TXDOT STATEWIDE
CITY STREET LINEAR
REFERENCING LAYER

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New Requirements

Federal Mandate:

- Report Full Extent of GIS Transportation Network
  - Now Includes local city streets

Why?

- Requirement for Texas’ Annual Submittal to Federal Highway Administration (FHWA) 2014
- All Roads Network of Linear-Referenced Data (ARNOLD)
Options - Project Management

Contractor / Vendor
- Purchase Data

Manual Digitization
- Recreate Data

Work with Local Data Maintainers
- Integrate disparate data sets into a cohesive data layer.

Local Data
Data Sources

- COG (Councils of Government)
- MPO (Metropolitan Planning Organizations)
- County
- City
- E-911 (Emergency Management Districts)

These organizations provided TxDOT with spatial data for 99% of Counties in the state of Texas.
What Were We Missing?

- All non-state maintained roads within incorporated cities, that are open to the public
City Street Data Goals

- Mileage Reporting Requirements (2014 Deadline)
- Informs Funding Allocation, Planning and Transportation Development
- City Street Basemap Layer
- Make Available Statewide Roadway Data
- Increased Communication Between Data Partners
Data Collection Process

TPP-GIS Group Project
- Analysts collect data from local data maintainers

COGs and MPOs the Preferred Data Source
- Largest aggregators of local data in their region
- County, E 9-1-1 District, and City data were also used

Data Formats:
- ESRI Shapefiles
- ESRI Geodatabases
Data Received

98% of COGs reported
99% of Counties covered

COGs
Data Structure

2 Data Models:

**Statewide Linear Referencing Layer (Final Goal)**
- Local City Streets Only
- Contiguous measured linear features
- Integrated into existing data at TxDOT
- Report to FHWA
- More advanced data processing

**Statewide Addressing Layer (Intermediate Repository)**
- All Inclusive
  - All data received from each source included
- Focused on Addressing
- Classified by Route Type
- Modeled to fit the TxDOT TPP-GIS Data Structure
  - Minimal Data Processing
Statewide Addressing Layer

- All Data collected compiled into TxDOT structure
- Data remains ‘as is’ geometrically
- Addressing information retained
- Used as the data layer for future data maintenance
- Local maintainers can see how their data lines up with their neighbors
Incoming data has to be processed to fit within the two data models. Processing is a combination of data documentation, manual cleanup, and Python scripts.
Data Processing – In Detail

- Preliminary Data Collection Efforts
- Source Data
- Data Formatting
- Source Data + TxDOT Data Structure
- Route Classes Assigned
- TxDOT Statewide Addressing Model

- Multi part Feature Error Classification
- Multipart Feature Error Classification
- Multi part Lines
- Error Correction
- Missing Roadways Added
- Network Topology Corrections
- LRS Processing
- TxDOT LRS Model

Communication:
- Dataset
- Python Script
- Group Project
- Data Complication
Source
Data with Route
Classes
Assigned
2 Statewide Data Layers

- Statewide Addressing Layer for use by participating data providers and the general public

- Statewide Linear Referencing Layer for use by TxDOT, FHWA, and the general public

All data will be available for download from both the TxDOT TPP website, and from TNRIS

Data will also be viewable on the Texas Statewide Planning Map
THANK YOU!

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Questions?