Status of developing networks for the new zone system

Travel Forecasting Subcommittee
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The new zone system has arrived …

- Will supplant the 1,972 internal used in the 2,191 zone system
  - Unfortunately the two TAZ systems do not always nest
- Will be used to support Version 2.3 Model
- Will be the zone system used for the next round of Cooperative Forecasts (Round 8.0)
  - Round 8.0 will not be furnished for the 2,191 zone system
- Will necessitate new highway & transit networks

Network to do list:

- Node renumbering needed
- Add detail (additional highway links to net.)
- Replace centroids and centroid connectors
- Adjust transit lines as necessary

…easy to list, but hard to do

Preparatory activities of late to facilitate network development

- Consultant (DCI) assisted effort to improve GIS capabilities for network development and management ($150K invested over past two years)
- TPB staff has worked to conflate existing highway network geometry to NAVTEQ street basemap (during past year)
  - Hope to complete this month

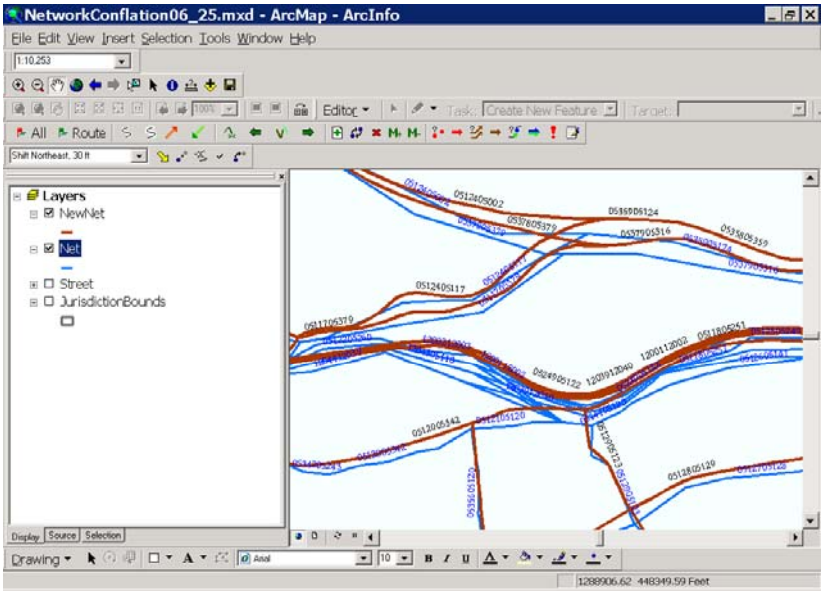
Network conflation with NAVTEQ database

- Current status
  - Completed conflation of the arterial highway system
    - Region divided into 12 areas; work done by four analysts
  - Currently
    - Conflating freeway system
    - Correcting errors caused by inconsistencies between the highway network and the NAVTEQ street database

Network conflation with NAVTEQ database

- Next steps
  - Reassemble the completed, conflated highway network
  - Run batch process to add remaining ramps and existing centroid connectors
  - Load into master database
  - Finalize the geographic enhancement of the rail links and load into the master database

Network conflation with NAVTEQ database



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DCI GIS project: 2 Phases

- Phase 1 objectives (FY-2008)
  - Convert existing ArcInfo-based “Master Highway Network” database to the more up-to-date ArcGIS geodatabase
  - Assess needs and identify functional requirements for improved network editing
  - Develop ArcGIS-based highway editing tools
- Phase 2 objectives (FY-2009)
  - Incorporate transit elements to ArcGIS geodatabase
  - Populate geodatabase with most recent information (2008CLRP)
  - Refine editing tools, enable highway & transit editing seamlessly
  - Install geodatabase and editing application on a server to enable wider organizational access (multi-user)

What is unique about this application from an end-user's perspective?

- The database and application support an integrated multi-modal and multi-year network
  - Consistency between highway editing and transit line coding is seamless
  - Consistency in networks over time is maximized
- But limitations exist
  - Highway networks can be developed for any year, but transit networks are developed for only fixed years (e.g., 2010, 2020, 2030)
  - No batch editing for transit lines: They may be copied into future networks, but this is done one by one
  - You cannot store multiple scenarios per network year – only one per year, in the current version of the software

GIS project: current status

- A number of test versions developed from January-June 2009
  - Application tested on single workstation platform
  - Functionality testing shows promise
- Documentation is under review
  - User's Guide
  - System Administration Guide
  - Project Report
- But: Problems encountered with the software functions on the server (or SDE) platform
  - ArcGIS does not support all SQL commands
  - We're scrambling to resolve this problem

Sequence of Version 2.3 network development events

- Immediate:
  - Find work-around for server problem
  - Complete NAVTEQ update geography in geodatabase
  - Update geodatabase, based on last year's 2008 CLRP, to most recent Plan networks
  - Renumber network nodes in geodatabase
- Subsequent:
  - Add new highway links supporting new zone system
  - Remove existing centroids & connectors
  - Insert new centroids and connectors
  - Internal/external review of networks

Conclusions

- Version 2.3 networks will be very similar to Version 2.2 networks
- Lessons were learned in the networks developed for the 2,191 system 15 years ago
- TPB has attempted to improve the practice of network development since then
- Automating network development is not easy, but incremental improvements are being made

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