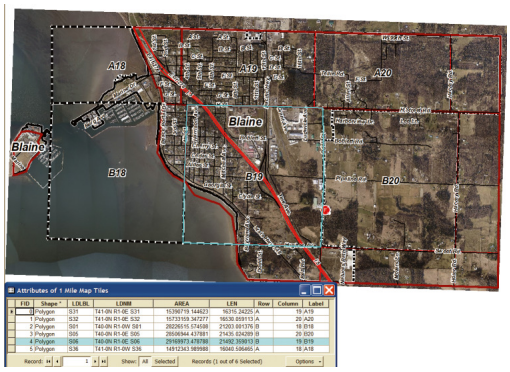
Integration of GIS for Infrastructure Management and Risk Analysis (Level I)

Level I: Integration of GIS for Infrastructure Management and Risk Analysis (2-day)

Goal of the workshop: To offer hand-on training for professionals to learn how GIS can be used for assessing risk, setting priorities for maintenance and managing wide range of infrastructure (water supply, utility line, roads and bridges).

Outcome: 1) Upon completion Asset Managers and Professionals will be able to create a report, generate maps, identify utilities, roads and bridges that need maintenance/upgrade, identify sites and set criteria (using spatial components) for asset allocation decisions, and conduct analysis for aging infrastructure and setting priorities using GIS technology.



Qualification: NO prior GIS skills required.

Who should attend: Asset Managers of utilities including gas, water, waste water, highway, rail, telecom). Professional from engineering firms focused on transportation and infrastructure projects, division of engineering and utility management and public works of municipalities, cities, counties and state, as well as personnel involved in emergency response efforts.

Topics Covered

Module 1: Foundations of GIS

1. Introduction to ArcGIS
2. Introduction to geographic data
3. Introduction to spatial query (SQL)
4. Advanced spatial query
5. Working with symbology
6. Creating image tiles to create backdrop
7. Add x,y data from GPS to a map
8. Import Autocad Files
9. Working with layers in ArcGIS
10. Import tabular information from other software
11. Creating maps layout
12. Creating Maps without Using a Map Template
13. Introduction to Geo-database
14. Run a Geoprocessing Tool

Module 2: Introduction to Spatial Analysis

15. Geocoding infrastructures I-III
16. Spatial analysis for Site Selection:
    a. Case Study 1: Critical Roads to Repair After Hurricane Damage
    b. Case study 2: Determine the Location of a New Firestation
17. Aging infrastructure analysis and setting priorities
    a. Case Study 1: GIS to Improve Transportation Infrastructure
    b. Case Study 2: Prioritizing Roads for Widening
18. Introduction to location quotient analysis
19. Calculating accessibility indices

Module 3: GIS Applications for Natural Disasters

20. Determine flood hazards for parcels
21. Analyze hurricane storm surge inundation
22. Analyze the pattern of building damage

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