REQUEST FOR PROPOSAL (RFP)
GPS – AUTOMATIC VEHICLE LOCATING SYSTEM

START BUS
450 WEST SNOW KING AVE
PO BOX 1687
JACKSON, WY 83001

AUGUST 25, 2014
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1. SUMMARY AND BACKGROUND

Southern Teton Area Rapid Transit or START Bus is the public transportation provider for the Teton County, Wyoming and the surrounding areas. START serves over 900,000 riders a year running seasonably varied bus service for residents and visitors. START is a joint department of the Town of Jackson, Wyoming and Teton County, Wyoming.

START seeks to improve its operations both internally and externally by procuring new ITS technology that will improve predictability of its fixed route service. The goal of this procurement is to improve reliability and consistency in service as well as provide real time information to the public.

This system must provide real-time route and vehicle information via a web based interface for both internal and external use. The public component must have access to this information through a website as well as mobile applications. The system must also be equipped with reporting capabilities to accurately data stream operational service information (for example; route timing, passenger wait time, trip counts, operator performance, vehicle speed and movement). The Vehicle Tracking System shall include functionality for hardware/software components to be installed in 25 vehicles. The system must be equipped to withstand extreme temperatures and variable ground conditions.

The purpose of this Request for Proposal (RFP) is to solicit proposals from various vendors; conduct a fair and extensive evaluation based on criteria listed and then to select the vendor who can help START best reach its goals.

2. PROPOSAL GUIDELINES

This Request for Proposal represents the requirements for an open and competitive process. Proposals will be accepted until 5pm MST September 25, 2014. Any proposals received after this date and time will be returned to the sender. All proposals must be signed by an official agent or representative of the company submitting the proposal.

Proposals must provide vendor qualification information including the following: a brief history of the firm, number of years in business, examples of similar projects and a list of references regarding these projects.

If the organization submitting a proposal must outsource or contract any work to meet the requirements contained herein, this must be clearly stated in the proposal. Additionally, all costs included in proposals must be all-inclusive to include any outsourced or contracted work. Any proposals which call for outsourcing or contracting work must include a name and description of the organizations being contracted.

All costs must be itemized to include an explanation of all fees and costs.

All proposals must adhere to the attached federal clauses.
Contract terms and conditions will be negotiated upon selection of the winning bidder for this RFP. All contractual terms and conditions will be subject to review by the Town Attorney for the Town of Jackson, Wyoming and will include scope, budget, schedule, and other necessary items pertaining to the project.

All questions regarding this project should be directed in writing or by phone to Janice Sowder, Transit Coordinator; jsowder@startbus.com or 307.732.7651.

3. **Scope of Services**

The Scope of this project includes the installation of on-board equipment to include touch screen mobile data terminals (MDT), web-based reporting tools and public access to vehicle location and system information. The following components are identified as the most critical ITS technologies:

- Integrated Mobile Data Terminals
- Web-based Fixed Route Automatic Vehicle Location (AVL)
- Predictive Arrival System
- Traveler Information System to include a public vehicle tracking website and mobile capabilities
- Standards-based, open software API that provides the agency with a data stream from which additional interfaces can be developed. START Bus is to own all data at no additional cost
- Web-based administrative software to include:
  - A fixed route Automatic Vehicle Location (AVL) module
  - A rich reporting module
- Warranty and Maintenance
- Training

**On-board Hardware**

All hardware shall be manufactured, fabricated, assembled, finished, and documented with workmanship of the highest production quality and shall conform to all applicable quality control standards of the original manufacturer and the Vendor. All hardware components shall be new and suitable for the purposes specified.

- All on-board equipment must be of commercial (not consumer) grade and ruggedized to operate in a transit environment
- All equipment modules, cables, mounting hardware and connectors shall be designed to withstand the full range of operating environments found in the areas in which they are to be installed, and shall not interfere with the operation of existing and future equipment
- The vehicle operator display (VOD) shall be connected and integrated into the Mobile Information Terminal (MIT).

**Vehicle Logic Unit (VLU) Hardware**

- The VLU shall incorporate an integrated GPS receiver and cellular communications module
• Velocity measurements provided by the GPS equipment shall be accurate to within 0.1 meters per second
• GPS receivers shall report latitude, longitude, speed, time, direction of travel and whether the receiver has a GPS position lock
• The GPS receiver shall have a cold start solution time of two minutes or less and a re-acquisition time of 15 seconds or less

Mobile Data Terminal (MDT) Hardware
• The MDT computer shall be commercially available and off-the-shelf.
• The MDT shall be driven by a commercially available operating system
• The MDT shall provide backup battery power
• MDT shall turn on automatically when the vehicle power is turned on, and shall shut down when the vehicle power is turned off
• The MDT shall provide solid state storage
• MDT shall be designed to operate in accordance with these specifications for ambient temperatures from -20°C to +60°C
• The MDT and all other on-board components shall be designed to withstand the vibration and shock forces associated with transit vehicles
• MDT shall be replaceable as discrete units and identified by unique serial number

On – Board Software
Mobile Data Terminal (MDT) Software
• The MDTs shall allow for a single logon for all on-board equipment
• The MDT shall provide a touch screen interface that allows the driver to perform the following functions: Set Route, Play on-board announcement, view/respond to messages from dispatch, view status, and view graphical headway analysis information
• The MDT shall send a location report, indicating its current GPS location and mileage reading every 10 seconds or less
• All transmitted data shall be stamped with following information: date and time, GPS location latitude and longitude, vehicle number, vehicle operator ID number
• All fixed route packets shall include route number, trip number, and mileage reading where applicable
• The MDT shall store the most recent forty (40) minutes of GPS data, if possible, so that if the GPS receiver is not able to report the location, the last known location will remain available to be transmitted when the network reconnects
• The MDT shall support 2way messaging that allows the agency to send text-based messages to drivers
• The MDT shall track on-time performance and provide the driver with visual clues indicating performance to headways (early, on-time, late)
• The MDT shall allow the driver to play “canned” on-board announcement audio over the existing PA system
To reduce data utilization while increasing accuracy, the MDT shall support the ability to send out-of-band packets when configurable conditions are met. The system shall send a packet:
  o When the vehicle passes through a boundary geo-fence such as a bus stop or a restricted area
  o When the vehicle stops/starts within a configurable threshold
To reduce data utilization, the MDT shall support the ability to change reporting frequency (low power mode):
  o When the system detects an ignition outage, the transmission interval will slow down allowing the vehicle to continue to identify its location and status while consuming significantly less power.
  o The low-power reporting interval is configurable and can be set to a range from 10 seconds to 4 minutes
  o Travel time (between pick-up location/destination)
  o Odometer readings (between locations)

Driver Login Module
- The MDTs shall allow vehicle operator logon using vehicle operator ID entry, with any of these requiring the entry of an alphanumeric vehicle operator password
- The MDT shall allow the vehicle operator to logoff by selecting the logoff key
- The MDT shall allow the driver to logout
- The MDT shall record the time that the driver was logged in

Route Assignment Module
- The MDT shall allow the driver to select which route is currently being run
- The MDT shall allow the driver to indicate that the vehicle is off duty (dead-heading)
- The MDT shall display to the driver the next scheduled bus stop (when on route)
- The MDT shall display a confirmation to the driver that the route request was accepted

Schedule Adherence / Headway Analysis Module
- When a vehicle operator is logged in to a run, the MDT shall display the name of the next upcoming time point, and the schedule adherence status as of the most recently passed time point or as of the current location

2Way Messaging Module
- Driver Messages shall only be viewable while the vehicle is not in motion
- The MDT shall display a graphical icon (envelope) when an unread message exists
- The driver shall have the ability to confirm the receipt of “confirm” messages
- The driver shall have the ability to “acknowledge / Yes|No” messages
- The driver shall have the ability to select from a list of “Canned” driver-to-dispatch messages

System Status & Diagnostics Module
- System status shall clearly display the current state of the on-board system health
- System status should display the cellular signal strength
• System status should show the status of the GPS signal

**Back-Office System Requirements**
The successful vendor will supply a turn-key, hosted, cloud-based software solution that provides an administrative console for authorized users. START will be able to access the system via a standard web browser, without the need for software to be installed locally. The web-based Administrative Console software shall provide a single portal from which all system features will be available as plug-in modules - fixed route GPS tracking/dispatch software, reports, user management, etc. System shall be hosted on redundant, failover-ready infrastructure with at least one geographically separate datacenter housing START’s data. Vendor shall describe the DR, failover, and backup methodologies for the hosted environment. START shall have access/capability to download copies of data sets and/or backup images through the Web interface for local storage/possession.

**Fixed Route CAD/AVL Software General Requirement**

- Based on configurable thresholds, the system shall use the reported schedule adherence data to designate when vehicles are “early,” “late” or “on time
- The system shall highlight the vehicle IDs of those vehicles that are operating early, late or off-route, using map displays to indicate their current schedule and route adherence status.
- The map display symbols for these vehicles shall use distinct and configurable color codes for early, late and off-route status
- An open application programming interface (API) that allows approved 3rd party developers to receive a live data stream at no additional cost to START
- Web-based; no software to install
- Runs in the latest version of IE, Chrome, and Firefox

**Mapping Module Requirements**

- Bus location with accuracy within 3 meters
- Ability to create geo-fences for speed, boundaries, and stops
- Ability to locate a customized list of points of interest by address
- Arrival predictions/schedule adherence calculations
- Reporting module that allows the user to interact with the data (rather than just view the output)
- Ability to assign buses to routes both in advance and in real time
- Visual representation of bus location plotted over a 2D map
- System reports when an on-board device has disconnected
- System reports when on-board device has poor GPS coverage
- System should have an update frequency rate as close to real-time as possible, no more than 10 seconds between updates.
• System shall offer detailed route maps, using familiar maps like Google Maps or equivalent, showing all major streets
• System shall display areas of overlapping routes in a manner as to clearly distinguish the different routes
• System shall provide bus arrival predictions to upcoming stops
• System shall offer route changes at no additional cost.

**Route Planner Module Requirements**
• Ability to assign vehicles to routes for today
• Ability to assign vehicles to routes tomorrow
• Ability to assign vehicles to routes for the week
• Ability to copy a daily route plan and use it for a future date

**User Management / Configuration Module Requirements**
• Ability to create users
• Ability to delete users
• Ability to edit users
• Ability to set user permissions
• Ability to define station trigger zones (A station trigger zone is a user-defined area that is located just prior to each stop location)
• The system shall provide a utility that allows the user to configure next stop announcement trigger zones on a global basis (e.g., 800 feet before each stop) and set or adjust trigger zones individually by stop.
• The system shall also allow for the creation of trigger zone locations to be downloaded to the MDT software as time points to support schedule adherence monitoring.
• In addition to defining the trigger zone geographical area, the utility shall allow a system action to be defined for trigger zone entry or exit.

**Reports Module Requirements**
• All vehicle location and status data shall be maintained online for a period of three months for retrieval, analysis, display and printing
• This historical information shall include all data transmitted from vehicles (log-on/log-off data, s, vehicle system alarms, location data, and data transmitted from other equipment on-board the vehicles)
• Reporting module that allows the user to interact with the data (rather than just view the output)
• Ability to export reports to Excel (CSV) and PDF

**Fleet Management Reports**
• Vehicle History
• Speed Infraction
• Speed Violation History
• Vehicle Idle
• Garage Pull Out
• Speed Fence Violations
• Vehicle Mileage Summary
• Vehicle Speed Summary
• Boundary Fence Activity by Class
• Vehicle Location Proximity
• Vehicle Engine Time Summary
• Vehicle Idle Time Summary
• Vehicle Idle By Proximity

**Traveler Information Reports**

• Public Site Usage Report
• Smart Phone App Usage Report
• Passenger Feedback Report

**Performance to Schedule Reports (Fixed Route)**

• Arrivals-Departures
• Route Utilization
• Headway Analysis

**APC Reports**

• Passenger Access by Vehicle
• Passenger Access by Route
• Passenger Access by Geographic Location
• Passenger Access Station/Stop

**Traveler Information System Software**

**Passenger Web Site**

• No software to load (pure HTML implementation) that displays vehicles laid over a 2D map
• Branded specifically for this agency
• Website shall have the ability to show the direction of travel on each route
• Routes are drawn in different colors
• User has the ability to show one, some, or all routes on the map
• The website shall allow customer to choose a stop and display the next arrivals for route(s) serving that stop Shared bus stops (those on multiple routes) are clearly identified as such
• The website shall display the location of all active vehicles
• An Icon for each in service vehicle shall be rendered on the web site
• Bus icon positions should update without the need for refreshing
On click of the bus icon, additional info is provided to the user:
- Route Identifier
- Bus #
- Next Stop
- ETA to Next Stop

Bus arrival times are provided for each bus stop

When a stop is selected, etas for at least 3 of the next arriving vehicles should be displayed, this should be configurable to show as many vehicles as required by the agency.

When a vehicle is selected, ETAs to at least three of the down-line stops should be displayed, this should be configurable to show as many stops as required by the agency.

ETAs are provided for each bus en route to a bus stop (e.g.: if two buses are on their way to a bus stop, there shall be two arrival time predictions)

There shall be a section of the screen that is reserved for public service announcements from the agency

Integrated help system

Page will provide a link back to agency’s web site

Mobile Applications
- Multiple options that reach the widest possible user base
- Logos and colors branded specifically for the agency, not the vendor
- Real-time vehicle tracking
- Bus arrival predictions
- Support for users to leave feedback
- Support for public service announcements
- Integrated help system
- Ability for users to save favorite

Warranty and Maintenance
- All components of the Vehicle Tracking System should include a standard/limited warranty that begins once the system is accepted by START. Provide a copy of the warranty and maintenance terms in the proposal. Specify the following:
  - Hardware, software, and vehicle equipment maintenance agreement terms, including the level of support provided.
  - The services provided (what are the turnaround times for hardware repairs, etc.)

- Toll free telephone support 24hrs a day 7days a week Notification shall be provided prior to any scheduled downtime and as soon as possible regarding any unscheduled downtime, with a detailed explanation, including length of service interruption. Up-time should be 99.9%.
- START retains the right to negotiate purchase/warranty terms where appropriate. START also has the option of accepting or rejecting an extended warranty/maintenance
agreement. State in the proposal any extended warranty/maintenance agreements that are available for the proposed equipment. Include annual software and hardware maintenance escalation percentages. Additionally, proposals should include descriptions of how new versions/upgrades of the software are released and what options customers have to migrate to these new versions. Specify if the new versions/upgrades are included in the purchase price.

Training
- The selected vendor shall provide training and support to include the following:
  - Toll free telephone support 24hrs a day 7days a week.
  - On-site system implementation and support. Indicate number of hours included and description of training.
  - Identify the number of hours of training for equipment installation and system functions for START staff including administration, supervisors and drivers.
  - Operator manuals for hardware and software.

4. Optional Additions

START would like each proposal to include the following options as features that could be included in the initial project or could be added on in the future as funding allows:

- Public Wifi access: Currently we use routers from a local service provider that are not specifically designed for over the road use. Please include an option for providing this service using hardware designed for use in buses.

- Automated bus stop announcements: AVL system shall include the capability of making automated bus stop announcements in keeping with the requirements of the Americans with Disabilities Act (ADA). This capability is to be installed on all buses. It shall be capable of making both interior and exterior announcements as required by the ADA. Exterior announcements shall be able to be “silenced” by time of day on a system wide basis.

- Automatic Passenger Counter: the Vehicle Tracking system shall include a compatible Automatic Passenger Counting (APC) module with full logic to count all boarding and departing passengers at each stop and calculate the number of riders on-board after each stop. Passenger counting shall only be performed when the door is open. It is preferred that the APC component be integrated with the vehicle location data that is collected and transferred via the wireless communications network to the dispatch center after each stop.

- LED and LCD Signage: Possible to add integrated text-only LED signage to display arrival predictions on bus routes. The LED signs must be fully integrated with the Vehicle Tracking system and placed either outdoors or indoors at bus stops, kiosks, or in major campus buildings. Signs placed outdoors must be weatherproofed and sunlight readable. Describe the communications infrastructure requirements (e.g. wireless cellular
data communications). Also describe the sizes of the signs, power requirements, pre-set timing options, and display options. Provide sample views of LED signs.

5. **BUDGET AND TIMELINE**
All proposals must include proposed costs to complete the tasks described in the project scope as well as the Optional Additions. Costs should be stated as one-time or non-recurring costs (NRC) or monthly recurring costs (MRC).

NOTE: All costs and fees must be clearly described in each proposal.

**Request for Proposal Timeline:**
All proposals in response to this RFP are due no later than 5pm MST September 25, 2014.

Evaluation of proposals will be conducted from September 25, 2014 until October 10, 2014. If additional information or discussions are needed with any bidders during this window, the bidder(s) will be notified.

The selection decision for the winning bidder will be made no later than October 15, 2014.

Upon notification, the contract negotiation with the winning bidder will begin immediately. Contract negotiations will be completed by November 7, 2014.

Notifications to bidders who were not selected will be completed by October 15, 2014.

**Project Timeline:**
Project initiation phase must be completed by December 5, 2014.

Project installation should take place no earlier than January 15, 2015 and acceptance of the entire project needs to be completed by August 15, 2015.

6. **BIDDER QUALIFICATIONS**
Bidders should provide the following items as part of their proposal for consideration:

- Description of experience in planning, building, and hosting corporate web sites
- List of how many full time, part time, and contractor staff in your organization
- Testimonials from past clients on web site building and hosting work
- Anticipated resources you will assign to this project (total number, role, title, experience)
- A full testing plan
- Timeframe for completion of the project
- Project management methodology

7. **PROPOSAL EVALUATION CRITERIA**
START will evaluate all proposals based on the following criteria:
• Substantiated representations regarding the vendor’s capabilities and qualifications in providing the equipment, technology and services required and experience in completing similar projects (examples from other projects, references, etc).
• Clearly demonstrated understanding of the proposed project and proposed solutions and alternatives.
• Qualifications and experience
• Initial costs for the proposed solution, implementation, training and on-going support.
• Ability to meet specified schedule
• References
• Demonstrated success of the proposed solution, quality of equipment and availability of ongoing support. Warranties or other assurance of quality, service, customer satisfaction.
• Ability to adhere to the attached federal clauses.

Each bidder must submit 5 copies of their proposal to the address below by September 25, 2014 at 5pm MST:

START Bus/Town of Jackson
PO Box 1687
Jackson, WY 83001