



Northern Virginia Regional Routable Centerline Grant Project

By:

Michael Smith, City of Alexandria GIS

Brendan Ford, Fairfax County GIS



Project Goals

- Improve the model of the state road centerline file to support routing of emergency vehicles.
- Fulfill the original goal of the state RCL to support 911 operations.



Project Participants

- Alexandria City
- Arlington County
- Fairfax County
 - Falls Church
 - Fairfax City
- Loudoun County
- Prince William County
- VGIN
- Plangraphics
- Spatial Systems
- Timmons Group

Made possible by a grant from the Wireless E-911 Services Board



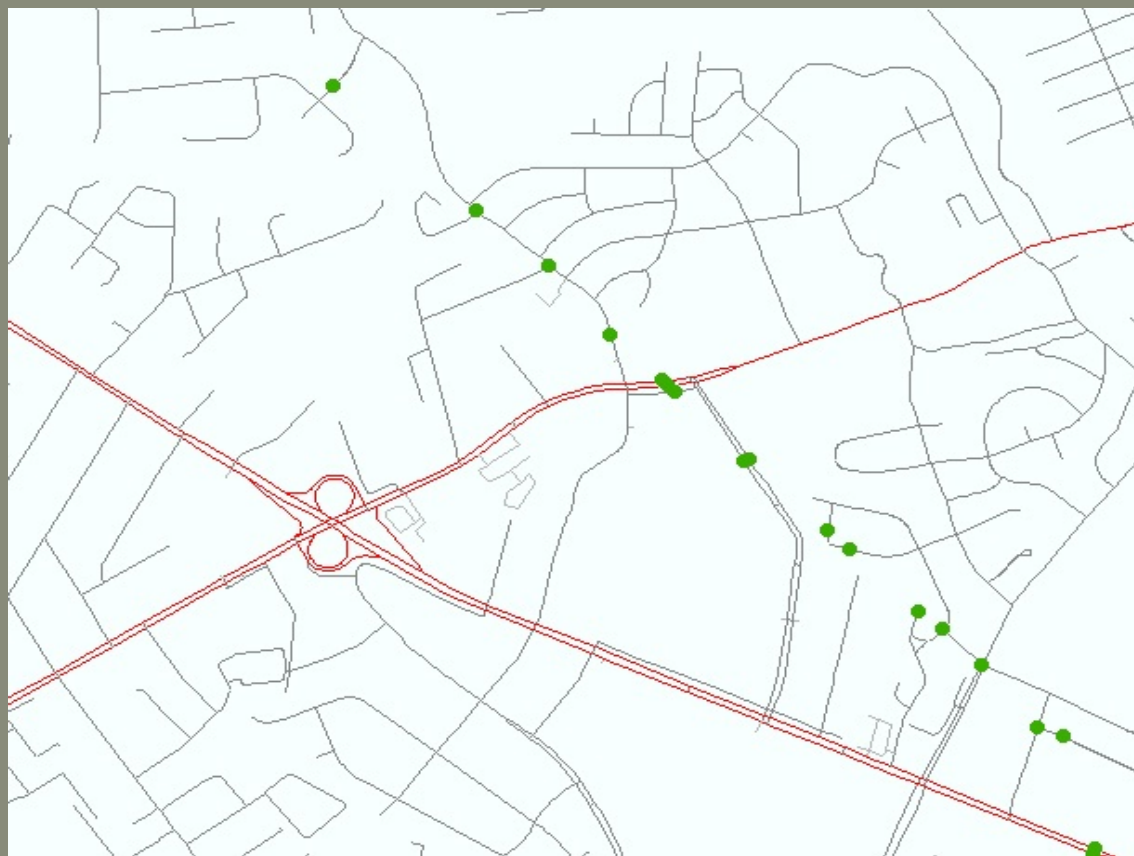
Project Standards

- Boundary Features
- Road Classification Standards
 - Adoption of MTFCC
 - Supplemental Segment Types
- Directionality Standards
- Address Range Standards



Project Standards

- Boundary XY Points





Project Standards

● Elevated Crossings





Project Standards

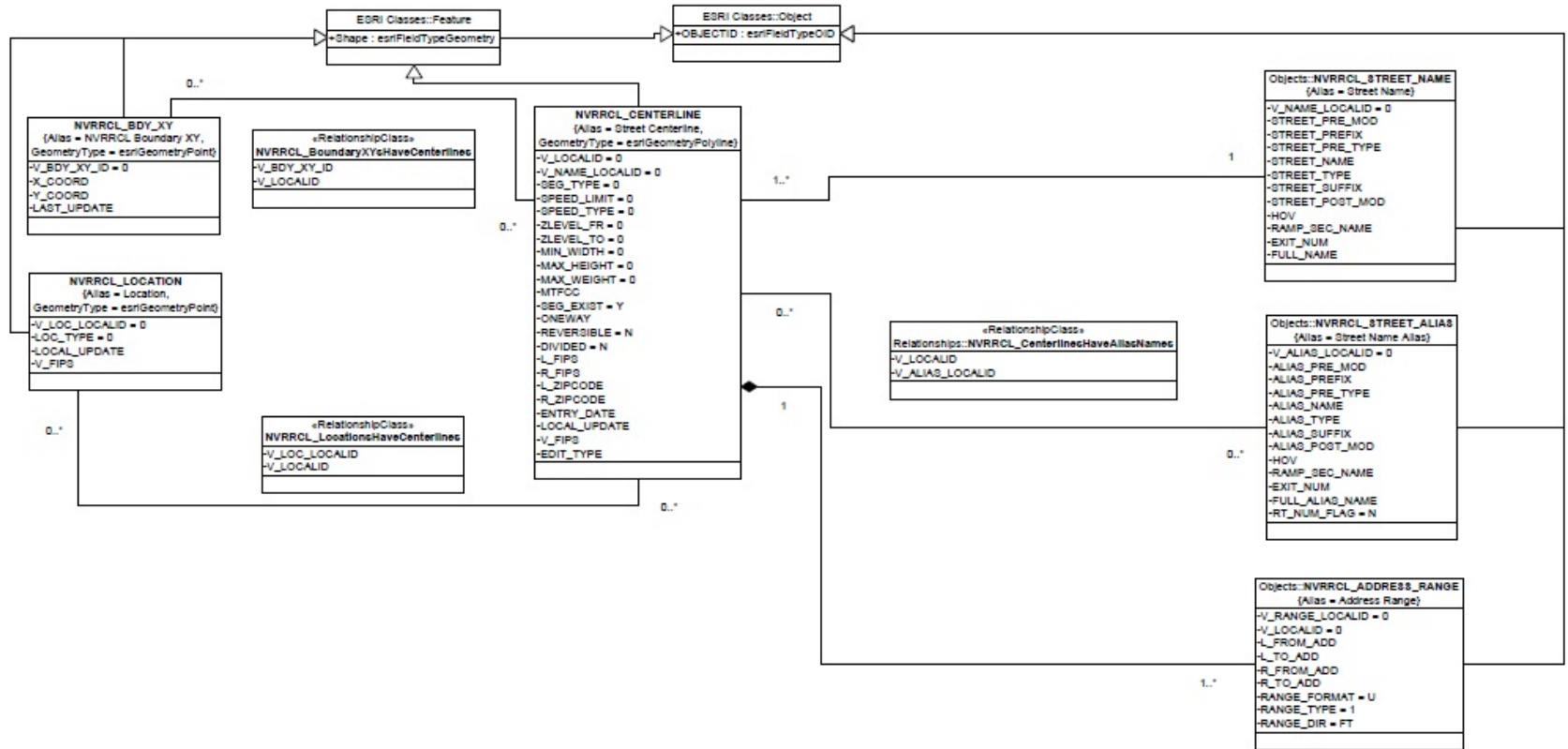
● Elevated Crossings





Database Design Results

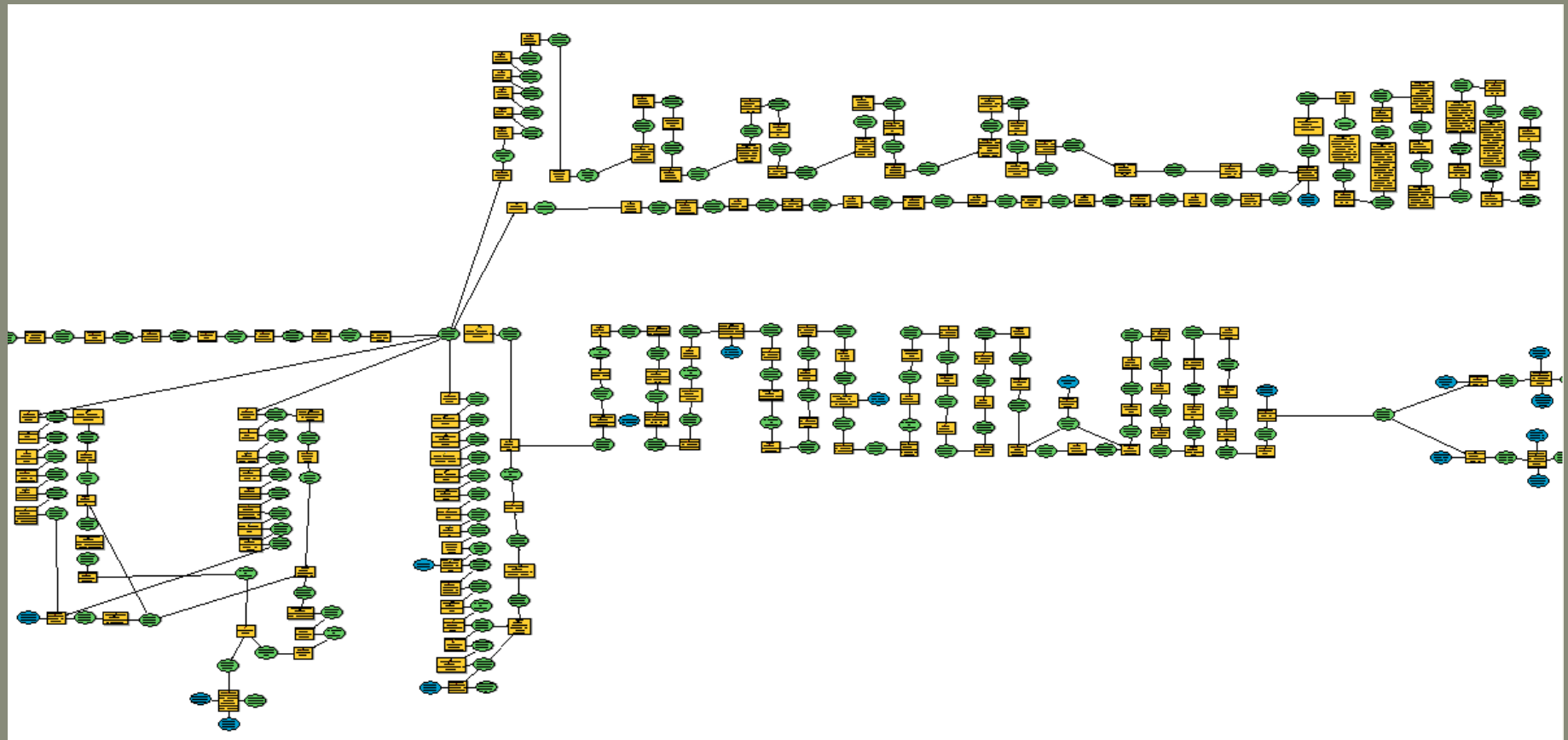
APPENDIX A UML DIAGRAM





Data Conversion

Local Data to NVRRL Data Model





Error Reporting

- Ability to report errors is a critical resource to maintain conformity and integrity.

The screenshot displays the NVRRCCL Error Reporting web application. The interface includes a map of the Twin Lakes area with three red circular markers indicating reported errors. A dark overlay window titled "NVRRCCL Error Reporter Tools" is open, containing the following elements:

- Tools:** "Draw the location of the error using the point or polygon tool below" with options for "Error Polygons" (red square) and "Centerline Error Points" (red circle).
- Form Fields:**
 - "Your Email Address" with an input field.
 - "Error Type" with a dropdown menu showing "Attribute Error" and "Geometry Error".
 - "Describe the error in 255 characters or less" with a text area.
- Buttons:** "Submit" and "Clear" buttons at the bottom of the form.

The background map shows "Twin Lakes Golf Course" and "North Twin Lake", "South Twin Lake". Other visible roads include "Wood Rd", "Green Trails", "Skyline", "Pulsiferes Dr", "Clifton Rd", "Twin Lakes Dr", "Johnny Moore Ln", "Loth Lorian Dr", "Outlet", "Laurel Glen Rd", "Springdale Estates Rd", "Ennecroft St", "Johnny", "Bay Valley Ln", "Compton Ct", "The Rocky Run", "Cotton Mill Rd", "Sandstone Way", "Dovye Rd", and "Popo".



Project Challenges

- Snapping at X,Y boundary points
- Translation between state and regional model.
- Overpasses – consensus on overpass geometry.
- A lot of compromises.
- Maintain flexibility along with standards.
- Changing CAD systems.
- Duration of the project – created challenges.
Originally 1 year, now 3.



Project Timeline

- Project kickoff: June 2009
- Data model requirement & development: July 2009 – March 2010
- Data Conversion / QC: July 2010 – December 2010
- Error Reporting: May 2011 – January 2011
- Data Maintenance Tools: July 2011 – April 2012
- Remaining Phases: Now – July 2012
 - Develop Best Practice Guide
 - Software / Hardware Acquisition
 - Publication / Dissemination of results



Hardware/Software

- Data Reviewer
- Data Interoperability Kit
- ArcGIS Desktop 9.3 & 10.0 / Model Builder
- ArcGIS Server 10.0
- Flex API
- Amazon Cloud Development Environment



Collaboration

- 5 jurisdictions - 5 CAD systems - 1 model
 - Statements of Work
 - Vendor Selection
 - Time Commitments
 - Improved Communication / Relationships
 - Periodic In-Person Meetings
-
- Nothing facilitates collaboration like being forced to talk to each other every week for 2+ years!



Future

- Keep the group going. Monthly – bi-monthly meetings.
- Naming standards – interstates, ramps, etc.
- Continue to improve the model.
- Boundary X,Y locations.
- Update tools, etc to 10.1.
- Expansion to other localities.
- Dynamic information such as road closures.
- Best practices guide, web site, documentation, etc.



Lessons Learned

- Better tracking of decisions.
- Formal acceptance criteria for deliverables.
- Anticipate delays and plan ahead.
- There is a difference between adopting a standard and applying a standard.
- Data models usually change once you start using them.



Northern Virginia Regional Routable Centerline Project

– **Error Reporting Web App. Demo.**