

City Fusion ©

A Geographic Information System-Based Infrastructure Management System

Goals:

1. Establish and maintain an inventory of existing municipal infrastructure.
2. A Geographic Information System (GIS) must be a component of the overall system to provide integrated analysis and maintenance planning on a citywide basis.
3. Capture information on the condition, utilization and functionality of the infrastructure in a standardized format.
4. Facilitate priority setting for infrastructure upgrading and/or replacement on a needs-driven basis.
5. Facilitate sharing of information related to the various types of infrastructure.
6. Integrate existing and new core applications used by all departments.
7. Integrate financial information needed to comply with GASB-34 and facilitate decision-making.
8. Providing internal and public access to information thru the web.

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Field Asset Management at the City of Taylor

The City of Taylor, Texas is a community that has experienced a steady growth pattern over the last few years.

To better serve the citizenry, and meet increasing demands on its resources, the City staff decided to implement GIS technology to better track and maintain city assets. Data Fusion Technologies built and deployed the city Basemap.

The city field personnel needed access to the Basemap in order to revise, maintain and keep current the asset data.

The need to develop an ArcPad solution was obvious. After a detailed requirements definition phase, Data Fusion Technologies began developing a solution to automate and standardize information retrieval in the field and allow for easy

data download back in the office.

Maximizing usability was a key requirement. The City staff understood that any application for use in the field had to be simple so non-GIS users could use it.



Field Data Collection Need

The City of Taylor needed to address several basic needs:

1. Phase out the paper forms used in the field;
2. Revise the asset data;
3. Collect additional inventory data;
4. Utilize mobile technology to capture and transfer data collected from field based work activities;
5. Reduce the chance of selecting the wrong asset; and
6. Establish a data collection and update process.





The Solution

The City staff working with the Data Fusion's GIS and software development team decided to build an ArcPad application to run on the handheld devices that the city owned.

The application allows the field personnel to create and edit spatial data using input from either the mouse pointer, pen, or GPS.

The editing capabilities included:

- Creating, editing, deleting, and moving features.
- Capturing GPS points while in the process of capturing a line or polygon with a GPS
- Edit attribute information using custom forms created.



“The availability of the asset data in the field makes all the difference.”

The Process and the Application

After a period of user requirements definition, the project team defined the maintenance activities to be supported by the application.

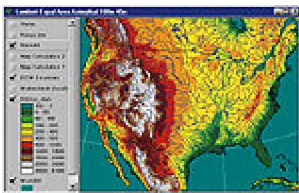
Data collection processes and data entry forms were designed to collect and store field data.

The application was built using ESRI's ArcPad 6 ©

When the application starts a screen appears showing the asset layer being updated. A simple interface with buttons providing pan, zoom, refresh, identify, and editing capabilities also appears.

The GPS automatically starts up to show the user exactly where he/she is on the digital map.

During the inspection, the crew members make changes to a shapefile containing parcels, water points or water lines in their inspection areas. At the end of an inspection day, the user downloads the edited shapefile to a server running an ArcMap application. Supervisors can track work progress by viewing inspection maps.



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