Creating a Transportation Database Using a Linear Referencing System (LRS)

Project Overview and Methodology

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Toledo Metropolitan Area Council of Governments
TMACOG is.....

- Toledo Metropolitan Area Council of Governments
- Northwest Ohio’s MPO (Metropolitan Planning Organization)
- TMACOG Transportation Department is charged with planning transportation in Lucas and Wood Counties and southern Monroe County in Michigan.
- Staff –7. Only 2 people working on GIS, apart from other responsibilities.
We are here...
Why Integrated Transportation Database?

- Bring together information from numerous sources into the same platform and be able to analyze this information.
- Automate yearly update of traffic counts map
- Ability to easily integrate data provided by ODOT
ITD Related Projects

1. Traffic Flow Map
2. Analyze Transportation Improvement Program (TIP) projects with crash data, volume, pavement condition ratings, etc.
3. Long Range Plan
4. Travel Demand Model
   ..... And various other maps
Various street network discrepancies
Unique State ID’s

- NLF ID = SLUCUS00024**C  (ODOT)
  Jurisdiction (1) + County Code (3) + Route Type (2) + Route Number (5) + Route Suffix (1) + Route Designation (1) + Route Direction (1)

- PR number = 655009 (MGDL)
  No inherent meaning
ArcInfo tools used for conflation

- Spatial join
- Manual conflation
- Attribute transfer mapping (for ramps)
- Locate features along the routes (for Michigan)
Spatial Join

Using Digitize Events Tool

ODOT Control points

CLUCC00022**C  M=2.1
CLUCC00022**C  M=3.09

COG_ID=EL-0423

Attributes of Equivalency Events

Integrated Transportation Database (ITD)
Result of Spatial Join (Ohio)

25% join
Manual Conflation

Using Digitize Events Tool

http://arcgisdeveloperonline.esri.com/ArcGISDeveloper/Samples/Linear_Referencing/Editing/Digitize_Events/DigitizeEvents.htm
There is one to one relationship between Flow map ramp and ODOT ramps

Attribute transfer mapping
Locate route events

Example One

CLUCC0008**C

Buffer of 100 feet

EL-0712

3.86

3.1

Integrated Transportation Database (ITD)
Locate route events

Example Two

CLUCCR00008**C

Buffer of 100 feet

3.86

EL-0712

3.5
Result of Locate Route Events (Michigan)
Problems Faced
Inaccurate street limits
Multiple ODOT routes for one flow map link.

NLF_ID changes at the county boundary, but flow map link does not.
Missing ODOT route for local segment

No enterprise blvd in ODOT system
Ramps - Which goes to which??
Current TIP map developed using ODOT LRS
Traffic Flowmap

Bowling Green

Integrated Transportation Database (ITD)

6/12/05

http://arcgisdeveloperonline.esri.com/ArcGISDeveloper/Samples/Cartography/Map_Production/DSMapBook/DSMapBook.htm
Thank You

Questions?????