

PSAP Grant Program Grant Ranker

View Application--77--Regional Addressing Verification

Grant Period: 2009

Tier: Strengthen current equipment and service delivery capability by upgrading existing wireless E-911 related equipment or services (**STRENGTHEN**)

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

Priority: Other (**OTHER**)

Primary PSAP Applicants: Buckingham County
Cumberland County
Powhatan County Emergency Services

Jurisdictions Served: Powhatan

Project Director:

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Project Description:

Powhatan County, Cumberland County, and Buckingham County are seeking regional funding from the Wireless Grant Program to improve the quality of the E-911 Geographic Information System (GIS) data. This project will concentrate on address verification, master address list creation, and centerline data correction, thus increasing the safety provided to the citizens. The data will be compared to the master street address guide (MSAG) and other county data to ensure that any problem areas are accounted for, thus strengthening the GIS datasets currently being used by the Emergency Communication Centers and by Virginia Geographic Information Network Road Centerline Project (VGIN RCL).

Total Project Cost \$300,000.00

Amount Requested: \$300,000.00

Matching Funds: \$0.00

Additional Local Funds: \$0.00

Statement of Need:

REGIONAL BACKGROUND Powhatan County, Cumberland County and Buckingham County Communications Centers, along with the Geographic Information Systems (GIS) representatives, are seeking regional funding assistance from the Virginia Wireless E-911 Services Board for a cross-jurisdictional address verification of addressable structures. The Communication Centers in each locality rely on GIS development in the creation, maintenance and dissemination of all geospatial data utilized by dispatchers to fully support public safety mandates. All three counties, in a cross-jurisdictional effort, are specifically interested in enhancing their data by increasing the quality of data and by expanding the coverage area of regional data as well as

county data. This will allow emergency response processes and functions to fully integrate GIS data in support of address verification, dispatch routing, and emergency planning. This regional funding would allow the counties to refine existing data, field verify county-wide addresses, develop first responder materials, and integrate existing emergency operations systems with each County's GIS system. The completion of this project will:

- o Improve the ability of the Communication Centers in each county to provide first responders with accurate addresses via GIS data covering the borders between Powhatan and Cumberland County as well as between Cumberland and Buckingham County.
- o Strengthen and broaden the current service delivery by enhancing the ability to locate new roads and structures for address maintenance.
- o Allow for expanded emergency support across county boundaries in times of need.
- o Meet the state requirements for VGIN for corrected address ranges for use with the RCL data which is distributed and used statewide.

All three counties receive emergency calls within the Communication Centers that overlap the bordering county and are asked to respond to those calls. It is very important that the adjacent community have the most complete and up-to-date addressing to be able to respond quickly in an emergency. Currently, Powhatan County has no digital parcel layer and no addressable structure data layer; all information is put into a hand-drawn map book that is redone yearly with updates. The dispatchers are currently using approximate address ranges for the E-911 calls based on the address ranges in the VGIN RCL data layer and on approximate addresses in the hundred blocks on the roads. Emergency personnel familiar with the area have stated that there are numerous addressing and road naming problems in the county. The original addressing scheme was created in 1985 and developed based on a "windshield" survey. Since then, the addresses have been assigned by various County Staff members. Today the addressing of new structures is currently maintained by two Planning Department staff. Powhatan will have a completed and accurate digital parcel data layer as of the end of April 2008. Additionally, they will be receiving footprints of all structures in the county that are greater than 200 square feet in size. The footprints will be helpful for the E-911 Communication Center in finding structures on the CAD screen, however, an accurate addressable structure file is still needed to send the first responders to the correct location in times of an emergency. Currently Powhatan County is working with the Richmond Regional Planning District Commission (RRPDC) to create additional layers for the GIS department and for use in the E-911 system. Presently, Buckingham and Cumberland have established a viable GIS based road centerline (RCL) and 911 addressing database with near 95% accuracy. Both counties have been in maintenance mode for two or more years, ensuring new structures and centerlines abide by VGIN RCL standards/requirements. They also share similar workflows and vendor applications which utilize the geographic data. As such, they have exhibited a history of regional standardization. However, despite the progress of these counties in verifying and accurately maintaining this data, there are some areas which remain unclear and even problematic in terms of addressing resolution. These areas are typically along the jurisdictional borders which are imprecise. A number of roads bisect or extend through the jurisdictional borders. Many of these roads differ in both naming and addressing standards as they pass through the counties. As a next step in addressing maintenance and rectification, Powhatan, Cumberland, and Buckingham are requesting funding to accurately "address" these cross-jurisdictional areas. Additionally, Powhatan will be using a portion of these funds to work with Cumberland on the border between these two counties to find and resolve these problematic addressing areas but the county will also begin a full county field address verification of existing structures and addresses. The Public Safety Answering Point (PSAP) for each of the counties is located within and operated/managed by the respective Sheriff's Office. Powhatan, Cumberland, and Buckingham are bordering jurisdictions which are all three bisected by U.S. Route 60. The Communications Center for Powhatan County covers numerous highways (State Routes 522, 13, and 60; approximately 442 miles) and rural roads (700 miles) for a total of 1,142 miles of roadways and approximately 10,000 addressable structures. The PSAP communication centers for the Counties of Cumberland and Buckingham serve more than 1,150 miles of main roads and more than 2,110 miles of rural roads according to figures from the VGIN RCL project. Of these Cumberland and Buckingham County's primary concern is a one mile buffer of the roads along the eastern (Powhatan and Cumberland) and western (Cumberland and Buckingham) county boundaries where there are approximately 241 structures which need to be verified. The split is approximately 106 structures on the eastern boundary and 135 structures on the western boundary. All other structures within the counties of both Cumberland and Buckingham have been completely verified with 95% accuracy. Please refer to the attached geospatial image (figure 1), where the red points represent addresses that lie within a 1 mile wide buffer of the jurisdictional borders. Powhatan County does not have an addressable structure data file for use in their PSAP communication center. Regionally, there are:

- 10,241 addressable structures (10,000 Powhatan and 241 on the eastern and western borders between counties) to be verified
- Approximately 1,600 miles of

main roads and 2,800 miles of rural roads Regionally, these three counties are some of the fastest growing counties in the Commonwealth of Virginia. They are experiencing not only a residential growth but also an upswing in commercial and retail construction growth as well. REGIONAL PSAP SERVICES The communications center for Powhatan primarily serves all of the county emergency service agencies including: Sheriff's office, Powhatan Volunteer Fire Department (VFD) Company 1, Huguenot VFD Company 2, Macon VFD Company 3, Fine Creek VFD Company 4, and Deep Creek VFD Company 5. The Macon and Deep Creek Companies regularly respond to Cumberland County and are the two that receive the most assistance from Cumberland County. The Powhatan Rescue Squad serves out of 3 locations: Main Station in the Courthouse area, Sub-station in Ballsville, and a Sub-station in Fine Creek. The PSAP also coordinates the requests for mutual aid from other counties. This mutual aid includes requests for other Fire Department "automatic aid" in areas where other localities have fire companies closer to areas of Powhatan County than the existing Powhatan Fire Stations. These automatic aid requests go either to Cumberland VFD and/or Cartersville VFD to respond into Powhatan County depending on the emergency. Powhatan's Companies 3 and 5 also regularly respond into Cumberland County on automatic aid. Cumberland's communication center handles dispatches for the sheriff's office as well as the volunteer fire and rescue departments at Cartersville and Cumberland Courthouse. Buckingham's communication center handles dispatches for the sheriff's office as well as the fire departments in Arvonnia, Dillwyn, Glenmore, and Toga and the rescue departments at stations 17, 18, and 19 and the first responders in the Yogaville/Manteo area. Powhatan County's communications center currently uses GeoLynx Dispatch Mapping System by GeoComm to assist dispatchers in locating addresses. The GeoComm mapping system relies on GIS centerline data and approximate address point data, based on hundred blocks, to locate addresses when an emergency call comes in. Cumberland and Buckingham County's communication centers currently use MSAG's Eagle 911 GIS mapping system to assist dispatchers in locating addresses. EVIDENCE OF FINANCIAL NEED Due to the time and cost involved, regional address point layer verification across the referenced boundaries has never been done. None of these counties have funding available to carryout this project. The completion of this project will improve the region's mapping system and the ability of GIS to provide accurate and verified information to each of the Communication Centers. It will also strengthen and broaden the current service delivery by enhancing the ability to locate new roads and structures for address maintenance as well as provide current parcel mapping of the various areas. (Funding Tier 4, 5, and 6; Funding Priority 2, 4, and 8; Enhancement Program Priority 6 per email dated 8/13/07).

Project Impact:

This project will improve the regional response time within the overlapping segments of the counties as well as within the counties themselves when the first responders are responding to a call, thus saving critical seconds in emergency response. By field verifying the addresses and correcting them in the emergency operations system database it will improve the response time for each of the localities. Creating a master address list/layer is the best way to ensure the safety of county residents while improving the efficiency of all county departments when working with address data. As well as correcting the address layer, the address ranges in the centerline data need to be corrected to match the addresses in the field. Correcting the address ranges will provide similar benefits to resident's safety and improve efficiency and functionality in the addressing process and all other future uses of the data.

Consequence of Not Receiving:

The lack of funding for this project will continue to facilitate slower emergency response time, due to system and boundary inconsistencies, ultimately, endangering the lives of the residents in each of the counties. If funding is not received, the address and centerline data will continue to have errors and omissions and will not be as accurate or efficient as it needs to be in order to provide optimal 911 services to Powhatan County, Cumberland County and Buckingham County. Limited resources in rural localities make it conceivable that this type of project will remain incomplete unless required funds are provided. None of the counties have any funding in their budgets for the addressing problem. Address ranges will not be corrected in the VGIN RCL project or for the communication centers. The addressing problems (missing house numbers, house numbers on the wrong side of the road, duplicate street names and/or house numbers, etc...) in all three counties will not be addressed and the communication centers will not have accurate datasets for use in emergency situations unless funding is granted.

Part of Long Term or Strategic Plan?: Yes

Likelihood of Completion Unfunded?: 0%

Other Available Funding Sources?: No
Percent of Grant Funding Requested To Total Funding Cost?: 100%
Is Project Locally Sustainable?: Yes

Comprehensive Project Description:

GOALS AND OBJECTIVES The primary goals of this project are: • To enhance each County's Computer Aided Dispatch (CAD) application with current and accurate data, and develop necessary GIS based map products to support emergency response. • To develop and/or validate regional GIS address records surrounding the borders between the counties. • To develop an accurate addressable structure point file for features in Powhatan County. Secondary objectives include: • Implementing new or additional addressing maintenance tools • Increase GIS integration with the State RCL project updates/requirements

Goal Details

1. **Structure Address Cleanup:** All three counties will complete and coordinate addressing structure point information across the local boundaries to support location of emergency events, resulting in improved regional response to emergencies. Powhatan will be able to develop a complete field verified address point file for use in the Communication Center.
2. **RCL/Address Range/Directionality Cleanup:** The three counties will comprehensively improve the address range accuracy of the County road centerlines to support emergency dispatch and to meet the requirements of the on-going RCL project.

Implementation Strategy
The project will be organized by and focus on areas that align with the project goals for the regional cross-jurisdictional effort. Each area is described in detail below.

Data Needs The primary data objective is to ensure that structure address points are both complete and accurate relative to their assigned E-911 numbers. While efforts have been undertaken in the past to attempt to achieve this goal, additional efforts are required to achieve a higher degree of data integrity. The counties are interested in regional grant support to assist in the verification/cleanup of addressed structures, an essential data element in their emergency dispatch needs. The secondary data objective is to ensure that existing data are valid through field verification and contain the appropriate information to support emergency dispatch needs. There are currently some deficiencies within the road centerline network that impede its use for future dispatch initiatives, specifically topology, directionality, and address ranging issues. To comply with the VBMP RCL program's data requirements and support emergency dispatch needs, Powhatan County, Cumberland County and Buckingham County require evaluation, verification, and rework of some of the road centerlines to ensure the integrity of the data set.

Data Management Applications Powhatan, Cumberland, and Buckingham Counties require the ability to reliably maintain and update the referenced data layers associated with its emergency services program. These layers include, but are not limited to, address points, road centerlines and ranges, parcels/land records, routable network geometry, etc. All three counties will continue to use their existing 911 GIS mapping system software.

GIS Integration with Emergency Operations Through the application of the enhanced data sets developed by means of this project Powhatan County, Cumberland County and Buckingham County will have the ability to provide robust mapping, geocoding and spatial analysis via an efficient integration between their emergency management systems and the ESRI databases. Users will have access to advanced mapping functions, geocoding, printing, map making, exporting of maps and data sets.

Timeline The schedule and Gantt chart below represents the regions current best estimate of overall project schedule and duration.

Project	Start	End
Review Existing Data	9/22/2008	10/17/2008
Define Field Verification Decision Tree	10/20/2008	10/24/2008
Define Confidence Rating System	10/27/2008	11/13/2008
Mobile Data Unit Configuration	11/14/2008	11/18/2008
Safety Plan	11/19/2008	11/25/2008
Communications Plan	11/26/2008	12/2/2008
Field Crew Training	12/3/2008	12/5/2008
Pilot Project	12/8/2008	1/2/2009
Full Field Verification	1/5/2009	3/27/2009
Final Delivery	3/27/2009	3/27/2009
Project Completion	3/27/2009	3/27/2009

What type of interface or compatibility solution will be used between existing equipment and/or software and that which you intend to purchase?:

The interface will be the GIS and CAD Software which is currently being used by the localities. The software in place now will be able to utilize the information without further manipulation after project completion.

What is the overall relationship of your project to your PSAP or locality's established long-range future plans?:

The Communication Centers/PSAPs use GIS on a daily basis. By utilizing regional coordination and effective planning this project will help the region and the individual PSAPs achieve their goal of providing the best emergency service to the county's citizens by making possible quicker responses to emergencies via the

accurate information that first responders will have at their fingertips.

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

No equipment will need to be purchased for the data development component of this project. The data (address points) will be developed so that it may easily be imported into the PSAP's currently operating software. The counties may opt to include the acquisition of a GPS enabled camera to assist future maintenance of the data.

Budget and Budget Narrative:

The Project consists of a number of elements, which include: 1) data acquisition, development and quality control; 2) database design, configuration, and implementation. Please refer to the narrative above for detailed descriptions of the project deliverables. The project consists of the following budgetary items:

Budget Item	Cost
Data Development	\$ 243,000
Database Design	\$15,000
Quality Control	\$20,000
Applications Development, Customization, and Systems Integration	\$20,000
GPS Enabled camera	\$2,000
Total Cost	\$ 300,000

Ongoing Expenses:

This is a stand-alone project to develop/verify the baseline address points within the counties. Ongoing maintenance of the data will be carried out under current funding mechanisms. The project contributes to a second phase of development, creating an intelligent routable road network capable of supporting the intelligent dispatch of emergency services vehicles with a high degree of predictability and reliability (through the corrected address ranges). To achieve this objective, there are required impedances (speed limits, turn impedances, stop signs, traffic signals, etc.) that will have to be developed. This second phase is beyond the scope of the above stated project but will contribute to the counties being able to develop a routable road layer in the future. Currently, there are no known sources for funding either through grants or long-term funding by the counties.

Evaluation:

This project will be determined a success for the region by: * The development of a new GIS based address point layer is developed with 95% confidence level. * The ability of each County's Computer Aided Dispatch (CAD) application to utilize current and accurate data, and necessary GIS based map products in support of emergency response. Powhatan County, Cumberland County and Buckingham County will develop a detailed evaluation plan for this regional project, including scope of services, schedule, and project cost, in accordance with the project narrative outlined above. The project management plan will include a number of standard project management measures, including weekly update meetings, monthly progress reports, a quality control plan, communications plan, change management plan, and project task signoff and closeout documentation for the selected consultant to carry out this work.

What are the short term, intermediate, and/or long-term outcomes desired for this project?:

The short-term outcome for the counties is to verify all addressable structures and roads and correct the problem areas that must be addressed. In the intermediate term problems will be discussed with the various departments in the counties and also with the citizens. Potentially, road names and house numbers may need to be altered to ensure safe and reliable emergency response, thus affecting some of the citizens. The long-term outcome for the counties is to have a valid data layer for the road centerline to enable intelligent routing with addressable structures so that no one is missed at a time of emergency.

What measures will be used to determine outcomes?:

The following are the outcomes and performance measures of this project:

- Complete workable file of problem areas which the counties will need to address in order to facilitate the completion of the road centerlines and addressable structures
- GIS data relevant to emergency dispatch will be verified and updated to ensure complete and highly-reliable information will be available for emergency communication centers in support of first responders, emergency planners, and State/Regional law enforcement officials.
- GIS data will be augmented to include the ability for emergency operations to provide routable directions to responders, enabling responders to save critical time through use of accurate and streamlined directions.
- Maintenance of the data file will ensure accurate integration with statewide VBMP data, as well as provide timely and accurate data to meet the needs of the emergency communication centers.
- Integration between the communications center's emergency management software and the Countys' GIS data.

Establishment of map products that will further facilitate the timely dispatch of first responders and emergency services resources.

How will data be collected and how will evaluations be conducted?:

The data will be collected by field personnel provided by the chosen consultant via a vehicle and a laptop computer with an address verification program that the information will be put into. The field data will be collected over several months. The program used to input the information will be capable with ESRI ArcGIS software. This information will be cross-referenced with various GIS data layers selected by each county. These layers may include, but are not limited to the parcel data layer, Commission of Revenue/Real Estate Assessment data, MSAG information and the E911 datasets. Evaluations will be conducted on the datasets throughout development of the project with delivers of data to the counties for QA/QC being setup. The evaluation will also be based on the measures listed in the question above.

How will data be presented?:

The data will be presented in an ArcGIS geodatabase or shapefile format that will be downloadable to the Communications Center as well as to any other staff in the counties. Once downloaded the shapefile merges seamlessly with the CAD software and the completed and verified data will be available to first responders.

Attachments

Cumberland_Powhatan.JPG

