Libyan Transportation Infrastructure Inventory

Ahmed Ahmouda
MS GIS Program, University of Redlands
Country of Libya

Capital:
Tripoli

Official language:
Arabic

Area:
1,774,440 km²
685,115 sq mi

Population:
6,244,174 (2014)
Economy

Depends primarily on oil revenues

Oil reserves:
*The largest in Africa*
*The fifth in the world*

(Javier Blas, 2014, retrieved from http://commons.wikimedia.org)
Cities

Tripoli

Benghazi

Sabha


Road Networks

- Paved road network is about 34,000 km (2010)
  - 15,000 km main road network
  - 18,000 km secondary and agricultural road network

- Unpaved network is about 3,000 km
  - 50,000 km tracks

What are inventory goals?

• Compile spatial data on transportation infrastructure, such as *road center lines*, *buildings*, *water body*, and *facility sites*.

• Manage transportation infrastructure system.

• Support improved planning and decision-making of transportation infrastructure.
Collected and Used Data

• Vector data :-
  - Road centerlines
  - Facility sites
  - Water body
  - Buildings
  - Landscape areas
  - Administrative boundaries

• Raster data :-
  - Imagery data of small part of Tripoli
Data Sources

OpenStreetMap

LOGISTICS CLUSTER

DigitalGlobe Foundation
Conceptual System Design

Data → ArcGIS Desktop → Local Government Information Model → Libya Topographic Basemap → Community Maps Program
Methods
Data Managing and Documenting

- Complete missing data attributes
  - 550 facility site point names (26%)
  - 1842 road names (4%)
  - 13 water body names (9%)
  - 59 facility polygon site names (3%)
  - 119 building names (1.3%)
  - 22 state boundary names (100%)
  - Speed limit of the roads
  - Road classification attributes
• Localize Arabic labels

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- 1842 road names (4%)
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- 59 facility polygon site names (3%)
- 119 building names (1.3%)
- 22 state boundary names (100%)
• Add missing features
Merging Dataset by Using Conflation Tools

• Developed for the 10.2.1 desktop release of ArcGIS

• Use as the process of :-
  - Detect feature changes
  - Matching features
  - Transfer attributes
Detect feature changes
Matching features

Generate Rubbersheet Links

Rubbersheet Features
Transfer attributes
Migrate Data into Local Government Information Model

- Load data into the feature classes
- Populate required feature class fields
• Adding Symbology (Representations)

Administrative area boundary lines

Building footprint
Building Basemap

Use World Topographic Map Template
Conduct Sample Network Analysis

- Closest Facility
- Route
- Hospital Service Area
Google Map vs Network Analysis Results of Project’s Data

Distance = 770 km
Driving time = 11 h 8 min
Speed = 69.16 km/h

Distance = 774 km
Driving time = 7 h 41 min
Speed = 100.65 km/h
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Thanks

Ahmed Ahmouda
MS GIS Program, University of Redlands
ahmed_ahmouda @ spatial.redlands.edu