



Application for the G. Herbert Stout Award

For Visionary Use of GIS by Local Government in North Carolina

Submitted by:

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“Georeferenced Link to Infrastructure Records”

Purpose

The connection of data to map is the very essence of Geographical Information Systems. Since the inception of GIS, advances in technology combined with human innovation have led to countless and amazing new ways of capturing, managing and analyzing data, and then sharing this data through color maps, charts and reports. While the data to map connections are the heart of GIS, the answering of questions, problem solving and the speed to which these functions are realized is where the true power of GIS lies. While certain aspects of GIS processes may be complicated, often times the most simple of solutions have the greatest impacts.

The Town of Cary, utilizing the skills solely of in-house staff has developed a method which allows most of our employees a quick, intuitive solution to access important archived infrastructure records and other Town records through a simple click on a map on screen. What makes this process exemplary is the fact that it quickly puts the vital information into the hands of those who need it the most when it is needed. In addition, the method of access of the information is so simple it is available to most staff with virtually no training necessary. Furthermore, the implementation of this new process has significantly enhanced customer service, decision making, and the cost savings are immeasurable.

Implementation

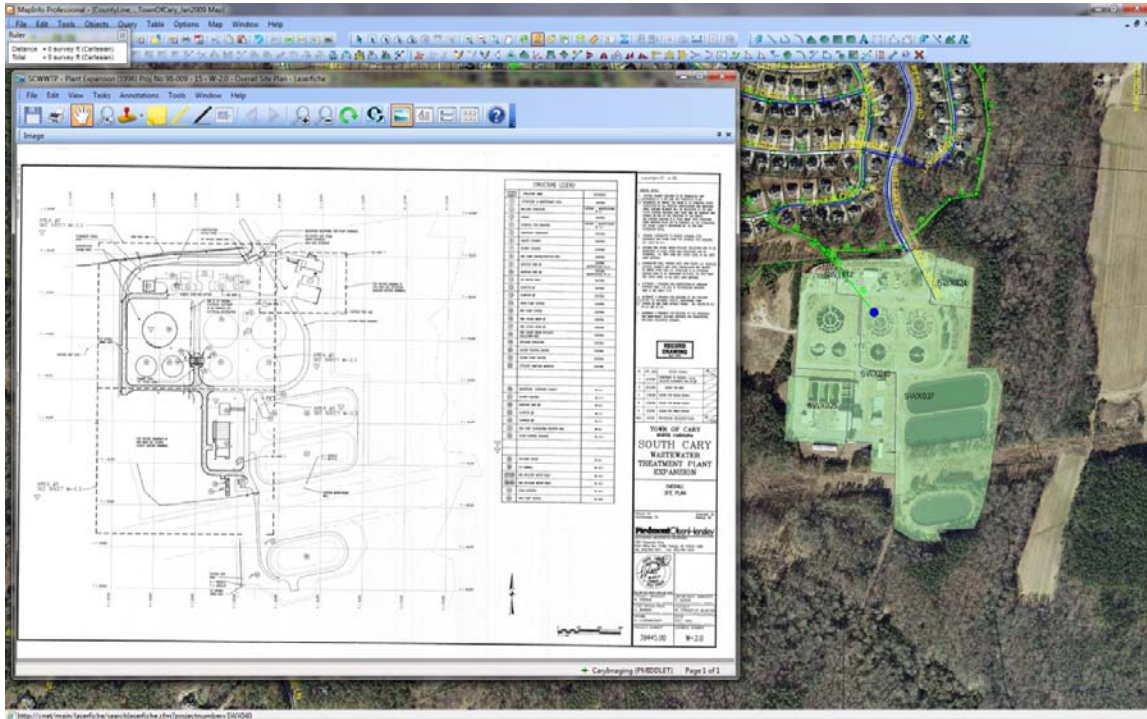
Municipalities are required by law to retain public records according to retention schedule guidelines established by the state. These records vary widely in the information they contain and the sheer volume of the records often cause difficulty for government staff in the tasks of filing and retrieval. Record retrieval ability is essential to providing high quality customer service. For example, in the case of a water main break or sewer overflow spill, it is vital that response and repair crews have quick access to infrastructure record drawings and asbuilt plans to greatly assist in on-site tactical decision making and guidance. Frequently for municipalities this information is not readily available as these essential infrastructure drawings are typically hardcopies hanging in a file cabinet or microfilm stored in a drawing in an office or remote long term storage facility. As an alternative and often seen as improvement for access by many companies, these files may have been converted to a digital format and stored on computer networks, but the sheer volume, folder filing and naming structure is highly limiting if not impossible for staff needing to access this data. Firstly, a response team staff would have to know where to begin searching for these files and secondly, he/she would have to know under which project name or project number the plan drawings are filed. In an emergency situation the task of locating the correct infrastructure records can be time consuming if not impossible. This limited access is a problem for municipalities.

The Town of Cary has developed a method through the use of GIS in coordination with the data management software *Laserfiche* to allow for instant access to these types of necessary files without staff having to know project name, project number or date of installation, rather staff only need to know the location or particular structure on a map and “click”. Staff across all departments are now allowed instantaneous access to vital records when they are needed, a problem that has challenged organizations in the past.

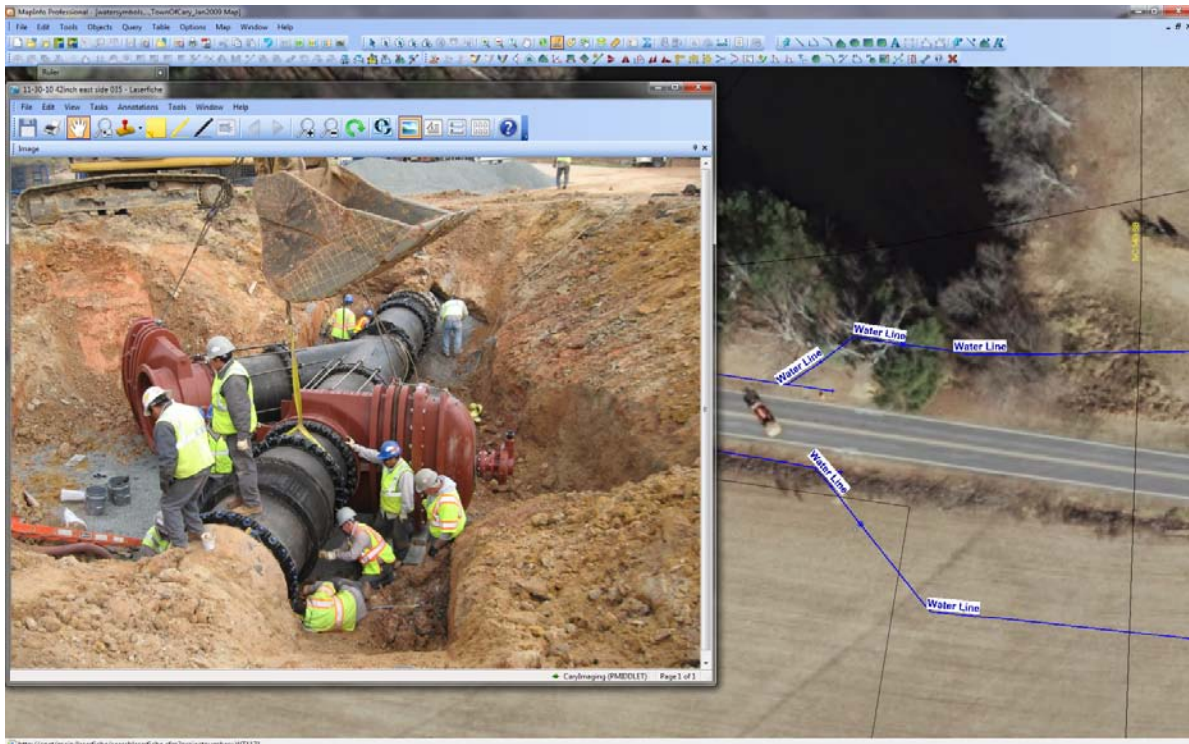
Municipalities often must pay outside firms to develop useful custom processes involving GIS to achieve goals, but Town of Cary GIS personnel working with the resources and staff available in an interdepartmental capacity has successfully achieved the goal which is “the easy access of archived information”. Frequently within organizations, separate department and/or staff within these departments are not aware of each other’s data needs, wants, capabilities and workflows. By good communication, collaboration and understanding, a better more powerful GIS may be achieved and at the Town what was once only a vision has become a working useful and obvious value-add reality.

For example, as shown in the screenshot #1 below, consider the benefit provided to an employee who is in need of information related to the South Cary Waste Water

Reclamation Facility when a simple “click” on the screen map immediately provides him/her access to the record drawing or asbuilt drawing.



A second example in screenshot #2, consider an emergency situation related to a very important Town of Cary water main. Repair staff crews now have instant access to actual installation photos allowing them to understand precisely what is underground.



Organizational Impact

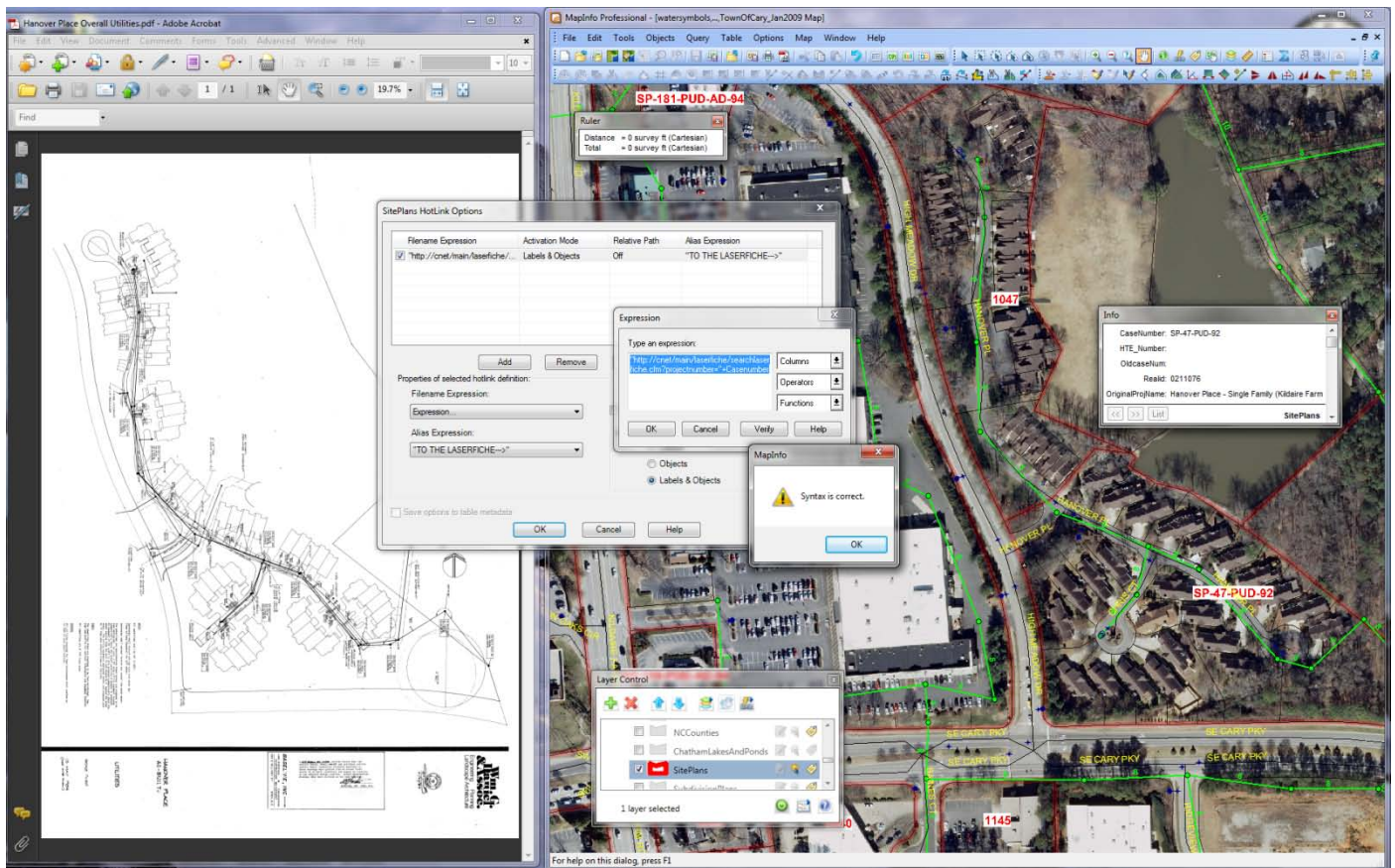
As the previous examples display, the sky is the limit on what archived information is now available to staff in a quick and easy method. While what seems simple to staff using the process (and actually seems simple to the development staff now after the fact) there were, as one might expect, many problems that faced GIS staff initially. Town of Cary GIS, Engineering and other department staff worked together to overcome obstacles and develop procedures to ensure a successful final product. Some of these challenges are listed below.

- Linking methods and paths
- Document identification methods
- Sheer numbers of documents
- Differing types of documents
- GIS object data field linking conventions
- Utilizing established GIS boundary or infrastructure data for links
- Staff hours for scanning, data entry and linking.
- Interconnections between GIS and Laserfiche and other storage locations
- File size issues
- Naming conventions.
- Staff training and education
- Standards and procedures preparation.

To touch on a few of the items listed above which had a fairly high concern for development staff were primarily and the most obvious being that of sheer volume of archived documents and preparing those documents which were either existed in hardcopy or digital format to be linked into the system. It became quickly evident that this process is accomplished only through the often long and tedious process of scanning and indexing documents. This can be a very daunting endeavor to anyone who wishes to undertake this task and has the potential to shut down a project before it even starts. Organizations simply may or may not have the staff or funds available to get the job done. The Town has utilized in-house staff to prepare existing more important documents for entry into the system which has required a considerable amount of staff time, but now with standard workflows in place, we are allowed document entry as each is received. It is evident that what seems expensive and time consuming initially is justified by the value it brings for many years to come. The Town continues to enter archived information into the system working from newer dated documents to older as staff time is

allowed. The Town also has found outsourcing the scanning of documents to be a cost effective method to bring hardcopies to digital and then staff finalizes the process.

The Town has worked to develop links which allow access to these archived documents through Town networks and also through web access. Not limited to only office computer users, but field staff may access stored information on site via the web. The challenge of linking documents to the actual GIS map graphic components or layers was challenging and it seemed that there would be a tedious process involved there as well, but staff was pleased to discover that utilizing existing data fields to link up large numbers of documents would speed the process up considerably. For example, site and subdivision boundaries which the Town had drawn and stored in GIS since the software was first obtained in the late 1980's have associated data fields of specific identifying project numbers. Archived documents are simply indexed into *Laserfiche* based on these numbers and the links, having already been established previously, ties the boundary to the particular archived digital file.



The Town benefits from this process by increased customer service related to the speed and availability of archived documents. When in the past only a handful of individuals,

typically those who have been working for the organization many years, even had the knowledge of where to find documents, now most staff and even newer employees with network or web access and minimal training can access important files.

While this process is currently in place, the Town is continuing to add files and links for new development as well as adding older historic files to the system. Each day the Town GIS to archives and connections are expanded becoming more and more useful for staff. In the future the Town hopes to provide various aspects of this service to citizens and others, but in the meantime Town of Cary employees (across multiple departments) are recognizing an increase in customer service, cost savings and the ability to make quicker more informed decisions, which are all made possible through these innovative in-house developed GIS connections.

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