

PSAP Grant Program Grant Ranker

View Application--77--Routable Network

Grant Period: 2010

Tier: Broaden or increase the delivery of wireless E-911 equipment or services beyond established minimum functional standards (**BROADEN**)

Grant Program: Enhancement **Grant Type:** Regional Initiative

Priority: GIS: low priority (refer to GIS-related Grant Request Prioritization Matrix for a description of GIS projects that would have a low funding priority) (**GIS LOW PRIORITY**)

Primary PSAP Applicants: Bedford Communications Center

Jurisdictions Served: Bedford, City of
Bedford, County of

Project Director:

John Barrett

E911 Communications Coordinator

E911 Dispatch Center 1345 Falling Creek Road Bedford, VA 24523

540-586-7827 x4401 (phone)

540-586-7668 (fax)

j.barrett@co.bedford.va.us

Project Description:

Total Project Cost \$60,000.00

Amount Requested: \$60,000.00

Statement of Need:

This grant request is related to the GIS Enhancement Priorities as stated in the Grant Guidelines for 2010. #8 GIS Low Priority – Data – Routable network. This grant request will provide the funding needed to perform the data collection, verification, and development work necessary to support automated routing functionality in the PSAP CPE and GIS. The City or County does not have the technical or human resources necessary to complete this work. We intend to hire a qualified consultant with experience in developing this data. The PSAP CPE and GIS have the software tools necessary to perform automated routing. We lack a routable road network required to fully utilize the routing tool capabilities. Providing an automated routing capability will improve the PSAP's ability to efficiently dispatch emergency services. This project is reliant upon the award of the grant funding. The County does not have the funding necessary to perform this work without the grant award. Enabling the automated routing capabilities of the PSAP CPE software and GIS software is part of the continuous plan for increasing efficiencies and improving services to our citizens and businesses.

Comprehensive Project Description:

The County is acquiring the services of a qualified consultant to develop and implement a routable road network to support automated routing in the PSAP and GIS. This routable network will be based on the current road centerline data set (RCL) used in the PSAP and GIS. This project includes all the tasks necessary to develop and implement this routable network. The specific task descriptions are included in

the implementation strategy work plan below. Goals and Objectives Goal The goal of this project is to improve emergency dispatch and response times by providing dispatchers with an automated routing capability. Project Objectives 1. Secure the services of a qualified consultant 2. Perform the office tasks necessary to develop and populate the routing data 3. Perform the field work necessary to verify and validate the routing data 4. Implement the routing data set within the GIS 5. Implement the routing data set within the PSAP 6. Test and validate 7. Deploy to live system Implementation Strategy and Work plan 1. RCL Data Model Update – The current GIS data model will updated to include necessary geometric and attribute changes required for establishing a routable GIS road network for use in the PSAP and GIS. 2. Road Segment Geometric Update – Testing will be done on the RCL to verify and validate the topology. We will identify and attempt to fix any topology errors. In cases where the geometric fixes cannot be determined, the consultant will identify the problem and provide it to the County GIS department for resolution. The County will communicate the resolution back to the consultant. These resolutions will be then be reflected in the GIS data. 3. Road Point Geometric Feature Development – Geometric point features representing intersections and road end points will be created. The point will be used on the segments to establish a beginning and end node. It will be used to develop a junction feature data set for the network routing functionality. 4. Road Segment Attribute Update - To-node / From-node IDs attributes will be established and populated to establish segment linkage and travel directionality. The County's consultant will utilize the current segment directionality as a point of departure for assignment of travel directionality. In cases where the travel directionality cannot be determined, the consultant will identify the problem and provide it to the County GIS department for resolution. The County will communicate the resolution back to the consultant. These resolutions will be then be reflected in the GIS data. 5. Road Classification Update – Road classification attributes will be established populated for each road segment. The classification system will be used to organize the roads based on type (e.g. Interstate, Primary, Secondary, Subdivision, Rural). It is recommended that the County start with the existing DOT type classifications as a point of departure and modifying that to suit County needs. Once established, classification to County road segments will be applied to the data. 6. Update of Segment Impedance Factors – Standard impedance parameters and domain values will be established to model travel impedance cost. This will include the segment impedance factor of speed based on the road classification established above. It will include point (junction) impedance factors for Stop signs, Traffic lights, and open intersections. It is recommended that the County starts with the existing parameters and domain values as a point of departure and modifying that to suit County needs. Once established, the segments and points will be attributed with the appropriate values. The consultant will carry out a field verification of speed limits through actual field verification. The results of the field verification will be compared to the initial values and changes in the designation of impedance factors will be adjusted as needed. 7. Update of Segment Speed Limits - The consultant will work with the County to establish standard speed impedance based on the road classifications established above. We recommend starting with the existing speed values as a point of departure and modifying that to suit County needs. Once established, we will attribute the segments with the defined speed values based on their classification. The Consultant will carry out a field verification of speed limits through actual field verification. The results of the field verification will be compared to the initial values and changes in the designation of impedance factors will be adjusted as needed. 8. Field Validation and Verification – Field validation and verification will be necessary to insure that we have assigned the proper impedance values to the road segments and points. Field validation requirements will be based on the quality and quantity of source data input. Project Sustainability Ongoing maintenance of the data will be performed as part of the roadway update process.

How will the equipment purchased will support future technologies for PSAP readiness?:

The equipment and services purchased under this grant will provide the PSAP with the ability to improve the call dispatch functions.

Budget and Budget Narrative:

RCL Data Model Update -- \$5000 Road Segment Geometric Update -- \$17500 Road Segment Geometric Feature Development -- \$15000 Road Segment Attribute -- \$5000 Road Classification -- \$2500 Update of Segment Impedance Factors -- \$2500 Update of Segment Speed Updates -- \$2500 Field Validation and Verification -- \$1000

Evaluation:

Efficiencies in dispatching emergency services, and improvements in time needed for emergency calls can be analyzed.

Attachments