

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?



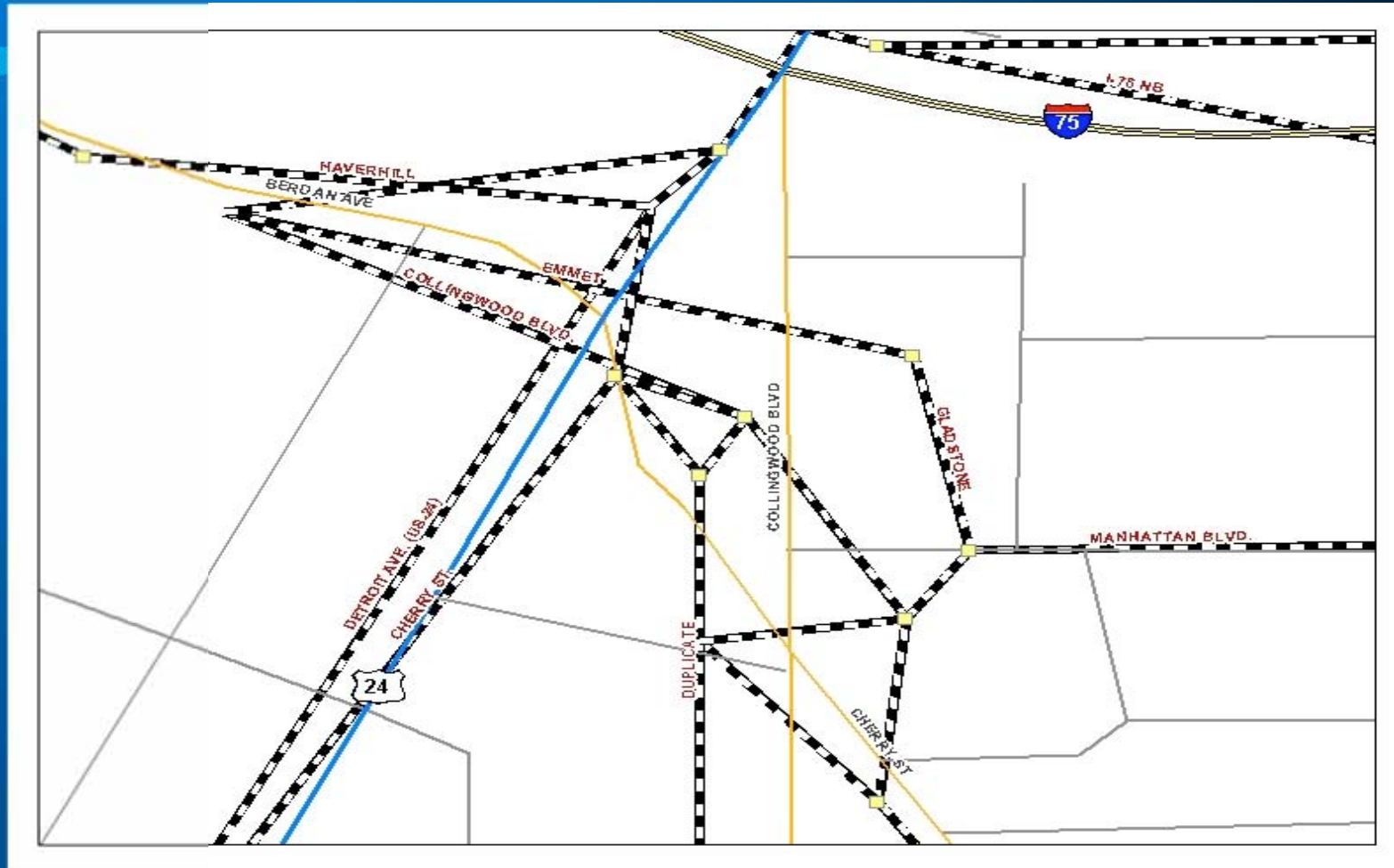
- Bring together information from numerous sources into the same platform and be able to analyze this information.
- Automate yearly update of traffic counts map
- Ability to easily integrate data provided by ODOT

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



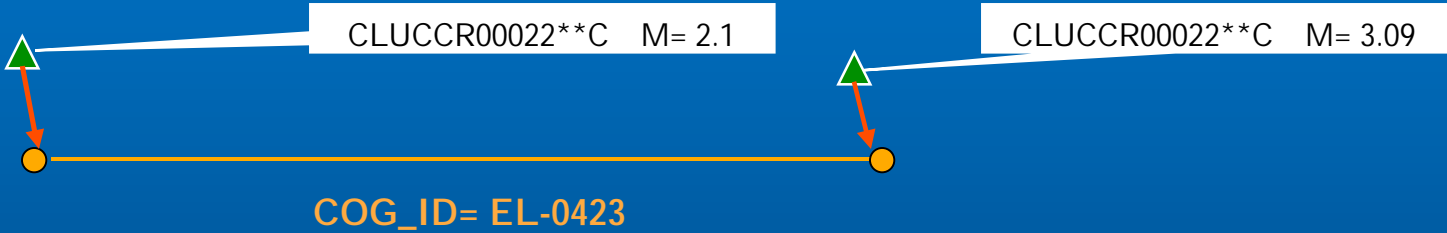
- Spatial join
- Manual conflation
- Attribute transfer mapping (for ramps)
- Locate features along the routes (for Michigan)

Spatial Join



Using Digitize Events Tool

ODOT Control points



Attributes of Equivalency Events

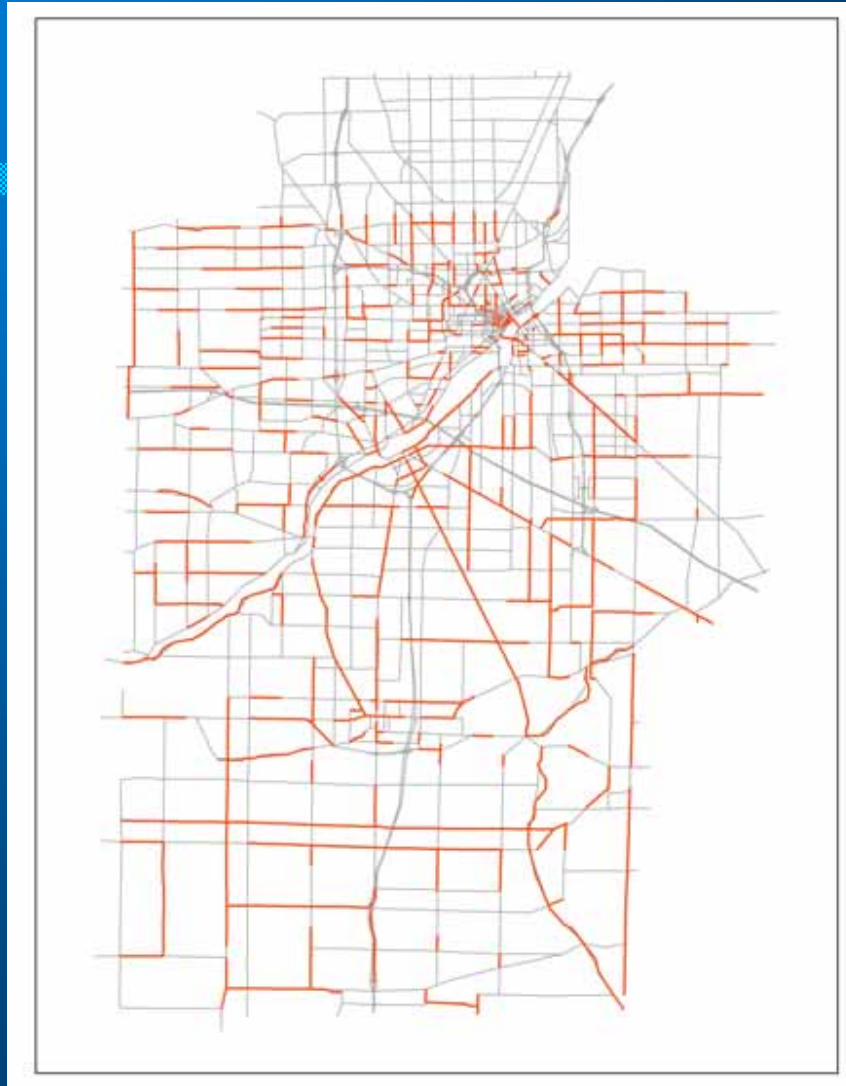
OBJECTID*	NLF_ID	COG_ID	FROM_MEA	TO_MEA
846	CLUCCR00022**C	EL-0423	2.1	3.09
2205	CLUCCR00022**C	EL-0423	2.00	2.50

Record: 0 Show: All Selected Records (0 out of 3386 Selected)

Result of Spatial Join (Ohio)



25% join



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Manual Conflation



Using Digitize Events Tool



The screenshot shows an "Attributes" dialog box with a table of data. The table has two columns: "Field" and "Value". The data is as follows:

Field	Value
NLF_ID	CCR00071*
COG_ID	
FROM_MEA	0.98
TO_MEA	1.99
VERIFY	
OFFSET	
TABLE_1	
Duplicates	
Type	
Bound	

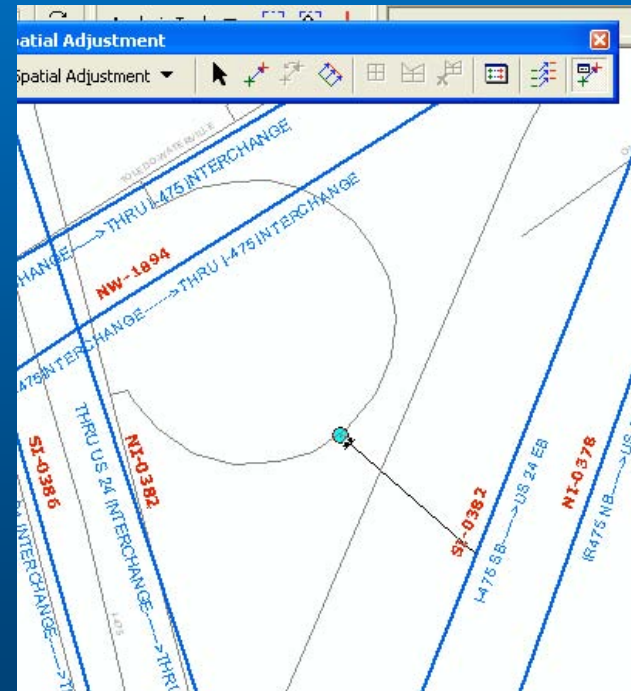
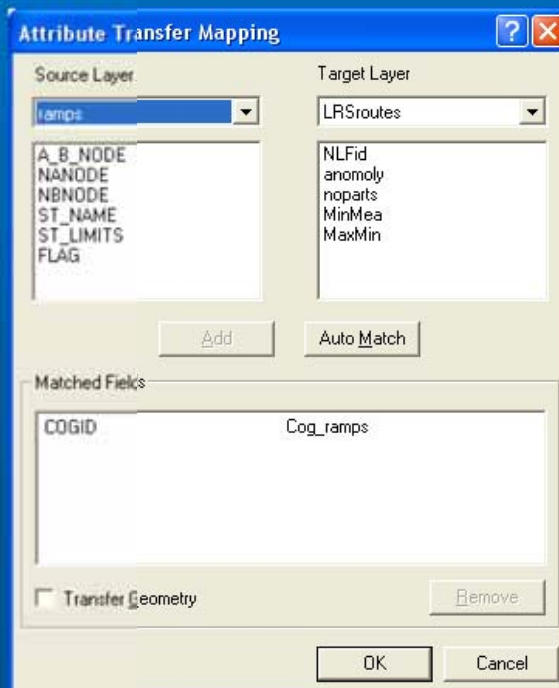
Buttons for "OK" and "Cancel" are visible on the right side of the dialog box.

http://arcgisdeveloperonline.esri.com/ArcGISDeveloper/Samples/Linear_Referencing/Editing/Digitize_Events/DigitizeEvents.htm

Attribute Transfer Tool



- There is one to one relationship between Flow map ramp and ODOT ramps
- Attribute transfer mapping



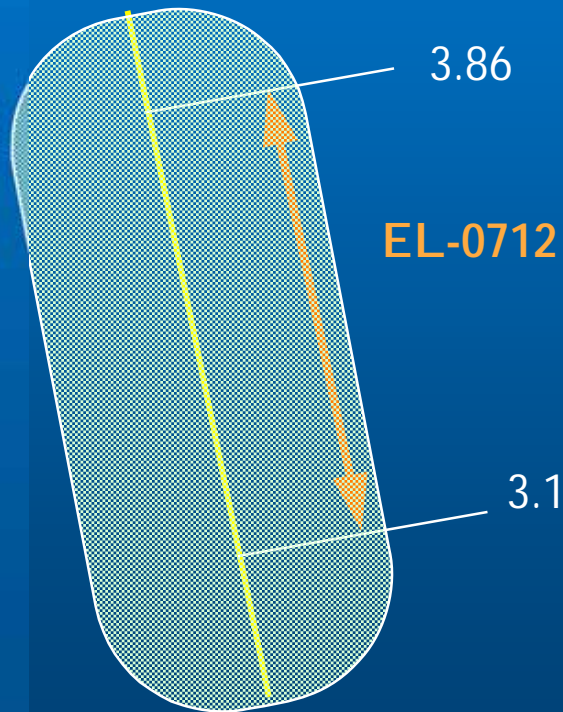
Locate route events



Example One

CLUCCR00008**C

Buffer of 100 feet



Attributes of Equivalency Events

OBJECTID*	NLF_ID	COG_ID	FROM_MEA	TO_MEA	
1225	CLUCCR00008**C	EL-0712	3.1	3.86	1
1226	CLUCCR00055**C	EL-0711	4.28	4.28	

Record: 1 Show: All Selected Records (0 out of *2000 Selected)

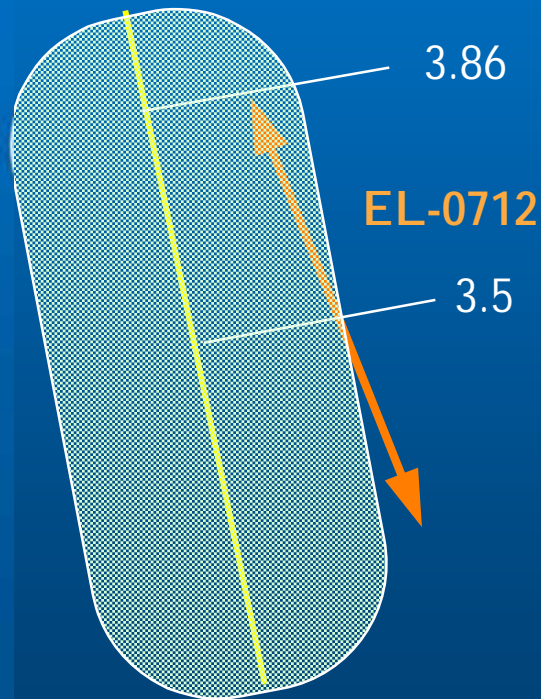
Locate route events



Example Two

CLUCCR0008**C

Buffer of 100 feet



OBJECTID*	HLF_ID	COG_ID	FROM_MEA	TO_MEA	
1225	CLUCCR00008**C	EL-0712	3.5	3.86	1
1226	CLUCCR00008**C	EQ_0144	4.28	4.28	

Record: 1 Show: All Selected Records (0 out of *2000 Selecte

Result of Locate Route Events (Michigan)



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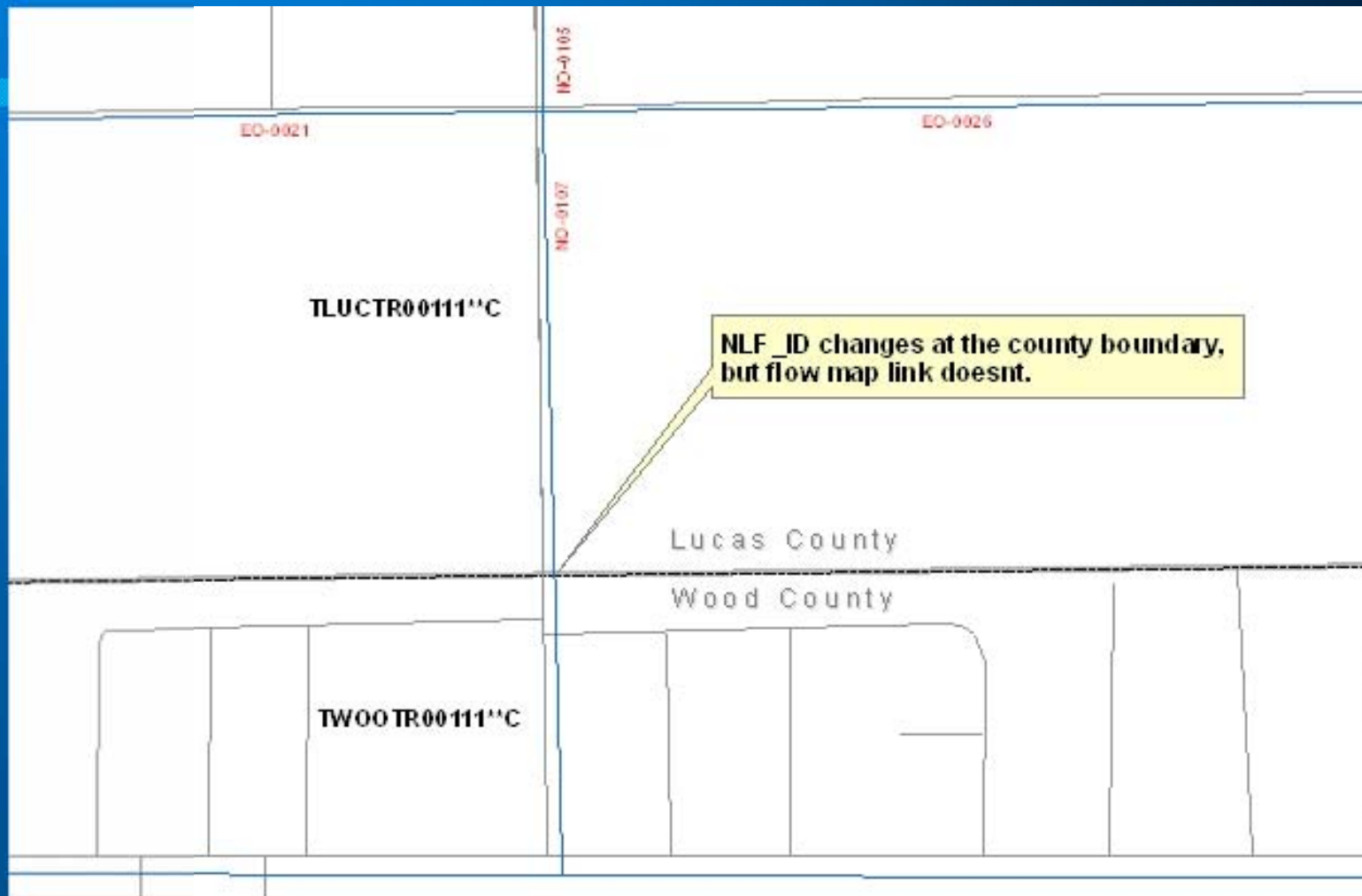
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Problems Faced

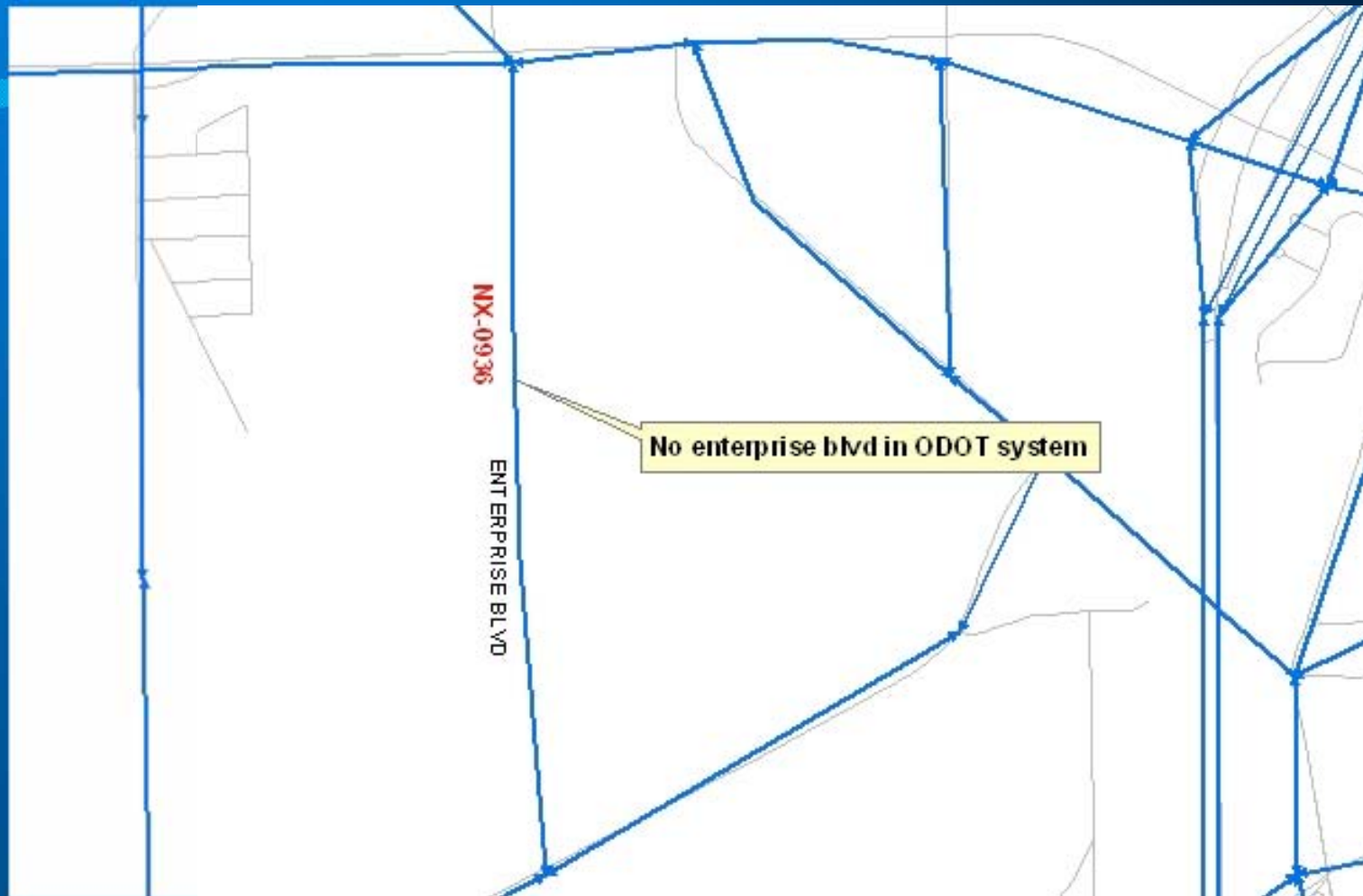
Inaccurate street limits



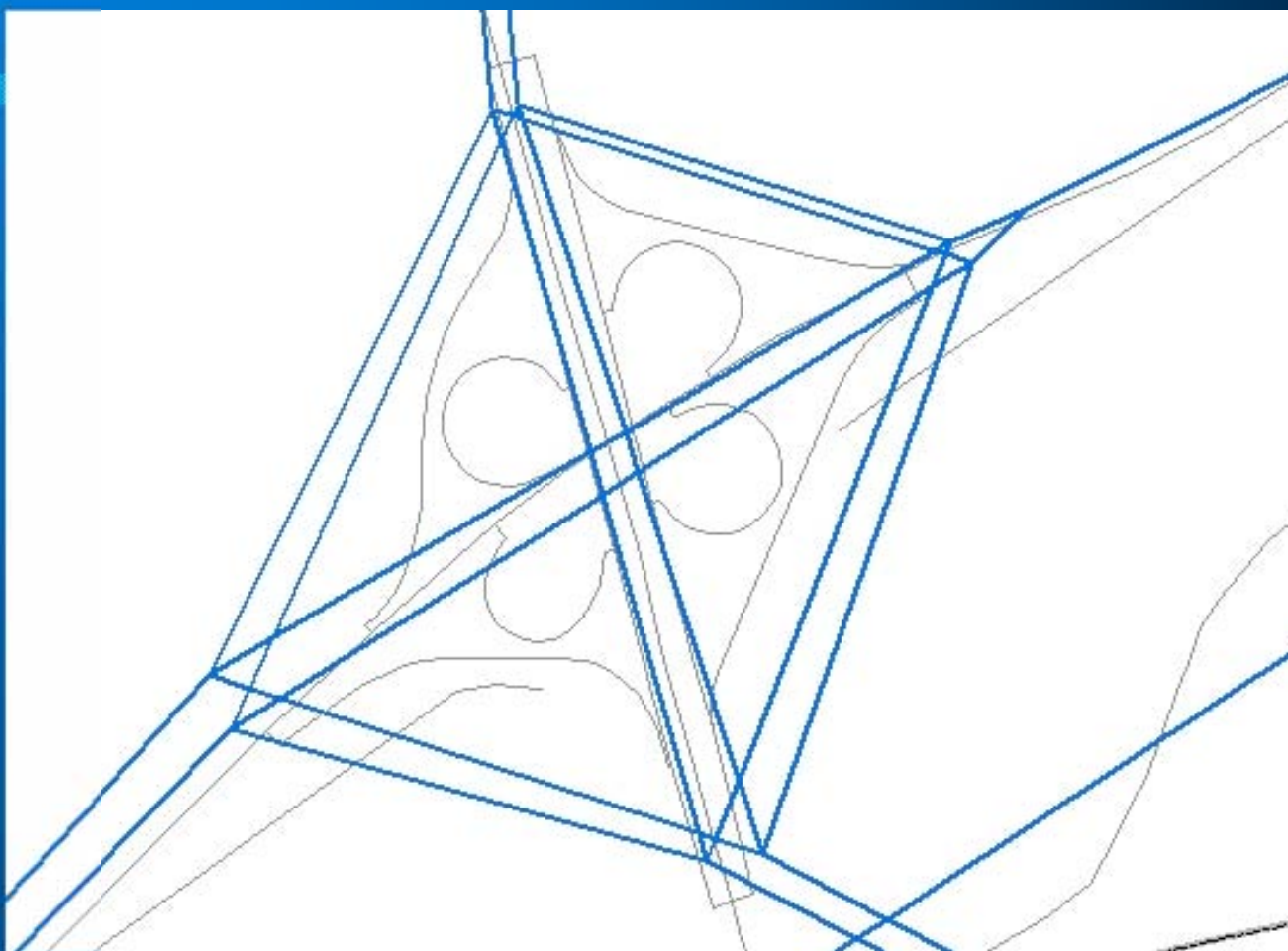
Multiple ODOT routes for one flow map link



Missing ODOT route for local segment



Ramps - Which goes to which??



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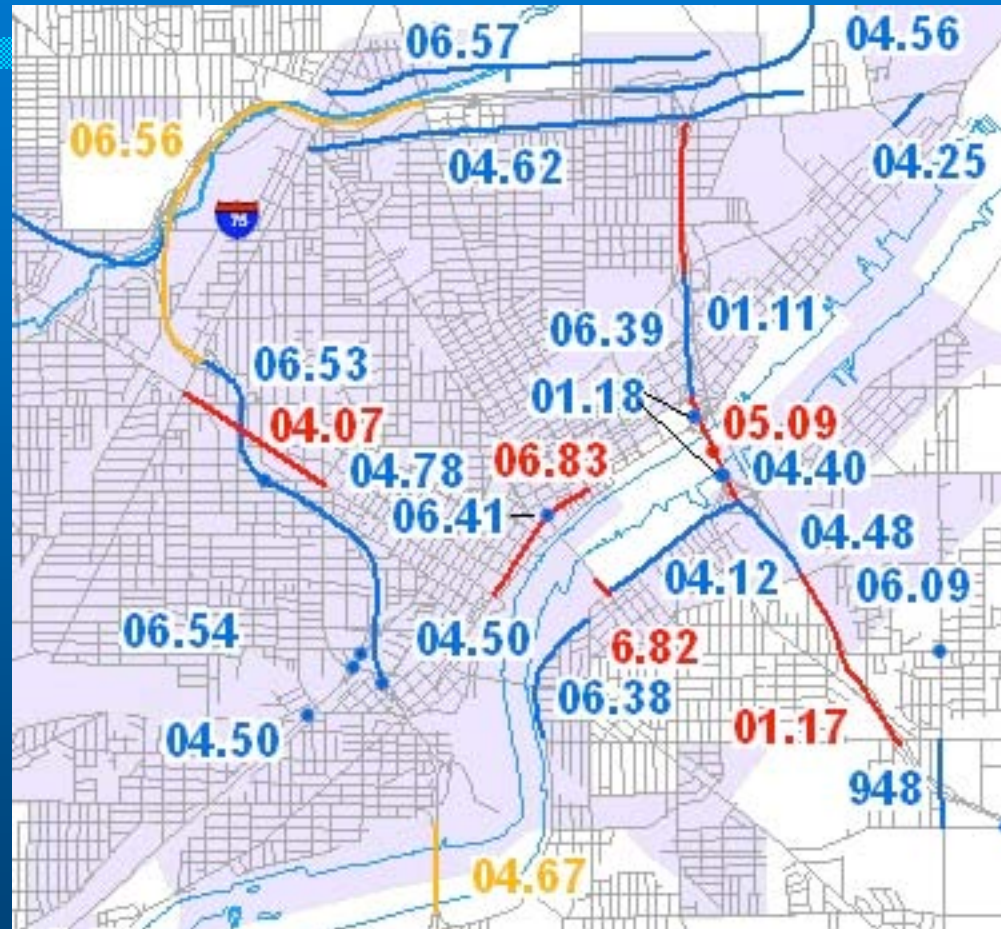
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TIP Map



Current TIP map developed using ODOT LRS



Traffic Flowmap



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

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Thank You

Questions????