

1.0 Introduction

Cities experiencing growth need to optimize their resources. Many cities acquire GIS to help manage its growth. Typically, a city will begin its GIS journey with desktop mapping software used by various departments. For the most part, the software is used for mapping, visualization, and query, with its users working independently.

2.0 Leveraging GIS Data

A growing municipality will eventually need a more strategic plan to help deploy its GIS. A successful GIS implementation can streamline the process and leverage the true analysis capabilities a GIS would provide. Virtually all city departments can deploy a GIS program, allowing the city to do more with fewer resources and in less time. Departments utilizing GIS data to create higher efficiency within their sector include, but are not limited to, public works, law enforcement, code enforcement, utilities, and street maintenance.

In addition to expanding the capabilities of GIS data, there is a need for leveraging data managed independently within separate departments. A new approach would allow various departments to use data managed outside their own department. For example, if Solid Waste fleet workers could locate and report code violations on behalf of Code Enforcement while running their regular route. This collaboration would ultimately save a city unheard time and resources.

3.0 Mobile Implications

Mobile applications are a rapidly developing segment of the global mobile market. They consist of software that run on a mobile device and perform certain tasks for the user of the mobile phone.

New mobile GIS solutions allow for lightweight applications on handheld devices that fieldworkers can use for instant reporting. This supports integrated GPS, quick attribute updating during field inspection, field data collection involving the creation of features and wireless synchronization. With the mobile app, users have the ability to capture and edit information in the field, instantly connecting to the office.

3.1 Example 1. City of Raleigh, NC: Street Maintenance

While in the field, Raleigh street maintenance employees are able to instantly flag pot holes, overflowing catch basins, sidewalk repairs, curb repairs, etc. Street maintenance repair crew chiefs use a Mobile311 device to complete work identified by the Mobile311 system and then feed data into the work order system via the Mobile311 phone eliminating the need for a laptop in the truck to send necessary data to the office.

City Management is able to see crew locations in real time. At the end of the month, management is able to provide City Council with a map showing how much work was preformed and where the work was done.

The City of Raleigh can also view a snapshot of where they are filling pot holes (over a year or more) and see the problem areas that need to be resurfaced. This provides a cost savings to the City as it is more expensive to keep patching a problem area than it is to resurface the area

4.0 Thorough Reporting, Improved Efficiency

Regardless of department, reporting of data is not simply a matter of showing the path from point A to point B. It is actually a complex iterative process that takes into account the number and types of stops along the route, distances between stops, the degree of damage at the stop, roadway layouts, local traffic patterns and weather conditions. What collection routing software does is lay out the most efficient route possible based on available information and known variables. The ideal route would be a smooth loop-like pattern without dead ends or the need to backtrack. Time and money spent driving the same pavement more than once is time and money wasted.

4.1 Example 1. City of Asheville, NC: Solid Waste

The city of Asheville started Mobile311 in 2008 as a way to reduce expenses, especially fuel expenses in the sanitation division. Prior to this, sanitation trucks were making pickups at every Asheville household two times a week to remove household waste and collect recyclables. Additionally, a pair of brush trucks and a second pair of bulk trash trucks would complete the cleanup process by cruising up and down every street looking for waste items to remove, a process that could last from one to three weeks to complete.

Now, however, city employees armed with a simple icon on a touchscreen mobile device can mark the GIS location of every bulk waste item, pile of rubble, or any other waste location in need of a visit by a collection truck. Using the phones, employees can also document and geographically tag site conditions. Within 24 hours, city workers can see exactly where they have to go, know what it is they have to collect, and plot the most efficient route (in conjunction with other pickup points). Relating these types of data to a physical location using the GIS software makes it much easier to store and recall than placing it in standard computer files. The resultant savings in fuel, vehicle maintenance and worker overtime have been significant.

5.0 Conclusion

The explosive growth of mobile devices including smartphones and tablets present tremendous opportunities for government to increase scope of services, improve productivity, and provide better service.

With Mobile311, there is no software to install; Mobile311 securely hosts user data, making it accessible from any Internet connection. Data can be directly exported to a Work Order System or an Excel spreadsheet. Mobile311 lets users easily flag work items in the field. With one touch, the location, time, and type of work are instantly uploaded to a Web-based map via a smart phone application. It allows managers to view, oversee, and create work requests allowing for updates in real time. The phone's GPS can be used to record locations, and its camera can be used to take and upload pictures.

Visit www.mobile311.com for more details

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