

GeoComm

“When seconds matter, we help save lives and protect property by providing essential, innovative location-based solutions to public safety professionals.”

NG9-1-1 GIS at the State Level

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Today's Agenda

- Introduction
- TN History
- TIPS (Tennessee Information for Public Safety)
- Plan the work – Work the plan

Introduction

- Patrick Melancon
 - Senior Product Manager Geo-Comm
 - VP Product Innovation & Customer Solutions – GDR
 - GIS Public Safety Manager – State of TN
 - Custom Project Manger – T omTom

TN GIS Data History

- TN Emergency Communications Board (ECB) Policy 20
 - 2002 GIS standards started the process
 - 2004 Policy 20 adopted
 - Within one year, all PSAP's in TN receiving cost recovery for their GIS and on E911 must have a mapping system that meets minimum standards
 - 2005 Policy 20 amendment set a deadline
 - All PSAP's shall secure agreement to obtain a mapping system that will be fully functional by 12/31/2015
 - 2011 Policy 20 amendment works to bring everyone together in order to meet the Next Generation requirements
 - TIPS format for Address Points, Centerlines and ESN's

<http://www.tn.gov/emergency/documents/911-February2014-Policies.pdf>

Reference

Per May 19, 2011 - Each Emergency Communications District (ECD) shall:

1. Provide the TECB with the name of an individual who shall be responsible for their GIS Mapping and maintenance.
2. Obtain the approvals necessary to migrate their GIS data to the TIPS format and provide that data to OIR/GIS or other TECB designee as requested.
3. Coordinate with OIR/GIS or other TECB designee to migrate GIS data to the TIPS format and maintain TIPS data on a monthly basis.
4. Annually update GIS maintenance plan on a form provided by the TECB and submit the form to OIR/GIS or other TECB designees.
5. Implement and maintain the following data layers and provide that data to OIR/GIS or other TECB designees:
 - i. Street Centerlines;
 - ii. Address Points;
 - iii. Emergency Service Zone Boundaries (ESN Boundaries);
 - iv. Area Landmarks;
 - v. Fire Hydrants;
 - vi. Administrative Boundaries (City, State, and County);
 - vii. Ortho Photography;
 - viii. Other layers NENA may require.

Absent a waiver by the TECB, data layers for Street Centerlines, Address Points and ESN Boundaries shall be implemented no later than June 1, 2012.

6. Upon request, cooperate with OIR/GIS or other TECB designees and GIS personnel in adjacent counties/jurisdictions to ensure that:
 - i. Emergency service zones and street centerline data layers are seamless between counties with no gaps or overlaps between boundary polygons; and
 - ii. All boundary street centerlines share an exact begin or end node with the adjacent county street centerline.
7. Comply with NENA GIS Mapping Standards.4

Funding

- Started with \$10,000 per year per Emergency Communications District (ECD)
- May 2011 ECB voted in favor of GIS incentive funding for Next Gen
- The GIS Incentive Funding Program was funded with VoIP service revenue (after the 25% mandated distribution to the local 9-1-1 district)
 - \$20,000 min per local 9-1-1 district
 - Fiscal year 2014 - \$6,540,723 distributed to local 9-1-1 district
 - Payment every 4 months if met specific goals
 - Along with \$10,000 annual distribution
- Money did not have to be used for GIS

<http://www.tn.gov/emergency/documents/911-April2015-AnnualReport2013-2014.pdf> pg. 7

State Adoption

- Proposal to the TN Policy and Operations Advisory Committees
 - TIPS format
 - Policy 20
 - Quality Requirements
 - GIS Milestones
- Committees make recommendations to the ECB
 - ECB accepts or rejects the recommendations

How Did This Progress?

- Started off slow with tying funding to GIS milestones:
 - August 2011 – submit GIS compliance form
 - December 2011 – submit GIS compliance form & annual maintenance form w/ GIS contact person
 - June 2013 – submit GIS compliance form &...
 - Seamless ESN boundaries (a LOT of work)
 - Data in TIPS format & monthly submissions

Definition of TIPS

- Tennessee Information for Public Safety (TIPS)
- An ESRI format of the data
- Field naming convention
 - Centerlines
 - Address Points
 - Emergency Service (Zone) Boundaries
 - Point – Line – Polygon
- TIPS standards shouldn't be confused with quality requirements – It's only field naming



Why TIPS and Is It Needed?

- A single data format for ease of data sharing
- A single format allows for better support from the State
 - Quality Checks
- Is it necessary? – No
 - Programmatically gather and return data
 - Less impact on local systems
 - REQUIRED – some fields may have to be added to account for NENA required fields

What does this mean?

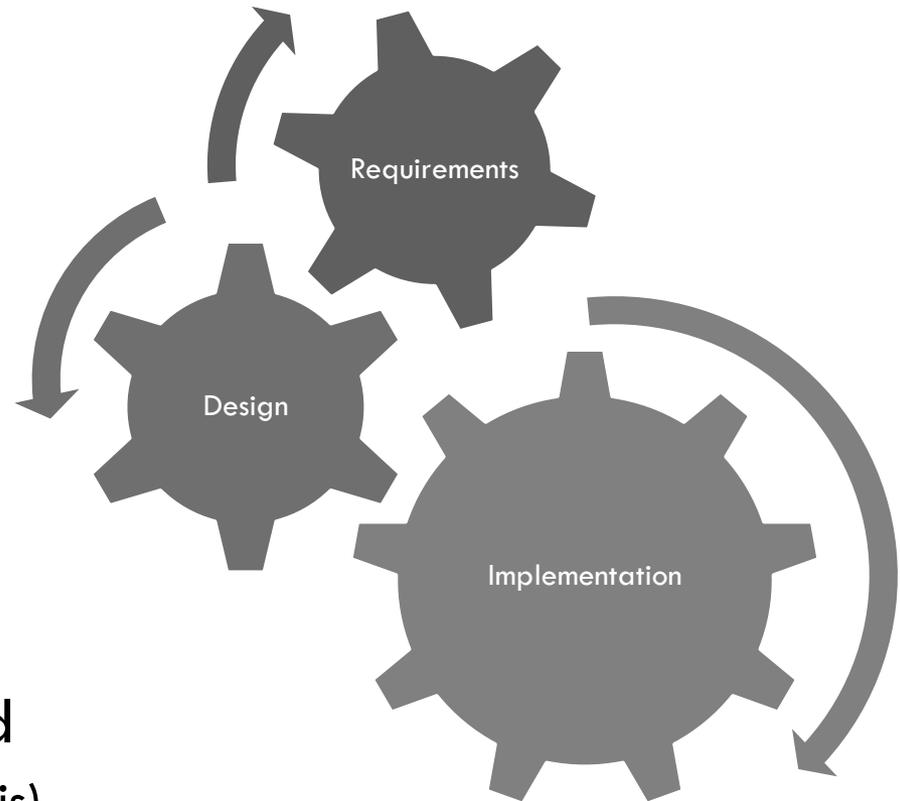
- All districts in the state will be able to get a statewide dataset for use in their 9-1-1 centers
- A second set of eyes on the GIS data will help improve the quality of the data
- Assistance with GIS by GIS experts:
 - Automation
 - Editing tips and tricks
 - Trouble shooting efforts
 - QC data – pre audit
 - Training
 - Customizations
 - Data Conversion
 - Vendor intermediary

What Were the Impacts?

- Field mapping needed to be done on the CAD and Mapping software to ensure the address locators remain functional
- Conversations were had with all CAD and Mapping vendors ensuring they can utilize the TIPS format with no impact or cost to the district
- All data will be transitioned to TIPS ensuring no previous work is lost
 - Stringent procedures were in place to ensure this
 - Trust with the districts was paramount to success

The Process to build TN

- Develop a process
 - Trial and error
 - Programming efforts
 - Requirements gathering
- Determine work load
 - 95 Counties
 - 100 9-1-1 districts
 - 42,000 sq. miles
 - 7 hour drive from one end to the other (Bristol to Memphis)



Developing the Process to Build TN

- Field Structure – TIPS
 - NENA requirements – relatively undefined for NG911
 - State needs – examples:
 - Revenue
 - TBI
 - Child Services
- Quality Control requirements
 - Multiple programs written to test the status of data
- Change detect process and programs written
 - Worked with close districts to test process and programs

The Work Load to build TN - Office

- Director ↔ □ Report status to the ECB
- Project Manager ↔ □ Manage all aspects
- Developer ↔ □ QC code/Change detect
- Web Developer ↔ □ ESN bounds web editing
- Database/SDE Admin ↔ □ Set up/Maintenance
- Analyst ↔ □ Wall Maps/Run QC
- Technician ↔ □ Record submissions/edit ESN boundaries

The Work Load to build TN - Field

- West Tennessee
- Middle Tennessee
- East Tennessee
- 2.5 hour max drive time
- ~33 districts each
- Visit once per quarter



Implementation

- Sell, Sell, Sell
 - The success of TN was primarily about communication
 - Being available to interact with the districts – face to face
 - Helped soften the “State is pushing this on us”
 - Visits allowed to gauge satisfaction levels
 - A 5 minute phone conversation is not enough
 - Trained a lot of administrative staff to GIS Techs
 - Learn various vendors software to ensure compatibility
 - Least impact to districts
 - Showed that the state was “here to help, not get in the way”

Process Implementation

- Initial process had QC done monthly
 - Districts wanted it ad-hoc
- Had to redesign QC tools to be more user friendly
 - Initial development had been for GIS Analyst level
- Change detection code
 - Wasn't as bullet proof as originally tested
 - Code updates were difficult – 3 regional – 100 visits
 - Network system changes at state level – sftp setup

Maintenance Plan

- This is not a one and done plan
- Needs GIS contact person
- Will likely be revised many times – this should happen
- Maintaining data for NG is going to be new
- Submittal was an awareness step
 - Funding was tied to initial submission
 - Tied to second funding reimbursement
 - Wanted to get districts thinking about maintenance first

Boundary Requirements

- Seamless Boundary files –
 - ▣ Particularly call routing
- Regional Analysts set up group meetings with ECD's to determine where boundaries should be
 - ▣ Could not follow “County Boundaries” as state didn't have them
 - ▣ It took some time to convince people that there were gaps and overlaps
- Maintenance:
 - ▣ Started with Change Detect software
 - ▣ Editing practices caused problems
 - ▣ Moved to Change Request via website

Quality Control

- QC programs were being developed throughout the project
- Districts felt it was a moving target
 - Risk – provide all QC results up front, overwhelm
 - Risk – hold back, impression of moving target, never done
- Better option – have full list of QC tests, results and how they relate to quality requirements

GIS Data Feedback

- Want feedback quick and understandable
- Spatial feedback works best when possible
- Trusted resources available to assist
 - Takes time to build trust
 - Classes didn't usually work
- Track QC results to trigger a follow up call/training session if needed
- Helps track progress towards NextGen
- ECD's used this as their scorecard on data quality

Safety (for the state)

- All data checks were conducted on a copy of the data
- All processing was conducted on a copy of the data
- Avoiding finger pointing – any degradation to the data cannot be tied back to the processing
- This did not always avoid issues:
 - Helped one district standardize their data
 - Even with verbal acknowledgement of EVERYTHING done, district still accused regional person of messing up the data

Reporting/Tracking

- Set up web site to track status of districts
- Tracked:
 - ▣ Last update
 - ▣ Last field visit
 - ▣ Software vendor for MappedAll
- Internally tracked
 - ▣ Synchronization percent
 - ▣ QC results
 - ▣ Change % from last submission
- Recorded Tested Software versions – ESRI versions

Additional Information

- Statewide Orthophotography program
 - TN – 1/4 of state flown each year
 - 1 foot color
- Ensure all of TN has access to high end imagery

Other States

- Kansas
 - Funded data remediation
 - Contracted with vendors to do cleanup work
 - 1 vendor did upfront work and initial QC work
 - 5 vendors approved to do remediation
 - 1 vendor to do final QC to ensure work meets requirements
 - No maintenance plan last I heard
 - Started remediation then realized needed imagery

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Questions?

Comments?

Concerns?

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Reference Material

- <http://www.tn.gov/emergency/documents/911-September2014-BoardMember101.pdf>
- <http://www.tn.gov/emergency/documents/MinimumQualityStandardsforNG911GIS082011.pdf>
- <http://www.tn.gov/emergency/documents/CopyofGISIncentiveFundingRequestFormJune2012120530revised.pdf>
- <http://www.tn.gov/emergency/documents/TemplateforGISMaintenancePlanfinal.pdf>
- <http://www.tn.gov/emergency/documents/911-February2014-Policies.pdf>
- <http://www.tn.gov/emergency/documents/StandardGISMapping.pdf>
- http://www.tn.gov/emergency/documents/Road-show_v17.pdf
- <http://gis.tn.gov/tips.shtml>

Kansas references as well

- <http://kansas911.org/115/GIS-Enhancement-Project>
- <http://kansas911.org/DocumentCenter/View/265>
- <http://kansas911.org/DocumentCenter/View/360>