Roads & Highways: MnDOT’s implementation

RHUG Webex - June, 2014
Esri UC - July 2014

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We all have a stake in A→B
Agenda

- Non-Standard implementation specifics
  - Dual routes
  - Primary event

- Data Details

- LRM Details

- External System Integration

- Shared Centerline Initiative

- Timeline & Process

- Lessons Learned
Dual Routes

Esri Recommended a Mixed system

+ Less maintenance of LRMs on wholly undivided roads
- Inconsistent methods to extract data
- Need to know details of the whole route to edit any portion of it

MnDOT is implementing a Dual Route system

- More maintenance of LRMs on wholly undivided roads
+ Editor only needs to know the portion of the route being edited
+ Consistent data extraction
+ Allows travel direction based attribution
All roads excluding one way roads have dual routes

- Increasing and decreasing mileage directions
- On Undivided road segments both routes follow the same geometry
- On Divided road segments each route has its own geometry

We create a second centerline when a physical barrier prevents traffic cross-overs
Esri recommended all routes be rated equal.

MnDOT requires ability to state one route primary:
  - Statewide event on all roads
  - One route pair is primary at any location
  - Event data assigned to primary routes
New Events

- Bike Facility
- Paved vs Unpaved shoulders
- Bus Routes
- Exit Numbers
- Speed Limit
Route Selection – Adding an Event Attribute
Increasing/Decreasing
Data Details

} Characteristics are **HPMS** Based

} Facility Type;
} AADT;
} Functional Class;
} Urban Code;
} Through Lanes
Jurisdiction data is **GNIS** based

*(Geographic Names Information System)*

The American National Standards Institute (ANSI) has taken over the

http://www.census.gov/geo/reference/ansi.htm

> All systems maintained

*Limited Event Data on Local Systems*
Roundabouts

- All routes will be carried through
- Routes are Co-incident
LRM Details

} Cartographic Length
} Engineering Station
} Route Reference
External System Integration

{ TRADAS
{ Bridge
{ API
What is the Shared Centerline Initiative?

A joint effort between:
Minnesota Geospatial Information Office
Minnesota Department of Transportation
Metropolitan Council
MetroGIS
and Partners….

Purpose: To develop, test, refine, publish and perpetuate a single state-wide roadway dataset that meets the needs of a diverse user community;
What is the goal of the project?

To create an authoritative, multi-purpose & public domain centerline spatial dataset resource for the entire state of Minnesota.

**Authoritative:** all users and parties can rely on the data to accurately represent the actual roadway assets of the state;

**Multi-purpose:** to reduce cost, eliminate redundant effort, facilitate better data, improve inter-agency reporting & fulfill a variety of needs from road data consumers;

**Public domain:** a version of the data will be freely available to non-government public data consumers;
Partners

Free Tools

Free hosting

Authoritative Source

 Routable Centerlines

Current Data

Linear Reference System (LRS) A

Easier Reporting

Single Source of Data
Benefits

Emergency Services Needs
Authoritative Address Ranges

Federal Reporting Requirements:
MAP-21 / All Roads Network Of Linear Referenced Data (ARNOLD)
Transportation for the Nation
HPMS

Free Data to the Public

Cost Savings
Reduce Duplication of Effort
Useful & Detailed Attribution
Current timeline for LRS implementation is late August / early September 2014.

MnDOT wants to strike the appropriate balance between rigorous data validation/testing and implementing quickly in order to lift the data freeze currently in place.

MnDOT also has several other projects under way which migrate data, in order to retire our legacy mainframe system.
LRS Lessons Learned

} Scope, Scope, Scope

} Insist on testing data & functionality at each phase of the project
Shared Centerlines Lessons learned

- Working with multiple agencies and jurisdictions is challenging
  - Requires strong leadership
  - Organized approach

- Meeting everyone’s needs is difficult

- Focus on priorities (Must haves vs nice to have)

- Current processes will need to change for all participants
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