

COUNCIL COPY

PURCHASING & LICENSING COMMITTEE

11-0225R

RESOLUTION AUTHORIZING A CONTRACT WITH PRECISE MRM, LLC,
FOR THE PURCHASE AND INSTALLATION OF A GPS/AVL SYSTEM
FOR A TOTAL AMOUNT NOT TO EXCEED \$462,153.

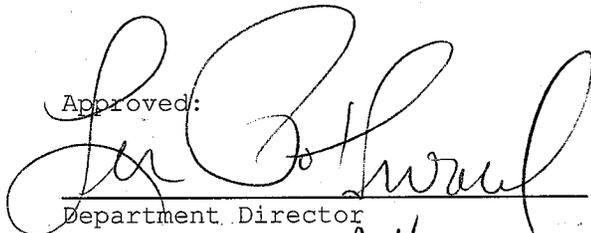
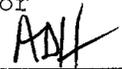
CITY PROPOSAL:

RESOLVED, that city officials are hereby authorized to contract with Precise MRM, LLC, for the purchase and installation of a GPS/AVL (global positioning/automatic vehicle location) system for fleet services in accordance with city-approved specifications and based on the following costs for year 2011 - an initial amount not to exceed \$332,401 (vendor's base price) plus \$22,853 (sales tax) plus \$44,390 (one year of network access) plus \$62,509 (six months of cellular data) for a total amount of \$462,153, payable as follows:

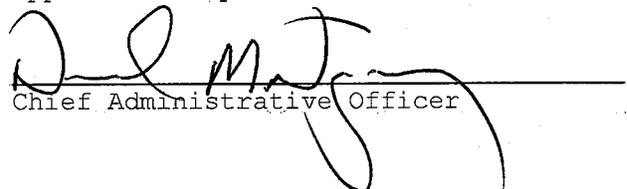
Amount	Energy Management Fund	Dept./Agency	Object	Project No.
\$56,945	257	Administrative Services 015	Contract Services 5310	DOEMatch - GPSMatch
\$49,954	257	Stimulus Act (ARRA) 025	Contract Services 5310	DOEGrant-GPS
\$355,254	257	Stimulus Act (ARRA) 025	Capital Equipment 5580	DOEGrant-GPS

In addition, the following costs for year 2012 and beyond are hereby authorized: Ongoing data and network costs not to exceed \$169,408 per year, payable from various funds and departments as included in the annual budget. Actual costs will depend on the number of GPS-equipped vehicles.

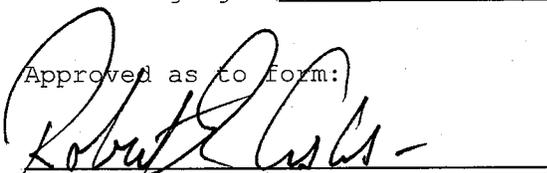
Approved:


Department Director
Purchasing Agent 

Approved for presentation to council:


Chief Administrative Officer

Approved as to form:


Attorney

Approved:


Auditor

STATEMENT OF PURPOSE: This resolution authorizes a contract with Precise MRM, LLC, for a GPS/AVL system in the amount of \$462,153 for year 2011, payable from the energy management fund.

This action by the council is based on the following:

- (a) Year 2011: Acquisition and installation costs for GPS/AVL units in city vehicles not to exceed \$332,401 (excluding sales tax);
- (b) Year 2011: Data and network costs up to \$106,899, based on the number of GPS-equipped vehicles; and
- (c) Year 2012 and beyond: Ongoing data and network costs not to exceed \$169,408 per year, payable from various funds and departments as included in the annual budget. Actual costs will depend on the number of GPS-equipped vehicles.

The city administration estimates a minimum savings of \$59,247 within the first year (7% reduction in fuel consumption) upon completion. The city will also experience savings in salt and sand as a result of monitored, consistent application across all sanding trucks.

The purchasing division posted a request for bids April 27, 2011, on the city's website and received six bids by the closing date. The city's consultant, Elert and Associates, Inc., and an internal committee of experts reviewed all aspects of each bid and determined that PreCise MRM, LLC, most closely met the required specifications for the lowest cost.

Force America, the parent company for PreCise, is located in Minneapolis. Their client list includes many cities and counties from Minnesota, so they understand municipal business and work. Presently, 14 of our 19 sander/plow trucks have Force America Brand sand/salt controllers - sensors will be added to the controllers to measure distribution, allowing for cost savings.

A detailed bid tabulation is attached to this resolution.

GPS/AVL SYSTEM File No. 11-0335 (11-03DS) Bid Opening March 22, 2011		
Company	City	State
Sprint Solutions, Inc.	Reston	Virginia
CompassCom Software Corporation	Centennial	Colorado
Radio Satellite Integrators, Inc.	Torrence	California
Precise MRM, LLC	Meridian	Idaho
SkyGuard, LLC	Flowood	Mississippi
GPS Insight, LLC	Scottsdale	Arizona

Requisition No. 11-0335

**GPS/AVL System
Bid Tabulation
Resolution 11-0225R/ Bid File No. 11-0335**

Name	CompassCom	GPS Insight	PreCise MRM	Radio Satellite Integrators	SkyGuard	Sprint - DISQUALIFIED as non-conforming
Base price one-time costs	\$498,029.44	\$154,000.00	\$332,401.00	\$175,270.00	\$173,640.00	
Cellular monthly costs	\$7,680.00	\$14,225.75	\$10,418.14	\$12,352.00	\$7,760.00	
Annual costs (other than cellular service)	\$105,984.00	included in above	\$44,390.00	included in above	\$0.00	
TOTAL 1-year cost (calc) [includes estimated tax]	\$696,173.44	\$324,709.00	\$501,808.68	\$323,494.00	\$266,760.00	
TOTAL 3-year cost (calc) [includes estimated tax]	\$1,092,461.44	\$666,127.00	\$840,624.04	\$619,942.00	\$453,000.00	
TOTAL 5-year cost (calc) [includes estimated tax]	\$1,488,749.44	\$1,007,545.00	\$1,179,439.40	\$916,390.00	\$639,240.00	
Spare parts	\$5,536.60	\$4,500.00	\$1,290.00	none listed	\$840.00	
Training	\$3,600.00	travel expenses	\$0.00	\$2,000.00	\$0.00	

GPS/AVL INFORMATION
PRESENTED TO THE DULUTH CITY COUNCIL
MAY 5, 2011

REVENUES

Federal ARRA grant **\$450,300**

EXPENSES

Acquisition and installation (one-time, 300 vehicles) **\$332,401**

Data and network (2011) **\$106,899**

TOTAL \$439,300

Ongoing expenses/year (Data and network 300 vehicles) **\$169,408**

ANTICIPATED SAVINGS

Salt (20%) **\$145,000**

Fuel (15%) **\$138,000**

\$283,000

DEFINITIONS

GPS – Global Positioning System is a space-based global navigation satellite system (GNSS) that provides location and time information in all weather and at all times and anywhere on or near the Earth when and where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver.

AVL – Automatic Vehicle Location is a means for automatically determining the geographic location of a vehicle and transmitting the information to a requester.

GEOFENCE - A geofence is a boundary defined around a location or area on the Earth's surface.

CATEGORIES TO DETERMINE RETURN ON INVESTMENT

WINTER MAINTENANCE/WASTED MATERIALS

Two of the highest costs associated with winter maintenance are labor and materials. The labor involved in equipping operators, documenting routes and assuring clear roads during lengthy storms can be difficult to control. The same also goes for salt and other material usage. This is wrapped around savings with

the snow/ice fleet. The savings are substantial when implemented correctly and used accordingly. Through the use of GPS, geofencing and comprehensive data being collected from a plow truck, the system can tell you what type of materials are being spread, the air temperature, road temperature and when the operator performs functions like spreading salt/sand. With this information, operations can be more closely managed to assure the right material is being applied based on the conditions.

Dakota County Implementation Study

Average salt/storm event (before GPS)	450 Tons	\$28,125
Average salt/storm event (after GPS)	<u>350 Tons</u>	<u>\$21,875</u>
SAVINGS/STORM	100 Tons	\$ 6,250

32 storms x \$6,250 = \$200,000 savings in salt/year (a **22%** reduction)

Dakota County estimated they received payback in less than 1 year on their investment.

City of Duluth averages 12,400 tons of salt/year (\$58.55/ton) at a total average cost of \$726,000. Based on the rate of salt reduction achieved by Dakota County using the same GPS/AVL system, the city could save 20% or **\$145,000/year**.

IDLE

When a vehicle is left idling, it can consume one to one-and-one half gallon of gas each hour. The American Trucking Association states that one hour of idling per day for one year results in the equivalent of 64,000 miles in engine wear when adding up all the contributing factors. There are several benefits to reducing idle including decreased fuel expenditure, extending vehicle life through minimizing unnecessary engine wear and reduced carbon emissions.

A survey done by Montgomery County, Maryland of 24 government organizations across the U.S. using GPS systems found that the saved on average 18% - 20% in fuel costs.

In 2010 the City of Duluth used a total of 346,216 gallons of fuel at an average cost of \$2.65 for unleaded and \$2.87 for diesel. At a conservative estimated savings of 15%, the city saves almost 52,000 gallons/year, or **\$138,000/year**. At today's prices of \$3.62 for unleaded and \$3.85 for diesel, it is a yearly savings of **\$188,000/year**.

REDUCED LIABILITY AND TORT COSTS

VEHICLE ACCIDENTS - CLAIMS PAID FROM 2007 THRU PRESENT					
	2007	2008	2009	2010	2011
CLAIMS MADE	55	47	53	94	19
CLAIMS PAID	38	22	39	80	17
% of CLAIMS PAID	69%	47%	74%	85%	-
COST OF CLAIM	\$60,444.85	\$26,844.07	\$41,145.56	\$78,599.31	\$32,897.72
AVERAGE PAYOUT	\$1,590.65	\$1,220.19	\$1,055.01	\$982.49	\$1,935.16

There are times when someone will call or make allegation that city equipment damaged their property and we have no way of knowing if our equipment was there. This system would be able to track our equipment and let us know if indeed we were at that location. This would be very helpful in the claims process.

OTHER APPLICATIONS/CONSIDERATIONS

- **Reduced fuel through speed reduction** - The National Highway Traffic Safety Association research indicates that reducing speed and restricting routes saves lives while dramatically reducing maintenance and vehicle repair cost, insurance claims and costly vehicle downtime. Moreover, passenger cars and light trucks use approximately 50% more fuel traveling at 75 vs. 55 mph.
- **Resource utilization**
 - When a call comes in that requires the dispatch of equipment, GPS/AVL quickly shows the dispatcher where the work-site is and how far the closest available equipment is to the site.
 - To maximize the use of all available equipment during a storm event, supervisors can monitor the various routes and assure the areas in need of service are receiving the necessary resources.
 - Supervisors can tell when a crew started a day, where the equipment traveled and when the equipment finished.

- **Lost or hidden equipment** – Stolen, lost or hidden equipment can be located through this system.
- **Personal use of equipment** - Any non-essential personal use of equipment results in additional wear and tear, fuel consumption and increased liability to the organization who owns the vehicle.

SUMMARY OF STRATEGIES

- PreCise, the selected GPS/AVL vendor, has Force America as its parent company. The majority of our existing sensor equipment is Force America.
- We will prioritize GPS installations for vehicles where an early return on investment is achievable and where operations are in high visibility program areas with direct citizen interface or impact.
- We will identify appropriate agency staffing and provide training to support GPS to maximize GPS benefits.
- The city is using an enterprise-wide solution to take advantage of scales of economy through the use of standard protocol, equipment, and the support network, rather than just implementing in one department.