The road to public domain street data for New Jersey

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NJ Roads - 2007

- Framework data
- NJ DOT Roadway Network
  - Publicly-maintained roads
  - Spatial accuracy
  - LRS
  - NJ DOT – integrated
  - Public domain
- Licensed data for address-matching, routing
  - Data model changes
  - Corrections/updates
  - Cartography challenging
  - Government only
- NJ OGIS had an idea...
NJ Roads - Feasibility

- Study by NJ OGIS and Fountains Spatial, Inc; funding by NJ E911
- Gathered info from state, county gov’t, providers and heavy users, private sector
- Ten other states’ solutions
- Recommendations 2009:
  - Enhance NJDOT data set by contractor
  - In-house maintenance by state
  - Skip routing data
2010
The NJ Roads Enhancement project begins...
NJ Roads - Enhancement

• Lead agencies
  – NJ Office of Information Technology, Office of GIS
  – NJ DOT Bureau of Transportation Data Development

• Contractors
  – Michael Baker Jr, Inc
  – Civil Solutions

• Funding
  – NJ Office of Homeland Security & Preparedness $825,000
  – NJ DOT/Federal Highway Administration $175,000
NJ Roads - Enhancement

• Data gaps at start
  – No privately-maintained
  – Not segmented
  – No addresses
  – Names sketchy

• Project goals
  – 100% NJ DOT compatible
  – Single set statewide centerlines, public domain, all uses (almost...)
  – Update source for TIGER
  – “Transportation for the Nation” (NSGIC, USDOT)
  – Single maintenance, multiple publication
NJ Roads - Enhancement

Major tasks

- Evaluate existing data
- Create models
- Pilot
  - Five of 566 municipalities
  - All road types
    - Highway
    - Local
    - alleys
    - private
    - Parks
    - unimproved
  - Conditions
    - rural, urban
    - good or no existing
    - TIGER quality
- Spatial data
  - Physical segmentation
  - Add missing
- Attribute data
  - Add missing
  - Standardize names
  - Route and segment IDs
- Publication
  - User-friendly formats
  - Multiple calibrated route feature classes
  - Highway shield marker symbols
NJ Roads – Production Model

[Diagram of the NJ Roads Production Model]
2012

NJ Roads Enhancement
first statewide data release
NJ Roads - Enhanced

• Spatial
  – Segmented
  • intersections
  • Boundaries
  • Zctas
  • over/underpasses
  • interchanges
  – TIGER compatible (no FCC)
  – 6,200 mi added, total 47,245
  – Used TIGER2010, county, imagery, parcels
  – Used NO commercial

• Attributes
  – Added and standardized names/types, highway #/type
  – Added address ranges L, R
  – Sources for above: TIGER, county, DOT SLD, parcel/RE tax
  – Postal codes from TIGER roads & zctas
  – Mun code from OGIS mun boundaries
NJ Roads - Enhanced

More Attributes

- Relative elevation levels of road platforms
- Improved/unimproved surface
- Public/private jurisdiction
- Restricted/non-restricted access
NJ Roads – Enhancement lessons learned

- Major QA/QC effort by NJ OGIS
- Extensive coordination/communication effort with major contractor
- Data models change during project
- Data artifacts ➔ major headaches during creation of reporting data
- Legacy formats required during transition
- 1 FTE for maintenance management
NJ Roads Enhancement
What’s next?
NJ Roads
Strategic Plan - Maintenance

• One of “Core Four”
• Extensive interviews with stakeholders
• Change detection
  – County GIS coordinators
  – Public Safety Answering Points (911 call centers)
  – Municipal 911 coordinators
  – County/muni highway/public works
  – Periodic review of voter registration records, RE tax tables with owner address
NJ Roads
Strategic Plan - Maintenance

- Local government crucial – provide incentives:
  - Serve back data in useful way
    - Fast turnaround for draft spatial and addressing
    - Downloads
    - WMS and ArcGIS Feature services
  - Publish data model
    - with expansion capability
    - In user-friendly format
  - Provide user-friendly update tool online
    - Upload
    - Mark-up
NJ Roads
Strategic Plan - Maintenance

• Single production database and data set
• Shared responsibility
• NJ DOT workflow minimal change
• NJ OGIS
  – Host database and web tools for update, publication
  – Outreach to local government
  – Fast turnaround draft geometry, addressing, extended
• NJ DOT Bureau of Transportation Data Development
  – Final geometry
  – Linear referencing
  – Highway attributes (toll, interstate, US, NJ)
NJ Roads
Update information flow plan

County/Muni
Segment changes

County/Muni
“OIT draft” and final features replace local draft

County/Muni

OIT/OGIS
Segment ID, Name/address, draft geometry

Segment changes

Final features replace draft

NJDOT
Final geometry, SRI/milepoint, Network FC

Centerline Published
Incl. draft geometry

Networks Published

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Questions?

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