

GIS 3043C - Discussion #01 Assignment

Example GIS Applications in Local Government

(Adapted from Table 2.1 in Longley, et al. 2010. *Geographic Information Systems and Science*, 3rd Edition)

Organization Type	Inventory Application	Policy Analysis Applications	Management Applications
Economic Development Agency	Location of major business and their primary resource demands	Analysis of resource demand by potential local supplier	Identify closest suppliers for each business
Solid Waste Management Department	Identification of sanitation truck routes, capacities and staffing by solid waste pickup assignment area	Analysis of projected solid waste generated by each solid waste pickup assignment area	Determine new solid waste pickup assignment areas that balance amount of customers and/or waste per truck
Housing Agency	Inventory of housing stock age, condition, status (public, private, rental), durability and demographics	Analysis of drive time from low-income areas to poverty and health care service facilities	Identify areas that should receive priority for housing investment grants and programs based on projected need
Public Works Department	Inventory of roads, sidewalks, bridges, utilities (including location, name of facility, condition, date of most recent maintenance)	Analysis of road conditions by county council district; analysis of water and sewer capacity required for new development areas	Identify roads, water and sewer lines that should have priority for maintenance or replacement based on age and condition
County Health Agency	Locations of persons with particular health problems	Time series analysis of the geographic spread of drug abuse or disease	Identify the best locations for health-outreach program centers based on distribution of at-risk populations
Property Appraiser	Identification of land ownership data by parcel	Analysis of commercial property tax revenues by land use density throughout the county	Project tax revenue anticipated for land use density changes
Human Services Department	Inventory of neighborhoods with social risk indicators; location of existing facilities and services to address those risk factors	Analysis of projected need for social services by service area compared to capacity at each office	Estimate number of new clients for social services at proposed new agency office locations
Law Enforcement Agency	Inventory of locations for police stations; locations of crimes, arrests; location of police beats and patrol car routes	Analysis of criminal activity density (i.e., crimes per square mile) by patrol area	Identify best locations for new police substations based on crime hazard areas
Land Use Planning Department	Inventory of land use zoning by parcel; Location of floodplains; land use mapping; inventory of green space, urban tree locations	Analysis of percentage of land allocated to each zoning and land use category; Population density by neighborhood	Determine which neighborhoods and number of people may be adversely affecting by siting of a Locally Undesirable Land Use (LULU)
Parks and Recreation Department	Inventory of parks, trails by type	Analysis of neighborhood access to parks and recreational activities	Determine future recreational needs based on proposed future residential land use development
Environmental Monitoring Agency	Inventory of non-point pollution sources (e.g., stormwater outfalls); Inventory of hazardous material sites, permitted toxic releases	Track groundwater pollution spread over time; Quantify number of hazardous material sites with proximity to at-risk facilities	Identify the specific neighborhoods and number of people for whom bottled water must be provided after a toxic waste spill
Emergency Management Agency	Location of emergency evacuation routes; Locations of designated shelters by type and capacity	Analysis of potential number of evacuees served by each evacuation route; Analysis of number of residents in storm-surge areas	Track the number of people arriving at each storm-shelter compared to shelter capacity during a storm evacuation event