NEXT GENERATION 9-1-1 and GIS
Tennessee Information for Public Safety
Presented by OIR-GIS Services
PROGRESS IN TENNESSEE
Building Relationships

• TN Emergency Communications Board (TECB)
  – Oversight and administration of 911 in TN
  – Established a partnership with OIR GIS Services in 2002
    • Local consumers and funding partners for TN Base Mapping Program
    – TECB GIS/Mapping Policies
      • 2004 – initiated funding to local emergency communication districts for developing/maint. GIS
      • 2005 – set deadline for local districts to have a functioning GIS (no statewide standard)
      • 2011 – required local districts to adopt TIPS GIS standards for NG911 (tied to local funding - $20K) and provide a copy/updates of data to OIR GIS Services
GIS and NG911

- Tennessee Information for Public Safety (TIPS)
  - GIS schema that conforms to National Emergency Number Association (NENA) Standards
    - Street Centerlines
    - Address Points
    - ESN Boundaries
GIS and NG911

• TIPS Project Background
  – Due to the implications of GIS inaccuracies for NG911 the TN Emergency Communications Board (ECB) has adopted quality requirements based on NENA standards
  – TN ECB contracted with OIR GIS Services to administer the GIS portion of the project
  – 3 regional technicians were put in place to assist local emergency communication districts (ECD’s)
  – Focus: Training/Education and enforcement of standards

• Since 2011
  – All 100 ECD’s have converted local GIS data to the TIPS schema
  – A program has been installed in all ECD’s to detect local changes which are sent weekly to OIR-GIS and loaded into a statewide SDE geodatabase
GIS for NG911

• Since 2011 - continued:
  – OIR GIS orchestrated Herculean task of matching all ESN (Emergency Service Number) boundaries
  – All 100 ECD’s have seamless call routing (ESN) boundaries in State GIS database
    – Used for call routing only
GIS for NG911

• The Stats:
  – 100 ECDs broken up by region
    • 94 counties
      – Overton and Pickett Co in Middle TN are combined into one district
    • 6 municipal ECDs
      – 5 of which are in East TN
      – 1 in Middle TN
GIS for NG911

- Future
  - The statewide TIPS geodatabase will be replicated between Nashville and Seattle/Phoenix
    - Phoenix is backup database
  - A company based in Seattle validates the address and street data against ALI records
  - Data then sent back to TN for use in 911 system
    - Used for initial call routing
Standards and QC Metrics

QUALITY STANDARDS
TIPS Feature Classes

• Address Points and Centerlines
  – Maintained by local districts
  – Updates/changes sent weekly via ETL process and integrated into statewide SDE geodatabase

• ESNs
  – Changes directed by ECDs via interactive website
    • Updated as needed
  – Edits maintained by State
    • Not all districts have ability to maintain topology
Quality Standards

• Street Centerlines Must:
  – Fall within 10 feet or less of the centerline 95% of the time as visible in ortho photography
  – Accurately reflect block address ranges as related to address points
  – Match the ALI (Automatic Location ID) database to a 98% rate
  – Have abbreviations of all street prefixes, suffixes incorporated according to NENA standards
  – Be split at each intersection, and each segment shares a beginning or end node
  – Be split at ESN call routing boundaries, city boundaries, county boundaries, and attributed with respective information
    • OIR-GIS has created a centerline ESN intersection point dataset showing each location where a centerline crosses from one ECD to another according to the agreed upon call routing boundaries
    • All centerlines should be snapped to these intersection points, creating a seamless statewide centerline dataset
Quality Standards

• Address Points Must:
  – Be located either on the structure or on the driveway
  – Have unique attribution, such as address number or sub address (128 A Monroe St)
  – Match ALI to a 98% or higher rate
Quality Control Process

• We run quality checks on the data
  • ECD’s are using these to improve the overall quality of their local GIS data

• Quality checks:
  • Address Anomalies: Compares centerlines to addresses
  • Hi Low and Parity Anomalies: Check centerline address ranges
  • Address Overlaps: Check centerline ranges for overlaps
  • Topology
  • Compare ALI (Automatic Location ID) table to centerlines
  • Compare ALI table to address points

• **ALI comparisons are currently top priority**
Current Progress

- ALI to Centerline comparison on 10/01/2013
  - Overall average is 95%
- ALI to Address points comparisons are just beginning
  - Insufficient data to create map
  - ECDs directed to be at 98% or higher by 12/01/2013
Timetable for NG911 Rollout

• 12/1/2013
  • 98% match for centerlines/points to ALI database

• 12/1/2013 – 3/1/2014
  • Test/Implement GeoDB replication between Nashville and Seattle (TCS)

• 3/1/2014
  • Target date for initial NG911 rollout
Other Uses for TIPS

• Dept of Transportation
  • TIPS geometry used to update TRIMS database for Map 21 and HPMS requirements – work in progress
• TNMap enterprise GIS geocoding service
  • Used primarily by State agency ArcMap users
• Geocoding/Mapping to support GIS Web Apps
• Broadband Mapping: working with ConnectedTN
• US Census – initial discussions re: TIGER/LUCA
Thanks!