



CITY OF RAPID CITY

RAPID CITY, SOUTH DAKOTA 57701-2724

PLANNING DEPARTMENT

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MEMORANDUM

TO: Legal and Finance Committee

FROM: Lisa Seaman, GIS Coordinator

DATE: September 5, 2002

RE: Request for Proposals for a E911 Mapping Interface

The above-referenced project will provide the Emergency Services Communication Center with the ability to access the ongoing implementation of the enterprise-wide geographic information system (GIS). This interface will allow the Emergency Services Communication Center to replace its existing MicroStation based interface so the ESCC can utilize the GIS data. Funds for this proposal are included in the 2002 GIS Budget.

The LIS Task Force recommended approval of the above-referenced project on August 28, 2002.

Staff requests approval to advertise the Request for Proposals for an E911 Mapping Interface.

REQUEST FOR PROPOSALS FOR E911 MAPPING INTERFACE

Overview

The City of Rapid City requests proposals from qualified firms to provide a mapping interface for the Emergency Service Communications Center (ESCC) to complement the ongoing implementation of an enterprise-wide geographic information system (GIS). The interface will replace the existing MicroStation-based interface and be linked to the ICAD, Inc. computer aided drafting system. It is the City's intention to select the most qualified respondent to deliver these services.

Background

The City of Rapid City is located in Pennington County, South Dakota, in the western half of the state. It borders the eastern edge of the Black Hills and is roughly 46 square miles in size. The City has a current population of 59,573, with 21,000 tax parcels, and a mix of land uses. Pennington County has 88,565 persons in an area of 2,770 square miles, and 42,000 tax parcels, inclusive of Rapid City's tax parcels.

Over the years, the City and County have made incremental investments in automating these land records. Activities have focused on automating the tax parcel mapping in the County Department of Equalization, implementing address geocoding and map display within the County 911 Dispatch Center, and automating engineering design using AutoCad technology within the City Engineering Division. In addition, the City has acquired digital orthophotography and topographic mapping to support individual project data needs. Currently, the City and County have digital orthophotos and digital topographic data in Arc/INFO and AutoCad format. The City and County have adopted the South Dakota South State Plane coordinate system.

In 1997, the City, in conjunction with the County, initiated a more coordinated program of land records modernization by developing a comprehensive strategic plan for implementing a computerized geographic/land information system (GIS/LIS). An update of the original plan is in progress.

The City and County have invested in ESRI GIS software, including eight Arc/Info licenses, 78 copies of ArcView 3.2, and one ArcIMS 4.0. The GIS Division owns a number of ArcView 8.0 upgrades, but it is unlikely that these will be deployed in the near future because of the investment in 3.2 Avenue extensions created by Division staff. The Division also owns 10 licenses of MapObjects 2.1, which are intended for use by the ESCC for the new ESRI-based interface.

Approximately 100GB of data have been created or acquired. Vector map data reside in Arc/Info coverages. Raster data include digital aerial photos in .tif/.tfw, .bil/.blw, .sid/.sdw file formats, and USGS DRGs in .tif/.tfw format. It is anticipated that coverages will be converted to geodatabases stored in SQL Server/ArcSDE once the geodatabase model has matured. Additional databases with links to spatial data are also utilized. The most widely used of these is one containing tax assessor data. It is

anticipated that the ESCC will use copies of coverages or geodatabases (probably in shape file format) that will be installed on each computer, rather than residing in a centralized database, in order to ensure operability in the event of a hardware or network failure. Network-based coverages may also be utilized for non-critical map data.

The Pennington County - Rapid City Emergency Services Communication Center (ESCC) is a regional public safety answering point (PSAP) with 9 console positions and a staff of 35 serving all of Pennington County, southern Meade County, Jackson County, Haakon County, northern Custer County and Ellsworth Air Force Base. The ESCC processed 451,649 phone calls from these areas in 2001, including 55,000 9-1-1 calls. The ESCC dispatches emergency and non-emergency calls for service to over 40 public safety agencies including the Rapid City Police Department, Pennington County Sheriffs Office, Rapid City Fire Department, 25 volunteer fire departments, 6 ALS and BLS ambulance services, Ellsworth Air Force Base Fire and Ambulance and Badlands National Park Rangers. The ESCC dispatched 224,432 calls for service to these agencies in 2001.

The ESCC utilizes an integrated dispatch system comprised primarily of a Motorola Centralink 2000 Enhanced 9-1-1 phone system, Motorola Gold Elite radio console system, ICAD, Inc., CAD, RMS and NCIC systems and a Sidwell Company developed, Microstation based GIS system. Location information can be pulled from the E911 system to the CAD system via a one button transfer. The location information can then be sent to the GIS system for look up via a one button transfer. The ESCC utilizes the GIS system to assist in locating addresses, streets, intersections, common places, UTM and latitude/longitude coordinates and other geographical features. While the ESCC's E911 system provides agency recommendations to the dispatchers, the GIS system is used to make specific unit recommendations to the dispatcher. The GIS system will also be an integral part of Phase 2 Wireless E9-1-1 in the future as mandated by the FCC. The ESCC considers its GIS system to be a "core system." Its reliability, accuracy, ease of use and maintainability, along with its continued integration with other systems in dispatch, is critical.

Scope Of Services Requested

The City anticipates depending upon the expertise of the selected developer in meeting the specifications listed below. It is recognized that the developer may have different methods of meeting the project goals than those envisioned by the City.

Prior to the installation of the software, it is anticipated that the selected developer will require phone contact with the GIS and ESCC staff in order to ascertain the specifics of the data and network, and at least one trip to Rapid City in order to set up and/or train the ESCC staff in the administration and use of the software.

The consultant shall propose the following specific tasks for Pennington County.

I. General

- A. The project goal is the migration of the existing MicroStation E911 mapping application to an ESRI platform that is fully compatible with the Pennington County - Rapid City GIS. See Attachment 1 for a screen shot of the existing application. The application should be designed to run on Windows NT/2000/XP.
- B. The proposed application will include all base functionality of the existing mapping interface currently installed in the E911 center. The new interface should attempt to emulate the functionality and “look-and-feel” of the existing interface.
- C. The mapping solution provided must interface with the ESCC ICAD, Inc. Computer-Aided Dispatch (CAD) system.
- D. ESCC or GIS personnel will maintain the E911 data. ESRI products, such as Arc/Info or ArcMAP will be used.
- E. The developer should provide any necessary training to the ESCC and GIS staff in the administration of the interface. The developer will provide the ESCC with a minimum of one year of technical support.
- F. The application will be written in Visual Basic using ESRI’s MapObjects interface library. The City will retain the rights to use and modify the source code of the application. The City will also retain the right to install the interface on any number of machines without additional license fees from the developer within the limit of the City’s MapObjects licenses.

II. Interface functionality

- A. The following map controls will be provided:
 - Zoom out (the zoom ratio will be adjustable)
 - Zoom in (the zoom ratio will be adjustable)
 - Pan
 - Label Streets
 - Display and Label Boundary Themes
 - Print Map
 - Odd/Even side of street display
 - Refresh
 - Fit View
 - Fill (fills in boundaries and common places with the assigned fill color)
 - Site Data (click the button then click on a centerline or common place to display attached info about that element)

- Latitude/Longitude and UTM coordinates will be available to the user through two interfaces. First, the user may click on the map and request a coordinate in one of these formats. Second, the user may type in a known coordinate and zoom to the requested location on the map. This capability may require compilation of a third party COM control into the application. If required, the proposal should identify potential costs to the City.
- B. Display of digital orthophotography must be supported. If the selected location includes multiple resolutions of imagery, the highest resolution of imagery will be displayed.
- C. Tables residing within an Access MDB will control the display scales and symbology of specific map themes. This Access MDB will be workstation-specific. The new application will enable display of ancillary map layers at the discretion of the user, provided the layers are in shape file or coverage format. While the display of the individual layers will be controlled by the user, the availability and display characteristics of these data layers will be controlled by the station-specific MDB setup table that cannot be modified from the user interface.
- D. The mapping application must include the following search functions:
- Locate an exact address from the address point shapefile and default to match against the centerline if no address point exists
 - Interpolate an address location along a street centerline
 - Locate a common place location by name
 - Locate an intersection by street and cross street
 - Locate a street by name only. The entire street will be highlighted if no numeric street address is included.

In each case, the resulting location will be highlighted and the map extent will be automatically modified to show the location centered in the map view at an appropriate scale. A "View Calls" form will be populated with each searched location.

- E. The first responders for each call will be calculated from the boundary file and displayed on the form. The map view may be changed to isolate any open call in the "View Calls" box.

III. ICAD interface

- A. Address search query data will be extracted from the CAD system and parsed as necessary so that searches can be initiated without any additional key entry.

- B. ICAD, Inc. will be authorized to work with the selected developer to program and test this integration.
- C. A manual address query will also be included in the interface.

IV. Data to be utilized

- A. The new E911 mapping application will require all mapping data that is utilized with the application to reside in ESRI shape files. Specifically, the application will directly interact with attributed street centerline linear shape files, first responder boundary polygon shapefile(s), common place name polygon shape file(s), and specific address point shape file(s). Ancillary data residing in ESRI coverage and MrSID image formats will be supported for display purposes. Developers may propose alternative approaches.
- B. The following shape files will be delivered to the developer at the onset of the project:

| <u>Data Layer</u> | <u>Shape File Type</u> |
|--|------------------------|
| 1. Street Centerlines | Linear |
| 2. Response Boundaries | Polygon |
| 3. Places of Interest | Point |
| 4. Address points | Point |
| 5. Up to 8 other shape files or coverages that will be used as ancillary display-only data layers within the map view. | |
| 6. Aerial photography of Pennington County will be delivered to the developer in MrSid format. | |

- C. All data are in the South Dakota State Plane projection, south zone (FIPS 4002), NAD83.
- D. The developer will not be responsible for resolving any errors or discrepancies in the data sets.

Proposed Project Schedule

Proposals shall be governed by the following estimated schedule:

- Written Proposals Due at the September 30, 2002
Rapid City Planning Department

- Interviews of selected respondents October 11, 2002
- Select consultant and complete contract negotiations October 23, 2002

Detailed scheduling of the project will be negotiated during the contract negotiations by the selected consultant and the City.

The date for initiation of the contract as well as the overall contract performance period will be negotiated with the selected consultant based on the tentative time schedule listed below.

- Notice to Proceed with Services November 5, 2002
- Project Complete January 31, 2003

VI. The consultant may include a proposal for the above-referenced tasks (Items I - V) as an optional phase for surrounding counties, including Lawrence County, Meade County, Jackson County, Haakon County, Shannon County and Custer County. All counties except Pennington County can be included in one phase.

A. General Instructions

Inquiries

Questions about the proposal may arise while preparing responses. Inquires are to be made in writing prior to September 23, 2002 and answers thereto will be mailed to all firms who have received or requested copies of the Request for Proposals. Origin of the questions will not be identified. Please direct questions to:

Ted Ruffedt, Jr.
 Pennington County 911
 300 Kansas City St
 Rapid City, SD 57701
 (605) 394-6794 (phone)
 email: PennCo911@aol.com

GIS specific questions should be directed to:

Lisa Seaman
GIS Division
300 6th Street
Rapid City, SD 57701
(605) 394-4120 (phone)
(605) 394-6636 (fax)
email: lisa.seaman@rcgov.org

Signature Requirements

Proposals must be signed by a duly authorized official of the proposer. Consortia, joint ventures, or teams submitting proposals, although permitted and encouraged, will not be considered responsive unless it is established that all contractual responsibility rests solely with one contractor or one legal entity which shall not be a subsidiary or affiliate with limited resources. Each proposal should indicate the entity responsible for execution on behalf of the proposal team.

Minimum Services of the Consultant

The following shall be the basic services and products provided by the consultant.

Installation of the mapping interface

Training for ESCC/GIS staff in the administration, maintenance, and use of the mapping interface

Deliverables:

2 copies of the mapping interface on CD-ROM.

The source code for the mapping interface on CD-ROM.

One year minimum of technical support

Proposal of Submission

The City of Rapid City must receive your proposal no later than 4:00 p.m. MDT, September 30, 2002. The background information, experience and descriptive examples of the proposers work must be submitted with information to accompany the proposal at the required time of submittal. Eight (8) copies of each proposal must be submitted to the City of Rapid City. Submissions will be directed to:

Lisa Seaman, GIS Coordinator
GIS Division
300 Sixth Street
Rapid City, SD 57701

Addenda and Supplements to RFP

In the event that it becomes necessary to revise any part of the Request for Proposals or if additional information is necessary to enable the proposer to make adequate interpretation of the provisions of this Request for Proposal, a supplement to the Request for Proposals will be provided to each proposer.

Rejection Rights

The City of Rapid City retains the right to reject all proposals and to re-solicit if deemed to be in its best interests.

Selection is also dependent upon the negotiation of a mutually acceptable contract with the successful proposer.

Cost of Proposal Preparation

No reimbursement will be made by the City of Rapid City or any other party to this agreement for any costs incurred prior to a formal notice to proceed under a contract.

Proposals to be in Effect

Each proposal shall state it is valid for a period of not less than ninety (90) days from the date of receipt.

Prohibited Interest

No member, officer, employee of the City or member of its governing body or of a local public body having jurisdiction within the City's service area, during his or her tenure or one year thereafter, shall have any interest, direct or indirect, in any resultant contract or the proceeds thereof.

Taxes

The contract amount submitted by the consultant should take into consideration the fact that all sponsoring entities associated with the proposed project are exempt from all state taxation, including state sales tax.

Selection Process

A study team will review responses to the Request for Proposal that meet the requirements enumerated and are received prior to the designated closing date.

The committee will designate the most qualified firms as finalists based on professional qualifications, costs, and financial data after reviewing the qualified proposals. The selected finalists will be interviewed the committee. The selected consultant will be notified and contract negotiations will commence. Upon the

completion of negotiations, the City of Rapid City must approve the contract before any work can begin.

Project Approach

The proposer should identify the processes utilized on other significant projects of similar scope and magnitude as well as the process envisioned for this project. Include within this proposal the process envisioned for incorporating the specialized disciplines of geographic information systems and information management systems. The specific procedures and methods proposed for meeting the requirements of the City of Rapid City shall be detailed in the proposal.

Qualifications, Costs, and Financial Data

Those firms submitting proposals will be evaluated according to the qualification of the firm in terms of experience, the ability to perform and manage the work, the ability to work within a schedule, and within a fixed budget. The firm is asked to submit a description of prior work that is related to the scope of work previously described. Particular emphasis will be placed on the qualifications of the firm's key staff, such as the project manager and all staff involved in the project.

The contract for the scope of work will be based on a fee schedule with a not-to-exceed amount, inclusive of any direct reimbursable expenses. Project fee and cost estimates are not considered binding evaluation criteria. Each firm submitting a proposal must provide an estimate for each phase of the project based on the services enumerated and an assumed project time frame. Each estimate for each phase of the project should contain a cost breakdown including the cost of material, direct salaries, labor overhead, general overhead, and other direct costs and profit.

Proposers should clearly state the licensing agreements required for the use of their software.

Specialized Experience

The following criteria will be used in evaluating the qualifications of each consultant.

1. Capacity and Capability (20% of total)
 - Key personnel and individual relevant experience and capability, and outside consultants
 - Diversity of skills – geographic information systems applications, database interfacing
 - Total number of firm employees in project technical disciplines and current workload of personnel
2. Technical Ability and Understanding of Requirements (15% of total)
 - Technical approach proposed for meeting tasks
 - Understanding and experience in meeting tasks

- Understanding and experience in addressing implementation issues
 - Project schedule
 - Personnel assigned to tasks
 - Quality of examples of previous work
3. Project Organization and Management (10% of total)
 - Project team
 - Management procedure – work reports
 - Controlling costs
 - Quality control
 4. Past Record of Performance (5% of total)
 5. Completion time – quality – cost comparison (10% of total)
 6. Knowledge with GIS interface design (20% of total)
 7. Knowledge of database interfacing with map data (20% of total)

General Expertise Required

The services envisioned within this Request for Proposal includes all of the geographic information system and information management system disciplines necessary for the proper execution of the project desired.

Miscellaneous

The following information will be made available to the selected consultant: access to information regarding existing hardware, software, operating systems, network, and database resources currently in use within the City and County organizations; and any other maps or documents pertinent to design and deployment of a mapping interface.

The City of Rapid City retains the right to amend the contract with the successful proposer to include other possible areas of concern with this project.

Non-Discrimination/Americans with Disabilities Act

The successful consultant shall comply with the requirements of Title 49 CFR Part 21 and Title VI of the Civil Rights Act of 1964. The successful consultant shall provide services in compliance with the Americans with Disabilities Act of 1990.

Summary

All plans, calculations, maps, reports, correspondence, minutes of meetings, and related data generated for the interface design will be included in the final documents submitted to the City of Rapid City.

ATTACHMENT 1
Screen shot of existing map interface

File Edit Element Settings Tools Camera Workspace Window

Move Element

Sidwell Company 1998 E911Dispatch v1.9

Map Size Print Maintenance

View Calls Site Data Districts UTM Locate

Display Custer Co.

District:

None

Range

Line Code

Fill

Auto Ref Streets

MAPS v4.63

Manual FAX Close

Automatic mode on

P

C



Open Calls E911 Dispatch v1.9 The Sidwell Company 1998

| Address, Intersection, or Place | City |
|---------------------------------|------|
| | |

View Close Remove

sheriff ESN EMS RCPol RCFire VFD

Move Element > Identify element