Request for Proposal

Automated Vehicle Locator (AVL) and Intelligent Transportation System (ITS) for the Department of Environmental Services Vehicle Fleet

City of Rochester

City of Rochester, NY
Thomas S. Richards, Mayor

Name of Proposer:

PreCise MOBILE RESOURCE MANAGEMENT

1311 E. Franklin Road
Meridian, ID 83642
www.precisemrm.com

Parent Company:

FORCE America INC.

501 East Cliff Road
Burnsville, MN 55337
www.forceamerica.com

Third Party Integrator:

Bergmann associates
architects // engineers // planners

28 East Main Street
Rochester, NY 14614
www.bergmannpc.com

DELIVERY TO:
Carol Schmitt
City of Rochester – Information Technology
Public Safety Building
185 Exchange Blvd., Suite 530
Rochester, NY 14614

NAME OF PROPOSER:
PreCise MRM
1311 E. Franklin Road
Meridian, ID 83642
Bob Lowe, National PreCise MRM Sales Manager
208-323-7141
blowe@precisemrm.com

Parent Company:
FORCE America Inc.
501 East Cliff Road Burnsville, MN 55337
www.forceamerica.com

FORCE America Inc. Representative:
Ed Sichler, Territory Manager
FORCE America Inc.
105 Jones Blvd.
Pottstown Pa. 19464
570-814-0935
ESichler@forceamerica.com

Bergmann Associates:
Eric Brady, GIS Project Manager
28 East Main Street
Rochester, NY 14614
716-852-3211 ext 853
ebrady@bergmannpc.com

Transmittal Letter

This letter is an acknowledgement by FORCE American Inc & PreCise MRM that the attached proposal is the official response to the City of Rochester Request for Proposal for an Automated Vehicle Locator (AVL) and Intelligent Transportation System (ITS) for the Department of Environmental Services Vehicle Fleet. All information contained in the proposal is factually true and accurately meets the response criteria of all of the RFP sections.

Authorized signer of contract:

Jeff Warner Director of Product Management
FORCE America Inc.
Phone: (952) 707-1355
E-mail: jwarner@forceamerica.com

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SECTION 3 – Guidelines for Proposal Content and Structure

3.1 Executive Summary

To The City of Rochester:

We at PreCise MRM & FORCE America are excited about the opportunity to earn your business. After reading your Request for Proposal we clearly understand the all-encompassing GPS/AVL solution the City of Rochester seeks. In order to meet and exceed the current and future demands of such a solution, we have partnered with Bergmann Associates, an award winning GIS department with experience developing custom GIS and IT solutions for government and industry. PreCise and Bergmann recognize the challenges and values of integrating an AVL solution with existing systems such as ArcGIS, Faster, LAGAN, RouteSmart and Dispatch. This partnership has been designed to merge the robust PreCise AVL solution with the leading GIS and IT solution integrators of Bergmann Associates to meet your primary objectives which will be outlined in our proposal.

We have successfully implemented our GPS solution system-wide to many large municipalities across the country (Washington DOT & Wisconsin DOT to name a few). Our solution is affordable and we will work with you to ensure it fits within the budget you have set forth. We are pleased to have an opportunity to bid on a GPS/AVL solution for you and have made it a top priority. We respectfully submit the attached proposal.

Our Experience:

GPS/AVL (Automatic Vehicle Location) systems have the potential to be a very powerful tool for municipalities. When correctly implemented, they can save fuel costs for the fleet, control material usage, assist in preventive maintenance activities and thus prolong vehicle life, provide liability protection against tort claims as well as provide a host of other benefits. However, there are many options available on the market and it can be difficult to successfully implement an enterprise AVL solution without the right partner.

PreCise MRM LLC, a wholly owned subsidiary of FORCE America that is based in Boise, Idaho, has successfully implemented system-wide AVL programs with many large municipalities in recent months/years. Our ongoing work with large cities such as Duluth, Boulder, and State DOT's such as Washington DOT and Wisconsin DOT have been huge successes. We have successfully integrated our system to meet the needs of each department. Not only did we deliver on our initial commitments to those customers, but have proven that we can adapt to our customers' changing needs.

Our cumulative staff includes some of the best web developers and wireless hardware designers in the market, with many years of experience in the AVL industry. We have been able to work with our customers' existing GIS databases to import data collected from their vehicles directly into their own proprietary maps to provide the ultimate in mapping detail and GPS/AVL integration. Alternately, we provide an off-the-shelf hosted web application which allows new users of GPS/AVL systems to gain experience with their GPS/AVL equipment and mapping data.

In short, our PreCise solution is a perfect fit for the City of Rochester, and we are anxious to prove it. This project is at the top of our list. Please review the details of our system in the enclosed proposal, and contact me with any questions. We have inventory on-hand and can quickly move into the Production phase once you make a decision.

Bob Lowe
National PreCise MRM Sales Manager (Project Manager for the City of Rochester)
Phone: (208) 323-7141
Cell: (208) 850-7739
E-mail: blowe@precisemrm.com

3.2 Company Background Information

3.2.1 Brief Historical Summary

FORCE America Inc. Mission Statement:
To create a business model that perpetually grows to serve the customer and ensures FORCE America stands the test of time.

Professional Qualifications:

Name: **PreCise MRM, LLC. A Subsidiary of FORCE America**
Address: 1311 East Franklin Road
Meridian, ID 83642
208-323-7141 (phone)
952-252-3731 (fax)
www.precisemrm.com

Corporate: **FORCE America Inc.**
Address: 501 East Cliff Road
Burnsville, MN 55337

Manufacturing: **FORCE America – Electrical Division**
Address: 1601 Airport Road
Waukesha, WI 53188

PreCise MRM is a wholly owned Subsidiary of FORCE America. PreCise MRM as an entity is based in Meridian, ID (on the border of Boise, ID). FORCE America owns two (2) other business units which include VariTech Industries (www.varitech-industries.com) and PreCise MRM (www.precisemrm.com).

FORCE America, including its Subsidiaries, acts as a private organization. PreCise MRM, like its parent company, is a private based organization.

FORCE America as a company has 250-260 employees.

FORCE America and its companies, including its entities, are incorporated and chiefly located out of Burnsville, MN.

FORCE America is licensed to do business in New York and has been doing business there for years.
FORCE America has been doing business for 50+ years. The PreCise MRM name was established in 2006. The foundation of the product was established back in 2000.

PreCise MRM core competencies are delivering GPS applications to its customers that want to increase job management and asset management efficiencies. These are the things we have been delivering and are actively delivering today.

Bergmann Associates Experience

Bergmann Associates Geospatial is an award winning GIS department with experience developing custom GIS and IT solutions for government and industry. The City of Rochester AVL proposal offers an opportunity to integrate many existing and future systems in a comprehensive solution that will leverage the value of the City's existing software purchases. Bergmann can offer the technical and consultancy experience to define and implement practical and powerful connections between existing applications and PreCise AVL.

System integration is as much about technology as it is about people and how they do their work. Any large Commercial Off-the-Shelf (COTS) solution takes time to implement, with hours and energy spent defining configurations and new work-practices. Bergmann understands that a successful AVL will integrate the existing workflows and data in software such as Faster, LAGAN, ArcGIS, RouteSmart and Dispatch. As IT consultant we have a long experience helping organizations define priorities for integration. We facilitate the conversations that help understand how and where existing business processes and technology can be integrated into new systems (with the minimum impact to departments and users). Using technology such as web services and ODBC we will help Rochester Department leaders understand how and what information can be shared with PreCise AVL.

FORCE America Inc Financial Statement Attached

FORCE America Inc is a private company and employee owned. We are requesting the City of Rochester keep our financial information confidential per Section 89, Public Officers Law.

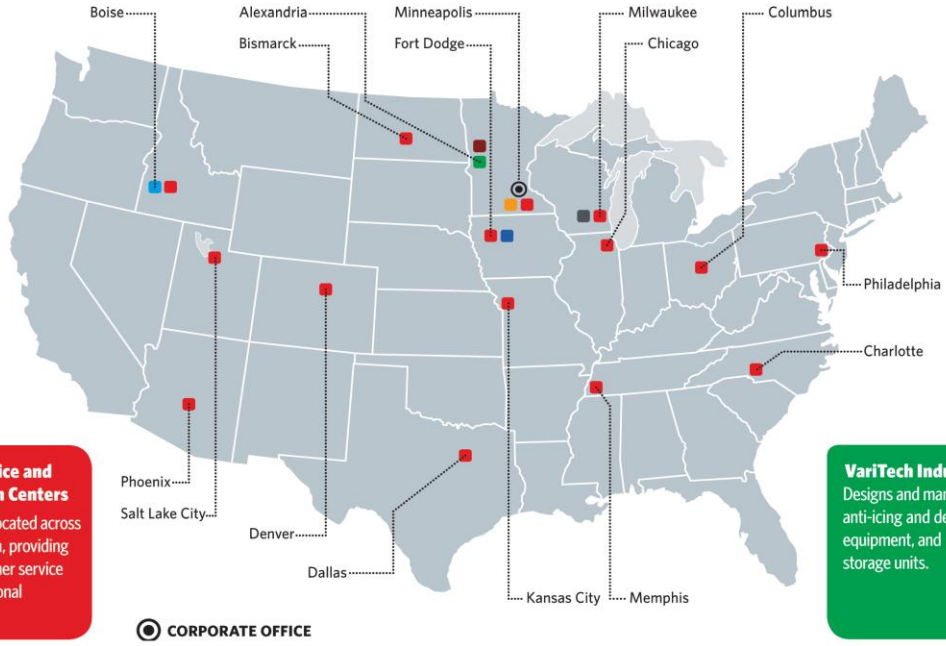
Three-year history of research and development spending as a percentage of revenue

As a wholly owned subsidiary of FORCE America, PreCise MRM has R&D engineers within the division, but also has the ability to utilize engineering resources across the company as projects require.

- PreCise MRM R&D spending over 3 years:
  - 2009: 35%
  - 2010: 30%
  - 2011: 25%
- FORCE America company-wide R&D spending over 3 years:
  - 2009: 8.9%
  - 2010: 7.5%
  - 2011: 7.9%

FORCE America Inc Company USA locations and associated staffing/functional organizations represented at each location

FORCE America is one of the leading suppliers of motion and control, liquid production and application, and AVL/GPS based systems. For nearly 50 years, the company has provided systems and components to the on/off highway, mobile and agricultural markets. FORCE America operates a complete range of facilities to provide technical support and immediate product availability. Experienced design engineers, knowledgeable support staff, and skilled production personnel work together to ensure the quality and service the company is known for. Facilities include:



Sales, Service and Distribution Centers
Strategically located across North America, providing quality customer service and large regional inventories.

VariTech Industries
Designs and manufactures anti-icing and de-icing equipment, and storage units.

Electrical Manufacturing Division
Designs and manufactures electronic circuits, electrical assemblies, and turn-key control systems.

Manufacturing
Recognized for personal responsiveness, product innovations, and flexible designs.

Technical Resource Center
Provides an array of engineering services, technical support, training, and education.

Valve Manufacturing Division
Designs and manufactures integrated hydraulic circuit manifolds with cartridge valve technology.

PreCise MRM
Designs, manufactures, and hosts AVL/GPS based Mobile Resource Management solutions.

PreCise MRM Key Personnel

Bob Lowe
National Sales Manager PreCise MRM
Role – Project Manager
Work history on similar projects – 10 years

Ed Sichler
FORCE America Territory Sales Manager (NY)
Role – onsite local support. Assist Project Manager in making sure tasks stay on track.
Work history on similar projects – 20+ (working with Municipal market)

Michael Schlag
Product Manager PreCise MRM
Role – Assist Project Manager, assist in managing tasks, etc.
Work history on similar projects – 10 years

Rob Ruebel
Sales and Support Specialist PreCise MRM
Role – Sales and Support – Project Manager back up
Work history on similar projects – 11 years

Jacob Hays
Position – Operations Manager
Role – Operations and technical support
Work history on similar projects – 7 years

Darin MacFarland
Project Engineer
Role – In charge of hardware and firmware design
Work history on similar projects – 15 years

David Levitt
Lead Software Developer PreCise MRM
Role – Lead Developer (lead development in engineering in case specific tasks come up)
Work history on similar projects – 12 years

Brad Georgeson
Senior Software Developer PreCise MRM
Role – Senior Developer
Work history on similar projects – 10 years

David Heil
Electrical Engineer II
Role – Firmware Programmer
Work history on similar projects – 15 years

Rick Hinds, Kevin Willard
Position with company: RJA Associates - Owners
Role in project: Installation Project management, training, quality assurance, installation
Work history on similar projects - 8 years
Have worked with municipalities, local school districts and commercial fleets in deploying aftermarket fleet technology such as telematics.
Sub contractor of PreCise MRM

FORCE America Inc. Executives

Steven Loeffler
CEO/Chairman of the Board
30+ years of hydraulics industry experience
Joined FORCE America in 1973
Held positions from inside sales to President/CEO

John Stenz
President
Holds a BS in Mechanical Engineering
Joined FORCE America in 1994
Held positions from shop supervisor to VP Manufacturing and Engineering

Gerry Budzien
COO/President
Joined FORCE America in 1974
Held positions from operations manager to Executive Vice President Operations
Past Chairman of the Board of Directors

Steven Bettendorf
CFO/Executive Vice President
Chairman of the ESOP Trustee Board
Member of the Board of Directors
Certified Public Accountant
Joined FORCE America in 1988

Jason Westad
Vice President, Sales and Marketing
20+ years of hydraulics industry experience
B.A. from University of Minnesota
Joined FORCE America in 2001
Held positions from inside sales to Vice President Sales

Vincent Ahlers
Vice President, Operations
12+ years experience; Applications Engineer, Manufacturing Engineer and Engineering Manager
Industrial plant management
Six Sigma trained
Lean manufacturing procedures, trainer

BA Degree, Business Management, Cleary University

Bergmann Associates Key Personnel

Eric Brady
GIS Project Manager
Role – Project Manager
Work history on similar projects – 8 years

Dave Marley
GIS Lead Developer
Role – Design Lead / Programming
Work history on similar projects – 20 years

Carol Zollweg
GIS Senior Developer
Role – Programming
Work history on similar projects – 20 years

Kate Buss
GIS Lead Analyst
Role – Database Design and Support
Work history on similar projects – 6 years

Mike Ross
GIS Senior Analyst
Role – Data Design and Geoprocessing
Work history on similar projects – 7 years

Strategic company direction and how this direction will benefit the City of Rochester by referencing specific sections of the City of Rochester RFP

FORCE America, Inc. encompasses an entire suite of products and solutions to meet all of the City of Rochester's fleet management needs, some of which have already been implemented at the city such as the SSC5100 spreader controllers. Others include mobile hydraulics, valves, hoses and fittings from our Valve division; liquid application, storage, transfer and brine making solutions from our VariTech division as well as our GPS/AVL hardware and software designed and manufactured by our PreCise MRM division. As a company, our direction is to be the leader in mobile hydraulics, electrical controls, liquid applications and GPS/AVL. Our strategy to accomplish this is to first and foremost always put the customer at the top of the pyramid. We listen closely to our customers' needs and consistently provide innovative and cost effective solutions. There are many ways this benefits the City of Rochester, but the most important is that our focus on the customer allows us to be more than your typical vendor, it allows us to be your partner in identifying and developing successful solutions.

Our unique partnership with Bergmann Associates for the GIS and IT application design and integration extends this customer focus beyond the AVL solution and into your existing backend systems as well. While some of our competitors will tout their "dot on the map" technology or ability to support non FORCE America spreader controllers, PreCise has made the strategic decision to go deep into the winter maintenance niche by focusing years of development efforts on integrating with our FORCE America brand spreader controllers. This enables us to provide reliable and accurate data streams between the spreader controller and the GPS information. The City has one company to hold accountable and one place to go for all of their service and support needs for the GPS and spreader controller system.

The out-of-the-box solution from PreCise allows users at the City to get up to speed quickly on utilizing the GPS and spreader controller data with multiple current and historical map views, material usage reports, maintenance alerts and route completion reports just to name a few. Our partner, Bergmann Associates, takes this further by integrating this data into existing backend applications at the City. Section 1.2 of the City of Rochester RFP outlines the diverse type of vehicles in each of the fleets. PreCise offers a choice of hardware to meet the basic needs of passenger cars and trucks to the more complex needs of street sweepers and snow plows to best meet the City's budget. Last but not least, municipalities across the nation are searching for ways to maximize their budgets and do more with less resources. As stated in section 1.3 of the City's RFP, reducing miles traveled by improving efficiencies in dispatching is a key benefit of implementing a good AVL solution. PreCise aims to give the City the ability to exceed the estimated VMT reduction of 121,860 miles by also providing the ability to monitor driver habits such as speeding, idling, off hours usage and routes.

Current customers

We have provided you with a list of references below and we suggest you contact them. It's important to find out not only have we delivered on our initial commitments to our customers but do we continue to adapt to our customers' ever changing needs.

3.2.2 Vendor Information

Question	Vendor Response
Official Name of Company	Precise MRM
Headquarters' Address	1311 E Franklin Road Meridian, ID 83642
Telephone Number	208-319-0366 or 888-449-0357
Fax Number	952-252-3695
Federal Tax ID Number	27-0279683
Names under which the business has operated within the last 10 years.	Preco Electronics, Inc. PreCise MRM (a wholly owned subsidiary of FORCE America)
Contact Name for questions concerning RFP response.	Bob Lowe
Contact's Telephone Number	208-850-7739
Contact's e-mail address	blowe@precisemrm.com
Is company authorized and/or licensed to do business in the State of New York?	YES
Does your company have an office in the City of Rochester or County of Monroe?	No, but our partner does. Bergmann Associates 28 East Main Street Rochester, NY 14614
Company Ownership	**Private**
If Private, list primary owners and their percentage ownership.	Employee Owned
If Public, list stock trading symbol and market which it is traded.	
Has corporate ownership changed in the last 5 years? If so, provide details.	YES. July 2009 FORCE America purchased the PreCise division from Preco Electronics.

Question	Vendor Response
Has the company purchased any other companies or divisions of companies in the last 5 years? If so, provide details.	YES. FORCE America, the parent company to PreCise MRM, purchase PreCise MRM July of 2009. PreCise MRM is a wholly owned subsidiary of FORCE America.
Has the company or any of its principals defaulted on any municipal contracts in the past 5 years? If so, provide details.	NO
Please provide details on any lawsuits involving the company that are currently pending or occurred in the past 5 years.	No Lawsuits

Has your company ever been declared bankrupt or filed for protection from creditors under state or federal proceedings? If so, state the date, court, jurisdiction, amount of liabilities and amount of assets.	NO
Is your Company currently on the approved NYS Contract list? If yes, identify contract services.	YES. PreCise MRM is currently registered for the NYS Contract reporter.

3.2.3 Vendor Customer References

PreCise MRM as company, focuses on four (4) specific verticals, Service/utility, Heavy Equipment, Asphalt, and Municipal. The majority of our customers at this point in time are Municipal based customers. PreCise MRM has hundreds of Municipal customers similar to the City of Rochester. One of the main objectives that the City has in regards to this project is to get a better understanding of what the snow plows are doing during snow events. That includes, knowing current position, what has been accomplished, how much material was applied, what type of material was applied, air/road temperature, pre-wet totals, direct application totals, etc. These are all things we have done and currently do with hundreds of customers today. One of the unique things that PreCise/FORCE America can offer that nobody else in this industry can offer is the integration between spreader controller and GPS unit. The City of Rochester has between 40-45 SSC5100 controllers within their fleet, maybe more if the City decides to retrofit contractor snow plows. PreCise provides an out of the box solution that is integrated into OUR controllers. We have canned applications per the PreCise application that nobody else in the industry can provide (see below for example of the Material Usage Report).

Currently we have 20-30 organizations that are implementing PreCise in a similar way in which the City of Rochester is doing. FORCE America has a thousand+ Municipal customers that have 5100 controllers, over 12,000 sold nationwide as of a few months ago.

PreCise has close to a hundred customers within the Municipal market that have installed PreCise units and have the complete integration into our controllers (5100/6100). They have been installed for years, some as far back as 7-8 years ago.

PreCise has never lost a customer, has never had a customer switch. Call our references, ask them if they would switch. Again, we can offer something to our customers that nobody in the industry can. From hydraulics, to spreader controllers, to tanks, to GPS, we provide it all. You have contact to get in touch that supports all systems. Some organizations that choose not to purchase PreCise but are FORCE customers often switch out and purchase PreCise because the GPS provider can NOT integrate with our controllers as they said they could. We have spent years in regards to integration to provide the best application out in the market.

Material Usage
Reporting from Tuesday, February 01, 2011 12:00:00 AM through Monday, February 28, 2011 11:59:59 PM
Transportation Fleet

Asset	Engine Hours	Total Distance Traveled (mi)	Total Distance Spreading (mi)	Granular LSALT (Actual lbs)	Granular SALT (Actual lbs)	Granular CLANE (Actual lbs)	Granular SAND (Actual lbs)
unit #10	81:22	1030.7	253.66	73782	62393	23691	
unit #11	67:05	1064.24	450.57	32302	127295	12735	931
unit #12	97:42	1883.93	365.74	3081	129818	37684	9724
unit #13	64:27	862.58	353.4	42084	154890		12301
unit #14	84:51	1937.68	414.5	55914	83736	10590	4371
unit #15	51:11	1162.6	270.38	57469	76055	38501	3279
unit #16	87:22	1092.49	455.13	78253	172469		0
unit #17	126:49	2322.28	300.79	45819	73962	38674	
unit #18	75:32	1197.63	463.07	76933	116228		
unit #19	77:53	1007.37	470.76	83002	135358	26308	
unit #20	84:55	1577.38	475.2	76924	136613		
unit #21	125:06	2358.4	354.63	18	97585	44511	13270
unit #23	77:09	1712.79	278.66	1303	57446	51772	
unit #24	672:00	1684.77	343.68	34042	84678		
unit #25	65:22	1048.57	269.41	58127	118200	25558	
unit #26	51:49	799.02	210.29	54877	68754		
unit #27	74:28	1138.89	459.77	82336	173518		
unit #28	96:55	1774.11	497.79	28890	131205	15508	
unit #29	117:55	1556.97	462.72	48498	120389	19487	
unit #30	92:14	1234.53	403.47	45769	176903	17223	
unit #31	68:20	1018.95	328.16	36529	96505	35915	
unit #32	107:02	1589.18	437.28	41458	108699	34057	
unit #33	107:01	2136.34	273.33	41491	96863		
unit #34	97:26	1421.24	352.14	31790	36758	0	
unit #561	80:24	1016.29	489.86	31337	156470	83947	
Totals	2732:21	35628.93	9434.39	1162028	2792790	516161	43876

Customer References – PreCise MRM

Organization Name: Washington State Department of Transportation
Address: 310 Maple Park Ave. SE. Olympia, WA 98504
Type of Business: Municipal
Contact Person: Brent Schiller (Maint. And Operations IT Manager, Highway)
Telephone Number: 360-705-7860
Email Address: SchillB@wsdot.wa.gov
Dates of Installation: Last 3+ years, continued installation.

Description of System (quantities, type of equipment, etc.): 250+ devices. Snow plow fleet and currently installing units on Vactor trucks. They have built their own application and they pull the data from our servers into their own back end system. The PreCise MRM devices provide the information to the data base. They are pulling application rates (granular, pre-wet, and direct), plow status, location, speed, heading, date & time.

Organization Name: City of Wausau, WI
Address: 400 Myron Street. Wausau, WI
Type of Business: Municipal.
Contact Person: Don Skare (Street Superintendent)
Telephone Number: 715-261-6961
Email Address: don.skare@ci.wausau.wi.us
Dates of Installation: Last 2+ years and ongoing.

Description of System (quantities, type of equipment, etc.) They have round 125 devices of which 100 or so are installed today. They have devices installed on patch trucks, vans, snow plows, sweepers, trucks, cars, tractors, ambulance, fire trucks, etc. They use PreCise to manage their assets, increase efficiencies, reduce fuel consumption, and make their overall fleet more productive.

Organization Name: City of Duluth, MN
Address: 4825 Mike Colalillo Drive. Duluth, MN 55807
Type of Business: Municipal.
Contact Person: Arley Bordenkircher (Director of Fleet Services)

Telephone Number: 218-730-4450
Email Address: ABORDENKIRCHER@duluthmn.gov
Dates of Installation: Started June 2011 and still in progress.

Description of System (quantities, type of equipment, etc.) Around 350 devices of which 100 or so are installed by the time you receive this bid document. They have devices installed on their entire fleet of vehicles including but not limited to passenger vehicles, dump trucks, plows, graders, all-terrain vehicles, one ton trucks, pickup trucks, sidewalk cleaners, sweepers, mowers, three wheel utility vehicles (police), unmarked squad cars (police), marked squad cars (police), service trucks, tandems, flusher trucks, sign trucks, utility vans, etc. They use PreCise to manage their assets, increase efficiencies, reduce fuel consumption, and make their overall fleet more productive.

Organization Name: Dane County, WI
Address: 2302 Fish Hatchery Road. Madison, WI 53713
Type of Business: Municipal.
Contact Person: Jim Matzinger (CPA, Department of Public Works, Highway and Transportation).
Telephone Number: 608-266-4040
Email Address: Matzinger@co.dane.wi.us
Dates of Installation: Started September 2009 and still adding units.

Description of System (quantities, type of equipment, etc.) They have around 200 devices of which all devices are currently installed. They have devices installed on a large part of their fleet but not the entire fleet just yet. Those assets include autos, pickups, crew cabs, supervisors assets, dump trucks, snow plows, haul trucks, brine trucks, attenuators, graders, They use PreCise to manage their assets, increase efficiencies, reduce fuel consumption, manage material costs and make their overall fleet more productive.

Organization Name: City of Novi, MI
Address: 45175 W. Ten Mile Road
Type of Business: Municipal
Contact Person: Chris Blough (PMP, GIS Manager)
Telephone Number: 248-347-3279
Email Address: cblough@cityofnovi.org
Dates of Installation: Started September 2011 and still adding units.

Description of System (quantities, type of equipment, etc.). They have around 70 devices all of which are currently installed. PreCise went through the RFP process with City of Novi as well. In doing so, City of Novi wanted PreCise MRM to create a “route completion report”. We listened, scoped the project, and added it to

our proposal. Part of the agreement in City of Novi going with PreCise MRM was for us to deliver on this application. PreCise MRM engineered the "route completion report" and proved it worked. City of Novi has devices on snow plows, graders, dump trucks, police, ambulance, parks and recreation, vans, pickup trucks, etc. One of the last phases that will be added will be the fire department which will be added in the next few months.

Organization Name: City of Eau Claire
Address: 910 Forest Street Eau Claire, WI 54701
Type of Business: Municipal
Contact Person: Bob Boecher
Telephone Number: 715-839-4963
Email Address: Robert.boecher@cauclairewi.gov
Dates of Installation: November 2011

Description of System: They have 148 devices of which all devices are currently installed. These devices are installed on all of their snow plows, dump trucks, vans, patrol trucks, loaders/backhoes, street sweepers, busses etc. They have improved job efficiencies and they particularly like our maintenance reporting system.

3.3 Detailed RFP Responses

3.3.1 Assumptions

There are a few assumptions that PreCise MRM and Bergmann assume. We assume that the City of Rochester is going to read this proposal and know that not every single variable is going to be defined within the RFP. What we want to prove to the City is that they are working with two (2) organizations that want to provide a working and ever evolving application to the City of Rochester. The City is asking for a lot of things as far as integration, integration into systems that we know we can do. We also assume the City wants to partner with an organization(s) that will be here tomorrow, organizations that have continued to grow through the rough economic times.

As our mission statement states, we as a company want "to create a business model that perpetually grows to serve the customer and ensures FORCE America stands the test of time". In doing so we form relationships with our customers, and we assume the City of Rochester wants to form a relationship with their future business partner.

At this time there aren't any technical assumptions. Whoever the City of Rochester awards this bid to, there will undoubtedly be questions. With a project of this magnitude, not all questions can be asked on an initial RFP. The City needs to be aware things will come up, that will change the overall scope of the project, along with the proposed time line for completion.

Last but not least, we are assuming based upon the timelines of the award, this project will start October 1, 2012. This date is being used for timelines in regards to the Gantt chart along with deliverables.

3.3.2 Advantages of Proposed Solution

The City of Rochester's AVL project scope has outlined the need for a reliable and affordable AVL solution that enables seamless integration with existing backend applications at the City. The first and foremost advantage of the solution proposed by PreCise MRM is the flexible hardware options for your diverse fleet of vehicles, an out of the box hosted web site for mapping and reporting and a partnership with award winning GIS and IT solution integrator, Bergmann Associates. Bergmann Associates' corporate office is located in Rochester, NY. Bergmann has already completed some of the City of Rochester's GIS mapping needs and has a good understanding of the City's existing infrastructure and applications. The City lists the FORCE America SSC5100 spreader controllers as the current in cab controller. As a wholly owned subsidiary of FORCE America, PreCise MRM has years of experience integrating with FORCE America spreader controllers; providing unmatched reliability, support, and reporting capabilities in the industry. Choosing PreCise allows the City to reap the benefits of seamless integration with existing FORCE America spreader controllers and allow our partner, Bergmann Associates, to provide consulting and integration resources to put that data to work for you.

The City has outlined key objectives for the AVL project:

Better management of existing public works vehicles

PreCise offers out-of-the box location and activity mapping as well as detailed maintenance management. Analyze vehicle usage and repurpose to jobs/locations as needed. Integration of PreCise AVL data by our partner, Bergmann Associates, into existing application at the City, such as ArcGIS, FASTER, RouteSmart, LAGAN and Dispatch will allow the city to work even more efficiently which is critical in times where cities are forced to do more with less.

Optimized routing of public works vehicles Improved salting and snow plowing of City streets Reduced Vehicle Miles Traveled (VMT)

PreCise offers seamless integration with FORCE America SSC5100 and/or 6100 spreader controllers. Couple the PreCise GPS data with FORCE America advanced spreader data (ability to track up to 37 separate spreader events) with out of the box activity mapping, routing and material usage reporting and the deep integration with existing fleet management applications at the City for a best in class solution.

Enhanced air quality, especially during summer conditions

Use PreCise to manage driver habits that affect air quality and fuel usage by being alerted to speeding and idle time exceptions. More efficiently dispatch the proper vehicles for the job using PreCise data integrated into existing applications at the City by Bergmann Associates.

Accident reduction during winter conditions

Manage the deployment of winter maintenance vehicles during storm events using PreCise mapping to ensure complete route coverage and appropriate material spread rates using the FORCE America SSC5100 and/or 6100 spreader controllers. The PreCise AVL data can also be used to populate a publicly accessible map of current plow activities to allow residents to determine best routes based on the current conditions and plowing activities. The historical data and mapping provided by PreCise is routinely used in protecting against and fighting tort claims.

More reliable travel times during winter conditions

PreCise allows winter maintenance supervisors to make sure their fleets are well maintained and ready to fight storms when required. Seamless integration between PreCise and FORCE America spreader controllers allows operators to safely and accurate apply material to the roads and fleet supervisors the ability to minimize material usage using detailed material usage reports. Allowing our partner, Bergmann Associates,

to integrate this data into the City's existing applications will limit the "swivel chair" management between applications by the City's end users. Lastly, snapshots of current conditions and storm fighting activities can be made available to residents to allow them to choose the best route.

In summary, The City of Rochester has defined the need for a robust AVL solution along with deep integration with the existing FORCE America spreader controllers and backend systems. We are confident that the jointly proposed solution by PreCise MRM and Bergmann Associates will meet and exceed the City's project requirements

The standard reports that are available in the proposed solution:

Our application will provide the City of Rochester with some customization depending on need. The following reports and/or information are available at this time:

- Last known location map view
- Route Completion Report
- Dispatch map (full screen)
- Last location relative to home (pre-determined address)
- Odometer readings
- Total engine hours
- Last time asset reported in
- Last known location (map view)
- Historical trip report (map view)
- Raw data report
- Exception reports
  - Battery voltage
  - Speed
  - Idling
  - Operating during "off" hours
  - Maintenance
  - Power
  - Geo fence (in/out)
  - Temperature (custom attention required)
- Zone/Route report (Geo fence application)
- Unlimited amount of user defined polygonal geo fences
- Idle report
- Engine Data Report (J1939 integration)
- Fleet Stop report
- State Summary report
- Individual Vehicle Mileage Report (IFTA/IRP filings)
- Daily Asset Usage report
- Weekly Asset Usage report
- Monthly Asset Usage report
- Custom Asset Usage report
- Custom Input Usage report (monitors usage of 2 discreet inputs)
- Custom Input Distance report (monitors distance of 2 discreet inputs)
- Asset Distance report
- View Maintenance History/Update Maintenance Record
- Ping Asset (SMS report)

3.3.3 Project Costs and Pricing Options

PreCise MRM Cost Proposal for GPS/AVL Equipment and Services

Hardware:

PreCise MRM does not have software licensing fees therefore we have not included a licensing agreement.

PHASE 1 – Snow & Ice Control – 50 devices

Product		Quantity		Price		Total		
IX-301		50		$ 600.00		$30,000		
Input harness		50		$ 15.00		$750.00		
Logging Key for 5100		50		$ 50.00		$ 2,500.00		
Pressure switch for plow		50		$ 165.00		$ 8,250.00		
					TOTAL	$41,500		

***This includes all the hardware required to integrate into your snow plows. This pricing assumes all vehicles have FORCE America 5100 controllers. Please note that PreCise MRM is the ONLY truly integrated GPS supplier that is integrated into our controllers (SSC5100/6100 from FORCE America). No other vendor can claim they are integrated. Also, any other GPS vendor bidding will have to get a cost proposal from PreCise MRM for the cost of the "event logging key". Without this key, the 5100 controller cannot supply data to any GPS device. Also, there are other less expensive options to track the status of the plow. A hydraulic pressure switch is the more robust solution, but again there are less expensive applications like a "tilt switch". This switch would cost $40.00 but isn't as robust.

All IX-301 devices come with power harness and the antenna. The input harness will give the City the ability to track up to six (6) discreet inputs (plow, wing, strobe lights, etc.).

Phase 2 – Solid Waste Management – 80 devices

Product		Quantity		Price		Total		
IX-101		80		$300.00		$24,000.00		
					TOTAL	$24,000.00		

The IX-101 device includes the power harness, antenna, and two (2) inputs built into the power harness. At this point in time, PreCise MRM does not know if the City intends to track additional inputs for this particular fleet.

Phase 3 – Special Services Division – 120 devices

Product		Quantity		Price		Total		
IX-101		120		$300.00		$36,000.00		
					TOTAL	$36,000.00		

The IX-101 device includes the power harness, antenna, and two (2) inputs built into the power harness. At this point in time, PreCise MRM does not know if the City intends to track additional inputs for this particular fleet.

Phase 4, 5, 6 – Water Bureau, Parks, Forestry and Open Spaces, Building Services Division – 177 devices ***per the RFP this phase will be completed at a later date and have been combined.

Product		Quantity		Price		Total		
IX-101		177		$300.00		$53,100.00		
					TOTAL	$53,100.00		

The IX-101 device includes the power harness, antenna, and two (2) inputs built into the power harness. At this point in time, PreCise MRM does not know if the City intends to track additional inputs for this particular fleet.

Software and Support:

Annual Network Access Fees (NAF) and Unlimited data fees:

NAF = $119.99 per year per asset. Annual fees run from July 1 – June 30 every year. Fees will be pro-rated at the time of installation. Annual NAF covers satellite imagery, data hosting (3 years), maintenance and support, and access to all upgrades and enhancements (PreCise MRM has 2-4 major enhancement updates per year).

Based upon the completion of the first three (3) phases, which equals 250 devices, the re-occurring annual fee would be **$29,997.50**. See chart below.

Product		Quantity		Price		Total		
Annual NAF		250		$119.99		$29,997.50		
			Total re-occuring annual fee			$29,997.50		

Unlimited data plan = $24.00 per month per asset per month. This would allow the City of Rochester to send data every 15-40 seconds depending upon network connectivity. This is per the requirement of the RFP (real-time). If the City chooses, there are other plans available that are cheaper. Total fee for data for 250 assets per month would be **$6,000.00 per month**. For a 12 month period (1 year) the cost for an unlimited plan for 250 assets would be **$72,000.00**. This is for the first three (3) phases which includes 250 assets. See chart below.

Product		Quantity		Price		Total per MONTH		
Unlimited data		250		$24.00		$6,000.00		
						Total per YEAR		
						$72,000.00		

Installation of devices:

Without knowing the full details of every single piece of equipment, this cost is an estimated cost. Device installation could be as low as $100.00 per vehicle, but could be as high as $250.00 per device if extra inputs are included, which have yet to be defined by the City of Rochester. Also, if we have to install pressure switches on the snow plows, that will incur an additional cost. For an average price, we have used $150.00 per device for installation. This price could be lower or it could be higher after we have fully assessed what the City of Rochester deems as necessary.

Product		Quantity		Price		Total		
Installation of device		250		$175.00		$43,750.00		
					Total	$43,750.00		

TOTAL for hardware, installation, annual fees, and data year one:

$300,347.50***

*****shipping not included. Tax NOT included.**

Optional Equipment:

Hydraulic switch for plow sensor -> $165.00
Tilt/mercury switch for plow sensor -> $40.00
Covert antenna -> $40.00
Impact sensor -> $70.00
Vehicle Data Terminal-> $800.00 (to flag road hazards, operator driven)
*****installation of this equipment requires an additional fee which we will address if the City desires.**

Bergman Associates Integration Pricing

Bergmann Associates looks for lump-sum contracting based on specific deliverables agreed by all parties. Deliverables will have sufficient scope so that all parties can agree on the expected products and services. We will identify milestone deliveries and bill for services at regular intervals based on a percent complete of the project. Cost over-runs will be identified as any items out-of-scope from the agreed initial contract. Out-of-scope items will be identified as soon as they become apparent for review and decision by the City of Rochester. Cost over-runs on known contracted items will not be billed to the City.

The City of Rochester has an ambitious plan to integrate AVL with the many useful applications now supporting the City. By having systems 'talk' with each other, value is multiplied as each department and system is enhanced. Bergmann Associates understands that the real work for integration is defining the business rules of how data should be moved and displayed. Since the RFP does not define these rules in a detailed way it is difficult to give an accurate cost. For this stage in the RFP process we are offering a Rough Order of Magnitude (+/- 50%) estimate, based on the limited information available at this time and making assumptions based on previous experience. We expect that future conversations will give clarity to the specific types of integration required, and a more definitive cost will be offered.

These estimates will likely change based on continued conversations:

- FASTER - $50,000
- RouteSmart - $25,000
- LAGAN 311 -$50,000
- Dispatch – $50,000
- Work Order System (TBD) – $50,000
- ArcGIS - $50,000

Based on previous experience it can be expected that annual maintenance and upgrades average approximately 10% of the initial fee.

Bergmann GIS Professional Services Hourly Rates:

GIS Project Manager	$150
GIS Programmer	$150
GIS Analyst	$125

3.3.4 Degree of Fit

Covered Below.

3.3.5 On-Going Support

Reference #	Requirement	Response (Y,Z,N,T)	Xrf
3.3.5.1	Toll Free Support Phone Number	Y	
3.3.5.2	24x7 Support	Z	
3.3.5.3	Software/Application Support	Y	
3.3.5.4	Remote diagnostic support software	Y	
3.3.5.5	Remote diagnostic support hardware	Y	
3.3.5.6	Documented escalation procedures	Y	
3.3.5.7	Dedicated Tier 2 (Mid-Level expertise) support staff	Y	
3.3.5.8	Dedicated Tier 3 (Senior-Level expertise) support staff	Y	
3.3.5.9	Portal to exchange information and support	Y	

3.3.6 Internal Information Technology Production Environment Support

PreCise MRM Support

Michael Schlag
Product Manager PreCise MRM
Role – Assist Project Manager, assist in managing tasks, etc.
Work history on similar projects – 10 years

Darin MacFarland
Project Engineer
Role – In charge of hardware and firmware design
Work history on similar projects – 15 years

Jacob Hays
Operations Manager
Role – Operations and technical support
Work history on similar projects – 7 years

David Levitt
Lead Software Developer PreCise MRM
Role – Lead Developer (lead development in engineering in case specific tasks come up)
Work history on similar projects – 12 years

Brad Georgeson
Senior Software Developer PreCise MRM
Role – Senior Developer
Work history on similar projects – 10 years

David Heil

Electrical Engineer II
Role – Firmware Programmer
Work history on similar projects – 15 years

Bergmann Associates Support

Eric Brady
GIS Project Manager
Role – Project Manager
Work history on similar projects – 8 years

Dave Marley
GIS Lead Developer
Role – Design Lead / Programming
Work history on similar projects – 20 years

Carol Zollweg
GIS Senior Developer
Role – Programming
Work history on similar projects – 20 years

Kate Buss
GIS Lead Analyst
Role – Database Design and Support
Work history on similar projects – 6 years

Mike Ross
GIS Senior Analyst
Role – Data Design and Geoprocessing
Work history on similar projects – 7 years

3.3.7 Written Documentation

PreCise MRM will provide written documentation in regards to all products required. That includes the spec documentation along with installation documentation. No additional cost.

PreCise MRM will provide a hand guide in regards to the user interface. All material are also available via the website. The information contained within these guides describes to the user how to use the application(s) that are available via the PreCise application. No additional cost.

PreCise MRM typically has 3-4 product updates per year. At the time of release of the new features, a new features tab (via the PreCise application) is updated to explain to users not only how to use the application but why the application was added (benefit). All documentation will then be updated within 1-3 months of the application being released to production.

Any maintenance that takes place on the PreCise MRM servers is completed during “off-hours”. If the PreCise application is taken off line for a period of more than 15 minutes, a notification is sent to all users of when maintenance will occur along with the expected downtime.

Specifications to the PreCise product can be sent to the City of Rochester at no additional cost. Web Services documentation can be provided to the City of Rochester at no additional cost.

Any documentation other than "standard" documentation can be provided to the City of Rochester. Fees associated with writing non-standard documentation will be assessed at that time and a quote will be sent to City of Rochester before anything is delivered.

Web training is offered year round for any user within the City of Rochester by a PreCise employee. There is no additional cost for continued web training.

3.3.8 Product Maintenance

PreCise MRM will be partnering with Bergmann Associates on this bid. Bergmann will be responsible for the integration of PreCise data into the City of Rochester systems per the requirement of the RFP. PreCise MRM does come out with 2-4 updates per year in regards to the applications, but this will NOT affect anything that Bergmann has done or will continue to do in regards to the integration of the data from PreCise database(s) to the City of Rochester database(s).

As mentioned previously, PreCise MRM comes out with 2-4 updates per year in regards to the application. These updates include product improvements, bug fixes (if any found), enhancements, and added applications. These updates are made during off hours and will not affect performance or usability of the PreCise application.

PreCise MRM will work hand in hand with the City of Rochester in regards to new potential applications that can be added. All of our improvements and added applications came about directly from customer feedback and input. Applications such as the Material Usage Report, Route Completion Report, Fleet Summary Report, Animated replay, etc…are all from customer input. PreCise works with its customers directly on a daily basis for PreCise truly understands that as our customers' needs change/expand, the PreCise application has to change as well. For any new feature that we had, even if it was specific to a particular customer, we turn that feature on for every customer. PreCise has found that if one customer wants a new feature or an added application, another customer is or has been thinking the same thing.

PreCise, in partnering with Bergmann, has been assured by Bergmann that any updates made on their end, will not affect the PreCise application. Bergmann, in simple terms, is simply taking the data from PreCise and integrating it into the City of Rochester systems. Bergmann will not have any effect on how PreCise operates.

PreCise has contracts with multiple suppliers in regards to the PreCise application. We are contracted with Microsoft for our maps, we are contracted Solution Pro in Boise, ID to host our servers. We pay an annual fee to Microsoft and and we pay an annual fee to Solution Pro. As far as Bergmann goes, they do have a contract with ESRI to incorporate ArcGis mapping applications, they are a gold member.

Bergman Associates Product Maintenance:

Bergmann Associates will support all its system integration deliverables for as long as required by the City. As internal software versions change we will support upgrades and modifications to our custom integration applications as needed. It is Bergmann's intention to be a locally based service provider ensuring that the AVL works with all current and future integrated systems for the foreseeable future, through maintenance and support of the integration touch-points within the City's IT enterprise. Maintenance support is suggested as a Time and Material contract for specific as-needed changes

3.3.9 Project Management Methodology and Implementation Plan

Project Assessment:

To ensure a successful project, City of Rochester should appoint at least two (2) Project Managers that PreCise has access to during the implementation/installation. Also, the Cityy should have at least two (2) main contacts that are responsible for the PreCise application. There will be multiple phases to the project along with multiple tasks assigned to each City representative. During all phases, PreCise MRM will remain in constant contact with City representatives to make sure expectations are met and exceeded. There will be face to face communication during the initial kickoff in which PreCise will be onsite along with follow up on site activities around PreCise training. The "type" of personnel that should be appointed by the City as managers for the project is defined below:

1) Installation

a. Has access to all personnel in shops.

b. Has access and can make decisions based upon shop hours (working after hours).

c. Has access and can make decisions in regards to all assets assigned to the initial GPS project.

2) PreCise application

a. Person who will be appointed Admin of PreCise (can be more than one person)

b. Has access and oversees all FLEETS (public works, parks and rec, police, fire, fleet, etc.)

c. Ultimately manages costs of the overall project.

Again, with appropriate defined personnel by the City that PreCise has access to during this project, project will be a success.

Project Management

Project Control

PreCise MRM has worked through a number of projects that are of similar size for multiple Municipal agencies. Over the last 7+ years PreCise MRM has gained a lot of knowledge in regards to managing projects from start to finish. Based upon the information provided within this RFP, there are two main project activities: 1) installation of the devices 2) training of City of Rochester personnel to utilize the PreCise MRM application (multiple levels of training).

1) Installation of the initial 424 devices (estimated). To ensure that the devices are installed in a timely manner and either are installed ahead of schedule or right on time, we will need cooperation of City of Rochester personnel. In leading successful installations, PreCise MRM has found that there needs to be a minimum of two (2) main contacts within City of Rochester that can provide the following during the installation process.

    a. First and foremost prior to installation, an onsite survey will be performed by the Project Manager (Bob Lowe) with the installers and the appropriate personnel from City of Rochester. Onsite survey will include looking over the following items:
        i. All types of vehicles included in the initial installation phase.
        ii. All locations in which the equipment is going to be installed.
        iii.
    b. Provide access to all equipment per the project plan for the allotted time. In doing so, provide PreCise MRM a list of vehicles that will be available each day while installation is occurring.

c. Provide access to any shop manuals or equipment documentation including but not limited to wiring diagrams, 3rd party product upgrades (example radio and emergency alert systems) and other internally documented equipment detail reasonably necessary to complete the installation.

d. Provide access to shop personnel when any unique knowledge of specific or customized equipment information may be important. While the team will endeavor to minimize the disruption of shop personnel, to ensure the successful implementation, it may occasionally be necessary for an individual familiar with the history of a piece of equipment.

e. In situations where a piece of equipment needs to be installed on a City location, our staff will need access to the shop during working hours.

f. Provide access to all shop locations.

g. Potentially provide access to shop locations and assets after hours. PreCise MRM has found that taking assets out of service to install devices during non-working hours may not happen. If this occurs, those vehicles need to be made available to the installers after hours. This can only happen with the cooperation of City of Rochester personnel.

2) Training of the PreCise MRM application. For training on the PreCise MRM application, the PreCise team will need access to city personnel. The specification did not require a minimum number of personnel that needed to be trained, but PreCise would recommend 10-20 personnel be trained on the application. At least the head of each department should have access and understand how to use the PreCise application. In doing so, PreCise would recommend the following:

a. On average, initial end user training can be completed in two (2) hours. Thus, the requirement would be approximately 50 hours from city personnel. Most of this could happen concurrently to minimize the disruption on daily operations.

b. On average, initial Admin training can be completed in two (2) hours. PreCise would recommend at least 2-5 Admin users that have full knowledge of the application and how to change things, add users, define reporting levels, etc.

c. Webinar trainings will be provided monthly to all parties that want to participate until all appointed staff is comfortable in using the PreCise application. There is not any additional fee for this service.

As long as PreCise has full cooperation with appointed City of Rochester personnel (ones assigned to ensure success of the GPS project) the project will run smoothly from start to finish.

Project Reporting

The most successful projects that PreCise MRM has led had weekly project updates. PreCise would recommend a call every Friday morning from the time the project kicks off. Every Friday, at 10am EST with all pertinent parties. We would require participation from the lead personnel at City of Rochester (project managers), lead installers, and overall Project Manager and his team. During this process we would cover the following items:

1) Installation progress
   a) How many devices were installed on vehicles, are they all successfully reporting, have there been any issues during that week, if there were issues were they resolved, etc.
2) Are all parties happy with how installations are going?
3) Are all parties comfortable with their current knowledge of the PreCise application?
4) Are there any close out procedures that need to be discussed?
5) Discuss next week's activities. Are the installers having to change locations? Do the installers have the list of assets they are going to touch for the following week? If not, why? Are there any holidays or work schedules that need to be brought up and discussed that could affect the Installation progress?
6) PreCise end user training? Schedule upcoming sessions if need be.

After each week, Project Manager would provide a written minutes report of all pertinent things discussed along with the deliverables for the following week/month. Things such as the following would be included in the minutes:

1) Attendees on the call.
2) Project ID.
3) Date in which call took place.
4) Next meeting date.
5) Discussion items.
6) Action items.
7) Following weeks agenda (if changed).

By following a structured schedule where all parties are involved, everyone is aware of the current progress. This is key to a successful implementation. Not only in regards to installation, but in regards to training on the PreCise application .

Interface with the City

To ensure a successful project, City of Rochester should appoint at least two (2) Project Managers that PreCise has access to during the implementation/installation. Also, the City should have at least two (2) main contacts that are responsible for the PreCise application. There will be multiple phases to the project along with multiple tasks assigned to each City representative. During all phases, PreCise MRM will remain in constant contact with City representatives to make sure expectations are met and exceeded. There will be face to face communication during the initial kickoff in which PreCise will be onsite along with follow up on site activities around PreCise training. The "type" of personnel that should be appointed by City of Rochester as managers for the project are defined below:

3) Installation
a. Has access to all personnel in shops.
b. Has access and can make decisions based upon shop hours (working after hours).
c. Has access and can make decisions in regards to all assets assigned to the initial GPS project.

4) PreCise application
a. Person who will be appointed Admin of PreCise (can be more than one person)
b. Has access and oversees all FLEETS (public works, parks and rec, police, fire, fleet, etc.)
c. Ultimately manages costs of the overall project.

Again, with appropriate defined personnel by the City that PreCise has access to during this project, project will be a success.

Risk Management

There are many potential risks in regards to a project of this size. The potential major issues are defined below:

1) Not having access to vehicles which delays installers.
2) Not having access to shop time to install devices delays installers.
3) Not having the appropriate asset list in which devices are going to be installed.
4) Not having the appropriate equipment to install.
a. Delay in the delivery of hardware.
5) Not ensuring the devices are reporting in properly before releasing asset into the field.
6) Not communicating on a weekly basis with all parties involved.
7) Projects coming up that were undefined initially.
8) Implementation into systems defined within the RFP taking longer than initially planned.
9) Additional featured added by the City that weren't discussed prior to the project starting.

Each one of these items can easily be avoided by keeping the communication channels open 24x7 during the implementation phase of this project. Knowing exactly when the project is going to kick off. Which, we will assume is October 1, 2012. Knowing exactly when the project needs to be completed (undefined within the RFP regarding initial phase). Keep communication channels open and make sure all parties have the same understanding of deliverables and completion goals.

City of Rochester GPS Fleet Tracking Services Gantt Chart

Tasks	*Responsible Party*	*Start Date*	*Duration (business days)*
Purchase Order Issued	City of Rochester	10/1/2012	1
Shipping of all Product	FORCE America/PreCise MRM	10/2/2012	30
Installation of Product	RJA Associates	11/1/2012	70
PreCise MRM Training	PreCise MRM	11/15/2012	2
Ongoing support	PreCise MRM	11/16/2012	ongoing, as needed
Additional PreCise MRM Training	PreCise MRM	11/16/2012	ongoing, as needed

Bergmann Associates Project Management

Bergmann Project managers follow a PMI (Project Management Institute) approach to organizing and managing each project. Our PMP trained Project Manager will ensure that scope, schedule and fee are based on realistic targets and quality integration deliverables. Using workflow diagrams, application interface mock-ups and iterative programming releases, we conduct meetings and reviews so that everyone understands how each AVL integration will work and enhance department's day-to-day work. Bergmann's approach to custom integration for the AVL project will be based on working closely with stakeholders to ensure that their needs and expectations are clearly defined and addressed. As a local IT consultant only 5 minutes from City Hall, we will provide the required in-person point of contact for the important design discussions required for the integration opportunities.

3.3.10 Strategic Direction

PreCise MRM designs and manufactures our GPS hardware in the USA. We also have a team of web developers in house that continuously support and add new functionality for our customers to extract value from. PreCise MRM and our parent company, FORCE America, have made the strategic decision to focus our development efforts solely on the FORCE America SSC5100 and 6100 spreader controllers. PreCise has gone beyond simple vehicle tracking to collect accurate and reliable data, display this data easily and efficiently in canned reports to our users and making this data available for backend application integration.

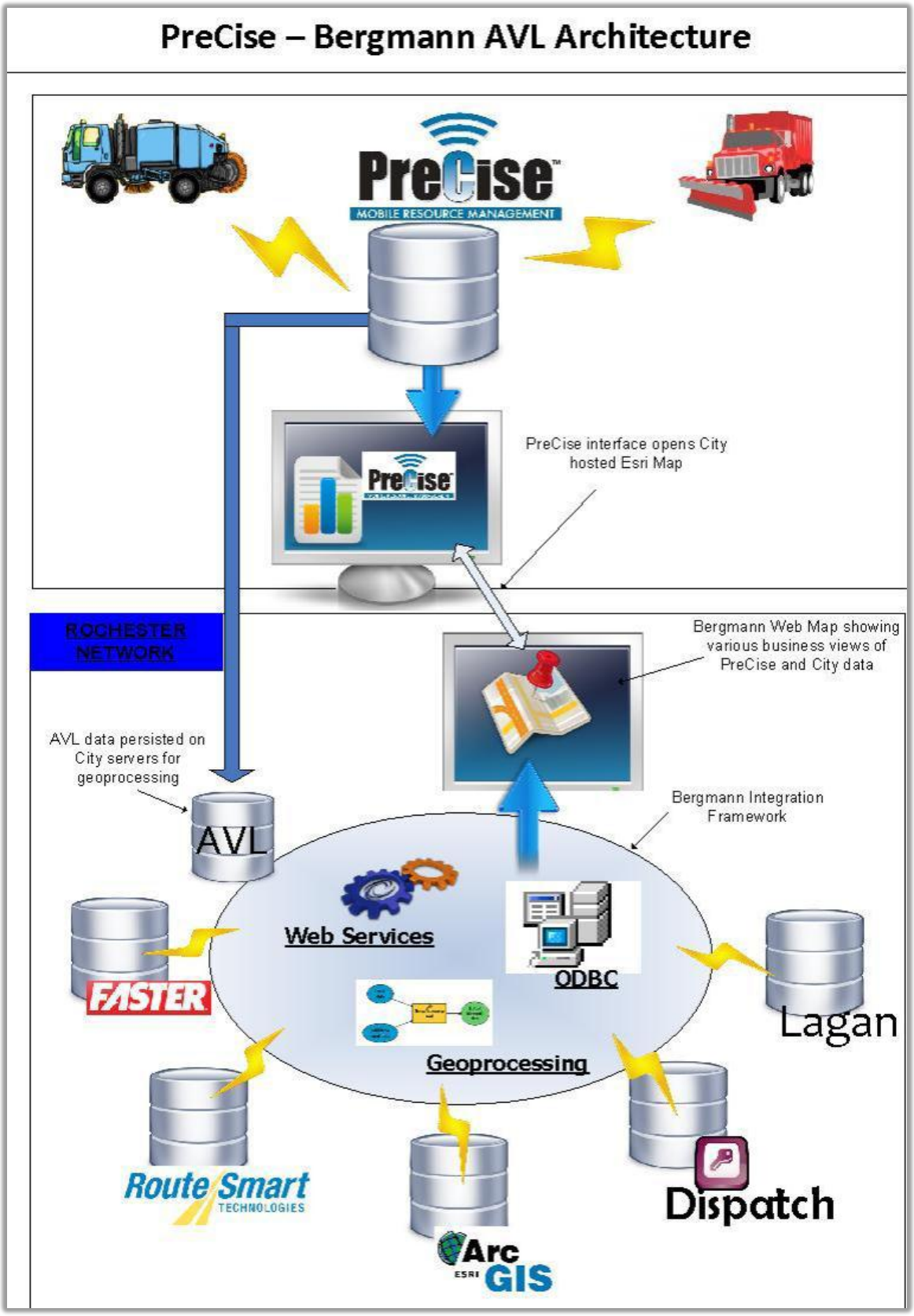
Our long term success and viability is based on deep integration with spreader controllers from our parent company, our unique partnership with award winning GIS and IT solution integrators, Bergmann Associates, and our commitment to customer service at every level. The City of Rochester's AVL/ITS project supports our strategic direction of tightly integrating with FORCE America spreader controllers, providing solid ROI based on using GPS data for more efficient dispatching, routing, fleet maintenance, material usage control, safety and seamless integration with existing backend applications by our partner, Bergmann Associates.

1) What differentiates the vendor from its competitors?
   - Unmatched integration between PreCise GPS devices and FORCE America SSC5100/6100 spreader controllers
   - Unique partnership with award winning GIS and IT solution integrator Bergmann Associates to provide consulting and integration servers for the City's existing backend applications.
   - Hardware and software designed and manufactured in the USA
   - Multiple hardware platforms and cellular data plans to choose from to best need budget requirements for each vehicle type
   - Local support provided by PreCise MRM/FORCE America and Bergmann Associates
2) Why should the City of Rochester select and implement the Vendor's integrated business systems versus that of other vendors?
   - The City of Rochester should select and implement the proposed business system by PreCise MRM because we have the best integration with FORCE America SSC5100/6100 spreader controllers, a time tested and proven ROI that meets and exceeds the City's objectives and a unique partnership with Bergmann Associates to provide consulting and integration to seamlessly merge the PreCise MRM data with the City's existing backend applications – ArcGIS, FASTER, LAGAN, Dispatch and RouteSmart.
   - The City has laid out an in-depth project plan that will require more than a vendor that can simply sell hardware. The City will benefit greatly from a partner that will work closely with the City to design, implement and support an AVL solution tightly integrated with existing backend applications, which is what PreCise MRM is committed to delivering.

3.3.11 Annual Reports

Financial Statement Attached

SECTION 5 – Legacy Systems Environment



SECTION 6 – Process Automation Requirements

Column Title	Description
Reference #	The reference number is a number that is used for reference purposes only. They are not in sequential order of importance.
Procedure	A procedure is defined as a step in the process and it describes what is being done at that point in the process. It does not say how it is accomplished and it may be a manual step or it may in some way be automated by a vendor's software solution.
Requirement	In this column is where the functionality requirement is located that the vendor must provide a response to in the **Response** column.
Response (Y,Z,N,T)	Enter in this column a value listed above for each individual specification.
Xrf	Enter in this column a reference code number where a comment has been entered to provide additional clarification to the response.

6.1 OBJECT - Vehicles

A vehicle is any equipment that is used to perform a city service/activity. We have a myriad of vehicles starting from HHR's to Side load packers and similar heavy duty trucks.

6.1.1 PROCEDURE - Assign the vehicle to a route

Dispatch will assign a specific type of vehicle to the route depending on the type of activity to be performed.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.1.1.1	Add a vehicle to a pre-determined group.	User Interface	Y	
6.1.1.2	Change the vehicle from one group to another.	User Interface	Y	
6.1.1.3	Change display icons for vehicles of the same group.	User Interface	Y	

6.1.2 PROCEDURE - Retrieve the vehicle from lot

After dispatch makes vehicle assignments, the driver walks into the lot to locate and drive the vehicle assigned to his route.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf

6.1.2.1	Identify the location of vehicles within the parking area (e.g. CVMF parking lot).	User Interface	Y	
6.1.2.2	Transmit a specific signal from the vehicle indicating that the vehicle is parked for service.	User Interface	Y	

6.1.3 PROCEDURE - Drive the vehicle

The location of a particular job can be pre-determined if it is part of a regular route, or can be inferred from a work order / work request, and then the vehicle(s) involved in performing the same will drive to this address/location.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.1.3.1	Perform engine kill after deeming it is safe to do so in lost or stolen equipment.	User Interface	Z	6.1.3.1Comment
6.1.3.1Comment: Due to liability concerns, we would not recommend an engine kill feature even if it was deemed safe to do so. We will be able to provide you with a feature that will inhibit the vehicle from starting up or restarting.				
6.1.3.2	Perform route playback.	User Interface	Y	6.1.3.2Comment
6.1.3.2Comment: We provide you with two (2) route playback applications. A historical map report which is found on our full screen map section where a vehicles (or multiple vehicles) route can be replayed by customizing the date/time. During the replay, geostamps (bread crumbs) are dropped and at any point you can pause the replay, zoom in on a particular geostamp to gather more information about the vehicles behavior. If you would rather see lines trailing the vehicles activity, you would utilize our historical trip report. Users select a vehicle, date/time, select a route and point threshold and run the report. For example, if tied into a FORCE America 5100 or 6100, the user would be able to see the distribution rate of salt for a particular stretch of road. Or, if plow sensor is installed, the user will be able to pull up where a vehicle has plowed for a selected period of time.				
6.1.3.3	Provide a bread crumb trail for a specified time frame with no limitations on the different factors.	User Interface	Y	
6.1.3.4	Capture geo-fence based events.	User Interface	Y	

6.1.3.5	Auto email resources when a geo-fence event triggers. The City uses MS Exchange Server / Outlook for email applications and the vendor should be able to provide this service in the specified software environment.	Report	**Y**	
6.1.3.6	Have unlimited geo-fences on a map.	User Interface	**Y**	
6.1.3.7	Have overlapping geo-fences.	User Interface	**Y**	
6.1.3.8	Activate or deactivate geo-fences based on the activity that we monitor.	User Interface	**Y**	
6.1.3.9	Locate vehicle or vehicle groups at any given time.	Report	**Y**	
6.1.3.10	Optimize the different routes to reduce vehicle miles travelled. The City uses RouteSmart Technologies' RouteSmart® for route optimization and the vendor must either integrate with RouteSmart® or provide an ancillary add-on to the AVL solution for route optimization.	User Interface	**T**	6.1.3.10Comment
6.1.3.10Comment: We suggest working with RouteSmart's output data. The system will integrate routes created by RouteSmart as Esri GIS data. This data can be exported to a file format or integrated into the City's expected ArcSDE database. As Routes are recreated or modified, the AVL Mapping system's data will be refreshed to display the latest RouteSmart-generated route and district information. Real-time routing capabilities will be provided by commercial web-services (Esri).				
6.1.3.11	Set the ping rate based on vehicle type and / or use.	User Interface	**Y**	
6.1.3.12	Store data on the device and forward (session persistence) when it can communicate back to the base.	Other	**Y**	
6.1.3.13	Set what types of data are transmitted in real-time or near real-time (e.g. Location, Engine Trouble) and what types are stored for download (passive) at the end of the day (e.g. Time Between Service Stops) determined on a per vehicle basis	User Interface	**N**	6.1.3.13Comment
6.1.3.13Comment: PreCise MRM uses the most efficient data transfer protocols possible so our customers don't have to manage what to transfer immediately vs. what to delay.				

6.1.3.14	Notify 911 or trigger emergency alarms from the device for certain vehicle (e.g. Panic button).	System Interface	**Z**	6.1.3.14Comment
6.1.3.14Comment: We suggest a messaging system or panic button be used to alert dispatch who would then contact the proper authorities.				
6.1.3.15	Capture vehicle maintenance and emergency repair issues (e.g. Engine light). The City uses CCG Systems' FASTER Fleet Management for management of its fleet of vehicles and equipment. The vendor must be able to provide integration with FASTER.	Report	**T**	6.1.3.15Comment
6.1.3.15Comment: Data will be made available from the vehicle hardware and updated in the FASTER database through the FASTER Application Program Interface.				
6.1.3.16	Recognize and flag dangerous maneuvers (e.g. U-turns).	Report	**T**	6.1.3.16Comment
6.1.3.16Comment: A GIS geoprocessing task will be developed to identify when City vehicles 'break' specific driving rules. This can include U-Turns, one-way rules or speed violations. The reporting of this information can be accessed through a GIS Reporting interface where a use can query for and display the location, type and vehicle involved in specific violations.				
6.1.3.17	Notify (email, SMS) system administrator on alerts, alarms or flagged data. The City uses MS Exchange Server / Outlook for email applications and the vendor should be able to provide this service in the specified software environment.	Report	**Y**	6.1.3.17Comment
6.1.3.17Comment: Email alerts currently available are:				
6.1.3.18	Configure the unit to provide turn by turn directions.	User Interface	**T**	6.1.3.18Comment
6.1.3.18Comment: Turn by turn directions can be provided for a specific route through the On-Board PC as large font text.				

6.1.3.19	Install modular AVL hardware to permit tracking a specific subset of vehicles through component removal and re-installation.	Other	Y	
6.1.3.20	Vehicle operators can “flag” specific locations, and annotate conditions for immediate alert and follow-up, specifically upon encountering a potentially hazardous condition.	Business Form	Y	6.1.3.20Comment
6.1.3.20Comment: This can be provided by our In Cab Data Terminal if it is deemed necessary by the city.				
6.1.3.21	Track vehicle speed.	User Interface	Y	
6.1.3.22	Track and report on vehicle miles travelled. The City uses CCG Systems' FASTER Fleet Management for management of its fleet of vehicles and equipment. The vendor must be able to provide integration with FASTER.	Report	T	6.1.3.22Comment
6.1.3.22Comment: Bergmann will pull this data from PreCise MRM and make it available to your FASTER Fleet Management system.				
6.1.3.23	Initiate an alert if a vehicle becomes stationary for more than the designated period of time while the engine is running (i.e. Idle time).	Report	Y	
6.1.3.24	Set minimum speed levels for reports based on activity.	Report	Y	
6.1.3.25	Utilize “geo-fences” to deter travel beyond approved geographic limits and identify potential abuses.	User Interface	Y	6.1.3.25Comment
6.1.3.25Comment: Unlimited amount of geofences can be created in our solution. Email alerts for vehicles entering or exiting a geofence can be created and customized for each user.				

6.1.3.26	Transmit alerts using data from the obd2 (on board diagnostic software) would be sent out over a communication network indicating when preventative maintenance is required. The City uses CCG Systems' FASTER Fleet Management for management of its fleet of vehicles and equipment. The vendor must be able to provide integration with FASTER.	System Interface	T	6.1.3.26Comment
6.1.3.26Comment: Data transmitted from the OBD2 will be consumed and updated in the FASTER database through the FASTER Application Program Interface.				
6.1.3.27	"Encrypt" wireless data streams.	Other	Y	
6.1.3.28	Notify the vehicle driver approaching hazardous/ road conditions (e.g. Speed bumps) with periodic refresh from a leading provider of maps, traffic and location data.	System Interface	T	6.1.3.28Comment
6.1.3.28Comment: The GIS geoprocessing service can run a regular spatial calculation to test the vehicles location against known hazards locations that will be integrated into the system. If the locations of speed-bumps is known, they can be displayed on the map with proximity alerts telling the driver of the upcoming hazard. A traffic RSS feed could be consumed by the system indicating locations of real-time traffic bottlenecks.				
6.1.3.29	Utilize AVL data as a remote/virtual inspection force.	Other	Y	
6.1.3.30	Notify system administrator that a vehicle needs regeneration.	Report	Z	6.1.3.30Comment
6.1.3.30Comment: More information is needed from the City to determine how we go about incorporating monitoring regeneration, how it is reported, and how to differentiate (color code) vehicles. The only cost that could be associated with this is product parts/installation.				
6.1.3.31	Vehicle operators can inform dispatch when the vehicle is idling for regeneration.	Decision Criteria	Z	
6.1.3.32	Run reports to validate vehicle regeneration calls.	Report	Z	
6.1.3.33	Differentiate (color code) vehicles that are regenerating.	User Interface	Z	
6.1.3.34	Track the status of a boom on boom trucks (e.g. Boom - up or Boom - down).	System Interface	Y	

6.1.4 PROCEDURE - Dump the vehicle

The vehicle is driven to pre-determined dump locations to off-load the carrying weight.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.1.4.1	Notify when the load limits have been exceeded on dump trucks.	System Interface	Z	6.1.4.1Comment
6.1.4.1Comment: This can be achieved if your trucks are outfitted with scales with an electrical signal that we can tie into. More information needed.				

6.1.5 PROCEDURE - Fuel the vehicle

The vehicle is driven to the pre-determined city fueling facilities (unless there is an emergency or special memo in vogue) if this is part of a process mandate (i.e. must fuel at the close of shift) or on an as needed basis.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.1.5.1	Integrate with a fuel system. The City uses OPWPetroVend's K800™ Fuel Control System for centralized control of our fueling operations. We use OPW's Phoenix™ software to import and update fuel data from Petro Vend.	System Interface	N	6.1.5.1Comment
6.1.5.1Comment: At this time we will not be able to offer this feature. We are open to learning more about how this is set up and investigating how this can be done.				
6.1.5.2	Validate that the vehicle is authorized to fuel at a specific facility. The City uses OPW Petro Vend's K800™ Fuel Control System for centralized control of our fueling operations. We use OPW's Phoenix™ Petro Vend software to import and update fuel data from Petro Vend.	User Interface	N	

6.1.6 PROCEDURE - Set salt application rate on the vehicle

We use FORCE® America equipment on our salting vehicles. The driver sets the pre-approved salt application rate. The management staff makes this call with the knowledge of the road surface temperatures that they can get from the sensors on the vehicles.

Reference	Requirement	Requirement	Response	Xrf

#		Type	(Y,Z,T,N)	
6.1.6.1	Monitor salting rate and determine amount left. The City uses FORCE® America's SSC5100 salt spreader controls to manage the distribution and application of anti-icing materials during winter operations. The Vendor must integrate their solution with FORCE® America.	System Interface	Y	
6.1.6.2	Monitor salt spreader gate status (open/closed). The City uses FORCE® America's SSC5100 salt spreader controls to manage the distribution and application of anti-icing materials during winter operations. The Vendor must integrate their solution with FORCE® America.	System Interface	Y	
6.1.6.3	Flag the system with an empty salt truck. The City uses FORCE® America's SSC5100 salt spreader controls to manage the distribution and application of anti-icing materials during winter operations. The Vendor must integrate their solution with FORCE® America.	User Interface	Z	6.1.6.3Comment
6.1.6.3Comment: At this time we do not have the ability to identify an empty salt truck. We are open to working with the City to achieve this. If together, we are able to come up with a way to accomplish this, the only cost to the city would be additional parts for each truck (possibly a scale).				

6.1.7 PROCEDURE - Plow and/or salt streets with the vehicle

During the winter months, equipment operators drive thru the city streets performing plowing and salting operations. Any truck with a plow, or vehicles with salt bodies, can be used for this purpose.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.1.7.1	Capture the percentage of a given route completed.	User Interface	Y	6.1.7.1Comment
6.1.7.1Comment: This can be displayed via our Route Completion report or be a part of the integration with RouteSmart.				

6.1.7.2	Track the status of a plow (e.g. Plow - up or plow - down). The City uses FORCE® America's vehicle equipment to control and manage roadway plowing during winter operations. The Vendor must be able to integrate their solution with FORCE® America.	System Interface	**Y**	6.1.7.2Comment
6.1.7.2Comment: The status of the plow can be monitored via a **hydraulic pressure switch (see pricing section).** Our Historical Trip Report gives you with the ability to find out what roads have or have not been plowed by a specific vehicle (route lines).				

6.1.8 PROCEDURE - Sweep streets with the vehicle

From May through October, equipment operators drive thru the city streets performing sweeping and flushing operations.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.1.8.1	Track and report the level of water in the water tank of sweepers. The City uses Elgin Pelican® Three-Wheel Broom Sweepers (mix of mechanical and hydraulic) and Elgin Crosswind® 4 Wheel Regenerative Air Sweepers. The vendor must be able to integrate their solution with Elgin vehicle equipment.	System Interface	**Z**	6.1.8.1Comment
6.1.8.1Comment: We are not able to do this currently but are open to investigating a way of doing this by examining the vehicles current set up and attempting to come up with a solution. We may need to bring in a 3rd party to aid our efforts on this one. The only additional cost would be parts/installation.				
6.1.8.2	Track the status of the water flow on sweepers (e.g. water flow on or water flow off). The City uses Elgin Pelican® Three-Wheel Broom Sweepers (mix of mechanical and hydraulic) and Elgin Crosswind® 4 Wheel Regenerative Air Sweepers. The vendor must be able to integrate their solution with Elgin vehicle equipment.	System Interface	**Y**	6.1.8.2Comment
6.1.8.2Comment: Per your Q & A, you are asking for On/Off and not flow rate. We can accomplish this by tying into the electrical lead from our input.				

6.1.8.3	Track the filter status on sweepers (check if filter is clogged or needs replacement). The City uses Elgin Pelican® Three-Wheel Broom Sweepers (mix of mechanical and hydraulic) and Elgin Crosswind® 4 Wheel Regenerative Air Sweepers. The vendor must be able to integrate their solution with Elgin vehicle equipment.	System Interface	Z	6.1.8.3Comment
6.1.8.3Comment: It is our understanding that the air filters do not have an electrical lead going to them. If that is indeed the case, we will not be able to track the filter status. We are open to discussing ways to accomplish this and the only additional cost would be parts/installation. If you chose to monitor the engine air filter this may be done by tying into a differential pressure switch installed although further investigation will be needed.				
6.1.8.4	Track the status of the debris hopper on sweepers (check if hopper is full). The City uses Elgin Pelican® Three-Wheel Broom Sweepers (mix of mechanical and hydraulic) and Elgin Crosswind®4 Wheel Regenerative Air Sweepers. The vendor must be able to integrate their solution with Elgin vehicle equipment.	System Interface	Y	
6.1.8.5	Track the status of a broom on sweepers (e.g. Broom - up or Broom - down) independently for curb-side and street-side brooms. The City uses Elgin Pelican® Three-Wheel Broom Sweepers (mix of mechanical and hydraulic) and Elgin Crosswind®4 Wheel Regenerative Air Sweepers. The vendor must be able to integrate their solution with Elgin vehicle equipment.	System Interface	Y	

6.1.9 PROCEDURE - Park the vehicle

The vehicle will be returned to its starting point by default to park vehicle. If the driver identifies or suspects a mechanical issue with the vehicle, he drives to the Central Vehicle Maintenance Facility (CVMF) and parks it for service in the lot.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf

6.1.9.1	Transmit a specific signal from the vehicle indicating that the vehicle is parked for service.	User Interface	Y	

6.1.10 PROCEDURE - Dispatch City vehicles for contractor routes with breakdowns

When a contractor calls in a breakdown, these routes will be covered with a vehicle from the City fleet.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.1.10.1	Add a vehicle to a different group (e.g. add an arterial vehicle under contracted snow plowing).	User Interface	Y	
6.1.10.2	Differentiate this route from all other normal routes under this group / activity.	User Interface	T	6.1.10.2Comment
6.1.10.2Comment: When a contractor vehicle cannot complete a route, the route can be flagged for completion by a City vehicle through Dispatch interacting with the Mapping Interface. The map will reflect what portions of the route have been incomplete (based on GIS geoprocessing). The remaining portion of the route Line will be color coded identifying it requires City completion.				
6.1.10.3	Track the status of a plow (e.g. Plow - up or plow - down). The City uses FORCE® America's vehicle equipment to control and manage roadway plowing during winter operations. The Vendor must be able to integrate their solution with FORCE® America.	System Interface	Y	

6.2 OBJECT - Maps

The map object can be any physical or electronic maps used by equipment operators to reference their route, route sequence or a single location.

6.2.1 PROCEDURE - Review the map to determine route sequence

The equipment operator refers to map data to determine best route, next address in sequence etc.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf

6.2.1.1	Display a map interface on the on-board dashboard. We require ArcGIS 10 or a comparable map interface using the City's existing map layers and or routes for the different services/operations so we can track operations in a route centric or service centric format.	User Interface	T	6.2.1.1Comment
6.2.1.1Comment: We will install a Windows 7 tablet that will display a vehicle-centric mapping application. The map will display required AVL, route and system data. This can include RouteSmart routes, current GPS location(s), and any other system-integrated data that is necessary such as LAGAN Calls for service and Dispatch information. The Web mapping application can be configured for individual vehicles or for a supervisor with information filtered as necessary.				
6.2.1.2	Resolve address on work request and plot on map. The address could come from our work order system, so we require that the AVL solution be able to resolve address information and geo reference the address provided by the work order system, in various possible address formats.	Other	T	6.2.1.2Comment
6.2.1.2Comment: Work order information and service requests can be plotted on the mapping interface showing a drivers and supervisors where a vehicle is relevant to Work Orders and Calls for service. The back-end system integration will retrieve 'active' calls from their parent systems, geocode the locations and update the map with the location. A work order or call for service can be closed through an update on the Data Terminal or through an automated geoprocessing logic that intersects a call's location and a driver's route.				
6.2.1.3	Display route to work location. Possible use of turn by turn navigation with spoken and visual instructions.	System Interface	T	6.2.1.3Comment
6.2.1.3Comment: The Mapping interface will allow a user to create a dynamic route from a vehicle's current position to a new location based on a call for service or work request. The new route will be displayed on the map.				
6.2.1.4	Update route to accommodate dynamic work request changes. Routesmart® or use of the in-built routing software.	System Interface	T	6.2.1.4Comment
6.2.1.4Comment: The Mapping interface will allow a user to create a dynamic route from a vehicle's current position to a new location based on a call for service or work request. The new route will be displayed on the map.				

6.2.1.5	Plot work locations on the map when on route. If the driver observes a situation needing attention, they can mark the location of work on a map available on the on-board display which then gets delivered to dispatch at regular intervals for further research and assignment.	User Interface	T	6.2.1.5Comment
6.2.1.5Comment: The On-board mapping interface will allow a user to enter a location on the map and define it as a situation needing attention. This information will be shared on the Dispatch view of the map and updated in the Dispatch system for further business processes.				

6.2.1.6	Switch between weather maps and geo-fences to help make decisions.	User Interface	T	6.2.1.6Comment
6.2.1.6Comment: The mapping interface will allow many views of geographic information, from weather data to geofences. A user's login will determine what information and functionality is available to view. GIS layers can be made visible through simple layer visibility controls.				
6.2.1.7	Configure the unit to provide turn by turn directions with a map display.	User Interface	T	6.2.1.7Comment
6.2.1.7Comment: A Route will be visible as a line layer on the map with the vehicles current location shown as a point. A routes directions can be displayed as visible text on the On-Board PC.				

6.2.2 PROCEDURE - Monitor the contractor vehicle location for compliance

The contractors are assigned specific routes and are monitored for route compliance (e.g. they cannot deter from the route boundaries when a route is in progress).

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.2.2.1	Determine all vehicles are at their respective start points.	Report	T	6.2.2.1Comment
6.2.2.1Comment: Work requests will be displayed on the Map as points with descriptive information.				
6.2.2.2	Verify that a contract vehicle is with-in the geo-fenced area when the activity is in progress.	User Interface	Y/T	6.2.2.2Comment
6.2.2.2Comment: This feature will be investigated further. May be provided by PreCise MRM or Bergmann.				

6.3 OBJECT - Work Requests

A work request is a record / form / document describing the work to be done and furnishes information about the work location, route etc. as well. This can be generated from several different systems in the city including LAGAN, Maintain-IT, Mainframe etc.

6.3.1 PROCEDURE - Review the work request to determine work to be completed

The equipment operator reads through a work request to determine the location where work needs to be performed.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.3.1.1	Access work request from an on-board display.	User Interface	T	6.3.1.1Comment
6.3.1.1Comment: Work requests will be displayed on the Map as points with descriptive information.				
6.3.1.2	Make modifications to work request and track changes.	User Interface	T	6.3.1.2Comment
6.3.1.2Comment: An interface to the work system will allow a user to update records through the work request system's API.				
6.3.1.3	Dynamically add work request to existing work queues.	User Interface	T	6.3.1.3Comment
6.3.1.3Comment: An interface to the work system will allow a user to insert records through the work request system's API.				
6.3.1.4	Integrate a work order/complaint management system within, or as a complement to, an AVL solution.	System Interface	T	6.3.1.4Comment
6.3.1.4Comment: The current LAGAN system and future Work Order system will be integrated into the AVL system as work order and service requests displayed on the map. Business rules for interaction with the Work Order System and LAGAN 311 data will be developed as tools for display and interaction with the parent system data using the parent system's API.				

6.3.2 PROCEDURE - Create the work request

Depending on the source of the work request, different personnel can create work requests in the system if they are assigned permissions to do so.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.3.2.1	Set up an activity in the AVL system to reflect the crew performing work requests for the day.	Other	T	6.3.2.1Comment
6.3.2.1Comment: The future Work Order system will be integrated into the AVL system as locations on the map. Business rules for interaction with the Work Order System will be developed as tools for display and interaction of the parent system data using the parent system's API.				

6.3.3 PROCEDURE - Notify on the work request status

Inform dispatch about the status of a work request and/or provide updates.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.3.3.1	Readily integrate spatial and, where applicable, vehicle status data gathered through the AVL system into LAGAN, the customer relationship management software utilized by 311.	System Interface	T	6.3.3.1Comment
6.3.3.1Comment: Vehicle data such as when a plow was at a LAGAN 311 Service request can be updated back into the LAGAN system using GIS geoprocessing tools and the LAGAN API.				

6.3.4 PROCEDURE - Update the work request

Update the work request with notes and status updates provided by field personnel.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.3.4.1	Readily integrate spatial and, where applicable, vehicle status data gathered through the AVL system into LAGAN, the customer relationship management software utilized by 311.	System Interface	T	6.3.4.1Comment
6.3.4.1Comment: Vehicle data such as when a plow was at a LAGAN 311 Service request can be updated back into the LAGAN system using GIS geoprocessing tools and the LAGAN API.				
6.3.4.2	Capture the percentage of a given route completed.	Decision Criteria	T	6.3.4.2Comment
6.3.4.2Comment: A GIS geoprocessing service will continually update a route's completion status based on a vehicle's location on the route relative to the complete route. Sections of the route that have been driven will be symbolized differently than incomplete sections.				

6.4 OBJECT - Dispatch Records

A dispatch record is an entry in the Dispatch System which is an MS Access based system. This system has the ability to track the progress in snow and ice related activities like plowing, salting, towing and more.

6.4.1 PROCEDURE - Dispatch the vehicle

The dispatcher in every area will assign a specific vehicle to a route depending on the activity to be performed.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf

6.4.1.1	Interface with the data in the dispatch system.	System Interface	T	6.4.1.1Comment
6.4.1.1Comment: Custom integration with the Dispatch system will allow an interface between the AVL, mapping, and Dispatch data. Specific rules will be investigated further.				
6.4.1.2	Track all the information currently stored in the dispatch system.	Other	T	6.4.1.2Comment
6.4.1.2Comment: Custom integration with the Dispatch system will allow an interface between the AVL, mapping, and Dispatch data. Specific rules will be investigated further.				
6.4.1.3	Differentiate a dispatched vehicle from a vehicle in a lot.	User Interface	T	6.4.1.3Comment
6.4.1.3Comment: Vehicle status will be reflected by a color symbol on the map. Data from the Dispatch system will be joined with the AVL information allowing visualization of various states of dispatch and AVL status.				

6.4.2 PROCEDURE - Update the dispatch information

Make notes and change the status of an on-going activity in the dispatch system.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.4.2.1	Equipment operator can update the dispatch system.	Business Form	T	6.4.2.1Comment
6.4.2.1Comment: The On-board PC will have functionality allowing a driver to update information in the Dispatch system based on defined business rules.				

6.4.3 PROCEDURE - Notify on the route status

Inform dispatch about the status of an activity or provide updates.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.4.3.1	Have two way communications between the vehicles and dispatch (e.g. messaging, radio).	Other	T	6.4.3.1Comment
6.4.3.1Comment: We can offer geoprocessing that updates dispatch based on spatial events or we can investigate a radio hardware solution. The advantages and disadvantages of both will be discussed with the City.				

6.4.4 PROCEDURE - Create the dispatch information

Create a record in the dispatch system capturing the details of an activity and recording its start.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf

6.4.4.1	Set up an activity in the AVL system to reflect the dispatch information.	Other	T	6.4.4.1Comment
6.4.4.1Comment: Dispatch events can be integrated into the AVL system using the AVL systems API.				

6.5 OBJECT - Geodatabases

A geodatabase is a data repository for spatial data storage and management.

6.5.1 PROCEDURE - Update the geodatabase with run information

Export route data from a web-based system and import it into a geodatabase for persistent storage.

Reference #	Requirement	Requirement Type	Response (Y,Z,T,N)	Xrf
6.5.1.1	Export historic AVL data into a commercial GIS environment for subsequent analysis. The City of Rochester has a centralized GIS using software products from Environmental Systems Research Institute (ESRI). Currently, ESRI® ArcView9.x client software is installed on desktop workstations throughout the City of Rochester. Central data storage of geographic data files is housed using ArcSDE and ArcIMS v4.0.	System Interface	T	6.5.1.1Comment
6.5.1.1Comment: AVL location data will be stored in Esri's SDE (SQL Server) database for use within the Esri ArcGIS environment. Each AVL point will be stored as a row with associated X, Y, time, speed, driver and business rule information (such as geofence violations). This data can be readily consumed by the Esri ArcMap client.				

SECTION 7 – Technical Requirements

This section of the document defines the technical requirements for the proposed system which address architecture, data, security, and system interfaces.

7.1 Architecture

The purpose for the Architecture is to depict the technical elements that come into play within an informational system, in order to permit the applications to function smoothly with little or no downtime. It also functions as the baseline or foundation for which the applications reside and depend upon.

Reference #	Requirement	Response (Y,Z,N,T)	Xrf

7.1.1	Provide architecture that is modular, scalable, and extensible.	Y	
7.1.2	Reside on any standard hardware platform and operating system (not proprietary).	T	7.1.2Comment
7.1.2Comment: MS OS preferred			
7.1.3	Host the solution for the City of Rochester.	T	7.1.3Comment
7.1.3Comment: Some of the third party integration could be hosted at the City. The PreCise side is web based application accessible through your browser.			
7.1.4	Provide a detailed plan with costing and assist in implementing the same if the City of Rochester decides to host the solution.	T	
7.1.5	Provide an always connected wireless data network.	Y	
7.1.6	Provide a satellite communication network for areas where ground-based wireless communications is weak.	N	
7.1.7	Receive and forward position information from the vehicle's satellite transmitter.	Y	
7.1.8	Ability for two-way mobile messaging to allow e-mail messaging to and from the driver over the Internet wireless communications link.	T	7.1.8Comment
7.1.8Comment: Yes, using MS Outlook			
7.1.9	Send information via satellite, nationwide cellular network or radio frequency — or a combination thereof.	Y	
7.1.10	Provide data transmission without recurring or monthly costs.	N	7.1.10Comment
7.1.10Comment: We are willing to work with the City of Rochester to come up with an affordable solution. There has to be a charge for the transmission of data via GPRS (Cellular Towers).			
7.1.11	Demonstrate experience with integrated AVL/GPS systems.	Y	
7.1.12	Evolve with new technologies to meet future needs as they arise.	Y	
7.1.13	Perform a complete historic data recovery and reporting during an event of hardware failure or network failure emergencies.	Y	7.1.13Comment
7.1.13Comment: All collected data is stored at our data center and available for access by users with the appropriate security access 24 hours per day, 7 days per week. All information is kept live on our database for three (3) years and backed up on a daily basis per standard IT practices. After the 3 year period, an archive copy is created and stored in case of future needs or litigation claims. In the event that the end user would require access to this data after it was archived, the data can be restored and made available to the end user within 72 hours from the request. All data is stored in a Level 2 data center in Boise, ID and backed up by a RAID 5 storage system.			

7.1.14	Provide an open API to make integration processes.	N	7.1.14Comment
7.1.14Comment: Custom integration provided by Bergmann Associates.			
7.1.15	Provide seamless integration to PC based MS® Office products.	N	7.1.15Comment
7.1.15Comment: Custom integration provided by Bergmann Associates.			
7.1.16	Operate on most current version of Internet Explorer.	Y	
7.1.17	Use HTTPS and other secure means of data transmission including data encryption.		7.1.17Comment
7.1.17Comment: Data gathered by the vehicle-mounted devices is encoded and sent over secure channels. Transmissions over 802.11 (WiFi) are encrypted using WPA (Wi-Fi Protected Access). Transmissions over the cellular network are encrypted using GEA (GPRS Encryption Algorithm). The data packets have an associated guaranteed unique identifier that is provided by the vehicle-mounted device. Once received at PreCise's servers, the data is stored under the appropriate asset and customer based on the unique identifier. The servers are located in a secure facility that is monitored by on-site personnel 24 hours a day, seven days a week. Biometric door locks and server rack key locks limit access to authorized personnel only. Customer access to their data over the web interface and web services are provided only after the user has been authenticated with their username and password. Individual user permissions are controlled by the customer admin account. Hard drives would be erased using a wiping utility that would overwrite every sector multiple times prior to disposal to ensure data could not be recovered.			
7.1.18	Interface with standard languages and protocols (not proprietary).	Y	
7.1.19	Configure software from an administrator point of view, with full audit of any configuration change captured.	T	7.1.19Comment
7.1.19Comment: Yes, if required.			
7.1.20	Support full software change control process with check-in and check-outs.	T	7.1.20Comment
7.1.20Comment: Yes, using Team Foundation Server.			
7.1.21	Interface with Microsoft® SQL Server 2005 or higher.	T	

Reference #	Requirement	Response (Y,Z,N,T)	Xrf
7.1.22	Provide complete on line documentation including: Installation/Set-up & Configuration, Training/Tutorial, Application, Process Flow and Reference.	Y	
7.1.23	Define alerts at the user level to notify specified individuals or groups when triggered by an event.	Y	
7.1.24	Set-up alerts across all modules.	Y	
7.1.25	Set-up and receive administrative notification of specific activities that may not require user intervention (System Alerts).	Y	

7.1.26	Interface with the following to provide notifications: MS® Outlook Exchange email and PDAs.	Y	
7.1.27	Remotely manage the environment from a Vendor or City IT perspective using a web interface.	T	7.1.27Comment
7.1.27Comment: Yes, if required.			

7.2 Data Requirements

Reference #	Requirement	Response (Y,Z,N,T)	Xrf
7.2.1	Display dates in the USA format.	Y	
7.2.2	Support the translation of views and instructions into multiple languages (e.g. English, Spanish).	N	7.2.2Comment
7.2.2Comment: As of now, available in English only.			
7.2.3	Provide Entity Relationship Diagrams (ERD) showing layout of tables, fields and data entity relationships.	T	
7.2.4	Provide data dictionary with ability to interface electronically to industry standard reporting environments (i.e. Microsoft® business intelligence).	T	
7.2.5	Provide numerous user definable fields in every table that will be used by the application.	T	
7.2.6	Automatically archive and purge data per retention periods.	T	

7.3 System Administration, Security and Audits

Reference #	Requirement	Response (Y,Z,N,T)	Xrf
7.3.1	Authenticate a person's credentials through Windows Active Directory®.	T	
7.3.2	Easily set-up and maintain users within functional groups that can be nested, taking on the parents' rights and restricting that further.	Y	
7.3.3	Effect Site/Group-level security (user can view site specific data or multi-site data based on security preferences assigned).	Y	
7.3.4	Effect Site/Group-Specific security configuration per user (user security access may differ from site to site).	T	

7.3.5	Define read/select, insert, update, and delete in any combination or set for Module/Function/Field for any Group or Individual in an easy to maintain way.	**T**	
7.3.6	Produce reports which identify who has access to run reports, audit trail log depicting report additions, deletions or changes noting the user who made, time and date stamp.	**Z**	7.3.6Comment
7.3.6Comment: Currently we can provide a list of who can access which reports, can show you the addition of reports on our site (new release link), deletions or changes to an asset but cannot identify the user (time and date stamp). We are open to incorporating that into our system at no cost to you.			
7.3.7	Capture a before and after snapshot of data (audit trails) that changes within a system in a text based, non-system specific, human readable format. This should not hinder system performance, and be configurable and user friendly.	**N**	
7.3.8	Capture when reports are printed and noting the user, time and date stamp.	**N**	
7.3.9	Capture when reports are viewed and noting the user, time and date stamp.	**N**	
7.3.10	Limit access to information based on security level.	**Y**	
7.3.11	Display fields based on security level.	**Y**	
7.3.12	Limit editing capability to the record creator & security level.	**Y**	
7.3.13	Customize the software based on the end-user's role in the system.	**Y**	
7.3.14	Restrict the vehicle groups that a specific end user can see.	**Y**	
7.3.15	Restrict vehicle routes that a specific end user can see.	**Y**	

7.4 System Interfaces

The purpose of this section of the document is to provide easy access between independent and disparate systems and assure accuracy in the transfer of data between them. Describe in the response how interfaces will be addressed in the recommended solution. For example, are Application Program Interfaces (API's) used or will interfaces be developed on a case-by-case basis. In addition, identify if interfaces have been implemented with existing customers and what type of applications have been interfaced.

The vendor should provide a diagram that visually shows all integration points in their proposed solution, as well as any other vendors' product recommended to meet the requirements of this RFP. In addition, the vendor should describe its technical strategy to actively integrate to other vendors' products or existing City in-house systems described in Section 5 – *Legacy Systems Environment* that fulfill the City of Rochester's functional needs outside the scope of this RFP.

Reference #	Requirement	Response (Y,Z,N,T)	Xrf
7.4.1	Interface with other software products owned by the vendor but which are in another family to meet a need that does not exist in the standard product, regardless of what platform that product may reside on.	T	7.4.1Comment
7.4.1Comment: By using custom mapping applications and backend utilities.			
7.4.2	Provide plug-in designs that do not require special coding.	N	
7.4.3	Interface with third party sources of information via a Web Service call.	T	
7.4.4	Perform data imports and exports from and to both desktop and applications running on other processors.	T	
7.4.5	Interface seamlessly with barcode and other data collection devices.	N	
7.4.6	Interface with HID smart cards attached to user profiles.	N	
7.4.7	Provide remote help desk support via telephone and live on-screen control.	T	7.4.7Comment
7.4.7Comment: At this time it is during regular working hours.			