

BIOGRAPHICAL INFORMATION

Patricia F. Noble
Engineering Data Manager
Chesterfield County Utilities

Specific Responsibilities

Patricia F. Noble joined Chesterfield County Utilities in 1989. She is responsible for the Information Systems Section, Computer Assisted Design (CAD) Mapping, Drafting/Design areas, the Electronic Document Management System (imaging) to scan and store records; Records Management section, Customer Service/Mapping and Utilities Geographical Information System (GIS) area.

Past Experience

Previously she was Senior Analyst in charge of the Records Management Department with Best Products Co., Inc., a national retail catalog sales company, based in Richmond, Virginia. Ms. Noble designed and implemented their mainframe records tracking system for the Records Center. She was employed by the State of Virginia Industrial Commission as Supervisor of Records for Worker's Compensation. As Information Services Supervisor at Robertshaw Controls International Division, she was responsible for all Mail Facilities, Central Records Services and Marketing Sales Literature. Other positions have included: Records Supervisor for Price Waterhouse Coopers (formerly Coopers & Lybrand), Richmond, Virginia and positions with Richmond Memorial Hospital and Henrico County, Virginia.

Education

Ms. Noble attended Virginia Commonwealth University and is a member of Phi Theta Kappa, National Honor Society; University of Richmond, pre-law and is currently working on her Doctorate in Public Administration.

Professional Memberships

GITA

Association of Records Managers & Administrators (ARMA)

Association for Information and Image Management (AIIM)

Urban & Regional Information Systems Association (URISA)

American Water Works Association (AWWA)

Virginia Association of Government Archives and Records Administrators (VAGARA)

BIOGRAPHICAL INFORMATION

J. E. (Ed) Beck, Jr.
Assistant Director
Chesterfield County Utilities

Specific Responsibilities

Ed Beck joined Chesterfield County Utilities in 1983. He is responsible for the Utilities Department Engineering, Review of all Development, Inspection of Construction, Information Systems, all County Right of Way, and Records/GIS/GPS. Chesterfield County has a population of 280,000, and is 446 square miles.

Past Experience

Ed has had twelve years experience with the Virginia Department of Transportation as Resident Engineer of four Counties. He was also the District Manager for Kopper's Inc., the Assistant Town Manager and the Director of Public Works in Blacksburg, Virginia. Ed was the C.E.O. for the food service industry, Contract Administrator for Virginia Power, and Board President for the Chesterfield Employees Federal Credit Union.

Education

Ed Beck graduated from the Virginia Polytechnic Institute and State University. Post Graduate Studies include Psychology from Virginia Commonwealth and State University and Contract Law at Pepperdine University.

Professional Memberships

GITA

Association for Information and Image Management (AIIM)

Urban & Regional Information Systems Association (URISA)

American Water Works Association (AWWA)

Water Environment Federation (WEF)

IMPLEMENTATION AND USER ACCEPTANCE OF GIS IN THE FIELD

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ABSTRACT

One of the most overlooked issues in geospatial projects is the effect the implementation has on the user. Change is difficult for some staff members and taking them from paper to electronic media can be a critical issue. This presentation will discuss the strategies for working with field personnel to accept GIS on a laptop for field use; training; procedure development; testing and final migration. Additional discussion will address management issues, concerns and expectations of the final outcome for the project. Success often may be defined not by the completion of an IT project but the acceptance of its use in an organization.

BACKGROUND

Chesterfield County Department of Utilities is a public utility that uses state-of-the-art technology to deliver the highest quality service to its customers. The department provides water service to 78,915 and wastewater service to 65,822 customers in the county. It works with an annual budget of \$45 million, employs 250 people, owns one water treatment plant and two wastewater treatment plants, controls 20 water storage tanks and 30 pump stations, and manages more than 2,900 miles of water and wastewater lines. Water sources for customers include the Appomattox River, James River and Swift Creek Reservoir.

PROJECT GOALS

The goal of the project was to provide field crews with an Arc View-based application (ESRI software) to access GIS data and AutoCad drawing files containing Valve Location Diagrams. Each laptop was to be equipped with a complete County-wide GIS database. Field personnel would also have the ability to produce redline revisions in the field, which would be submitted to GIS personnel for assimilation into the GIS system. The AutoManager View™ software was

chosen to act as a viewer for the 7000± AutoCAD drawings that would be placed on each laptop. Although the focus of these efforts was to support field personnel, the data sets and applications were expected to work equally as well in an office environment.

CHALLENGES

Systems Personnel Concerns

- Producing a product that would meet the needed application
- Training of personnel
- User's acceptance of the new process could "make or break" the project.

Field Personnel Concerns

- Reading a map from a computer
- Limited computer use or skills amongst staff
- Maintaining current updates
- Discontinuing 1/2 scale map books and papers maps
- Training

Management Concerns

- Cost
- Manpower
- Time
- Acceptance

STRATEGIES

Systems

- ESRI created the Beta version of the program but Utilities GIS staff utilized Avenue and programmed ArcView (1997) to do basic things like automatic theme activation based on the current tool selected by the user and legends to standardize theme additions; and major things like automatically redisplaying street names and addresses when a user panned or zoomed. Presently (2003) the customization has been rewritten by in-house staff in ArcObjects, using Visual Basic.
- Utilities GIS staff created a basic and user-friendly procedure manual geared toward field personnel.
- Users were trained by Utilities staff that were on call for help on a 24 hr. basis.

Field Personnel

- A pilot project was done with several field staff utilizing the program to see that it worked. After success it would be put on the additional laptops.
- Other field personnel were given laptops that had word processing programs and the games that came with the laptop. They were encouraged to play with the system and play games prior to any formal training. This helped them to get comfortable with a computer.
- Staff who were using the program were encouraged to request changes or additions they thought would enhance their work.

Management

- The pilot project was a minimum cost and allowed them to see how useful the change would be.
- By not using all staff or trying to get all field personnel to accept the change, manpower was shuffling responsibilities without confusion.
- Time was a determining factor to watch with those using the laptops as opposed to those pulling truck maps. With answers at the click of a finger it was apparent the savings in time and money.
- As more and more field personnel began to use the laptop program a better comfort level grew. Staff would then begin requesting more information be put into the program for their use.

TRAINING & PROCEDURE DEVELOPMENT

Training was as important as the implementation of these applications. For the Laptop Project, now nicknamed by staff the Portable Maintenance Utility Program (PUMA), anyone using the system received two days in-house training. Training is done by Utilities GIS staff. Each time more changes are made, staff is trained. Users in the field can obtain help on a 24-hour basis. The user manual is updated whenever changes are made.

Utilities GIS staff attend at least two ESRI classes a year and one or more attend the ESRI conference to keep updated on our vendor product(s) and updates. Any Geo Spatial seminars or conferences that supply training are recommended for management approval.

Management as well as users that can obtain approval attend sessions to improve their knowledge in this area.

FINAL MIGRATION

The laptop GIS has proved to be a time and cost savings to Utilities staff and their customers. It is estimated that by using the PUMA application combined with their imaging system, Chesterfield County Utilities saved two hours of staff time per day at an estimated savings of 472 hours per year.

The PUMA application has been re-written, by in-house staff, from the Avenue scripting language to Microsoft Visual Basic for Applications (VBA) for use with ESRI's ArcView 8x product. Prior to receiving the new product in conjunction with hardware upgrades users are being trained by the GIS staff. Users at the Evans Addison Treatment Plant, the department's Inspections staff, and Operations supervisors have been trained and are using PUMA. Currently new tools are being programmed into the application at the request of users and to take advantage of new features within ArcView. The department still has some Avenue tools that need to be converted, however those are specific tools used by a minimal amount of users and will be converted upon request.

Without staff justifying the cost effectiveness of the program, management could not have made the decision to move forward. Cost savings to personnel in the field, internal staff and the customer lead Chesterfield County Utilities to the use of laptops in the field. The space savings, speed and timeliness to everyone concerned are immeasurable. Our current GPS and "point and click" imaging combined with the GIS are a work in progress.

Chesterfield County Department of Utilities is a public utility that uses state-of-the-art technology to deliver the highest quality of service to its customers.