## SNOHOMISH COUNTY

**Automated Vehicle Location System** 

**Master Contract** 

# MASTER CONTRACT FOR AN AUTOMATED VEHICLE LOCATION SYSTEM, HOSTED SOFTWARE, AND SERVICES AGREEMENT BETWEEN SNOHOMISH COUNTY AND RADIO SATELLITE INTEGRATORS, INC.

This Master Contract For An Automa	ated Vehicle Loca	ation System, Hosted Software, And
Services Agreement Between Snohor	mish County And	Radio Satellite Integrators, Inc.( the
"Master Contract") is made this	day of	, 2012, by and between Snohomish
County, a home rule charter county a	nd a political sub	division of the State of Washington (the
"County") and Radio Satellite Integra	ators, Inc., incorp	orated under the laws of the State of
Florida, and duly licensed to conduct	business in Was	hington State ("RSI" or the "Contractor").

#### 1. RECITALS

- **A.** The County currently uses an automated vehicle tracking system, commonly known as the "Fleet Management Solutions" to manage department of Public Works vehicle operations.
- **B.** In order to more efficiently manage its vehicle operations, the County desires to install and implement a new automated vehicle location and mobile data system for the County's department of Public Works vehicles. This new system will provide the County 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.
- C. Pursuant to the County's Request for Proposal No. 13-11 dated July 8, 2011 (the "RFP"), the County solicited bids from vendors for the hardware and software needed to enable the new automated vehicle location and mobile data system.
- **D.** The Contractor is the creator, vendor and distributor of certain proprietary hardware and software that are used in Automated Vehicle Location (AVL) and mobile data systems.
- **E.** The Contractor submitted a response to the County's RFP on August 5, 2011 (the "Response to RFP," and, together with the "RFP," the "RFP Documents"), proposing that the County use the Contractor's hardware and software to fulfill the County's business needs.
- **F.** After evaluating all responses to the RFP, the County selected the Contractor's Response to RFP as proposing the best solution for the County's business needs, and the parties commenced the negotiations leading to this Agreement.
- **G.** The County now desires to purchase from the Contractor, and the Contractor is willing to sell to the County, a subscription license to use the Contractor's software, have the Contractor host the AVL application at a remote location and provide ongoing support and maintenance services, all as more fully described and under the terms and conditions contained in this Agreement..

Now therefore, in consideration for the mutual covenants and agreements herein, the parties agree as follows:

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#### 2. **DEFINITIONS**

- A. Acceptance of the System shall occur only when: (a) the Contractor has provided to the County all Deliverables required to be provided to the County; (b) the Contractor provides to the applicable County Project Manager a written notice stating that all Material Defects have been corrected; and (c) the County notifies the Contractor in writing that all acceptance testing for the System has been completed successfully in accordance with the Software Acceptance Plan and the terms of this Agreement. Nothing else, including payment for any portion of the System or the County's use of the System, or any portion thereof, in a live, operational environment, shall constitute Acceptance (under contract law or the Uniform Commercial Code of the State of Washington) of any portion of the System.
- **B.** Critical Defect means any Defect that (1) severely impacts the County's ability to use the Software or the System or the Contractor's ability to provide Services, or (2) has a significant financial impact on the County.
- C. Defect means (1) any failure of the Software to operate in accordance with the Documentation, Functional Specifications, or Performance Standards; and/or (2) any failure of the Contractor to perform the Services in accordance with the Service Level Standards.
- **D. Deliverable** means the Hardware, Software, Documentation, and Services to be delivered under this Agreement.
- E. Documentation means collectively: (a) all of the written, printed, electronic, or other format materials published or otherwise made available by the Contractor that relate to the functional, operational, and/or performance capabilities of the System and/or any Software; (b) all user, operator, system administration, technical, support, and other manuals and all other written, printed electronic, or other format materials published or otherwise made available by the Contractor that describe the functional, operational, and/or performance capabilities of the System and/or any Software, including but not limited to the Functional Specifications and Software Acceptance Plan; and (c) any other Deliverable that is not Hardware or Software. Documentation shall not include Source Code.
- **F.** Functional Specifications shall mean those specifications to which the Software and the System shall conform as set forth in RFP-13-11, incorporated herein by reference, and Exhibit A, Requirements Analysis Report/ SOW, attached hereto and incorporated herein.
- **G.** Hardware means those Deliverables that are classified in RFP-13-11 and Exhibit A as Hardware, as well as the documentation furnished therewith in the normal course of business; an exhaustive list of Hardware is set forth in Exhibit A.
- **H.** License(s) shall mean any license or licenses granted by the Contractor to the County under this Agreement.
- I. Material Defect means Critical Defect and/or Medium Defects.

- J. Medium Defect means any Defect that adversely affects the County's ability to use the Software or the System or the Contractor's ability to provide services, even if an alternative temporary solution or workaround acceptable to County may be accomplished.
- K. Object Code shall mean the binary machine-readable version of the Software.
- L. Performance Standards means, collectively the warranties and performance standards set forth in Article 11 and Exhibit A.
- M. Services means, individually or collectively, all installation, implementation, integration, testing, development, conversion, training, consulting, Support and Maintenance Services, and any other professional or other services that may be provided by the Contractor to the County under this Agreement.
- N. Service Level Standards means the service level standards set forth in Article 11 and Exhibit A.
- O. Site shall mean the County's facilities in Snohomish County, Washington.
- **P. Software** means the aggregate of the Standard Software and the Custom Software, if any: all upgrades, maintenance releases, bug fixes or patches, and other modifications or additional provided under this Agreement.
- Q. Software [or System] Acceptance Plan shall mean that plan set forth in Exhibit A.
- **R. Source Code** means computer software in the form of source statements for the Software (excluding all Third Party Software) including, without limitation, all software in the form of electronic and printed human-readable, mnemonic or English-like program listings, including printed and on-line descriptions of the design of such software including, without limitation, data definition models, indices, structure tables, system flow charts, program flow charts, defined terms, file layouts, program narratives, global documentation (including global variables) and program listings.
- S. Standard Software means those Deliverables that are classified, in RFP-13-11 and Exhibit A as Standard Software, as well as the documentation furnished therewith by the Contractor or its subcontractors in the normal course of business; an exhaustive list of the Standard Software is set forth in Exhibit A.
- **T.** Statement of Work means the terms and conditions set forth in <u>Exhibit A</u> to this Agreement, which is by this reference incorporated into and made a part of this Agreement.
- **U.** System means the Deliverables to be installed, integrated, and hosted at the Contractor's remote location so as to be operational by County personnel.
- V. Warranty Period means the period commencing upon Acceptance and continuing for one (1) year.

W. Work Product means all products, devices, computer programs, techniques, know-how, algorithms, procedures, discoveries or inventions, and all materials, texts, drawings, specifications, data, source code and other recorded information, in preliminary or final form and on any whatsoever, that are conceived, reduced to practice, developed, discovered, authored, designed, programmed, invented or otherwise created or mad by Contractor (whether solely or jointly with others) in connection with or as a result of its performance of the Services.

#### 3. SCOPE OF THIS AGREEMENT

- A. Scope. This Master Agreement defines the terms and conditions, under which the Contractor will design, develop, integrate, deliver, install, train, and support the Software and other Deliverables.
- **B.** Turn-key Basis. The parties acknowledge that the performance by the Contractor of its obligations under this Agreement is to be done on a "turn-key basis." This expression is understood to mean that the Contractor is fully responsible, pursuant to the terms and conditions of this Agreement, for the delivery of the Deliverables in full conformity with the terms and conditions hereof, and that the Deliverables shall function in conformity with the performance criteria stipulated herein upon delivery, upon Acceptance of the System, throughout the Warranty Period, and throughout the term of the ongoing Support and Maintenance Services.

#### 4. SOFTWARE AND SERVICES LICENSE GRANT

**A. License Grant**. Subject to the terms of this Master Contract, the Contractor hereby grants the County a nonexclusive, nontransferable subscription license to use the Software and Documentation.

#### B. Work Product.

**Ownership.** The County will be the exclusive owner of all data created by the system.

**Non-Employees**. If any individual or entity who is not a direct employee of Contractor performs or otherwise participates in any Services, Contractor will obtain from such non-employee a legally binding, written assignment sufficient to transfer to the County all of the non-employee's rights, title and interest in and to the Work Product. Upon the County's request, Contractor will provide the County with copies of all such assignments.

**Further Acts**. Contractor, its employees, agents, subcontractors and affiliates, will take such action as the County reasonably may request to evidence, transfer, vest or confirm the County's right, title and interest in the Work Product.

Use. Except as required for Contractor's performance of the Services or as authorized in writing by the County, Contractor will not use, disclose, publish or distribute any Work Product. Contractor will hold all Work Product in trust for the County and will deliver them to the County upon request and in any event upon the expiration of termination of this Agreement.

- C. Maintenance and Support. As a part of this Agreement the County is purchasing from the Contractor maintenance and technical support services ("Support Services") for the Contractor's hardware and software, pursuant to the terms and conditions contained in Exhibit A. The Support Services being purchased by the County pursuant to this Agreement shall commence on the date of Acceptance and continue through the date that is one (1) day prior to the first anniversary of the date of Acceptance. Upon the expiration of that first year of Support Services, the County may purchase additional Support Services under the terms set forth in this Master Contract. The provisions of Section 3 shall survive the expiration or termination of this Agreement, remaining in effect so long as the License is in effect.
- **D. Reverse Engineering**. Except as expressly provided in this Agreement, the County shall not translate, reverse engineer, decompile, recompile, update, or modify all or any part of the Software or merge the Software into any other software.
- E. Service Level Standards. The Contractor shall provide the Hardware, Software, and Services according to the performance criteria and Service Level Standards set forth in RFP-13-11 and Exhibit A.

#### 5. TERM OF AGREEMENT

The Initial Term of the Agreement shall commence upon execution and continue for five (5) years from the date of Acceptance of the System (Initial Term), and may be extended by the County for two (2) additional one (1) year option terms by providing written notice subject to termination as provided in this Agreement.

- A. The Warranty Period begins at Acceptance and continues for period of one (1) year, and thereafter ongoing Support and Maintenance Services shall continue throughout the term of the Agreement.
- **B.** The maximum term for this Agreement, consisting of the initial term and all option terms, is seven (7) years from Acceptance unless extended by written agreement signed by all parties.
- C. Notwithstanding termination of this Agreement for any reason, the Software License granted in the Agreement shall be limited to the life of this Master Contract.

#### 6. TERMINATION.

A. Termination for Default. If the Contractor defaults by failing to perform any of the obligations of the Agreement or becomes insolvent or is declared bankrupt or commits any act of bankruptcy or insolvency or makes an assignment for the benefit of creditors, the County may terminate the Agreement if the Contractor has not cured following a thirty (30) day written notice to the Contractor sent certified mail, return receipt requested. If the Agreement is terminated for default, the County may obtain performance of the work elsewhere, and the Contractor shall not be entitled to receive any further payments under the Agreement until all work called for has been fully performed. The Contractor shall only be paid for work delivered and accepted, or work performed in accordance with the manner of performance set for the in the Agreement less any extra cost or damages to the County caused by or arising from such default(s), which shall be deducted from any money due or

coming due to the Contractor,. The Contractor shall bear any reasonable extra expenses incurred by the County in completing the work, including all increased costs for completing the work, and all damage sustained, or which may be sustained by the County by reason of such default. The termination of this Agreement for default shall in no way relieve the Contractor form any of its obligations under this Agreement. If a notice of termination for default has been issued and it is later determined for any reason that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the notice of termination had been issued as a Termination for Convenience.

- B. Termination for Convenience. The County for its convenience may terminate this Agreement, in whole or in part, at any time by providing 60 day written notice sent certified mail, return receipt requested, to the Contractor. After receipt of a Notice of Termination, and except as directed by the County, the Contractor shall immediately stop work as directed in the notice, and comply with all other requirements in the notice. Whenever the Agreement is terminated for convenience, the Contractor shall be entitled to payment for actual work satisfactorily performed up to the date of termination at unit contract prices for completed items of work and an equitable portion thereof the partially completed items, but shall not be entitled to payment for loss or anticipated profit on deleted or uncompleted work. The Contractor shall promptly submit its request or termination payment, together with detailed supporting documentation. If the Contractor has any property in its possession belonging to the County, the Contractor shall account for the same and dispose of it in the manner the County directs. All termination payment requests may be subject to determine reasonableness and compliance with the Agreement, applicable laws and regulations.
- C. Termination for Non-Appropriation. In the event that sufficient funds are not appropriated or allocated for payment under this Agreement for any future fiscal period, the County may terminate this contract as a matter of public convenience as provided herein. The County will not be obligated to make payments for services or amounts incurred after the end of the current fiscal period, provided the County provides the Contractor written notice prior to the end of the current fiscal period that non-allocation of funds is probable and provides a Notice of Termination within 14 days after the end of the fiscal period.
- **D.** Effect of Termination. The termination of this Agreement shall not affect the accrued rights of the County under any other section or paragraph of this Agreement or limit the rights and remedies of the County hereunder in any manner.

#### 7. ACCEPTANCE TESTING.

- A. Within thirty (30) days of the Contractor providing notice to the county that the System has been installed and County personnel have been trained in accordance with the Agreement, the County shall begin the acceptance testing process at the County Site according to the Software Acceptance Plan.
- **B.** The acceptance testing shall include thirty (30) days of continuous operation of the System without Material Defect in accordance with all Functional Specifications, Performance Standards, and Documentation in the County's fully implemented production environment.

- **C.** If the County Accepts the work, the County will send a notice of Acceptance to the Contractor.
- **D.** If County determines that the work is not acceptable, the County shall notify the Contractor in writing, describing the deficiencies.
- E. The Contractor shall either provide a detailed, written plan to achieve Acceptance or to make correction or replacements within a mutually agreed upon time with no charge to the County. The parties shall mutually agree on a start date for beginning another Acceptance testing period.
- **F.** Another thirty (30) day successful operation period shall follow any corrections or replacements. A third or additional Acceptance testing period may occur if mutually agreed to by the parties.
- **G.** If the County Accepts the System following a second or subsequent Acceptance testing period, the County will send a notice of Acceptance to the Contractor.
- **H.** If the Contractor does not correct or replace the unacceptable aspects of the System, the County may declare a breach of the Agreement.

#### 8. PRICE AND PAYMENT.

- A. The County shall pay the Contractor One Hundred Sixty Seven Thousand Six Hundred Five Dollars (\$167,605.00) for the Deliverables required to be provided by the Contractor through the end of the Warranty Period as stated in the schedule of payments described in Exhibit A. Annual recurring charges for software subscription, support and maintenance services in years 2 through 5 shall not exceed Seventy Four Thousand Five Hundred thirty Five Dollars (\$74,535) per year or a total of Two Hundred Ninety Eight Thousand One Hundred Forty Dollars (\$298,140). Washington State Sales Tax will be paid directly by the County in the form of the local "use tax," calculated at .086%.
- **B.** Where the Contractor requires payments by Snohomish County, payment shall be based upon billings, supported by documentation of units of work actually performed and amounts earned, including where appropriate, the actual number of days worked each month, total number of hours for the month, and the total dollar payment requested. Unless specifically stated in Exhibit [x], or approved in writing in advance by the official executing this Agreement for Snohomish County, (hereinafter referred to as the "Contracting Officer"), the County will not reimburse the Contractor for any costs or expenses incurred by the Contractor in the performance of this contract.
- C. The County shall, upon receipt of appropriate documentation, compensate the Contractor, no more often than monthly in arrears, through the County voucher system for the Contractor's service pursuant to the fee schedule set forth in Exhibit A. Payment shall be made on a Net Thirty (30) day basis. This is a "Fixed-Price" contract based upon the Deliverables identified in Exhibit A.

**D. Dispute.** Should the County dispute any of the charges on its monthly invoice, it shall notify Contractor of such disputed charges in writing. The notice shall set forth all details concerning the disputed charges and reasons for the dispute. The Contractor and the County shall attempt in good faith to resolve any objection to the invoiced amount prior to the payment due date, the County shall pay the invoiced amount minus the disputed amount on the due date of original invoice. If the dispute is subsequently resolved in favor of the Contractor, the Contractor shall re-invoice the disputed amount owed then, including interest at the annual rate of one percent (1%) from the original due date, and the County shall pay all amounts agreed or found to be owing to the Contractor within (30) days of the date of the reissued invoice.

### 9. SUPPORT SERVICES.

- A. Training Services are detailed in Exhibit A
- B. Installation services are detailed in Exhibit A
- C. Hardware and Software Support and Maintenance Services are detailed in Exhibit A

### 10. CONFIDENTIALITY AND PUBLIC DISCLOSURE.

- A. Confidential Data. The Contractor acknowledges that it may be provided access to confidential data of the County that is not subject to public disclosure pursuant to Washington State RCW Chapter 42.56 (the Public Disclosure Act). The Contractor shall use its best efforts: (1) not to, at any time, disclose or disseminate confidential data provided by the County to the Contractor to any other person, firm, organization, or employee who does not need to obtain access thereto consistent with the Contractor's obligations under this Agreement; (2) not to disclose or disseminate such confidential data to any third party not affiliated with this Agreement or for any purpose not required by the Agreement; and (3) to ensure that all persons working for the Contractor, or provided access to the County's data for any reason, protect the County's confidential data against unauthorized use, dissemination, or disclosure. The Contractor's obligations under this section shall not apply to any information that is or becomes available without restriction to the general public by acts attributable to the County or its employees.
- **B.** Public Disclosure. In the event that the County receives a request pursuant to the Public Records Act to disclose the Contractor's proprietary software, software documentation, or other information identified by the Contractor in writing as confidential, the County's sole obligations shall be to: (1) notify the Contractor and (2) refrain from disclosing such records for a period of up to ten business days to allow the Contractor an opportunity to seek legal protection against disclosure from a court of competent jurisdiction. The county will not withhold requested records beyond the ten business days unless it may do so based on good faith reliance upon an exception to disclosure under the Public Records Act. The County may but shall not be required to join in any legal proceedings relating to the requested disclosure unless required to do so by the court. In the event that the Contractor initiates legal proceedings, or the County initiates legal proceedings or withholds requested records at the Contractor's request, the Contractor shall indemnify and hold the County harmless against all

proceedings and/or withholding of the records. The County shall not be liable to the Contractor for any loss, cost or expense relating to the disclosure of requested records if the Contractor fails to obtain legal protection against disclosure and the County releases the records in good faith.

C. Contractor shall indemnify and hold harmless the County, its officials, agents and employees from all loss or expense, including, but not limited to settlements, judgments, set-offs, attorneys' fees and costs resulting from Contractor's breach of this provision.

### 11. REPRODUCTION OF DOCUMENTATION AND OBJECT CODE.

**Documentation**. The County shall have the right, at no additional charge, to reproduce solely for its own internal use, all Documentation furnished by the Contractor pursuant to this Agreement regardless of whether such Documentation is copyrighted by the Contractor. All Copies of Documentation made by the County shall include any proprietary notice or stamp that has been affixed by the Contractor. Contractor shall furnish for each license purchased by the County, and at no additional charge to customer, one (1) copy of the documentation sufficient to enable the County to operate the Software. All documentation shall be in the English Language.

#### 12. WARRANTY PROVISIONS.

Unless otherwise extended or limited, the warranties and commitments contained in this Section shall remain in full force and effect throughout the term of this Master Contract.

- 1. Hardware Warranty. Contractor warrants all hardware products against defects in materials and workmanship for a period of one (1) year from the date of factory sale,. During the warranty period Contractor will provide the warranty service. The Contractor will use its' standard return goods authorization process, see Section 12B of this Master Agreement, and at its option, either repair or replace hardware which proves to be defective. The County shall prepay shipping charges for products returned to the Contractor for warranty service and the Contractor shall pay for return of products to the County. However, the County shall pay all shipping charges, duties, and taxes for products returned to Contractor from outside the United States. This warranty shall not apply to damage resulting from:
  - a. Improper or inadequate maintenance/installation by the Customer (see Installation manual
  - b. Customer-supplied interfacing
  - c. Unauthorized modification or misuse
  - d. Operation outside of the product environmental specifications Improper installation, where applicable

Should the new hardware fail during the warranty period, the County will follow the Contractor's standard return goods authorization process outlined in Section 12B of this Master Agreement. Warranty replacement equipment will require new service connection and charges. Conversely, during the warranty period, an equipment swap from the County on-site equipment spares pool will not incur any new service charges, and will replace the failed unit under the then current service plan.

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

## 2. Warranty Repair (Hardware)

The Contractor will assist with troubleshooting and arrange repair of any hardware under warranty. The County, at its option, can use its own personnel or the County may choose to use a third party vendor to diagnose faulty units. A third party vendor, if utilized, will be mutually approved by RSI and the County.

Once a hardware unit is deemed faulty and in need of RMA (Return Merchandise Authorization) RSI will issue an RMA number. The County will be responsible for removing the unit from the vehicle The County is responsible for suitable packaging and shipment to RSI in Torrance, CA.RSI will affect repair of the RMA RSI will package and ship back to Customer. Customer is responsible for re-installing unit back in vehicle.

It is specifically understood by the parties, that the County is responsible for any additional costs associated with its obligations under Section 12(B)(b), (c) or (f).

#### 3. General Warranties.

- a. Contractor warrants that it owns all rights, title, and interest in and to the Software, or that in the case of any third party software that it has the right to grant a sublicense to use such third party software, that all Software shall conform to the Functional Specifications and Documentation, and that the Software and Services shall be free from material defects in workmanship and materials. This warranty coverage shall include any modifications made to the Software by the Contractor and shall survive the expiration or termination of this Agreement.
- b. **System.** The Contractor represents and warrants to the County that the System shall function without Defect in accordance with the applicable specifications, Performance Standards, and Documentation.
- c. Software Performance. Contractor represents and warrants to the County that the Software or System, as applicable, shall meet the Performance Standards set forth in RFP-13-11 and Exhibit A, including the maximum response times and availability. The contractor shall correct any failure of the applicable Software and/or System to operate in accordance with the performance warranties set for the in this Section by providing all additional software, equipment, and/or services to the County at no additional cost to the County. In the event that the Contractor is unable to correct such failure

- within a forty-eight (48) hour period an event of "Default" shall be deemed to have occurred. In the event the Contractor is unable to correct such failure within thirty (30) calendar days, an Event of Default shall be deemed to have occurred.
- d. Services. The Contractor represents and warrants to the County that it shall perform the Services and provide the Deliverables required by this Agreement in a workmanlike manner, in accordance with the standards of care and diligence and the level of skill, knowledge, and judgment normally practiced by nationally recognized information technology services firms in performing services of a similar nature, provided, however, that where this Agreement specifies a particular standard or criteria for performance, this warranty is not intended to and does not diminish that standard or criteria for performance. Further, the Contractor represents, warrants, and covenants that it shall provide the services or create any Deliverables using only proven current technology or methods unless otherwise mutually agreed by the parties.
- e. Documentation. The Contractor represents and warrants to the County that it has provided to the County all Documentation for the Software and the System and that such Documentation is detailed and complete and accurately describes the functional and operation characteristics of the software and the System. The Contractor further represents and warrants that it will provide to the County updated versions of all such Documentation when It provides updates and other required Maintenance Services and that all such updated Documentation will be complete and accurate and will be at least as detailed as the Documentation issued to the County with the initial version of the Software and the System. The warranty and commitments contained in this Section shall remain in full force and effect for as long as Company continues to receive Support and Maintenance Services for the Contractor.
- f. Contractor. Warrants that the Software will be compatible with the County's technical environment, including hardware, operating system(s), software application(s), CPU's, and networks specified by the County in Exhibit A and Request for Proposal-13-11.
- g. Future Compatibility. Contractor warrants that all updates, upgrades, and revisions to the Software furnished hereunder will be implemented in such a manner as to maintain backward compatibility with the previous version or release of the Software furnished under the Agreement, so that such previous versions or releases shall continue to be operable with the Software as updated, upgraded, or revised, in materially the same manner wand with materially equivalent performance. Without limiting the foregoing, Contractor further warrants that future Support, Maintenance and other Services will not degrade the Software, cause a breach of any other

- warranty, or require the County to purchase new or additional hardware or software for continued operation of the Software or the System.
- h. **Software Obsolescence**. The Contractor acknowledges that the County is making a significant resource commitment in order to acquire the Software and that the County does not want to move involuntarily to a new system. Having acknowledged the foregoing, the Contractor represents and warrants to the County that it will continue to enhance the Software (meaning adding new features and functionality, in addition to ordinary course defect corrections), as long as the County continues to receive Maintenance and Support Services from the Contractor.
- i. Latest Versions. Contractor warrants that all Software as delivered will be the most current release or version that the Contractor has made commercially available to its customers, unless the County, after being advised by the Contractor of the availability of a newer release or version, expressly elects to acquire and deploy an older one.
- j. Virus Warranty. The Contractor warrants that the Software does not contain any malicious code, program or other internal component (e.g., computer virus, computer worm, computer time bomb, or similar component), that could damage, destroy, or alter any computer program, filmware, or hardware or which could, in any manner, reveal damage, destroy, or alter any data or other information accessed through or processed by the Software in any manner. The Contractor shall immediately advise the County, in writing, upon reasonable suspicion or actual knowledge that the Software may result in the harm described above. The Contractor shall indemnify and hold the County harmless from any damage resulting from the harm described above. This warranty shall survive the expiration or termination of this Agreement.
- k. Disabling or Restrictive Code. Without limiting any other provision to the Agreement, the Contractor warrants that the Software does not contain and the Contractor will not introduce any code, date block, time-bomb, Trojan horse, encrypted software keys, back door, or remote disabling function that may restrict the County's use of or access to the Software or the System or related data or equipment. The Contractor understands and agrees that the County's inability to use the Software or System or its related data or equipment will cause substantial injury or harm to the public health or safety or grave harm to the public interest substantially affecting third persons. No limitation of liability, whether contractual or statutory, shall apply to a breach of this warranty. This warranty shall survive the expiration or termination of this Agreement.
- 1. **Media**. Contractor warrants that through the period ending **ninety** (90) days from the date of Acceptance that the media used to store and deliver the Software to the Customer shall be free from defects in manufacture and

material. Should the media fail to be free of defects in manufacture or material during the warranty period, the Contractor shall replace the defective media. Defective media shipped to the Contractor with a shipping date within the warranty period will be replaced at no charge including shipping.

- m. Intellectual Property. The Contractor represents and warrants to the County that the County's use of the Software does not and shall not infringe upon any United States or Canadian patent, trademark, copyright, trade secret or other intellectual property, or proprietary right of any third party, and there is currently no actual or threatened suit against the Contractor by any third party based on an alleged violation of such right. This warranty shall survive the expiration or termination of this Agreement.
- n. Third Party Warranties and Indemnities. For any third party Software provided by the Contractor to the County, Contractor hereby assigns to the County all end-user warranties and indemnities relating to such third party Software. To the extent that the Contractor is not permitted to assign any of such end-user warranties and indemnities through to the County, the Contractor shall enforce such warranties and indemnities on behalf of the County to the extent the Contractor is permitted to do so under the terms of the applicable third party agreements. This warranty shall survive the expiration or termination of this Agreement.
- o. Authority. Each Party represents and warrants to the other that it has the right to enter into this Agreement. Contractor further represents and warrants that there are no outstanding assignments, grants, licenses, encumbrances, obligations, or agreements (whether written, oral, or implied) that are inconsistent with this Agreement and the rights granted or transferred herein. This warranty shall survive the expiration or termination of this Agreement.
- p. Privacy. Contractor acknowledges that the County data may contain personal data, health data, and/or medical records data, the use of which data is subject to various Privacy Laws, including all state, federal, and international laws and regulations and state, federal, and national government agency orders and decrees to which the County may be subject ("Privacy Laws"), as well as certain restrictions imposed on the County data by the data subjects or other third party data providers. The Contractor agrees to strictly abide by all such restrictions pertaining to the county data, as they are promulgated and applied, currently and in the future. Furthermore, Contractor shall in good faith execute any and all agreements that the County is required to have the Contractor execute in order that the County may comply with any Privacy Laws. If the Contractor's use (whether directly or indirectly) of the County data is contrary to any Privacy Law, or contrary to any of the restrictions set forth in this Agreement, the County shall have the right to: (1) terminate this Agreement for cause if

such breach has not been cured within five (5) days of receipt by the Contractor of written notice, and (2) pursue any other legal and equitable remedies.

#### 13. INDEMNIFICATION.

- A. General Indemnification. The Contractor shall hold harmless from and indemnify the County, its elected and appointed officials, employees, and agents, against all claims, losses, suits, actions, costs, counsel fees, litigation costs, expenses, damages, judgments, or decrees by reason of damage to any property of any person or party and/or any death, injury or disability to or of any person or party, including any employee, arising out of or suffered, directly or indirectly, by reason of the performance of this Agreement or any act, error or omission of the Contractor, Contractor's employees, agents, or subcontractors, whether by negligence or otherwise; provided, that if the claims for damages arise out of bodily injury to persons or damage to property and caused by or result from the concurrent negligence: (1) of the County and its elected or appointed officials, employees, or agents, and (2) the Contractor and its agents, employees, or subcontractors, the hold harmless and indemnity provisions of this Agreement shall be valid and enforceable only to the extent of the negligence of the Contractor, its agents, employees, or subcontractors. The Contractor's obligation shall include, but not be limited to, investigating, adjusting, and defending all claims alleging loss from action, error, or omission or breach of any common law, statutory or other delegated duty by the Contractor, Contractor's employees, agents, or subcontractors.
- **B.** With respect to the performance of this Agreement and as to claims against the County, its officers, agents and employees, the Contractor expressly waives its immunity under Title 51 of the Revised Code of Washington, the Industrial Insurance Act, and any similar law of any other jurisdiction, for injuries to its employees and agrees that the obligations to indemnify, defend and hold harmless provided in this Agreement extend to any claim brought by or on behalf of any employee of the Contractor. This waiver is mutually negotiated by the parties to this Agreement.
- C. Patent and Other Proprietary Rights Indemnification.
  - a. Indemnification. Contractor will indemnify and hold the County harmless from and against any and all claims, losses, liability, damages, costs, and expenses (including attorney's fees, expert witness fees, and court costs) directly or indirectly arising from or related to any actual or alleged infringement (including contributory infringement), misappropriation, or violation of any third party's patents, copyrights, trade secret rights, trademarks, or other intellectual property or proprietary rights of any nature in any jurisdiction in the world, resulting from the use of the Software by the County. If the County's continued use of the Software is restricted or prohibited as a result of any such infringement, misappropriation, or violation

- of third party rights, the Contractor shall, at the County's option and at no charge to the County, and in addition to the County's other rights and remedies, (1) secure for the County the right to continue using the Software as allowed under this Agreement, (2) modify or replace the infringing components of the software so that they are non-infringing with no loss or degradation of features, functionality, or performance, or (3) refund to the County all amounts paid by the County for the Software.
- b. Exclusions. Notwithstanding the foregoing, the Contractor will not be obligated to indemnify the County to the extent that an infringement or misappropriation claim is based upon (1) use of the Software in breach of this Agreement, if such infringement or misappropriation would not have occurred but for such breach; (2) use of the Software in combination with other products not supplied or recommended by the Contractor or specified by the Contractor as being compatible with the software, if such infringement or misappropriation would not have occurred but for such combined use; (3) use of any release of the Software other than the most current release made available to the County, if the most current release was furnished to the County Specifically to avoid such infringement or misappropriation and if such infringement or misappropriation would have been avoided by use of the most current release; or (4) any modification of the Software made by the County (other than at the Contractor's direction), if such infringement or misappropriation would not have occurred but for such modification.

#### 14. INSURANCE.

- A. No Limitation. Contractor's maintenance of insurance as required by this Agreement shall not be construed to limit the liability of the Contractor to the coverage provided by insurance or to limit the County's recourse to any remedy indemnification and payment to the County under the terms of a required insurance policy.
- **B.** Minimum Scope of Insurance and Limits. The Contractor shall obtain and maintain continuously and for the duration of the Agreement, and for three years following termination, the following insurance:
  - a. Commercial General Liability Insurance with a minimum limit of \$1,000,000 per occurrence, \$2,000,000 general aggregate, and endorsed to include Snohomish County, its officers, elected officials, agents, and employees as an additional insured with respect to the work performed for the County. Insurance shall be written on ISO occurrence form CG 00 01 or a substitute form providing equivalent coverage.
  - b. Worker's Compensation Coverage as required by the industrial Insurance laws of the State of residency. The Contractor's obligation shall extend to itself and any subcontractors working on behalf of the Contractor and must be obtained before performing any work under the Agreement. The County will not be responsible for payment of workers' compensation premiums or

for any other claim or benefit for the Contractor, its employees, consultants, or subcontractor that might arise under the residency state's Industrial Insurance laws howsoever named.

C. Other Insurance Provisions. The required Commercial General Liability Insurance and Professional Technical Liability Policies shall meet the following requirements:

The Contractor's insurance coverage shall be placed with insurance carriers licensed to do business in the state of Washington with a current A.M. Best rating of not less than A:VII.

The Contractor's insurance coverage shall be primary insurance with respect to the County. Any insurance or self-insurance coverage maintained by the County shall be excess of the Contractor's insurance and shall not contribute with it. The County reserves the right to receive a certified copy of required insurance policies and to approve any deductible.

The Contractor's insurance shall be endorsed to state that the insurer shall provide at least thirty days prior written notice by certified mail, return receipt requested, of any impending cancellation, non-renewal, expiration, or reduction in coverage.

D. Contractor shall furnish the County with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsement, evidencing the insurance requirements of the Contractor before commencement of the work. The County reserves the right to receive a certified copy of required insurance policies and to approve any deductible.

#### 15. OBLIGATIONS THAT SURVIVE TERMINATION.

In addition to any other specific provisions that so state, the parties recognize and agree that their obligations under Sections 8 (Price and Payment), 10 (Confidentiality and Public Disclosure), 13 (Indemnification), 17 (Assignment and Transfer), 18 (Independent Contractor), 20 (Compliance with Laws), 24 (Governing Law and Venue), 25 (Applicability of Uniform Commercial Code), 26 (No Waiver), 29 (Covenant of Good Faith), 31 (Third Party Beneficiaries), 32 (No Construction Against Drafter), and 34 (Records) of this Agreement survive the cancellation, termination, or expiration of this Agreement.

#### 16. AMENDMENTS.

No modification or amendment to this Agreement will be valid or binding unless reduced to writing and duly executed by authorized representatives of both parties.

### 17. ASSIGNMENT AND TRANSFER.

No party may assign, delegate, or otherwise transfer of any rights or obligations under this Agreement without the prior written consent of the other party, which may be granted or withheld in the other party's sole discretion. In the event that Contractor assigns, or otherwise transfers this Agreement, or any part hereof, or delegates any of its duties hereunder to any Third Party or Affiliate and, within eighteen (18) months after such transfer, the County, in

its sole discretion, is not satisfied with the level of service provided under this Agreement, the County shall have the right to terminate this Agreement for convenience and transition to a new vendor. All Services provided by Contractor's transferee during the transition Period shall be provided at no cost.

#### 18. INDEPENDENT CONTRACTOR.

All work performed by the Contractor in connection with the Software and/or Services described in this Agreement shall be performed by the Contractor as an independent contractor and not as the agent or employee of the County. All persons furnished by the Contractor shall be for all purposes solely Contractor's employees or agents and shall not be deemed to be employees of the County for any purpose whatsoever. The Contractor shall furnish, employ, and have exclusive control of all persons to be engaged in performing Services under this Agreement and shall prescribe and control the means and methods of performing such Services by providing adequate and proper supervision. The Contractor shall be solely responsible for compliance with all rules, laws, and regulations relating to employment of labor, hours of Social Security, and other payroll taxes including applicable contributions from such persons when required by law.

# 19. ACCEPTANCE AND REMOVAL OF CONTRACTOR PERSONNEL AND SUBCONTRACTORS.

All Contractor personnel, representatives, agents and subcontractors assigned to perform Services hereunder will be subject to acceptance by the County in the County's sole discretion. Services will be performed at a location specified by the County. The County in its discretion may request removal of any Contractor personnel, representative, agents or subcontractor providing Services hereunder, and Contractor will remove said personnel or subcontractor in accordance with each such request. The County may immediately remove any Contractor personnel, representative, agents or subcontractor in the County's sole discretion. Contractor will manage the transition of replacement personnel or subcontractor to minimize impact on any given project. Contractor may not subcontract the Services or any portion of the Services under this Agreement to any third party (including any independent contractor) without the prior written consent of the County, which consent may be withheld in the County's sole discretion. If the County consents to the use of a subcontractor, then (1) Contractor guarantees the subcontractor's performance, (2) Contractor remains obligated under this Agreement for the performance of the subcontracted Services, (3) Contractor must enter into a written agreement with the subcontractor obligating the subcontractor to comply with Contractor's obligations under this Agreement, and (4) the County has no obligations under this Agreement to the subcontractor and the subcontractor has no rights or remedies against the County under this Agreement or otherwise. Contractor may not impose on the County a surcharge for any subcontractor fees.

#### 20. COMPLIANCE WITH LAWS.

The Contractor each shall with all applicable federal, state, county and local laws, ordinances, regulations, and codes including, but not limited to, it's obligations as an employer with regard to health, safety, and payment of its employees, and identification and procurement of required permits, certificates, approvals, and inspections in the Contractor's performance of this Agreement.

#### 21. NON-DISCRIMINATION

It is the policy of the County to reject discrimination which denies equal treatment to any individual because of his or her race, creed, color, national origin, families with children, sex, marital status, sexual orientation, age, honorably discharged veteran or military status, or the presence of any sensory, mental, or physical disability or the use of a trained dog guide or service animal by a person with a disability as provided in Washington's Law against Discrimination, Chapter 49.60 RCW, and the Snohomish County Human Rights Ordinance, Chapter 2.460 SCC. These laws protect against specific forms of discrimination in employment, credit transactions, public accommodation, housing, county facilities and services, and county contracts.

The Contractor shall comply with Chapter 2.460 SCC, which is incorporated herein by this reference. Execution of this contract constitutes a certification by the Contractor of the Contractor's compliance with the requirements of Chapter 2.460 SCC. If the Contractor is found to have violated this provision, or furnished false or misleading information in an investigation or proceeding conducted pursuant to Chapter 2.460 SCC, this contract may be subject to a declaration of default and termination at the County's discretion. This provision shall not affect the Contractor's obligations under other federal, state, or local laws against discrimination.

#### 22. FEDERAL NON-DISCRIMINATION

The County assures that no persons shall on the grounds of race, color, national origin, or sex as provided by Title VI of the Civil Rights Act of 1964 (Pub. L. No. 88-352), as amended, and the Civil Rights Restoration Act of 1987 (Pub. L. No. 100-259) be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any County sponsored program or activity. Snohomish County further assures that every effort will be made to ensure nondiscrimination in all of its programs and activities, whether those programs and activities are federally funded or not.

### 23. SECURITY, ACCESS, AND SAFETY REQUIREMENTS.

The Contractor shall instruct its employees, agents, and subcontractors that they shall comply with the County's security, access, and safety requirements for the protection of the County's facilities and employees while on the County's premises.

#### 24. GOVERNING LAW AND VENUE.

The validity, construction, interpretation, and performance of this Agreement shall be governed by and construed in accordance with the domestic laws of the State of Washington, except as to its principals of conflicts of laws, and the parties hereto irrevocably submit to the exclusive venue of the Superior Court, Snohomish County, Washington to resolve any disputes arising hereunder or related hereto, except that the County may waive the exclusive venue provision and submit a dispute to any state superior court or federal district court of competent jurisdiction in the State of Washington.

#### 25. APPLICABILITY OF UNIFORM COMMERCIAL CODE.

To the extent this Agreement entails the delivery of Software or Software Products, such Software or Software Products, shall be deemed "goods" within the meaning of Article 2 of

the Uniform Commercial Code, Title 62A RCW, except when deeming services as "goods" would cause an unreasonable result. This Agreement shall control where there is a conflict with the UCC.

#### 26. NO WAIVER.

No action or failure to act by the County shall constitute a waiver of any right or duty afforded to the County under the Agreement, nor shall any such action or failure to act by the County constitute an approval of, or acquiescence in, any breach hereunder, except as may be specifically provided in writing and signed by and authorized representative of the County.

#### 27. FORCE MAJEURE.

Neither party shall be responsible for any delay or failure in performance of any part of this Agreement to the extent that such delay or failure is caused by fire, flood, explosion, war, embargo, civil or military authority, act of God, or other similar causes beyond its control. If any party is rendered unable, wholly or in part by such a force majeure event to perform or comply with any obligation or condition of this Agreement, upon giving notice and reasonably full particulars to the other party, such obligation or condition shall be suspended only for the time and to the extent commercially practicable to restore normal operations. In the event the Contractor ceases to be excused pursuant to this provision, then the County shall be entitled to exercise any remedies otherwise provided for in this Agreement, including Termination for Default. Whenever a force majeure event causes the Contractor to allocate limited resources between or among the Contractor's customers, the County shall receive no less priority in respect to such allocation than any of the Contractor's other customers.

#### 28. DISASTER RECOVERY.

Contractor represents and warrants to the County that the Contractor has a County specific disaster and recovery plan ("Disaster and Recovery Plan") designed to safeguard the County's Customer's data and a data processing capabilities and the Contractor's ongoing ability to perform its obligations under this Agreement in the event of a disaster affecting: (1) Contractor's Host Site; and/or (2) the County. The Contractor further represents and warrants to Customer that the plan comes with all applicable industry standards and regulations (including AICPA requirements).

#### 29. COVENANT OF GOOD FAITH.

Each party agrees that, in its respective dealings with the other party under or in connection with this Agreement, it shall act in good faith.

#### 30. TIME IS OF THE ESSENCE.

The parties acknowledge that the performance by the Contractor and the County of their obligations hereunder is to be done on a "time is of the essence" basis. This expression is understood to mean that the Contractor and the County are to deliver their respective Deliverables no later than the delivery dates therefore and that any delay in connection therewith will cause the other party damage

## 31. THIRD PARTY BENEFICIARIES.

This Agreement is entered into solely for the benefit of the County and the Contractor. No third party shall have the right to make any claim or assert any right under it, and no third party shall be deemed a beneficiary of this Agreement and, as such, [list exception] is entitled, subject to the terms and condition s of this Agreement, to all remedies entitled to third-party beneficiaries under law.

#### 32. NO CONSTRUCTION AGAINST DRAFTER.

The parties agree that nay principle of construction or rule of law that provides that an agreement shall be construed against the drafter of the agreement in the event of any inconsistency or ambiguity in such agreement shall not apply to the terms and conditions of this Agreement.

#### 33. NOTICES.

All notices, demands, or other communications herein provided to be given or that may be given by any party to the other under this Agreement shall be deemed to have been duly given when made in writing and delivered in person or upon the date of recorded receipt if deposited in the United States mail, postage prepaid, certified mail, return receipt requested, as follows:

Snohomish County:

Mr. William Thornton, Contract Specialist Snohomish County Public Works Department 3000 Rockefeller Ave. Everett, WA 98201

#### RSI:

Mr. Brett G Lim, Director of Marketing 19144 Van Ness Ave., Torrance, CA 90501

or to such address as the parties may provide by notice to each other from time to time.

#### 34. ACCESS TO BOOKS AND RECORDS.

The Contractor agrees that an authorized representative of the County shall, upon reasonable notice, have access to and the right to examine any pertinent books and records of the Contractor related to the performance of this Agreement. The Contractor shall maintain such books and records for this purpose for no less than six (6) years after the termination or expiration of this Agreement.

#### 35. SEVERABILITY.

Whenever possible, each provision of this Agreement shall be interpreted to be effective and valid under applicable law. If any provision is found to be invalid, illegal or unenforceable, then such provision or portion thereof shall be modified to the extent necessary to render it legal, valid and enforceable and have the intent and economic effect as close as possible to the invalid, illegal and unenforceable provision., If it is not possible to modify the provision to render it legal, valid and enforceable, then the provision shall be severed from the rest of this Agreement. The invalidity, illegality or unenforceability of any provision shall not affect

the validity, legality or enforceability of any other provision of this Agreement, which shall remain valid and binding.

## 36. Incorporation of Exhibits.

Exhibits A, Statement of Work, referred to in this Agreement and attached hereto are integral parts of this Agreement and are incorporated herein by this reference.

## 37. Entire Agreement and Order of Precedence.

This written Agreement and its corresponding Exhibits constitutes the entire agreement between the parties with respect to the subject matter contained herein, superseding all previous agreements, statements or understandings pertaining to such subject matter. In the event of any conflict between this Master Document and any of the attached Exhibits, the precedence of Documents shall be as follows:

- A. Master Document
- **B.** Exhibit A, Statement of Work
- C. County's Original RFP Document
- D. Contractor's RFP Response dated August 5, 2011

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day of the year first written above.

	•		
	COUNTY OF SNOHOMISH:	CON	TRACTOR:
	Had Hoolen 8/29/12	$\sim$	
so l	By/ Aaron Reardon	By:	10
•	Snohomish County Executive	Title	President
	Approved as to Snohomish County Code		
	Section 2.350:		•
	CAN Z	Γ	COUNCIL USE ONLY
	By: Gage Andrews	1	Approved: 8-29-12
	Director of Information Services		Docfile:
	Approved as to insurance provisions:		
	-		
	By: Keith Mitchell		
	Risk Manager		
	Approved as form:		
	Amolfey M. Donns 6/19/	2	
	Denuty Proceduting Attorney		



Snohomish County STATEMENT OF WORK- AVL System RFP-13-11 April 2012



# **Snohomish County**



Exhibit A

STATEMENT OF WORK



## Snohomish County STATEMENT OF WORK- AVL System RFP-13-11 April 2012



## **SNOHOMISH COUNTY AUTOMATIC VEHICLE LOCATION SYSTEM (AVL)**

## Implementation Plan and Requirements Analysis Report

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## Snohomish County STATEMENT OF WORK- AVL System RFP-13-11

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## 1 AVL REQUIREMENTS ANALYSIS / STATEMENT OF WORK EXECUTIVE SUMMARY

#### 1.1 SCOPE OF WORK

RSI has been selected to provide a comprehensive Automatic Vehicle Location system to Snohomish County. The purpose of this Scope of Work is to outline how the proposed RSI solution will fit the requirements of the County, as well as document the work plan for this project moving forward.

#### 1.2 SNOHOMISH COUNTY OBJECTIVES

Snohomish County requires an AVL system to more efficiently manage its vehicle operations. In addition, the County will have this enterprise system fully integrated with ESRI ArcGIS via Map Services, as well as work order, or other fleet management systems in the future. These systems provide the County 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.

Snohomish County 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 its citizens.

#### The AVL solution will provide:

- Accurate real-time location and status based information,
- · Comprehensive reporting tools,
- · Robust export and interface capabilities to enhance location and production tracking methodologies,
- Versatile capabilities for vehicle status and diagnostics tracking.

#### 1.3 THE RSI SOLUTION

The RSI AVL system will establish a wireless gateway between the vehicle fleet and base dispatch. The RSI AVL system will provide real-time vehicle location and status data on an ESRI ArcGIS Server based map interface (RSI 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 using a cellular data network. The RSI Mobile unit will be equipped with serial ports and sensors to integrate to virtually any devices and external status signals, such as ignition on/off, lights, arm, MDT, navigation device, etc.

#### 2 GLOSSARY

- AVL: Automatic Vehicle Location a method of automatically determining the geographic location of a vehicle through the use of hardware and software technology.
- CR: Change Request- a method to track and authorize changes to the project scope and cost for unforeseen work.
- GPS: Global Positioning System a worldwide navigation system that uses information received from orbiting satellites.



## Snohomish County STATEMENT OF WORK- AVL System RFP-13-11

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- WAAS: Wide Area Augmentation System an air navigation aid developed to augment GPS by using ground stations that provide signal corrections for better positional accuracy.
- DIS: Department of Information Services The department within Snohomish County that installs and maintains technology systems for business purposes.
- RSI: Radio Satellite Integrators is the name of the company providing software and professional services
  as described in this document.
- ESRI: Environmental Systems Research Institute developers of the ArcGIS software system.
- GIS: Geographic Information System technology that assists in the production and use of maps.
- Electromagnetic interference: Interference in a circuit caused by the radiation of an electric or magnetic field.
- RF/EMI shielding: the limiting of the flow of electromagnetic fields between two locations through the use
  of a barrier.
- Microcontroller: A small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals.
- Sensor: a device capable of detecting and responding to physical stimuli such as movement or electric current.
- Real Time: a measure of time in which data received by AVL hardware is processed and sent to the AVL application and is viewable by the end user(s) in less than one minute after transmitting, with the exception of lag issues due to external influences (such as a County Network issue), and/or processing time for location correction software.
- RSI Mobile unit: a hardware device which contains a GPS receiver, cellular data communications, and several ports and sensor input/outputs. For the purposes of this project, the device is manufactured by CalAmp and is model number LMU-4200. More detailed specifications are listed below in 3.2.1.

## 3 PROJECT OVERVIEW

#### 3.1 SCOPE

This project includes implementation of the AVL System, custom programming, and configuration for use in the Snohomish County Public Works Road Maintenance and Solid Waste Divisions. Software and Hardware installation and use training will be provided by RSI to the level detailed in section 11 – Training Plan.

#### 3.2 Products

#### 3.2.1 IN-VEHICLE EQUIPMENT



## Snohomish County STATEMENT OF WORK- AVL System RFP-13-11

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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 RSI Mobile Subsystem consists of a RSI Mobile Unit; GPS and RF antennas and associated cabling; all required data, sensor, and power connections. RSI will supply Snohomish County with all of these components for 178 vehicles, as listed in Appendix 3: Table 1: Solid Waste Division AVL Vehicle List

and Appendix 4: Table 2: Road Maintenance AVL Vehicle List

Each RSI Mobile Unit contains a state-of-the-art 50 channel, WAAS enabled, all-in-view GPS receiver, wireless communications, and multiple external data and sensor ports. 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). 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. The Mobile unit is responsible for the reporting of vehicle location and status to the base application.

RSI will provide Snohomish County with 178 mobile units that have 3 serial ports and up to 17 sensor inputs/outputs. The device is manufactured by CalAmp and is model number LMU-4200.

#### 3.2.2 THE BASE APPLICATION

The Base Application will be a configurable Web-browser based application based on ESRI ArcGIS Server hosted offsite by RSI in state-of-the-art server hosting facilities. Snohomish County users will interact with the system through industry-standard ESRI GIS mapping tools as well as customized reporting applications via the Microsoft Internet Explorer 7 (or higher) Web browser. The RSI AVL program will use Snohomish County's existing ESRI GIS map data via Map Services. The Base Server will manage all fleet communications and configuration, act as a messaging and data transfer gateway between base-side applications and in-vehicle devices, and archives and distribute the vehicle location and status information to the mapping application over the Internet. The Mapping and Display Application will provide the following AVL Management tools:

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

Snohomish County has the right to migrate the base application and all associated data to a Snohomish County owned server, hosted at Snohomish County's facilities at a later date.

#### 3.2.3 Mapping and Display Application

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.

#### 3.2.3.1 MAP VIEWING FEATURES

The RSI AVL Application will display the vehicle data in a "map window." The map window can be set to display a particular area, or address, or to track a specific sub-set of the entire fleet (from the entire fleet to an



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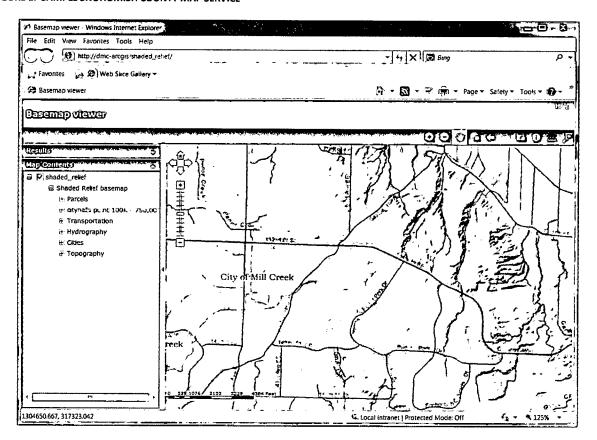
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individual vehicle). In RSI AVL the map display window possesses a full-set of map manipulation and query functionality. Map manipulation tools and buttons are available to zoom, pan, and center the display on a particular vehicle, or address. Additional tools are available to enable or disable labeling, to customize the map display according to user preferences, and to enter points and attributes. Map query options include the ability to locate an address, vehicle, or landmark along with the capability to identify the closest available vehicle(s) to any entered point, or address.

#### 3.2.3.2 USING MAP DATA

RSI will incorporate Snohomish County GIS map data in real-time using Map Services from Snohomish County servers. A sample of an existing Snohomish County map service can be seen in Figure 1 below.

FIGURE 1: SAMPLE SNOHOMISH COUNTY MAP SERVICE



#### 3.2.4 REAL-TIME VEHICLE TRACKING

The RSI AVL Application will display the current location and status of the Snohomish County Road Maintenance and Solid Waste vehicle fleet, along with address, route, and other attribute information, over both raster and vector-based maps (as desired). The vehicle icons will 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. 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.

#### 3.2.5 GEOFENCING



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RSI will provide the ability and training for users with the appropriate permissions 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, lines, or a configurable radius from a specific point, as well as created from existing boundaries, landmarks or zones within the Snohomish County GIS.

### 3.2.6 REAL TIME ALERTS

The RSI AVL system will allow 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 will be sent as an e-mail, SMS, or to the alert screen on the software.

#### 3.2.7 REPORTING FUNCTIONS

The Report Generation Application will 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 includes 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.

#### 3.2.7.1 BREADCRUMB REPLAY FEATURE

The RSI AVL system will allow the user to watch a historical "replay" of any portion of a vehicle's activity history at various speeds. It provides controls to play, pause, rewind, and fast forward the replay allowing you to watch a 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.)

#### 3.2.7.2 STANDARD 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. The standard reports include:

- Vehicle Activity
- Travel & Stop
- Speed
- Geofence
- Vehicle Usage (Mileage & engine hours)
- Vehicle Inactivity (Idle time)
- Sensor Reports (armatures, PTO, broom, plows, and any other device that is monitored.)

### 3.2.7.3 CUSTOM REPORTS

Specific types of reports will be customized to the customers' guidelines as part of initial system design review. RSI will work with Snohomish County 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



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customized reports from the SQL database files if desired. RSI will provide the SQL files via FTP as well as table structures for the County's reference.



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#### 3.3 SERVICES

#### 3.3.1 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.

#### 3.3.2 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.

#### 3.3.3 TRACKING TRUE IDLE TIME

For those vehicles where vehicles are often left in the "Accessory" mode without the engine running, RSI will provide a solution that measures the voltage on the vehicle battery in order to tell if the engine is running or not. This enables us to tell when the engine is truly on or off when combined with an ignition on/off signal. The Solid Waste Division requires this ability to track true idle time and this capability will be included in this implementation. The Road Maintenance Division will not require that Idle time tracking be installed during the initial implementation.

## 3.3.4 VEHICLE DEVICE INTEGRATION

- **3.3.5** RSI will integrate the Mobile Unit with (14) Dickey-John Control Point Spreader Controllers and (4) Raven Antilce Controllers per the vehicle list in TABLE 2: ROAD MAINTENANCE AVL VEHICLE LIST
  - . Data will only be collected from these controllers when in use during the winter months of November thru March of each year.

#### 3.3.5.1 DICKEY-JOHN CONTROL POINT SPREADER

The RSI Mobile Unit will be connected to the Dickey-John Control Point Spreader controller via RS-232 serial port. With the cooperation of County mechanics, RSI will configure the spreader controller to send sander data every 30 seconds when engaged. The RSI Mobile Unit will then time and location tag this data and send it back to the RSI base system. RSI will work with the County to configure usage reports that will reflect the following data:

- Sander On/off
  - o Application rate (lbs/mile)
- Spinner speed
- Spread Width
- Ground speed (AVL)
- Time (AVL)
- Location (AVL)
- Blast on/off
- Current totals
  - o Tons



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- Miles
- Hours 0
- Tons blast
- Miles blast
- Hours blast

RSI will also provide the County with the ability to receive data in a raw format allowing for endless uses within the County's GIS or other systems.

The Dickey-John Control point operator's manual can be found here: http://www.dickey-john.com/ media/1-1489.pdf

#### 3.3.5.2 RAVEN DE-ICER

The RSI Mobile Unit will be connected to the Raven De-Icer spray controller unit via serial port. With the cooperation of County mechanics, RSI will configure the de-icer controller to send application data every 30 seconds when engaged. The RSI Mobile Unit will then time and location tag this data and send it back to the RSI base system. RSI will work with the County to configure usage reports that will reflect the following data:

- Current Air Temp
- **Current Road Temp**
- Flow rate
  - Vol/min
  - Area/Hr
- Blast on/off
- Master on/off
- Left on/off
- Center on/off
- Right on/off
- Day distance Day Volume
- Speed (AVL)
- Time (AVL)
- Location (AVL)

The following steps need to be taken in order to enable data logging from the Raven unit:

The GPS device will connect to a D9 serial port on the back of the DCS410 control box. (see pg 7 of the manual, serial interface).

There are some settings that must be changed in order to make the device begin sending data at regular intervals:

(Pg. 21-22 of the operator's manual)

Set baud rate to 9600

Set data logger trigger value to "1" (or other interval required to provide the data at requested times)

Set units to "Seconds"

Set data logger to "On"

The Raven Operations manual is found here:



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http://www.ravenprecision.com/PDF/Manuals/016-0159/826a.pdf

Data can also be provided to the County in a raw format allowing for endless uses within the County's GIS or other systems.

#### 3.4 Wireless Data Communications

#### 3.4.1 Cellular communications provider

RSI will use GPRS from AT&T. The In-Vehicle Equipment and Base Application are linked via two-way cellular wireless communications using the AT&T network, allowing for timely data transmission between the field and dispatch center.

#### 3.4.2 UPDATE RATE

Update rates can adjust dynamically depending on factors such as vehicle status or the triggering of an on-board sensor.

#### 3.4.3 PERMISSIONS

RSI will work with Snohomish County DIS and the AVL team to determine the proper assignment of user-permission levels that will allow access to appropriate sub-sets of the installed functionality.

#### 3.5 OUT OF SCOPE

Public Works has expressed interest in several areas of additional functionality not addressed in this report. While these functions may be addressed in the future, they are not included in this project. The following are some functions explicitly out of scope of this project:

#### 3.5.1 ROAD MAINTENANCE PAINT STRIPER

Integrating the RSI system with a Snohomish County Paint Striper data collection system is not in scope for the initial AVL implementation. RSI will work with the County to determine the cost and requirements to integrate the Paint Striper data collector with the RSI Mobile Unit. It is expected that RSI will be able to gather various data provided by the device via RS-232 serial port which will be used to create various reports via the RSI AVL software or by the county from the raw data base. If the County chooses to incorporate the paint striper into the AVL system, this will be accomplished through an amendment to the contract.

#### 3.5.2 Integration to MaintStar Work Management system

Snohomish County would like to explore the possibility of using data generated by the AVL system to populate its AMMS work management system. Once the AVL and AMMS systems are both operational, the County will begin the process of determining the capabilities and integration points of each system.

#### 3.5.3 Snow and Ice Roadway treatment public facing map

It is desirable that the AVL system be used to populate a map of Snohomish County with AVL data generated during roadway treatments. Although the primary use for this would be to alert the public to the current conditions of the roadway during a snow and ice event, it is also conceivable that other roadway treatments, such as mowing or brush cutting, could also be reflected on a public facing map.



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#### 4 REQUIREMENTS ANALYSIS

#### 4.1 RFP REQUIREMENTS

In response to the RFP, RSI has stated that their system complies with the following RFP-13-11 requirements:

- Mandatory Requirements 1-8
- Functional Requirements 1-3, 5-50
- Technical Requirements 1-53, 65-71 (hosted system)

These requirements are met by the core software to be provided.

In response to the RFP, RSI stated that they will customize their system to comply with the following RFP-13-11 requirements: Functional Requirements 4, 27, 38, 40 and 41

The labor required to customize the system to meet these requirements is included in the Services described in RFP-13-11 Form 14 – Cost Statement.

#### 5 TECHNOLOGY

#### 5.1 INSTANCES

RSI will provide Snohomish County with access to a Test environment in addition to the main Production environment. This Test environment will allow Snohomish County or RSI to stage changes prior to implementation in Production.

#### 5.2 TECHNICAL REQUIREMENTS

#### 5.2.1 GIS

The RSI AVL system will access the county's ESRI GIS data via Web-based Map Services. RSI will work with the county to establish the preferred configuration for the RSI AVL system to consume Map Services from the county's ArcGIS Server. RSI currently accesses map data using SOAP, however future releases will be migrating to an interface using REST services. The County has the ability to provide map services through either protocol.

#### 5.3 AVL DATA TRANSFER TO SNOHOMISH COUNTY

#### 5.3.1 ROAD MAINTENANCE

RSI will configure the system to provide Road Maintenance's AVL data via an FTP transfer of the AVL SQL database, once per day (covering midnight to midnight). RSI will provide table structures so the County can work with the raw data in virtually any capacity it wants.

#### 5.3.2 SOLID WASTE

RSI will configure the system to provide Solid Waste's AVL data via an FTP transfer of the AVL SQL database, once per month. RSI will provide table structures so the County can work with the raw data in virtually any capacity it wants.



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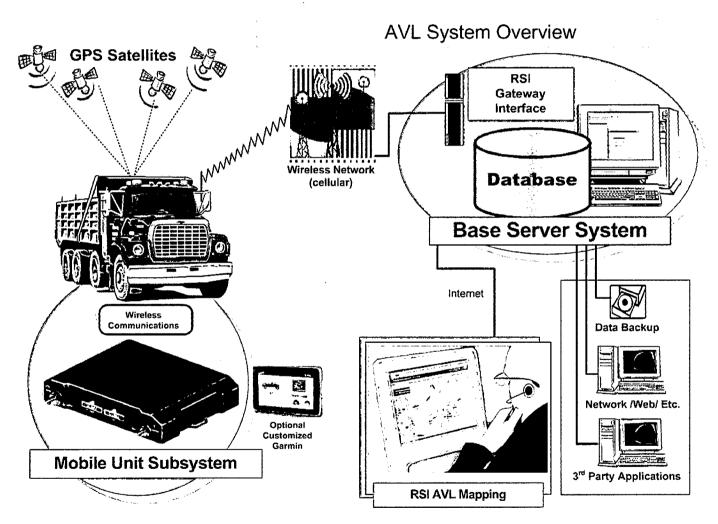


#### **TECHNICAL OVERVIEW**

The following Technical Overview diagrams provide basic conceptual drawings of various system components and how they connect and interact with each other.

#### 6.1 SYSTEM DESIGN

FIGURE 2: SYSTEM DESIGN



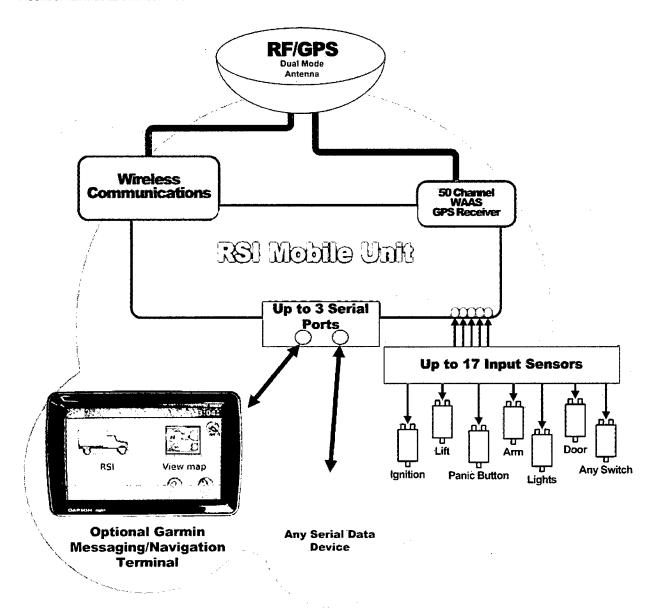


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#### 6.2 RSI Mobile Unit Configuration

FIGURE 3: RSI MOBILE UNIT CONFIGURATION





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#### 7 COMMUNICATIONS PLAN

RSI will issue weekly status reports via email, weekly status meetings and/or conference calls. Certain issues or communications may require more frequent communications.

#### 8 Change Management Plan

The process for system customization will be initiated by either party. The overall scope, cost, and implementation process of any customization will be documented and mutually agreed upon in writing by both parties.

During the term of the contract, for unforeseen work, Snohomish County and RSI will mutually agree in writing via the following change control process:

- a.) The County or RSI completes a Change Request (CR) Form and sends the completed form to the respective Project Manager, or designated Change Manager.
- b.) The Change Manager enters the CR into the CR Log. The CR's status is updated throughout the CR process as needed.
- c.) Project personnel review the CR and provide an estimated level of effort to process, and develop a proposed solution for the suggested change
- d.) Approval to move forward with incorporating the suggested change into the project/product
- e.) If approved, make the necessary adjustments to carry out the requested change and communicate CR status to the submitter and other stakeholders

#### 8.1 Change Request Form and Change Management Log

Element	Description
Date	The date the CR was created
CR#	Assigned by the Change Manager
Title	A brief description of the change request
Description	Description of the desired change, the impact, or benefits of a change should also be described
Submitter	Name of the person completing the CR Form and who can answer questions regarding the suggested change
Phone	Phone number of the submitter
E-Mail	Email of the submitter
Product	The product that the suggested change is for
Version	The product version that the suggested change is for
Priority	A code that provides a recommended categorization of the urgency of the requested change (High, Medium, Low)



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#### 9 PROJECT STAFFING

#### 9.1 KEY RSI STAFF

#### **Project Manager**

Brian Burda, Vice President Technology

<u>Education:</u> 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.



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#### 9.2 Key Snohomish County Staff

#### **Director of Road Maintenance**

**Roy Scalf** 

#### **Director of Solid Waste**

Matt Zybas

#### **AVL Project Team:**

#### **AMMS Project Manager**

David Baxter, Business Process Analyst

#### **AVL Project Manager**

Matt Ballou, Business Applications Analyst 5

#### Road Maintenance AVL Test Lead

James Parker, Road Maintenance Management Systems Lead

#### Solid Waste AVL Test Lead

Jon Greninger, Senior Planner

#### **GIS Leads**

Rob Simmonds, Principal GIS Analyst Ed Fairbanks, GIS Analyst 5

#### Fleet Maintenance AVL Coordinator

Steve Torrence, Warranty Administrator

#### **Wireless Systems Verification**

Tim Wise, Systems Engineer Sr.



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#### 10 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.

#### 10.1 INSTALLATION

The customer will be responsible for the installation of all equipment furnished under this contract. However, RSI will perform the initial installations for training purposes and provide support.

RSI will provide appropriate RSI AVL equipment installation staff at Snohomish County-owned facilities. These RSI staff will be onsite for 2 days and will perform installations on various vehicle types and configurations in order for County Fleet mechanics to develop a clear understanding of the installation process. The vehicle types will include:

- One double axle dump truck outfitted with a snow plow, sander, and Dickey John Control Point spreader controller
- One tanker truck outfitted with a RAVEN Anti-Icing spray controller
- One 2100 Series Vactor truck
- One Brush Cutter tractor
- One 2006 Volvo VHD84B200 with GK Body with PTO on/off and Accessory on/off
- One 2009 Volvo VNL84T with PTO on/off and Accessory on/off

Day one training will be conducted at the Snohomish County Fleet Cathcart facility and day two training will be conducted at the Snohomish County Fleet Arlington facility.

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.

#### 10.1.1 INITIAL INSTALLATION

Together, the RSI installation training team and client will identify the initial installation training vehicles and schedule installations on a on a non-intrusive basis. Installation of RSI Mobile hardware units will be verified



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by inspections. A physical checkout of the installation, which includes ensuring proper form, fit, security, and location of the unit will be performed. In addition, a communications check will be performed to ensure that the modem is operational.

#### 10.1.2 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 to go live."

#### 10.2 TESTING

#### 10.2.1 DEVELOPMENT OF TEST PLANS

RSI is responsible for developing test plans for each software module and functional group. RSI will work with the designated lead testers to develop a custom test plan for each user group.

Each test plan will consist of a series of scripts, each containing repeatable steps which will confirm the correct functionality of each standard and customized feature of the software. The test plan will include expected results for each script.

#### 10.2.1 TEST LEADS

Each user group at Snohomish County will have a designated lead tester. The lead tester will be responsible for organizing any individuals needed to validate correct functionality of their assigned portion of the software. The lead tester will coordinate with RSI and the Snohomish County project team to ensure that testing is performed in a timely manner and that any issues discovered are described completely and reported using the Issue Log described below. Testing performed by Snohomish County will include execution of test plans, but may also include user driven tests of other functionality. The lead testers will be responsible for reporting the results of test plans... Successful tests... and maintaining an issue Log.

#### 10.2.2 COMPONENT SPECIFIC TESTING

RSI will be responsible for component specific testing. As integration of the technical components begins, Snohomish County's AVL 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.

#### 10.2.1 LABORATORY

Individual module testing will be followed by integration testing to ensure the functionality of the components and the interoperability of the data interfaces between each component prior to deployment. RSI is responsible for conducting this testing prior to delivery to Snohomish County.

#### 10.2.2 Transition to Production

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



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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.

#### 10.2.3 CERTIFICATION

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.

#### 10.2.4 USER ACCEPTANCE TESTING

Acceptance Testing will be 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. This will include a comprehensive demonstration of the operating system to the appropriate Snohomish County personnel. This demonstration is necessary in order to satisfy the parties that Substantial Completion has been achieved.

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.

#### 10.3 IMPLEMENTATION PLAN

For Implementation plan details, Reference Section 17: Proposed Project Plan..

#### 10.4 Release to production

System sign-off will be executed after the successful completion of any Acceptance Testing conducted by RSI and the County. Typically in implementations where the customer performs the majority of installations, RSI will install the first batch of mobile unit while simultaneously training the customer on proper installation. RSI will test and confirm that the entire system is functioning correctly after these first units are installed. At this point, RSI considers the system to be live and in production.



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#### 11 TRAINING PLAN

#### 11.1 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.

Snohomish County users 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.

#### 11.2 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. 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.

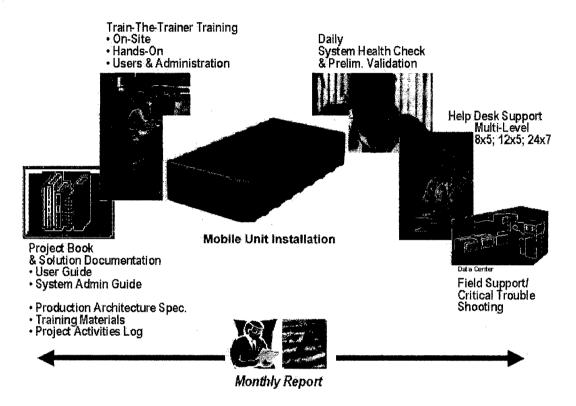
In concert with the customer Project Manager, RSI will develop and conduct a one-time operational overview of the entire RSI AVL operating system, which will provide Management with a practical, working knowledge of the RSI AVL system and its operational, customer, and functional capabilities.

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.



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FIGURE 4 TRAINING STRATEGY



#### 11.3 INSTALLATION TRAINING

Hands-on mobile unit installation training will be conducted at an agreed upon county site, preferably a fully equipped vehicle maintenance facility. RSI staff will train various county and fleet maintenance crew members on proper installation of the mobile units on a variety of vehicle types. RSI staff will provide the proper manuals and training materials needed. Please see the example mobile unit installation manual attached.

#### 11.4 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.



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#### 11.5 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. 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 belowdescribed staff categories based on their individual 'need to know'.
- Updated, as necessary, consistent with any maintenance and support agreements to this Project.

#### 11.6 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:

#### 11.6.1 MECHANICS / INSTALLERS

- RSI Training Staff (TBD)
- Snohomish County anticipated staff (Fleet Management Staff—5 each day)
  - o 2 day and 2 swing shift mechanics at each training site
  - 1 radio technician at each site
- Duration of Training
- Training vehicles (TBD)

#### 11.6.2 DISPATCHERS

- RSI Training Staff (TBD)
- Anticipated Road Maintenance staff
  - o 6 dispatchers
  - o 2 Managers
- Anticipated Solid Waste staff
  - o 2 dispatchers
  - o 2 Supervisors
- 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.

#### 11.6.3 SUPERVISORS



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- RSI Training Staff (TBD)
- **Anticipated Road Maintenance staff** 
  - o 15 Leads/Supervisors/Managers
- Anticipated Solid Waste staff
  - o 13 Leads/Supervisors/Managers
- 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.
- An in-depth orientation in report generation.

#### 11.6.4 OPERATOR MANAGEMENT

- RSI Training Staff (TBD)
- **Anticipated Road Maintenance staff** 
  - o Road Maintenance Management Systems Lead
  - Backup Operator (TBD)
- Anticipated Solid Waste staff
  - Senior Planner Mapping
  - Backup Operator (TBD)
- Anticipated Fleet Maintenance staff
  - 4 Mechanics
  - 1 Radio Technicians
- 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.



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#### 12 ACCEPTANCE CRITERIA

Section 10.2 details testing for the various stages of implementation. In additions to the acceptance of each testing stage, each milestone deliverable will also have defined acceptance criteria as follows:

#### Milestone Deliverable 1: In Vehicle units Delivered

Criteria:

An inventory will be taken of the delivered units and associated hardware upon receiving the shipment(s). Once the count matches the number of units ordered and no visible defects have been found, a signed copy of the delivery receipt(s) will serve as the acceptance document.

#### Milestone Deliverable 2: Server Environment Loaded, Tested and Operational.

RSI engineers will work with County IT staff to coordinate a go-live testing to confirm server access and functionality. At a minimum, RSI will demonstrate the ability for a Snohomish County user to access and loginto the RSI web interface from the Snohomish County network and confirm basic functionality of the RSI system.

#### Milestone Deliverable 3: User and Installation Training

Criteria:

Once all training listed in section 11 "Training Plan" has been completed in full according to the training plan the test lead from the Solid Waste Division and the test lead from Road Maintenance will co-sign the training acceptance document which will be the same document as the training manual.

#### Milestone Deliverable 4: Project completion and final approval

30 days after milestone 3 has been completed, a 30 day final acceptance window will begin. Within this 30 day acceptance period, the following criteria will be verified:

- All requirements, as referenced in 4.1, have been met and verified.
- All Severity 1 and Severity 2 issues, as defined in 15.3, reported by Snohomish County have been resolved.
   These shall include proper function of the RSI software as well as correct functionality of all installed hardware devices.
- The 30 day acceptance period will restart upon discovery of requirements not met or the occurrence and reporting of a Severity 1 or Severity 2 issues.
- All units installed by RSI are active and functioning properly
  - Units power on when vehicle is running
  - o Units go into "Standby" when vehicle ignition is off
  - o RSI has acquired a signal from installed units
  - Base Station receives and displays unit activity signals from installed units
  - o Units are reporting at the specified set interval(s)
  - o Units are reporting in "Real Time" as defined in RFP 13-11
  - O Horizontal Location accuracy meets RSI reported specifications for accuracy (see section 3.2.1, In-Vehicle Equipment). The test for this accuracy will be survey grade location data collection of the AVL antennae by Snohomish County. The test will be performed on RSI post-processed final position information from a sampling and average of 10 AVL reported locations. The average will be tested against the Snohomish County survey data. Vertical position will not be a factor of success in this test.

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- All sensors installed by RSI are functional and reporting as expected
  - Sensors installed by RSI function properly according to manufacturer specifications
  - Sensors activations have been tested by RSI and the Snohomish County AVL Test Leads and have indicated activation as expected (e.g. sensor indicates plow down when plow is down, up when plow is up, etc...)
  - o Base Station receives and displays "sensor activation" signals when installed sensors are activated
- The reporting interval changes appropriately upon sensor status changes for all RSI installations. This interval will be defined and set within the application prior to conducting this test
- · All mapping and reporting functionality has been tested by the AVL test leads and is performing properly
  - Map display refreshes at the proper set interval
  - Tracked vehicles display at the proper locations and location data is refreshed at the proper set interval
  - o The ability to View and manipulate vehicles and vehicle groups is allowed and/or restricted based on the appropriate pre-defined permissions.
  - All Standard and customized reports requested by Snohomish County reflect the proper content and format

Upon successful conclusion of the acceptance period, the final project completion acceptance document will be signed off by the Road Maintenance Operations Manager, Solid Waste representative (TBD), and the Snohomish County Project Manager.



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#### 13 Costs



Radio Satellite Integrators, Inc.



03/13/12

Snohomish County Price Proposal - RFP 13-11 GPS-AVL Tracking System

						RSI HOSTED
	IN VEHICLE EQUIPMENT					on metals and executed to
quantity	•		per unit			total
178	RSI MOBILE UNITS RSI Mobile Units Configured for AT&T GPRS Includes: GPSIRF Antennas. Mount, and Cabling Oly discount: \$315 each for qty over 225.	-\$	350	each	.5	62,300
5	SPARE RSI-MOBILE UNITS	-\$	350	each	\$	1.750
132	SENSORS: Switch on/off, PTO, and/or Plow Sensor Switch and sensor integration per vehicle	\$	80	each	\$	10,560
14	Dickey-John Spreader/Controller Interface Add-on *may be a compatible but different unit from above.	\$	595	each	\$	8,330
4	Raven Anti-Icing DCS410 Controller Interface Add-on may be a compatible but different unit from above.	\$	595	each	\$	2,380

	TRAINING & OTHER STAR	T UP COSTS	Fight New York Assessment Control	 ` +
quantity		ŗ	oer unit	total
4	DAYS OF ON-SITE SYSTEM TRAINING Includes software and installation training.	\$	1,250 each	\$ 5,000
1	LOT TRAVEL	.\$	1,500 each	\$ 1,500
1	LOT SHIPPING	\$	1,250 each	\$ 1,250

TOTAL START UP COSTS \$ 93,070

	MONTHLY RSI WEB TRACKING SERVICE F	ΞE		
quantity		per unit		 total
	RSI AVL WEB SAS TRACKING MONTHLY FEE \$ Includes Web browser tracking & reporting and wireless plan. Hosted off site by RSI Fees based on per vehicle per month Assumes 30 second update rate Oty discount: \$32 per month for qty over 225. Service fee rates will remain fixed for the life of contract. (min. 100 vehicles)	35	each	\$ 6.230
	Monthly Options:			
	Spreader/Controller equipped units additional cost \$	10	each	
	Non-Use Vehicles Monthly Rate \$ (4 month minimum down time)	20	each	

RSI will honor all prices listed above for the duration of the contract plus optional extensions Includes all manuals and documentation Does not include sales tax. RSI will not collect WA sales tax. CONFIDENTIAL



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#### 14 PAYMENT SCHEDULE

The following percentages of the contract total will be paid to RSI, upon acceptance by Snohomish County of the following milestones, as defined in 12: Acceptance Criteria.

Milestone	Payment
Milestone Deliverable 1: In Vehicle units Delivered	50% \$47,410
Milestone Deliverable 2: Server Environment Loaded, Tested and Operational.	25% \$22,830
Milestone Deliverable 3: User and Installation Training	15% \$13,700
Milestone Deliverable 4: Project completion and final approval	10% \$9,130
Total	100% \$93.070

Note: Monthly Service Fees are to be paid annually in advance and will begin upon installation or one month after delivery, whichever is first. RSI agrees to issue a credit to the County's account, or a cash refund if desired, for any amounts billed and paid but not used by the County.

Note: Quantity discount shown in 13 shall apply to service fees for all units if the total quantity exceeds 225.

#### 14 a.) AVL Unit Returned Good Fees and Reinstatement Fees

An early return good fee will apply if the County chooses to end their service before completing the initial agreement term. The early return good fee is \$150 per unit.

In the event that Customer's account becomes thirty (30) days past due, RSI shall have the right, but not the obligation, to deactivate Customer account. In the event the Customer account is deactivated as a result of being thirty (30) days past due and Customer subsequently cure the delinquency, RSI reserves the right to charge a reactivation fee of ten (10) dollars per unit. If the Customer account becomes sixty days past due, RSI reserves the right, in its sole discretion, to cancel Customer's service and delete Customer units from the carrier. If, after Customer units are deleted from the carrier, Customer wishes to reactivate their account, Customer will be required to: 1) pay all past dues amounts owing on Customer account and a ten (10) dollar per unit reactivation fee; and 2) return the units to RSI, at Customer expense, for reactivation (if necessary). RSI reserves the right to assess an additional twenty five (25) dollar per unit reactivation fee on all such returned units.



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#### 15 PRODUCT SUPPORT / SERVICE RESPONSE PLAN

RSI will maintain all equipment for one year, parts and labor. The RSI-hosted software solution will be maintained and supported for the full term of Snohomish County's subscription. RSI will provide support as described below. Any travel required to support on-site service is not included.

#### 15.1 PHONE SUPPORT

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.

#### 15.2 SUPPORT RESPONSE TIME

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)
			Phone Call
2	After Hours	Next Business Day	(Follow-up with Remote Access
			Troubleshooting as Necessary)
3	Regular Hours	<8 Hours	Phone Call
·			(Follow-up with Remote Access
			Troubleshooting as Necessary)
	·		Phone Call
3	After Hours	Next Business Day	(Follow-up with Remote Access
			Troubleshooting as Necessary)

<sup>\*</sup> 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.

<sup>\*\*</sup>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.



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#### 15.3 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.

#### 15.4 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.

#### 15.5 Version / UPDATE RELEASES

RSI typically releases a new version of the System 2 times per year – more frequently if needed. Snohomish County entitled to all updates and new version releases while under contract to utilize the RSI hosted AVL system. Since the system is configured in a hosted environment, updates are done remotely by RSI in a manner to minimize user downtime. RSI will notify and train (if needed) the County of any significant updates or changes that are made to the system.



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#### 16 SPARE UNITS

The County will purchase a few spare LMU's and sensors as necessary to keep on site for expedient replacement. Spare units will not incur regular monthly service fees until installed in a vehicle.



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#### 17 PROPOSED PROJECT PLAN

ID	%	Task Name	Start	Finish	Duration	Predeces	Resource Names
1	0%	AVL Project Completion	Tue 5/1/12	Thu 8/23/12	83 days		
2	0%	Receipt of Order	Tue 5/1/12	Tue 5/1/12	1 day		Customer
3	0%	Design Review	Wed 5/2/12	Tue 5/22/12	15 days	2	
4	0%	Develop Design Review	Wed 5/2/12	Tue 5/15/12	10 days		RSI/Customer
5	0%	Submit Design Review	Wed 5/16/12	Tue 5/22/12	5 days	4	RSI
6	0%	Design Review Acceptance	Tue 5/22/12	Tue 5/22/12	0 days	5	Customer Project Team
7	0%	Base Station System Install/Config	Wed 5/2/12	Tue 5/22/12	15 days		
8	0%	GIS Map Data	Wed 5/2/12	Tue 5/8/12	5 days		Customer GIS Departmen
9	0%	Server Software Installation	Wed 5/9/12	Tue 5/22/12	10 days	8	RSI
10	0%	Base Station System Completed	Tue 5/22/12	Tue 5/22/12	0 days	9	RSI
11	0%	Shipping Phase	Wed 5/2/12	Mon 6/18/12	34 days		
12	0%	System Delivery	Wed 5/2/12	Mon 6/18/12	34 days		•
13	0%	Mobile Unit Build Procurement	Wed 5/2/12	Mon 6/11/12	29 days		
14	0%	Mobile Units	Wed 5/2/12	Mon 6/4/12	24 days	2	RSI
15	0%	. Testing	Tue 6/5/12	Mon 6/11/12	5 days		
16	0%	Mobile Units	Tue 6/5/12	Mon 6/11/12	5 days	14	RSI
17	0%	Shipping	Tue 6/12/12	Mon 6/18/12	5 days		
18	0%	Mobile Units	Tue 6/12/12	Mon 6/18/12	5 days	16	RSI
19	0%	50% System Payment Milestone	Mon 6/18/12	Mon 6/18/12	0 days	1,8	Customer
20	0%	System Completion	Tue 6/19/12	Mon 7/9/12	15 days	THE RESERVE OF THE PERSON OF T	
21	0%	Training (Installation)	Tue 6/19/12	Thu 6/21/12	3 days	17	RSI
22	0%	Configuration	Fri 6/22/12	Thu 6/28/12	5 days	21	
23	0%	Complete ATP	Fri 6/29/12	Mon 7/9/12	7 days	21,22	***************************************
24	0%	25% Payment Milestone	Mon 7/9/12	Mon 7/9/12	0 days	23	Customer
25	0%	User Training	Tue 7/10/12	Mon 7/23/12	10 days		-
26	0%	Develop User Training Plan	Tue 7/10/12	Mon 7/16/12	5 days	23	RSI PM
27	0%	Complete User Training	Tue 7/17/12	Mon 7/23/12	5 days	26	RSI PM / Customer Users
28	0%	25% Payment Milestone	Mon 7/23/12	Mon 7/23/12	0 days	25	Customer
29							ALLEGARING PROPERTY OF THE PRO
30	0%	Mobile Unit Installation	Fri 6/22/12	Thu 8/23/12	45 days	21	Customer Installation Tea



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#### **Appendix 1: RSI MOBILE UNIT SPECIFICATIONS**

Figure 1a. RSI Mobile Unit Specifications



- 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 Location Accuracy Tracking Sensitivity **Acquisition Sensitivity** 

-160 dBm -144 dBm

Kick Start AGPS capable 50 channel GPS (with SBAS, DGPS)

2.0 meter CEP (with SBAS)

3 sec @ -130 dBm

**Communications Specifications** 

Data Support Cellular/PCS: **GPRS** 

SMS, GPRS (UDP), CDMA 1X packet data

FCC-Parts 22, 24; PTCRB Up to class 12

**GPRS Quad Band** 

850/900/1800/1900 MHz

**GPRS Output Power** 

850 (Class 4) 2W

900 (Class 4) 2W 1800 (Class 1) 1W 1900 (Class 1) 1W

**CDMA Dual Band** CDMA 1x Output Power 800/1900 MHz 850 250 mW 1900 250 mW

#### Comprehensive I/O

1-Ignition input

7-Inputs high/low selectable inputs, 0-30 VDC

Vehicle voltage A/D input, 0-30 VDC 5-Relay driver outputs (150mA)

2-20mA current limited outputs

1-1 wire bus (iButton) for driver authentication

1-1 wire bus with current boost for temperature sensors 4-A/D Inputs, +/-0.1V accuracy and voltage range 0+-25V

2-built-in Status LEDs for cellular and GPS status

#### Optional Features (with add-on daughter boards)

802.11b/q/i

jPOD Truck ECU Interface J1708, J1939

#### Certifications

Fully certified FCC, CE, IC, PTCRB, CARRIERS

Electrical Specifications

Operating Voltage

Power consumption

Deep Sleep Sleep on Network (SMS)

Sleep on Network (GPRS) Active Tracking

< 4 mA

6-32V DC

< 10 mA < 20 mA <.70 mA

**Physical Specifications** 

Dimensions Weight

4.8" (L) x 3.3" (W) x 0.85" (H)

11 ounces

**Environmental Specifications** 

**Operating Temperature** 

Storage Temperature

-40° C to 85° C Humidity

95% RH @ 50° C non-condensing

Shock and Vibration U.S. Military Standard202G and 810G, SAE J1455

-30° C to 70° C

EMC/EMI **SAE J1113** 

Connectors

SIM Access Internal External Cellular SMC

External GPS SMA (with tamper monitoring, 3.3v)

WiFi option RP-SMA Vehicle Bus option DB-15

4-Pin Molex power, ignition, I/O 2.5-Pin Molex Switched Power Serial 16-Pin Molex **Expansion** port 22-Pin Molex I/O connection

#### Mounting

Tie wraps, adhesive or velcro Screw mounting bracket



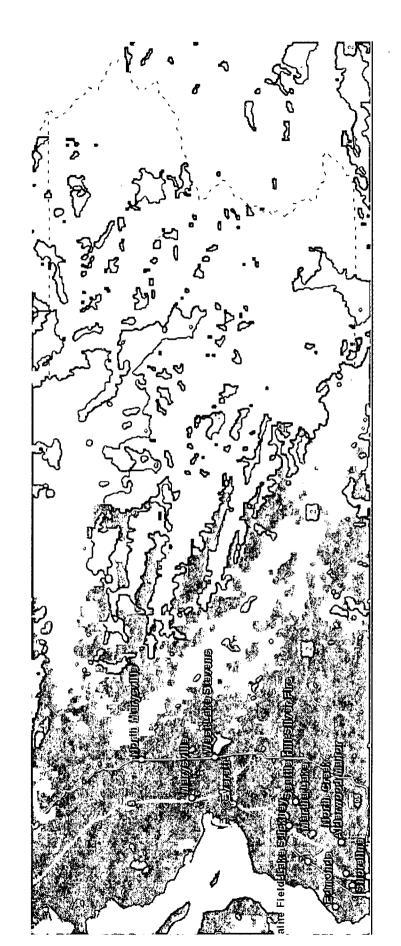
Integrators, Inc. Radio Satellite

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Appendix 2: AT&T WIRELESS DATA

FIGURE 5 AT&T WIRELESS DATA



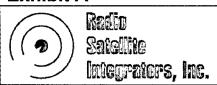




#### Appendix 3: SOLID WASTE DIVISION VEHICLES

TABLE 1: SOLID WASTE DIVISION AVL VEHICLE LIST

Equip #	Туре	Location	Notes (ER&R Shop)	Notes 2	Sensor 1	Sensor 2	Interval
EA 21	08 Toyota Prius	Cathcart	Cathcart				30 Sec.
EA 22	08 Toyota Prius	Cathcart-Bldg M	Cathcart				30 Sec.
EA 23	98 Ford Taurus Sedan	County Garage	McDougal				30 Sec.
EE 83	00 Volvo WG64 Dump Truck	Cathcart-Bldg B	Cathcart				30 Sec.
EF 80	06 Volvo VHD84B200 w/ GK Body	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
EF 81	06 Volvo VHD84B200 w/ GK Body	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
EF 82	06 Volvo VHD84B200 w/ GK Body	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
EF 83	06 Volvo VHD84B200 w/ GK Body	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
EF 87	01 Sterling LT9500 roll off truck	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
EP 11	05 Ford 150 4x4	Cathcart-Bldg B	Cathcart				30 Sec.
EP 14	10 Chevy Colorado	Cathcart-Bldg B	Cathcart				30 Sec.
EP 20	07 Chevy K1500 4x4 Silverado	Cathcart-Bldg B	Cathcart				30 Sec.
EP 21	07 Chevy K1500 Silverado 1/2-Ton 4x4 Ext Cab	ARTS	Cathcart				30 Sec.
EP 22	2011 Ford F150 4x4	Intermodal	Cathcart				30 Sec.
EP 23	2011 Ford F150 4x4	Cathcart	Cathcart				30 Sec.
EP 24	2011 Ford F150 4x4	Cathcart	Cathcart				30 Sec.
EP 36	99 Dodge Flatbed w/ stakes (Vehicle will be replaced in 2012 – model unknown at this time) 01 Ford F450 w/ Knapheide	ARTS	Cathcart				30 Sec.
EP 37	Service Boxes	Cathcart-Bldg B	Cathcart				30 Sec.
EP 39	02 Ford F550 Crew Cab 4x4 Flatbed (ECUP)	Cathcart-Bldg B	Cathcart				30 Sec.
EP 44	08 Ford F250 3/4-ton 4x4 Pickup	Cathcart-Bldg K	Cathcart			<u> </u>	30 Sec.
EP 45	08 Ford F350 - 3/4 ton 4x4 Crew Cab	Cathcart-Bldg B	Cathcart				30 Sec.
EP 46	08 Ford F350 1-ton 4x4 Crew Cab w/ Snow Plow (P400)	Cathcart-Bldg B	Cathcart				30 Sec.
EP 47	09 Ford F550 Ext Cab w/ service body	Cathcart-Bldg B	Cathcart				30 Sec.



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	09 Ford F550 Ext Cab w/						
EP 48	Altec aerial	Cathcart-Bldg B	Cathcart				30 Sec.
EP 50	03 Ford F350 Super Cab 4x4	NCRTS	Arlington				30 Sec.
ET 01	09 Volvo VNL84T	Intermodal	Cathcart		Accessory On/Off		30 Sec.
ET 02	09 Volvo VNL84T	Intermodal	Cathcart		Accessory On/Off		30 Sec.
ET 03	09 Volvo VNL84T	CWOC ER&R	Cathcart		Accessory On/Off		30 Sec.
ET 04	09 Volvo VNL84T	CWOC ER&R	Cathcart		Accessory On/Off		30 Sec.
ET 05	09 Volvo VNL84T	Intermodal	Cathcart		Accessory On/Off		30 Sec.
ET 06	09 Volvo VNL84T	Intermodal	Cathcart		Accessory On/Off		30 Sec.
ET 07	09 Volvo VNL84T	Intermodal	Cathcart		Accessory On/Off		30 Sec.
ET 08	09 Volvo VNL84T	Intermodal	Arlington		Accessory On/Off		30 Sec.
ET 09	09 Volvo VNL84T	Arlington ER&R	Arlington		Accessory On/Off		30 Sec.
ET 10	09 Volvo VNL84T	Intermodal	Cathcart		Accessory On/Off		30 Sec.
ET 11	09 Volvo VNL84T	Intermodal	Arlington		Accessory On/Off		30 Sec.
ET 12	09 Volvo VNL84T	Intermodal	Cathcart		Accessory On/Off		30 Sec.
ET 13	09 Volvo VNL84T	Intermodal	Arlington		Accessory On/Off		30 Sec.
ET 14	09 Volvo VNL84T (Wet Kit)	Intermodal	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
ET 15	09 Volvo VNL84T (Wet Kit)	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
ET 16	09 Volvo VNL84T (Wet Kit)	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
ET 17	09 Volvo VNL84T (Wet Kit)	Cathcart-Bldg M	Cathcart		PTO On/Off	Accessory On/Off	30 Sec.
EV 03	97 International 4700 LP Van (Vehicle will be replaced in 2012 – model unknown at this time)	Cathcart-Bldg B	Cathcart				30 Sec.
	97 International 4700 LP Van (Vehicle will be replaced in 2012 – model unknown at						
EV 04	this time)	Cathcart-Bldg B	Cathcart	<del> </del>			30 Sec.
EV 05	03 Isuzu Truck w/ Van Body	MRW	McDougal	ļ			30 Sec.
EV 21	94 Chevy 4x4 Sampling Van	Cathcart-Bldg K	Cathcart	1			30 Sec.
EY 06	00 Ford F250 4x4	Cathcart-Bldg K	Cathcart				30 Sec.
EY 07	06 Ford F150 4x4 Crew Cab	Cathcart-Bldg K	Cathcart				30 Sec.
NV 17	2004 Ford E350 Van - Litter Control Program	Cathcart	(Non-ERR vehicle)	ECUP			30 Sec.



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07 International 4400 SBA (Non-ERR 30 Sec. ECUP NV 25 4x2Cab & Chassis Cathcart vehicle)



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# Appendix 4: ROAD MAINTENANCE VEHICLE LIST

TABLE 2: ROAD MAINTENANCE AVL VEHICLE LIST

					Spreader				Sensor	Reporting
Equip #	Туре	Location	Plow	Sander	Controller	Notes	Sensor 1	Sensor 2	3	Interval
						Inactive				
					_	during winter	Blade			
K423	Brushcutter	Arlington				months	JJo/uo			30 sec
						Inactive				
						during winter	Blade			
K424	Brushcutter	Arlington				months	on/off			30 sec
						Inactive				
						during winter	Blade	·		
K425	Brushcutter	Arlington				months	JJo/uo			30 sec
						Inactive				
						during winter	Blade			
K429	Brushcutter	Arlington				months	on/off			30 sec
		,						,		
T193	Bucket Truck	Arlington					PTO on/off			30 Sec
T194	Bucket Truck	Arlington					PTO on/off			30 Sec
					Raven	Controller				
	CMA/Water				Anti-Ice	inactive in off	Raven			
T185	truck	Arlington			Controller	season	Controller			30 sec
					Dickey					
					John	Controller		·		
	Double Axle				Control	inactive in off	Plow	r/a		
D202	Dump	Arlington	Yes	Yes	Point	season	nb/Down	controller		30 sec



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Fortin #	anyT	Costion	Mold	Cander	Spreader	o to N	7.000	2,000	Cadda	Reporting
					Dickey	Controller				
,	Double Axle				Control	inactive in off	Plow	D/1		
D203	Dump	Arlington	Yes	Yes	Point	season	up/Down	controller		30 sec
					Dickey					
	14:10				John	Controller	ā	i		
D209	Double Axie Dump	Arlington	Yes	Yes	Control	season	Plow up/Down	D/J controller		30 sec
					Dickey					
	Double Axle				John	Controller in off	Mola	2		
D211	Dump	Arlington	Yes	Yes	Point	season	nwoQ/dn	controller		30 sec
	Double Axle						Plow	Sander		
D218	Dump	Arlington	Yes	Yes	Standard		nwoQ/dn	on/off		30 sec
	Double Axle						Plow	Sander		
D238	Dump	Arlington	Yes	Yes	Standard		up/Down	on/off		30 sec
	Double Axle						Plow	Sander		
D240	Dump	Arlington	Yes	Yes	Standard	Chip Hauler	up/Down	JJo/uo		30 sec
	Double Axle						Plow	Sander		
D250	Dump	Arlington	Yes	Yes	Standard		up/Down	on/off		30 sec
	Double Axle						Plow	Sander		
D251	Dump	Arlington	Yes	Yes	Standard		up/Down	on/off		30 sec
	Double Axle						Plow	Sander		
D252	Dump	Arlington	Yes	Yes	Standard		nwoQ/dn	on/off		30 sec
	Double Axle						Plow	Sander		
D253	Dump	Arlington	Yes	Yes	Standard		up/Down	JJo/uo		30 sec





Equip #	Туре	Location	Plow	Sander	Spreader Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Reporting Interval
	Double Axle				Raven Anti-Ice	Controller inactive in off	Raven			
D254	Dump	Arlington	No	No	Controller	season	Controller			30 séc
D255	Double Axle Dump	Arlington	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D256	Double Axle Dump	Arlington	Yes	Yes	Standard	Chip Hauler	Plow up/Down	Sander on/off		30 sec
D257	Double Axle Dump	Arlington	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D265	Double Axle Dump	Arlington	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D266	Double Axle Dump	Arlington	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
M003	Elgin Eagle Mobile Sweeper	Arlington					Right Broom on/off	Left Broom on/off	Mid Broom On/off	30 sec
M018	Elgin Eagle Mobile Sweeper	Arlington					Right Broom on/off	Left Broom on/off	Mid Broom On/off	30 sec
K337	Mower	Arlington					Blade on/off			30 sec





Equip #	Туре	Location	Plow	Sander	Spreader Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Reporting Interval
K338	Mower	Arlington				Inactive during winter months	Blade on/off			30 sec
K341	Mower	Arlington				Inactive during winter months	Blade on/off			30 sec
K343	Mower	Arlington				Inactive during winter months	Blade on/off			30 sec
P124	Pickup	Arlington			·	Lead Dave F.				30 Sec
P129	Pickup	Arlington				Lead Cecilia L.				30 Sec
P130	Pickup	Arlington				Supervisor Cindy H.				30 Sec
P149	Pickup	Arlington		·		Lead Robert W.				30 Sec
P291	Pickup	Arlington				Lead Duane M.				30 Sec
D111	Single Axle Dump	Arlington	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D115	Single Axle Dump	Arlington	Yes	Yes	Standard	Vehicle goes to Cathcart for Snow	Plow up/Down	Sander on/off		30 sec
M473	Thermolay	Arlington					PTO on/off			30 Sec
M045	Vactor	Arlington				2100 Series	Vaccum On/Off	Rodder Jet On/Off	·	30 Sec



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Equip #	Туре	Location	Plow	Sander	Spreader Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Reporting Interval
M048	Vactor	Arlington				2100 series	Vaccum on/off	Rodder Jet on/off		30 Sec
	Double Axle				Dickey John Control	Controller inactive in off	Plow	r/a		
D269	Dump	Bridge	Yes	Yes	Point	season	nwoQ/dn	controller		30 sec
	On the Ave				Dickey John	Controller inactive in off	avo <sub>l</sub> o	ā	,	
D270	Dump	Bridge	Yes	Yes	Point	season	up/Down	controller	•	30 sec
P123	Pickup	Bridge				Lead Jack L.				30 Sec
P128	Pickup	Bridge				Supervisor Chris B.				30 Sec
K426	Brushcutter	Cathcart				Inactive during winter months	Blade on/off			30 sec
K427	Brushcutter	Cathcart				Inactive during winter months	Blade on/off			30 sec
T192	Bucket Truck	Cathcart					PTO on/off			30 Sec
T195	Bucket Truck	Cathcart					PTO on/off			30 Sec

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Equip #	Туре	Location	Plow	Sander	Spreader Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Reporting Interval
1196	Bucket Truck	Cathcart			·	Inactive during winter months	PTO on/off			30 Sec
T184	CMA/Water truck	Cathcart			Raven Anti-Ice Controller		Raven		·	30 sec
T242	CMA/Water truck	Cathcart			Raven Anti-lce Controller		Raven			30 sec
D201	Double Axle Dump	Cathcart	Yes	Yes	Dickey John Control		Plow ny/Down	D/J controller		30 sec
D204	Double Axle Dump	Cathcart	Yes	Yes	Dickey John Control Point		Plow up/Down	D/J controller		30 sec
D205	Double Axle Dump	Cathcart	Yes	Yes	Dickey John Control Point		Plow up/Down	D/J controller		30 sec

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Reporting Interval	30 sec	30 sec	30 sec				
Sensor 3			•				
Sensor 2	D/J controller	D/J controller	D/J.	D/J controller	D/J controller	Sander on/off	Sander on/off
Sensor 1	Plow up/Down	Plow up/Down	Plow nwol/dn	Plow nwo/dn	Plow up/Down	Plow up/Down	Plow up/Down
Notes							
Spreader Controller	Dickey John Control Point	Dickey John Control Point	Dickey John Control Point	Dickey John Control Point	Dickey John Control Point	Standard	Standard
Sander	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plow	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location	Cathcart	Cathcart	Cathcart	Cathcart	Cathcart	Cathcart	Cathcart
Туре	Double Axle Dump	Double Axle Dump	Double Axle Dump				
Equip #	D206	D207	D208	D210	D212	D214	D215



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					Spreader					Reporting
Equip #	Туре	Location	Plow	Sander	Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Interval
D219	Double Axle Dump	Cathcart	Yes	Yes	Standard	Chip Hauler	Plow up/Down	Sander on/off		30 sec
D223	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D232	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D247	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D248	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D249	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D258	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D259	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D260	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D261	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D262	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D263	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D264	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec



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Equip #	Туре	Location	Plow	Sander	Spreader Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Reporting Interval
D267	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
D268	Double Axle Dump	Cathcart	Yes	Yes	Standard		Plow up/Down	Sander on/off		30 sec
M001	Elgin Eagle Mobile Sweeper	Cathcart					Right Broom on/off	Left Broom on/off	Mid Broom On/off	30 sec
M002	Elgin Eagle Mobile Sweeper	Cathcart					Right Broom on/off	Left Broom on/off	Mid Broom On/off	30 sec
M016	Elgin Eagle Mobile Sweeper	Cathcart					Right Broom on/off	Left Broom on/off	Mid Broom On/off	30 sec
M017	Elgin Eagle Mobile Sweeper	Cathcart					Right Broom on/off	Left Broom on/off	Mid Broom On/off	30 sec
P316	Flatbed 1 ton	Cathcart								30 Sec
P317	Flatbed 1 ton	Cathcart					·			30 Sec



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Equip #	Туре	Location	Plow	Sander	Spreader Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Reporting Interval
P523	Hybrid SUV	Cathcart				RM Director				30 Sec
P524	Hybrid SUV	Cathcart				Ops Mgr -				30 Sec
K335	Mower	Cathcart				Inactive during winter months	Blade on/off			30 sec
K336	Mower	Cathcart		,		Inactive during winter months	Blade on/off			30 sec
K339	Mower	Cathcart				Inactive during winter months	Blade on/off			30 sec
K340	Mower	Cathcart				Inactive during winter months	Blade on/off	÷		30 sec
K342	Mower	Cathcart				Inactive during winter months	Blade on/off			30 sec
P111	Pickup	Cathcart				Supervisor Al S.				30 Sec



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Equip #	Type	Location	Plow	Sander	Spreader Controller	Notes	Sensor 1	Sensor 2	Sensor 3	Reporting
P112	Pickup	Cathcart				Lead Scot R.				30 Sec
P134	Pickup	Cathcart				Lead Jeff I.				30 Sec
P136	Pickup	Cathcart				Lead Gary S.				30 Sec
P192	Pickup	Cathcart				Lead Dennis K.				30 Sec
P115	Sign Truck	Cathcart				Traffic Lead - Joe I				30 Sec
P314	Sign Truck	Cathcart								30 Sec
P315	Sign Truck	Cathcart								30 Sec
P318	Sign Truck	Cathcart								30 Sec
P319	Sign Truck	Cathcart								30 Sec
P322	Sign Truck	Cathcart								30 Sec
P323	Sign Truck	Cathcart								30 Sec
	Single Axle				-		Plow	Sander		
D110	Dump	Cathcart	Yes	Yes	Standard		up/Down	JJo/uo		30 sec
D112	Single Axle	Cathcart	Yes	\ \ \ \ \	Standard		Plow	Sander on/off		303 08
	Single Axle						Plow	Sander		
D113	Dump	Cathcart	Yes	Yes	Standard	Chip Hauler	up/Down	JJo/uo		30 sec
	Single Axle			-			Plow	Sander		
D114	Dump	Cathcart	Yes	Yes	Standard		up/Down	JJo/uo		30 sec
	-		ı,							
						Interface to				
						Skipline, Not				
		;				part of initial	Skip line			
MU51	Striper	Cathcart				implementation	interface			30 sec

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Reporting Interval	30 sec	30 sec	30 Sec	30 Sec	30 Sec	30 Sec	30 Sec	30 Sec	30 Sec	30 Sec	30 Sec	30 Sec
Sensor 3					·							
Sensor 2	,				Rodder Jet on/off	Rodder Jet on/off	Rodder Jet on/off	Rodder Jet on/off				
Sensor 1	Broom on/off	Broom on/off	PTO on/off	PTO on/off	Vaccum on/off	Vaccum on/off	Vaccum on/off	Vaccum on/off				
Notes					2100 series	2100 series	2100 series	2100 series				
Spreader Controller			·									
Sander					i,							
Plow												
Location	Cathcart	Cathcart	Cathcart	Cathcart	Cathcart	Cathcart	Cathcart	Cathcart	Noxious Weeds	Noxious Weeds	Noxious Weeds	Noxious Weeds
Туре	Superior Sidecast Broom	Superior Sidecast Broom	Thermolay	Thermolay	Vactor	Vactor	Vactor	Vactor	Flatbed Pickup	Jeep Cherokee	Jeep Cherokee	Pickup
Equip #	K117	K119	M474	M475	M0040	M0041	M0042	M049	NRNW5	NRNW6	NRNW8	P024







Snohomish County STATEMENT OF WORK- AVL System RFP-13-11 April 2012



Appendix 5: RMA DATA SHEET



VL System RFP-13-11 April 2012

Radio Satellite Integrators, 20995 S. Weste Suite 140 Torrance, Califo 90501 310-787-7700 Fax 310-787-743 ATTN: RMA	rn Avenue rnia 35				V-Track RMA Data Sheet
Customer Name:					
Technician Name:  Date:					
RSI V-Track ID:	<u></u>	<u>-</u>	_		÷
Vehicle ID:					
LED's	Solid	Blinking	Dark		
Power STA					
CON RX			_		•
TX GPS			<del></del>		
		-			
Symptoms:	(Example: )	Unit doesn't power	up, Unit doesn't sl	eep, etc.)	
			* ********************************		
					the second secon
					- de surres.
b					