



*Virginia Information Technologies Agency*

# Virginia Road Centerline Data Standard

---





# Agenda

**TOC Review**  
**Data Quality / Topology**  
**Edge Matching**  
**Metadata**



# Draft Overview Table of Contents

## 1) Publishing and Developing Road Centerlines

- a) Road Centerline Publication Format
- b) Road Centerline Schema
- c) Road Centerline Attributes

## 2) Road Centerline Geometry Standardization

- a) Geometry Representation
- b) Digitizing Centerlines



# Draft Overview Table of Contents

## **3) Road Centerline Field Standardization**

- a) Addressing Standards For Road Centerline
- b) Road Name Standards for Road Centerline
- c) Roadway Characteristics from VDOT and Localities

## **4) Road Centerline Data Quality (topology)**

- a) Attribute data rules using field standardization
- b) Geometry data rules using geometry standardization
- c) Edge Matching Road Centerlines Across the Commonwealth

## **6) Metadata**



## RCL Data Quality

- VGIN Road Centerline Data Inconsistency Checks
- Validate NENA and USPS standards
- Enforce data entry processes
- Using GIS checks as starting point from VITA GIS/MSAG/ALI analyses
- Checks will need flags for areas that are not inconsistencies



# RCL Data Quality

## Attribute Checks

- RCL ID must be unique and persistent
- RCL must not have duplicate address ranges (zeros exempt)
- RCL address ranges must not begin or end with zero (zeros exempt)
- RCL must not have from left value greater than to left value
- RCL must not have from right value greater than to right
- RCL must not have left side overlapping address range
- RCL must not have right side overlapping address range
- RCL must not have odd/even left side parity
- RCL must not have odd/even right side parity
- RCL addresses must reflect right and left side ranges based on address points
- Attributes must be consistent with domains

# RCL Data Quality



Unique ID

Segment A	
LOCAL_ID	1951

Segment B	
LOCAL_ID	1951

Overlap Right

Segment A	
LEFT_FROM_ADDRESS	1
LEFT_TO_ADDRESS	99
RIGHT_FROM_ADDRESS	2
RIGHT_TO_ADDRESS	1098

Segment B	
LEFT_FROM_ADDRESS	101
LEFT_TO_ADDRESS	199
RIGHT_FROM_ADDRESS	100
RIGHT_TO_ADDRESS	198

Parity Left

Segment A	
LEFT_FROM_ADDRESS	2
LEFT_TO_ADDRESS	17
RIGHT_FROM_ADDRESS	2
RIGHT_TO_ADDRESS	16

Segment B	
LEFT_FROM_ADDRESS	101
LEFT_TO_ADDRESS	134
RIGHT_FROM_ADDRESS	100
RIGHT_TO_ADDRESS	108

Side Left & Right

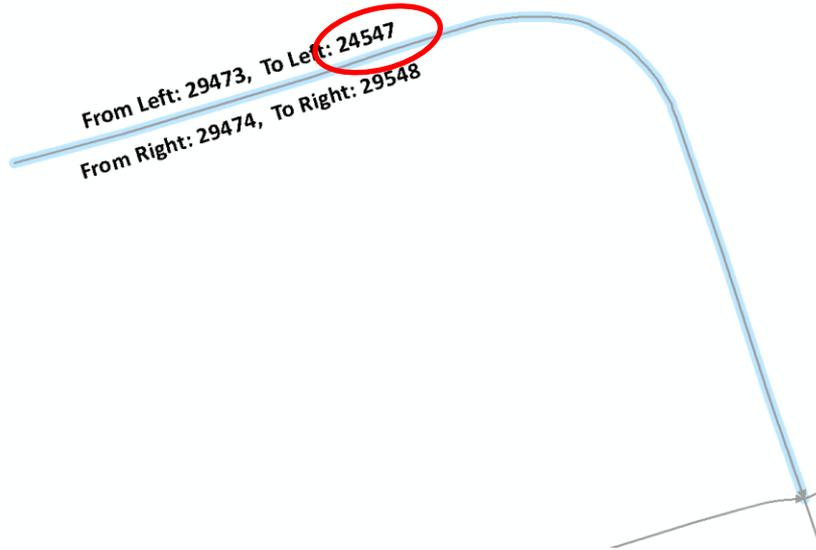
Segment A	
LEFT_FROM_ADDRESS	2
LEFT_TO_ADDRESS	16
RIGHT_FROM_ADDRESS	1
RIGHT_TO_ADDRESS	17

Segment B	
LEFT_FROM_ADDRESS	100
LEFT_TO_ADDRESS	108
RIGHT_FROM_ADDRESS	101
RIGHT_TO_ADDRESS	108

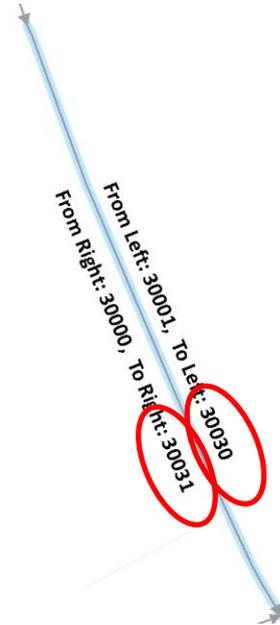
# RCL Data Quality

## RCL Address Range Inconsistencies

From Left greater than To Left



Odd/Even Parity





# RCL Data Quality

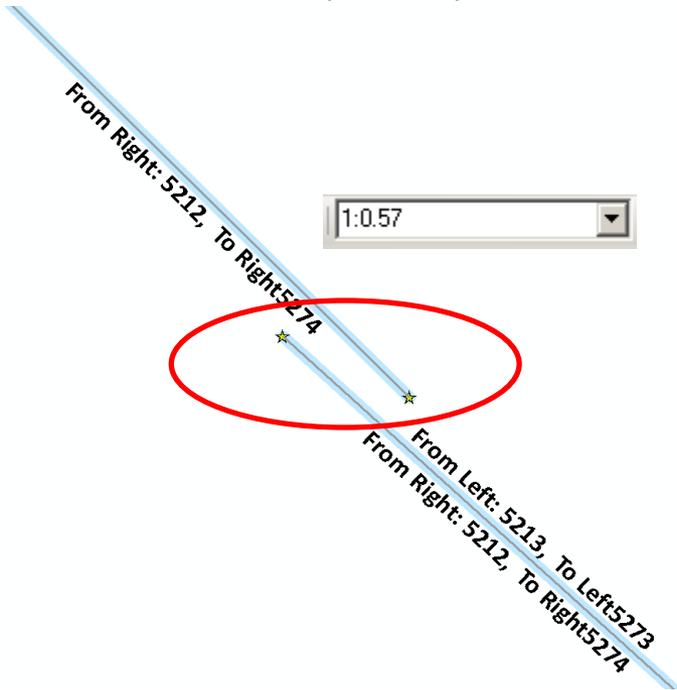
## Geometry Checks

- RCL must not have invalid geometry
- RCL must not have multipart features
- RCL must not have duplicate geometry
- RCL must be segmented and snapped at grade level road intersections
- RCL must not have dangles within 30 feet of another centerline
- RCL must connect to other centerlines in a network
- RCL arc directionality must travel from low to high address ranges based on points and network connection

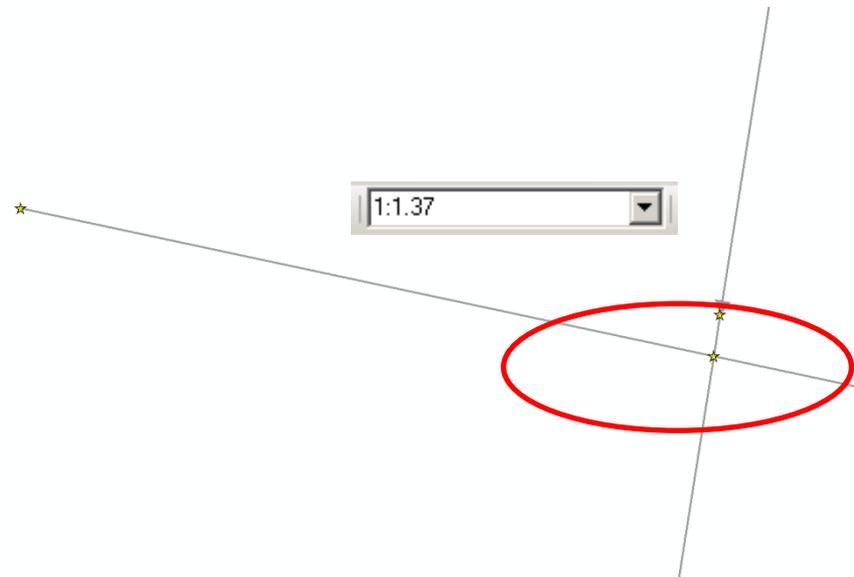
# RCL Data Quality

## RCL Geometry Inconsistencies

RCL Data Gaps / Multipart Features

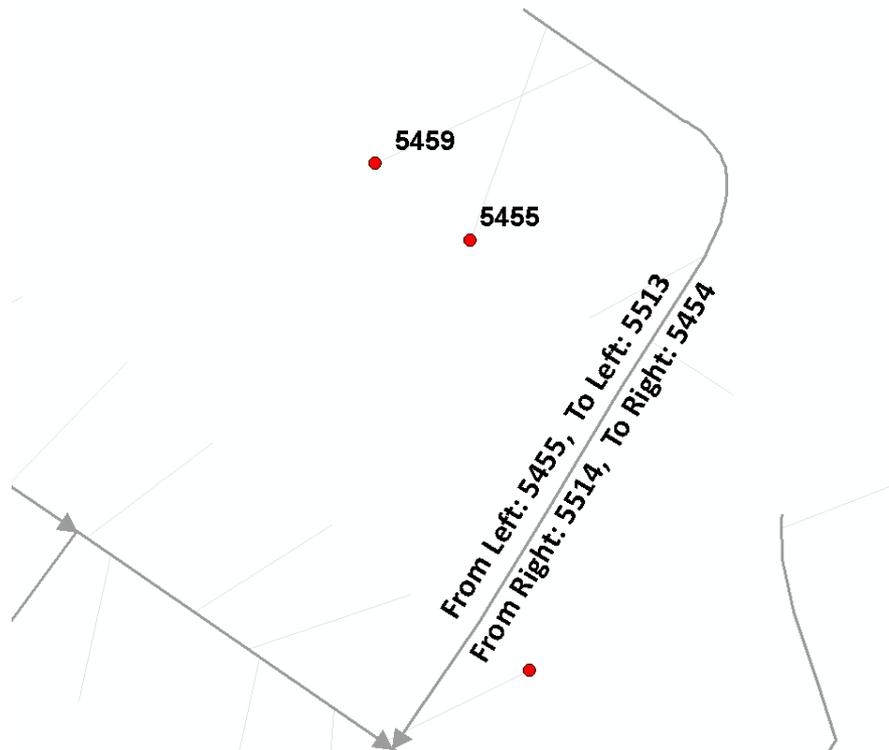


RCL Data Overlaps / Not segmented at intersections



# RCL Data Quality

Arc Directionality





## Edge Matching

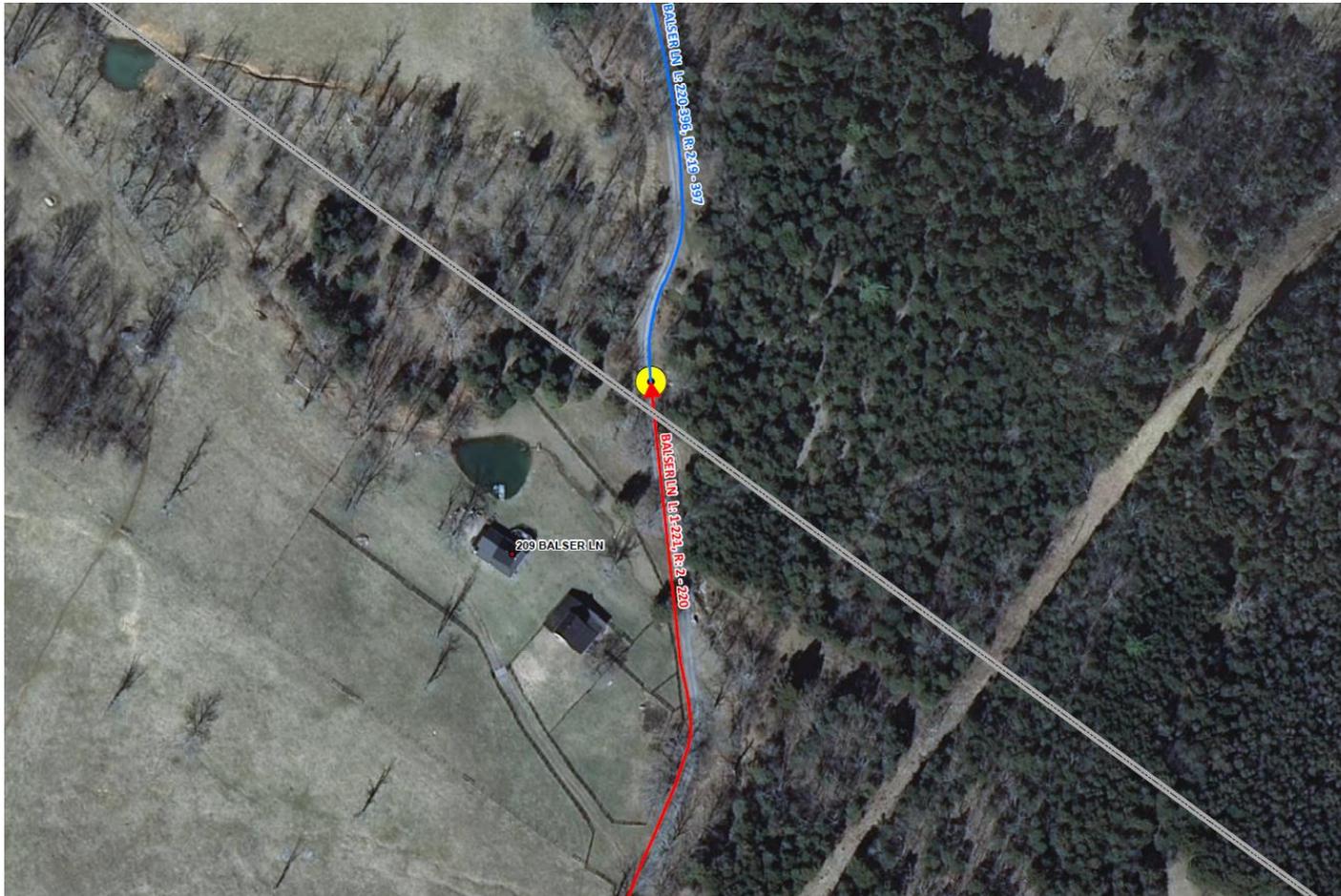
- Complete statewide Snap To point layer
- Work with localities on snap to point maintenance or adopt VGIN snap to point location
- Work with adjacent states in new and existing projects
- Update address range and street names along edges so data is seamless
- VGIN has and will make corrections to VBMP RCL geometry and ranges
  - Will code VGIN as source with hopes to adopt local RCL geometry, ranges, and snap to point
- Populating data model snap to point feature class attributes are conditional while geometry is necessary

# Edge Matching



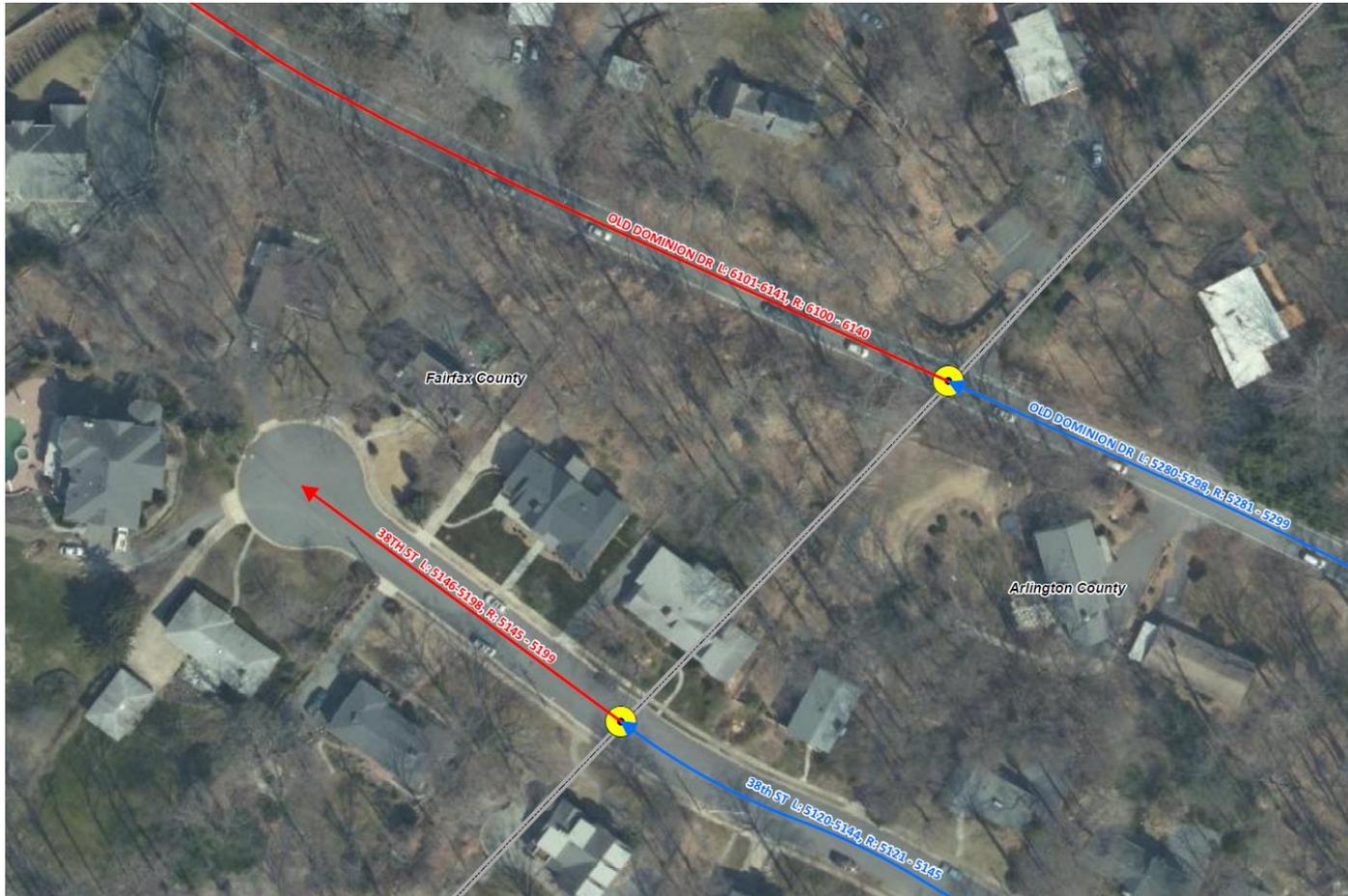
Example:  
Raw Local  
RCL

# Edge Matching



Example:  
VGIN RCL  
to snap point

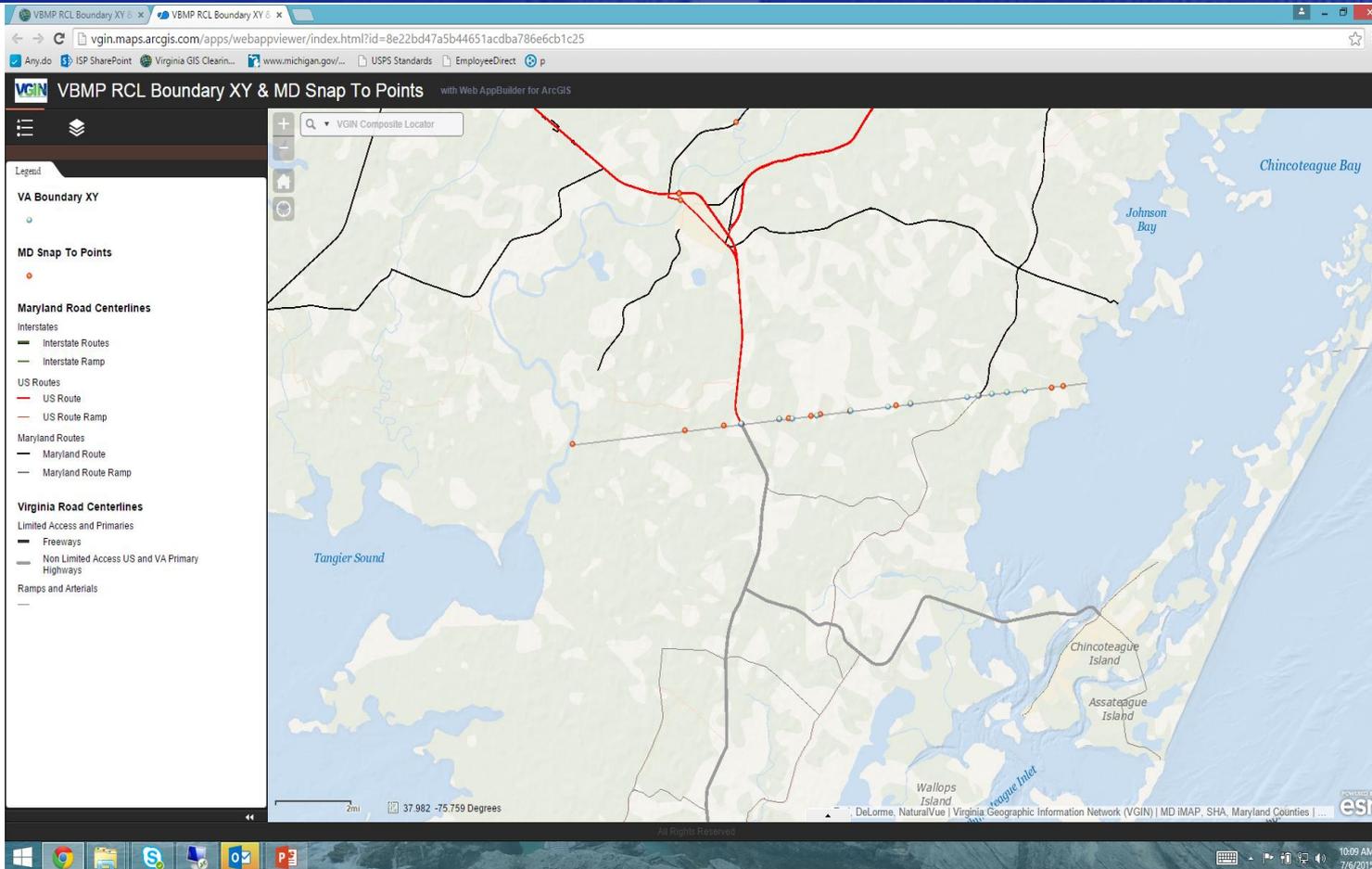
# Edge Matching



Example:  
Raw Local  
RCL in  
NOVA  
Region

# Edge Matching

Example:  
State to  
State





## Metadata

- Continue promoting metadata use in geospatial data sets including RCL
- Use FGDC standard
- Include as much attribute detail as possible



## Conclusion

### Resources:

- Draft document will go out to listserv / workgroup next week
- Please review and feedback

Final Comments? Questions?

Next workgroup:

- Discuss draft documentation
- VITA standard process