GIS at the Purdue Center for Regional Development: Some Examples

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GIS Tools

ESRI ArcGIS suite (ArcInfo-Workstation)
  Spatial Analyst, 3-D Analyst, Network Analyst, Spatial Statistics, Geo-statistical Analyst
ESRI BusinessMap and ESRI StreetMap USA
ESRI ArcView 3.3 with all the Extensions
CommunityViz; Scenario 360
ArcLogistics Route
Erdas Imagine, Multispec
Caliper’s Maptitude and Citygreen (In pipeline…)
EMSI (Economic Modeling Specialists Inc.)
WITS (Workforce Innovation Technical Solutions)
Freewares/Open source- SADA, GeoDA, Flow Mapper, LUCI
Areas of Interest

Census and Geodemographics
Demographic and economic analysis, U.S. Census Bureau, BEA, BLS, CBP, USPTO

Economic Development
GIS analysis for businesses, industries, labor market information, etc.

Urban and Regional Information System
Land use/land cover, transportation, natural resources, housing, infrastructure

Economic Atlas
- Demographic-economic database of about 1,000 variables
- Mapping by Economic Growth Regions of Indiana and Counties
- Economic Atlas comprises of 30 selected economic variables
- Metadata preparation underway

Population below poverty level, SAIPE 2004
Proprietors, percent change, 1990-2005, BEA
GIS of Sub-County: Census Blocks

External Mapping Requests

Index of Relative Rurality (IRR), 2000

Map developed by the Purdue Center for Regional Development.
ArcLogistics Route

- Route optimization based on actual travel-time data instead of the Euclidean Distance
- Minimizing the Vehicle Miles Traveled (VMT)
- Improved customer service
- Reduced operating costs
- GIS for Retail
- Dynamap/Transportation street data from GDT for use in the United States

Geocoding Projects & Google Earth

Building accuracy in the Geocoding Process
StreetMap USA
WITS-Geocoding Tool
Batch Geocoding
Web Mapping Services
Cross-checking
Positional accuracy?
Cost-Surface Models

Cost-Surface Models:
Uses

- GIS for location analysis- warehousing, schools, health centers, etc.
- Useful for developing the least-cost path alternatives
- Useful step prior to preliminary engineering and field surveys (Electronic-Distance-Measuring Surveys)
- Regional transportation- bulk goods movement (haul cost surface)
- Land use / Land cover- Cost of Development surface
- Accuracy and resolution? 30 M resolution raster data
Cost-Surface Models: Integrating with Imageries

Thematic Mapping - Raster

National Land Cover Data 2001

NLCD 2001 is developed by the Multi-Resolution Land Characteristics (MRLC) consortium, a partnership of federal agencies. The data is collected via the Landsat satellite series.

Land Cover
- Open Water
- Developed, Low & Medium Intensity
- Developed, High Intensity
- Grassland, Herbaceous, Pasture, Hay
- Cultivated Crops, Developed Open Space
- Barren Land, Rock, Sand, Clay
- Deciduous & Evergreen Forest
- Mixed Forest, Shrub & Scrub
- Emergent Herbaceous & Woody Wetlands
Digital Surface Model

Monument

DSM Source: IU
Commuting Patterns

**Commuting Within Counties**
- 942 - 1,000
- 1,001 - 5,000
- 5,001 - 50,000
- 50,001 - 100,000
- 100,001 - 250,000
- 250,001 - 368,274

**County to County Commuting**
- 1 - 250
- 251 - 500
- 501 - 1,000
- 1,001 - 5,000
- 5,001 - 10,000
- 10,001 - 50,000

### Industries and Business Clusters: Manufacturing

**Legend**
- Red = Manufacturing Industry
- Gray = Population
- Orange = More than 50,000

**Manufacturing Supercorridor**
- Location Quotient > 1.2
Industries and Business Clusters: Manufacturing

Nearest Neighbor Analysis: Business & Financial Services Cluster, 2004

Upcoming Projects

- Occupational Clusters
- Migration Database
- Patents and Citations Database
- Local Community Decision Maker
- Exploring LandScan Database
Thank you!
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