

# GIS to the Permit Paper-Chase Rescue

Needs assessment delivers custom application.

By Brian Dubis

Imagine how perfect a “GIS paperless building permit world” would be. It would be totally mobile and you could access files on all building permit activity from anywhere and at any time—your office, your home, your car, while traveling, during a city council meeting, or while visiting or inspecting a building site. You no longer would have burdensome files to contend with. You would be able to locate whatever permit data you need in moments with the click of a mouse. No more paperwork piling up waiting to be filed. The chances of losing or damaging file material would be virtually non-existent. Often, when the need arises to access important data quickly, either it cannot be found or valuable time is lost while the paper chase goes on. And, you could have the added safety and security of maintaining backup files.

The Village of Round Lake Beach, IL, recognized a significant amount of paperwork in its building inspection division that could be better managed with a custom GIS application. Permits and paperwork are virtually synonymous in most building inspection departments. But that is no longer true for Round Lake Beach.

Today, a community of about 25,000, Round Lake Beach has experienced strong and steady growth over the last several years, increasing at an average annual rate of about 30 percent since 2000. Village administration was quick to realize that managing this type of growth would require a greater investment in high tech solutions. GIS came on the scene a couple of years ago, followed by a custom application for the building inspection division.

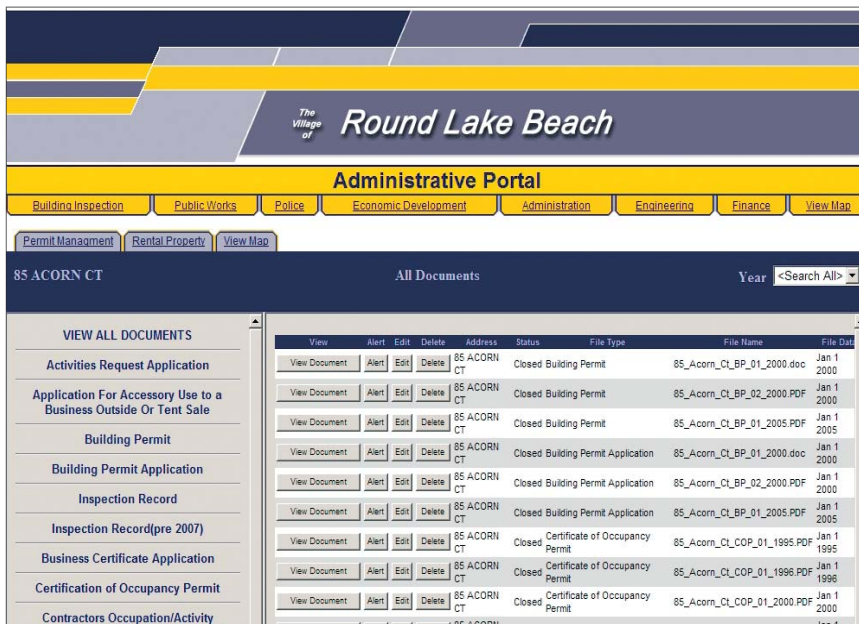
Village management has discovered

customized GIS applications will provide relief to municipalities that want to take greater control of the flow of important information that enters and leaves their offices every day.

In late 2005, R.A. Smith & Associates, Inc. ([www.rasmith.com](http://www.rasmith.com)) began working with village staff to provide assistance with a comprehensive GIS needs assessment, ArcIMS (ESRI, [www.esri.com](http://www.esri.com)) development and training, GIS data creation, departmental custom-tailored intranet applications, and hosting ArcIMS services. ArcIMS provides the village a highly scalable framework for its GIS web publishing that meets staff needs for deploying and accessing vital village information while saving the village costs on additional licensed software. ArcIMS is the foundational web-based GIS software customized to deliver up-to-date GIS data layers and related services via the worldwide web.

As part of the first-year plan, a GIS web-based intranet application was designed by R. A. Smith & Associates to serve as the foundation platform for hosting existing and future village and county data layers.

To be certain that implementing GIS provided the best fit for the village and all departments within, R.A. Smith personnel conducted GIS interviews with each village department including public works, engineering, building inspection, finance, and police to obtain a better understanding of their exact GIS needs and goals. Based on these interviews, the consultant created a working GIS Department Needs Assessment document for the sole purpose of providing the village GIS management team the information to assist



*A variety of documents for every parcel in the Village of Round Lake Beach can be accessed through a custom GIS application.*

Required inspections	Initials	Date of insp	Notes	Initials	Date of Reinsp
<b>FOUNDATION</b>					
Footing					
Foundation wall					
Drain Tile/Insulation					
Insulation					
Damp proof					
Piers					
Concrete slab/floor					
<b>UNDERGROUND</b>					
Plumbing BSD		11/25/2007	Everything is to code		
Electric					
HVAC					
<b>ROUGH</b>					
Framing					
Electric					
Electric Service					
Plumbing					
HVAC					
Fire protection					

*The custom GIS application enables village staff to color code the scanned permit application with a pink background to indicate an inspection is required and blue to indicate the inspection has occurred and the permit has been approved.*

departments in reaching their GIS goals and needs through strategic targeting and budgeting.

In May 2006, the village management team met to review each department's GIS needs for the 2006 fiscal year. The building inspection division and the police department were targeted as the primary focus to start implementing GIS for the 2006 fiscal year.

During this development process, R.A. Smith management and the staff of Round Lake Beach met several times to review the program at several development stages so that staff input could be used to tweak the GIS to create a perfect fit. That, of course, is the primary benefit of having a customized program. Building a program like this from scratch gives the village the ability to determine specifically what it wants in the GIS regarding the many possible layers of data to be created and manipulated as well as the functionalities of various applications.

Mobility, immediacy, and management efficiency are among the most important benefits this GIS custom application brings to Round Lake Beach. For example, if for some unanticipated reason, building permit data is required for any one or more residential developments under discussion at a village board meeting, village intranet files can be immediately accessed without any delay in meeting procedures.

Visualize two members of the building inspection division staff working at opposite ends of the village. A key question arises at the village office regarding a requested change in a current permit application. It becomes necessary for the two off-site staff members to confer with a third staff person at the office. Before the custom GIS application, this could have been a communications catastrophe.

Today, the three can immediately access the village intranet web site wherever they are to view building inspection division GIS files on their laptop computers and resolve the issue.

With this custom GIS application, all village permit files are completely mobile and may be accessed at any time from anywhere by any village staff employee who has password authorization.

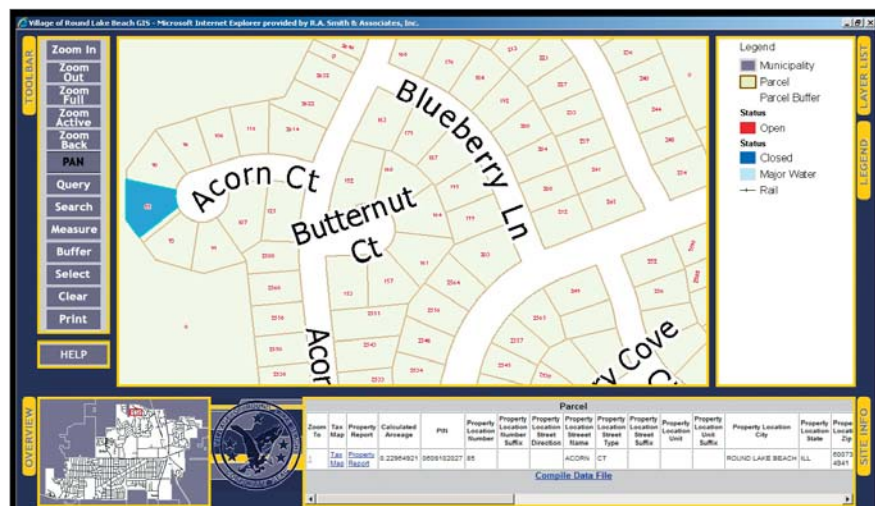
Shift now to a real-time situation. The year is 2003 in Chicago. Two wooden porches collapsed, laden with college students during a party early on a Sunday morning, killing 12 and injuring 57 others. The top porch fell on to the second floor porch and both fell to

the ground. At any time, a request might have been made to the city building inspection department to determine if these porches were constructed with sufficient support, if in fact the owners had acquired building permits, etc. With a GIS application similar to the one now in use by Round Lake Beach, data can be accessed any time 24/7. Building permits, plans, and other information for a specific building can be reviewed immediately. The immediate availability of data in situations such as this one can save precious time that is otherwise spent locating answers that are buried in paper files.

In a "perfect GIS world" more could have been done to efficiently use the permit data base to respond to incoming inquiries from city residents with porches, earnestly trying to identify the safety of their porch or deck, following warnings from the city building commissioner. And in such a situation, the city's GIS data could have had an impact on legal proceedings and insurance outcomes.

The custom application created for Round Lake Beach by R. A. Smith & Associates accomplishes all of the following:

- Maintains the village's many different types of permits from application through construction and occupancy.
- Provides alerts of field inspection dates, responsibilities, mailings, follow-ups, and more.



*Parcels are color coded in a custom GIS application to indicate the status of building inspection and other permits in the Village of Round Lake Beach.*

- Streamlines the current process of retrieving and archiving hard copy files.
- Enables management to view and analyze parcel-based permit progressions from their computer workstations for reporting purposes.
- Eliminates future expenses of software, hardware, software maintenance agreements, and training.
- Implements a paperless system that frees up office space and saves staff time.
- Serves as a backup in case of a fire or other property damage.

Village management and supervisors have the desired tools to view and analyze the overall building inspection work order and progressions for the entire village. Staff can use the system for better micro task management, reporting, viewing of color-coded parcels indicating various levels of completeness, printing, e-mailing, and more. Front counter staff have current information at their fingertips to efficiently expedite incoming calls and requests from residents.


With the scanning of over 10,000

historic documents into the new GIS system, the building inspection division is able to access historic information in seconds. Important information is no longer lost or damaged. All new documentation is created on the PC and saved immediately in the village intranet GIS with a security backup at the R. A. Smith host site.

The custom GIS application streamlines the work flow process and increases productivity. Here's how it works. Today an individual walks into the village office with a building permit application. Village staff scan and save the application in the GIS database. The application when viewed on the PC monitor is color-coded with a pink background—meaning that the case is open and inspection is required. When an application is received and its data is placed online, a work order is created and e-mailed immediately to the building inspector to initiate the inspection process. After a building inspector visits the property and a building permit is finalized and approved, a click of the mouse changes the background to blue, indicating that the inspection by village staff has occurred at the building site

and has been approved by the department head and site inspector.

There is a long list of benefits to be gained from converting a “paper permit world” to a custom GIS application—not only for the staff in terms of efficiency and record accessibility, but for the citizens of Round Lake Beach as well. Processing is able to move more quickly and data is available at the front desk to answer citizen inquiries. Further, the fact that the village intranet web site is hosted by R.A. Smith saved the village and its taxpayers about \$115,000 in costs that otherwise would have been paid for by the village if it had to serve and host its own GIS application.

For years the building inspection division sought a cost-effective way to streamline the building permit process from start to finish. According to Margaret Sparr, building inspection division supervisor, “We searched for a single software application that we could cost-justify but never quite found the right solution. Now,” she states, “the development of a custom GIS application tool is proving to be an important solution.” 

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