Project Goal

Let's say we will collect GPS data for use in a GIS to determine if the the parking lots and sidewalks outside your office are adequately lit. Given the below how would you approach this project?

3 Components of GIS data

Review the 3 components of GIS data and propose what type features and attributes you would collect in the field. Behaviors can be considered later.

Features

Real-world locations abstracted into point, line and polygon features.

Attributes

Descriptive characteristics of features such as type, condition, dimensions, date of installation, or other qualities.

Behaviors

Features can be made to follow certain types of editing, display or analysis rules defined by the user.

6 Functions of a GIS

Consider the 6 functions of GIS. Edit your proposed list of features and attributes accordingly and based on these possible analyses, consider the types of behaviors you could impose in your geodatabase.

Capture

GPS will be used to record the locations of light poles, sidewalks and parking lots. To facilitate the analysis in GIS, qualitative information about each feature will be recorded as well. To determine if lighting is adequate, the height and wattage of each light pole should be recorded. Recording pole material might indicate costs to replace or install poles. Perhaps recording trees, building or other potential obstructions might be prudent as well.

Storage

In GIS, the data will be managed in a geodatabase which will leverage its ability to enforce data integrity and facilitate the data check-out /check-in between the mobile device and the geodatabase.

Query

By recording the condition of the light poles, (good, needs repair, needs replacement and proposed), one can search for poles needing repair or even proposed locations for a needed light pole.

Analysis

Unlimited types of analyses can be made based on proximity to other features, overlay of other GIS datasets, or by incorporating the GPS data into the electrical network of the facility if such exists. For every project, it is always prudent to seek out existing datasets upon which to add or update data as needed for a project. This may not only minimize data collection efforts, but it can reveal existing standards and attributes that will be needed to reach your own goals.

Proximity

By analyzing the distance between sidewalks and light poles, one could determine if by placing new light poles in strategic locations , we could solve inadequate lighting. Perhaps by modeling wattage, only brighter bulbs will be needed.

Overlay

In the case of multiple property owners, parcel data could help to determine who has responsibility for suggested improvements.

Network

By studying the connectivity and flow of the electric network, the feasibility of proposed locations for new light poles could be assessed.

Display

To communicate analysis results, symbology based on collected attributes can be used to

portray the coverage area of each light pole, sidewalks widths and other critical data.

Output

The final project product is not the GPS data itself, but the results of the analysis such as a map or a report summarizing the results of your analysis. These could be delivered in print or electronically as needed.

...Take a minute to draft your own plan and then view a proposed solution.