4.4 Ancillary equipment,

Comply. The RSI Mobile Unit comes with all bracketing, cabling, and connectors required for full installation.

4.2.4.5 Battery for asset and employee tracker,

Comply. If not tied to vehicle power, units may have battery power.

4.2.4.6 Alternating current (AC) car adapter/charger for asset and employee tracker,

Comply. If not tied to vehicle power, units may have battery power.

As an option, some units may have AC/car adapters.

4.2.4.7 Device installation, and

Comply.RSI can be responsible for the installation (or train staff on installation) of all equipment furnished under this contract. RSI will perform the installation and provide local support.

4.2.4.8 User manual

Comply. All materials and manuals will be provided in both printed and electronic format.

4.2.5 Basic equipment with engine diagnostic capabilities shall be powered by the vehicle and include:

4.2.5.1 Engine on/off detection,

Comply. The RSI Mobile Unit is capable of interfacing to a wide variety of external mobile data terminals, mobile computing devices, in-vehicle peripherals, and various sensor systems. The RSI Mobile Unit can be connected to the on-board vehicle power and any sensor signals as desired such as engine on/off, door open/closed, plow up/down, seatbelt on/off etc.

4.2.5.2 Accelerometer,

Comply.

4.2.5.3 Gyroscope,

Comply.

4.2.5.4 Geospatial location capability,

Comply. The RSI Mobile Unit has a 50 channel GPS receiver with 2 meters of accuracy.

4.2.5.5 Interoperability with other AVL devices allowing for retransmission of a panic signal, use of GPS device; driver behavior monitoring device; and vehicle inspection compliance device (RFID equipped vehicle), etc., and

Comply.

4.2.5.6 Interoperability with other monitoring AVL devices allowing for the logging of diverse vehicle functions, e.g., door open/closed, plow up/down, seatbelt on/off, etc.

> **Comply. The RSI Mobile Unit is capable of interfacing to a wide variety of external mobile data terminals, mobile computing devices, in-vehicle peripherals, and various sensor systems. The RSI Mobile Unit can be connected to the on-board vehicle power and any sensor signals as desired such as engine on/off, door open/closed, plow up/down, seatbelt on/off etc.**

4.2.6 Basic equipment without engine diagnostics will be powered by:

4.2.6.1 The vehicle,

> **Comply.**

4.2.6.2 Self contained device battery, and

> **Comply. As an option the device can have a built in battery.**

4.2.6.3 Car charger.

> **Comply. As an option the device can have a car power plug.**

4.2.7 Basic equipment without engine diagnostics will include:

4.2.7.1 Accelerometer, **Comply.**

4.2.7.2 Gyroscope, **Comply.**

4.2.7.3 Geospatial location capability,

Comply. The RSI Mobile Unit has a 50 channel GPS receiver with 2 meters of accuracy.

4.2.7.4 Interoperability with other AVL devices allowing for retransmission of a panic signal, use of GPS device; driver behavior monitoring device; and vehicle inspection compliance device (RFID equipped vehicle), etc., and

Comply. The RSI Mobile Unit can be equipped with an emergency panic button configuration that is a dashboard-mounted button that sends a priority signal over-the-air to the dispatch interface or real-

time alert. RSI can also offer a wireless handheld panic button that can be activated up to 300 feet from the vehicle.

> 4.2.7.5 Interoperability with other monitoring AVL devices allowing for the logging of diverse vehicle functions, e.g., door open/closed, plow up/down, seatbelt on/off, etc.

Comply.

4.3   Vendor(s) shall provide the following services at no additional cost.

> 4.3.1   for data loggers with engine diagnostics: Browser client-server application for real-time reporting of device location, stop detail, speed, fuel economy or use, odometer, vehicle inspection compliance (RFID equipped vehicle) and engine diagnostic codes. Additional functionality to modify organizational hierarchy/device/driver, use of dynamic application filtering, and ad-hoc reporting including breadcrumb, geofence, landmark, odd-hours, etc.

Comply. Reports may be produced for selected vehicles (or groups of vehicles) according to group or subgroup.

> **The RSI AVL system can support unlimited simultaneous users. The RSI AVL System provides for multiple access levels for users. Certain privileged users will have the ability to adjust parameters for the AVL system and to configure certain system functions, while others will have limited functionality. The RSI system can be configured so that specific users only have access to specific functionality or vehicle information.**
>
> **Reports may be produced for selected vehicles (or groups of vehicles) according to time, location, and status criteria. The Map-based report displays allow users to visually display or re-trace a vehicle's route and status, and include the same map manipulation and query functionality as the real-time vehicle tracking displays. The RSI AVL system allows you to watch a historical "replay" of any portion of a vehicle's activity history at various speeds. Controls let you play, pause, rewind, and fast forward the replay allowing you to watch the vehicles' movement and behavior including location, device activities, alerts, status changes, events, etc. Each breadcrumb icon represents a vehicle position and all its underlying data including address, direction, speed, and status.**

The RSI AVL system allows the user to set geo-fences on the map display. This geofence will create an alert and/or exception report when breached and will appear as another item of status data with each vehicle position report. Geofences can be created as polygons or a configurable radius from a specific point, as well as created from existing boundaries, landmarks or zones within your GIS.

Comply. Integration with vehicle inspection systems and hardware is possible although it may require additional cost and customization from both vendors.

4.3.2   For data loggers without engine diagnostics: Browser client-server application for real-time reporting of device location, vehicle inspection compliance (RFID equipped vehicle) and stop-detail. Additional functionality to modify organizational hierarchy/device/employee, use of dynamic application filtering, and ad-hoc reporting including breadcrumb, geofence, landmark, odd-hours, etc.

Comply. Integration with vehicle inspection systems and hardware is possible although it may require additional cost and customization from both vendors.

4.3.3   No roaming charges or fees for data transmission service plans within West Virginia and the bordering counties of adjoining states.

Comply. RSI can use virtually any carrier and will not have roaming fees.

4.3.4   Upgrades or downgrades to service plans by FMO as needed, with no limits

Comply.

4.3.5   Cancellation of service at the end of the regular billing cycle without early termination fees.

Comply. Cancellation of service will not incur early termination fees. RSI service is based on the agreed upon contract.

4.4   AVL Device Activation:

4.4.1   Vendor shall activate service on new AVL devices when shipped

Comply.

4.5   Application Security:

       4.5.1   The Vendor(s)' browser client-server application must provide the ability to provide user authentication, strong passwords, action selection for a maximum number of failed logon attempts, application lock, an inactivity timeout, and certificate delivery.

> **Comply. RSI AVL is a Web browser based AVL system either hosted by RSI or locally by the City. The RSI AVL system is accessed via Internet Explorer using unique login and password. The RSI AVL system is highly customizable and allows different levels of security settings such as maximum number of failed logon attempts, application lock, inactivity timeout, and certificate delivery.**

5   REQUIREMENTS: ORDERING, LEASE SERVICE, SUPPORT, REPORTING AND BILLING

5.1   Ordering:

      5.1.1   The Vendor(s) shall provide activation of new service at no additional charge

          Comply.

      5.1.2   Devices must be signed for at delivery by FMO

          Comply.

5.2   Lease Service:

      5.2.1   The FMO plans to enter into device leasing agreements for an indefinite quantity of AVL devices in the various device categories outlined paragraph 4.

          Comply.

      5.2.2   Lease Agreement Requirements: The lease agreement proposed by the Vendor (hereafter referred to as SLA) should include the following requirements. Failure of the lease agreement to include the requirements listed below may result in the disqualification of Vendor's bid. The State reserves the right to require modification of the Vendor's proposed lease agreement prior to awarding the Contract.

         5.2.2.1 The Vendor's lease agreement must comply with any and all constitutional, statutory, and regulatory requirements of the State of West Virginia. Compliance may require that the WV-96 Agreement Addendum be utilized to modify the SLA. A copy of the WV-96 is attached hereto as Exhibit A.

Comply.

5.2.2.2 Each SLA will be a separate, independent lease agreement relating solely to the device(s) named therein. Each SLA will therefore be separate and distinct from each other SLA and any other agreement between the FMO and the Vendor

Comply.

5.2.3 Lease payments cannot be transferred or assigned by the Lessor (hereafter referred to as Vendor) to a subcontractor, third-party payment service, assignee, or finance company without prior written approval by the Lessee (hereafter referred to as the FMO), the Purchasing Division, and the West Virginia Attorney General's Office(as to form). Such approval is at the sole discretion of FMO, the Purchasing Division, and the Attorney General's office (as to form).

Comply.

5.2.4 The initial term of the SLA shall be twelve (12) months. The initial term shall commence on the date that each device is delivered to the FMO. Upon expiration of the initial lease term, the SLA shall continue on a month-to-month basis until the FMO notifies the Vendor of its intent to terminate the SLA by providing notice of termination. The SLA shall terminate immediately upon FMO providing such notice.

Comply.

5.2.5 The FMO will furnish written orders for devices to be leased, specifying make, model, and installation requirements including any required modification or upfitting (manufacturer or third party).

Comply.

5.2.6 The FMO shall not cause any lien to be attached to any device without the prior written consent of the Vendor. Authority to sign device lease agreements on behalf of the FMO rests with the Executive Director, FMO and DOA Fleet Manager.

Comply.

5.2.7 The FMO intends to sub-lease the devices in this Contract to other state governmental entities. In the even that FMO sub-leases any devices subject to this Contract to be used or operated by any present or future subsidiary, parent or affiliate of the FMO (hereafter referred to as "related Governmental Entity"), The FMO agrees that notwithstanding: (a) use or operation by a Related Governmental Entity; and (b) any payment made by a Related Governmental Entity with respect to any device, all such devices shall at all times remain subject to the terms and conditions of this Contract and the FMO shall at all times retain authority under

this Contract. Changes to or modification of this Contract require approval of the FMO, Purchasing Division, and the West Virginia Attorney General' Office (as to form).

Comply.

5.2.8 This contact and any service or program described herein shall remain in effect until canceled by any party upon thirty-days written notice to the other party. Upon termination of this Contract, all SLA's in the initial term shall remain in effect until the end of the initial term unless the SLA is specifically terminated. Any SLA that is beyond the initial term shall terminate immediately upon termination of this contract

Comply.

5.2.9 The FMO shall notify the Vendor, in writing, of any change in name, address, ownership or control of the FMO. Such notification to be supplied to the Vendor within fifteen (15) days of such change

Comply.

5.3 Support:

5.3.1 Vendor(s) shall provide a toll-free support number coverage, staffed by technical personnel, to answer technical questions

Comply. During the warranty period, RSI will provide unlimited phone support via our toll-free number [(866) 869-7700]. After hours support is available 24/7 through the 911 option on our telephone system.

5.3.2 The successful Vendor shall be available to communicate with the Fleet Management Office on regular basis (monthly or quarterly, at FMO's discretion) to discuss the utilization of this Contract and any relevant issues.

Comply.

5.4 Reporting:

5.4.1 Vendor(s) will provide a free quarterly optimization calculation, as applicable and requested by the FMO. There shall not be any additional charge or commitment for moving a device into a more appropriate data transmission service plan (greater or lesser ping rate per hour). Optimization recommendations must be communicated through a quarterly report. FMO will use this information for evaluation AVL and ancillary equipment usage, as provided by the Vendor(s).

RSI project manager will work with the State to determine if the system is being used in an optimal manner and offer suggestions.

5.4.2   Vendor(s) shall provide to the FMO an additional monthly report htat shows total bytes of usage by AVL device or ancillary equipment serial number, in addition to billing the vehicle using agencies.

Comply. Reports will be available upon request.

5.5   Billing

5.5.1   FMO shall have the ability to change data service plans on a particular AVL device at the end of the regular billing cycle without any fee or charge.

Comply.

5.5.2   Billing options may include:

5.5.2.1 A separate bill per device requested

5.5.2.2 Aggregate billing by geographic location

5.5.2.3 Aggregate billing

Comply.

5.5.3   Billing at a minimum should detail, for each AVL device or ancillary equipment on that bill, the following:

5.5.3.1	Vehicle number (last six-digits of VIN or complete Vin (seventeen alpha/numeric characters)
5.5.3.2	Device Number
5.5.3.3	Data transmission service plan level
5.5.3.5	Overage charges, if applicable
5.5.3.6	Fees

Comply.

5.5.4   Vendor(s) shall work directly with spending units to resolve billing issues.

Comply.

5.5.5   The State will not pay activation fees, disconnection fees, early termination fees, or romancing fees (within the designated "home area"), as part of this contract.

Comply.

5.5.6   Vendor(s) must include, per AVL device or ancillary equipment number and/or IP address, and all fees (USF, Administrative Fees, etc.). The state cannot pay any tax, fee, or surcharge that is not included as part of the base monthly rate. The State of West Virginia is exempt from all Federal and State of West Virginia taxes.

Comply.

Product	Service	Manufacturer	Model	Estimated Device Requirement	Device Cost	Device Discount	Net Device Cost	Installation Cost	Installation Discount	Net Installation Cost	Data Transmission Service Plan Cost (5-minute ping rate)	Data Transmission Service Plan Discount (5-minute ping rate)	Net Data Transmission Service Plan Cost (5-minute ping rate)	DSP Roaming Cost	DSP Roaming Discount	Net DSP Roaming Cost	Browser Client-Server Application Cost	Browser Client-Server Application Discount	Net Browser Client-Server Application Cost	Total Monthly Lease Cost
Data Logger without Engine Diagnostics #																			
Manufacturer	Cal Amp																		
Model																			
CDMA Device Cost			7000	$29		$29													$203,000
GPRS Device Cost			7000	$15		$15													$105,000
Battery Cost			7000	$2		$2													$14,000
Antenna Cost			7000	$2		$2													$14,000
Car Charger Cost			7000	$1		$1													$7,000
Kits/Sets/Outfits Cost			7000	$1		$1													$7,000
Installation Cost			7000				$13		$13										$91,000
DSP Cost (5-minute ping)			7000							$0.00 Included		#VALUE!							#VALUE!
Roaming Cost			7000										$0		$0				$0
Browser client-server application			7000													$18		$18	$126,000
																		Total	#VALUE!

Basic Package – Device (asset tracker, employee tracker, data logger with engine diagnostics, data logger without engine diagnostics, data logger with visual/audible alerts and engine diagnostics, data logger with visual/audible alerts without engine diagnostics, data logger with video capture and engine diagnostics, data logger with video capture without engine diagnostics) and user manual.

DSP –12 pings per hour or unlimited data transmission for ancillary equipment.

Roaming Cost – Cost of Roaming if out of state.

Product | Service →	Manufacturer	Model	Estimated Device Requirement	Device Cost	Device Discount	Net Device Cost	Installation Cost	Installation Discount	Net Installation Cost	Data Transmission Service Plan Cost (5-minute ping rate)	Data Transmission Service Plan Discount (5-minute ping rate)	Net Data Transmission Service Plan Cost (5-minute ping rate)	DSP Roaming Cost	DSP Roaming Discount	Net DSP Roaming Cost	Browser Client-Server Application Cost	Browser Client-Server Application Discount	Net Browser Client-Server Application Cost	Total Monthly Lease Cost
Employee Tracker (key fob) #____ with Panic Feature																			
Manufacturer	NO BID																		
Model																			
CDMA Device Cost			50	NO BID		#VALUE!													#VALUE!
GPRS Device Cost			50	NO BID		#VALUE!													#VALUE!
Battery Cost			50	NO BID		#VALUE!													#VALUE!
Antenna Cost			50	NO BID		#VALUE!													#VALUE!
Car Charger Cost			50	NO BID		#VALUE!													#VALUE!
Kits/Sets/Outfits Cost			50	NO BID		#VALUE!													#VALUE!
Installation Cost			50						$0										$0
DSP Cost (5-minute ping)			50									$0							$0
Roaming Cost			50												$0				$0
Browser client-server application			50															$0	$0
																		Total	#VALUE!

Basic Package – Device (asset tracker, employee tracker, data logger with engine diagnostics, data logger without engine diagnostics, data logger with visual/audible alerts and engine diagnostics, data logger with visual/audible alerts without engine diagnostics, data logger with video capture and engine diagnostics, data logger with video capture without engine diagnostics) and user manual.
DSP –12 pings per hour or unlimited data transmission for ancillary equipment.
Roaming Cost – Cost of Roaming if out of state.

Product ↓ Service →	Manufacturer	Model	Estimated Device Requirement	Device Cost	Device Discount	Net Device Cost	Installation Cost	Installation Discount	Net Installation Cost	Data Transmission Service Plan Cost (5-minute ping rate)	Data Transmission Service Plan Discount (5-minute ping rate)	Net Data Transmission Service Plan Cost (5-minute ping rate)	DSP Roaming Cost	DSP Roaming Discount	Net DSP Roaming Cost	Browser Client-Server Application Cost	Browser Client-Server Application Discount	Net Browser Client-Server Application Cost	Total Monthly Lease Cost
Data Logger with Visual/Audible Driver Alerts and with Engine Diagnostics #____																			
Manufacturer	Cal Amp																		
Model																			
CDMA Device Cost OBD-II			50	$44		$44													$2,200
CDMA Device Cost J1708/J1930			50	$46		$46													$2,300
GPRS Device Cost OBD-II			50	$34		$34													$1,700
GPRS Device Cost J1708/J1930			50	$36		$36													$1,800
Battery Cost			50	$2		$2													$100
Antenna Cost			50	$2		$2													$100
Car Charger Cost			50	$1		$1													$50
Kits/Sets/Outfits Cost			50	$1		$1													$50
Installation Cost			50				$13		$13										$650
DSP Cost (5-minute ping)			50							$0.00 Included		#VALUE!							#VALUE!
Roaming Cost			50										$0		$0				$0
Browser client-server application			50													$18		$18	$900
																		Total	#VALUE!

Basic Package – Device (asset tracker, employee tracker, data logger with engine diagnostics, data logger without engine diagnostics, data logger with visual/audible alerts and engine diagnostics, data logger with visual/audible alerts without engine diagnostics, data logger with video capture and engine diagnostics, data logger with video capture without engine diagnostics) and user manual.

DSP –12 pings per hour or unlimited data transmission for ancillary equipment.

Roaming Cost – Cost of Roaming if out of state.

Product	Service --->	Manufacturer	Model	Estimated Device Requirement	Device Cost	Device Discount	Net Device Cost	Installation Cost	Installation Discount	Net Installation Cost	Data Transmission Service Plan Cost (5-minute ping rate)	Data Transmission Service Plan Discount (5-minute ping rate)	Net Data Transmission Service Plan Cost (5-minute ping rate)	DSP Roaming Cost	DSP Roaming Discount	Net DSP Roaming Cost	Browser Client-Server Application Cost	Browser Client-Server Application Discount	Net Browser Client-Server Application Cost	Total Monthly Lease Cost
Data Logger with Video Capture and without Engine Diagnostics #____																			
Manufacturer	NO BID																		
Model																			
CDMA Device Cost			200	NO BID		#VALUE!													#VALUE!
GPRS Device Cost			200	NO BID		#VALUE!													#VALUE!
Battery Cost			200	NO BID		#VALUE!													#VALUE!
Antenna Cost			200	NO BID		#VALUE!													#VALUE!
Car Charger Cost			200	NO BID		#VALUE!													#VALUE!
Kits/Sets/Outfits Cost			200	NO BID		#VALUE!													#VALUE!
Installation Cost			200						$0										$0
DSP Cost (5-minute ping)			200									$0							$0
Roaming Cost			200												$0				$0
Browser client-server application			200															$0	$0
																		Total	#VALUE!

Basic Package -- Device (asset tracker, employee tracker, data logger with engine diagnostics, data logger without engine diagnostics, data logger with visual/audible alerts and engine diagnostics, data logger with visual/audible alerts without engine diagnostics, data logger with video capture and engine diagnostics, data logger with video capture without engine diagnostics) and user manual.
DSP -- 12 pings per hour or unlimited data transmission for ancillary equipment.
Roaming Cost -- Cost of Roaming if out of state.