

# Regional Geodata Integration For HLS Applications On The Colorado Front Range

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DenverGIS Data Administrator**

**Tuesday, Jul 9, 10:15 - 11:45AM, SDCC, Room 30C**

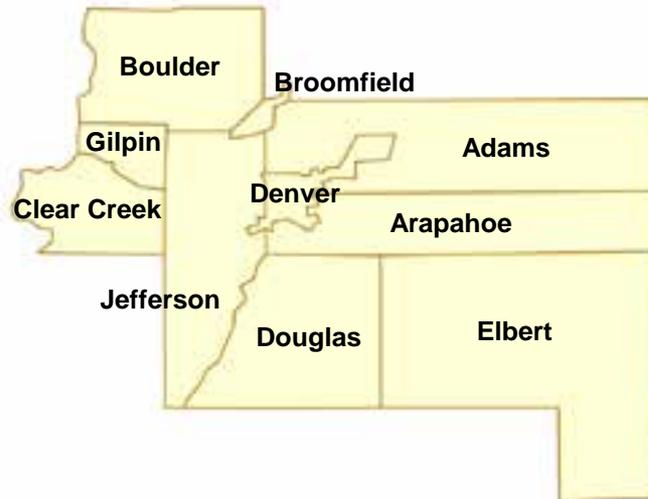
# *Presentation Overview*

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- Overview of NCR GIS Data Repository
- The Centerline Agreement Points Project
- Next Steps
- Lessons Learned
- Questions/Discussion

# NCR GIS Data Repository Participants

- Colorado North Central All-Hazards Emergency Management Region
- 10 Denver metro-area counties
- Critigen is the project contractor
- ESRI and Safe Software



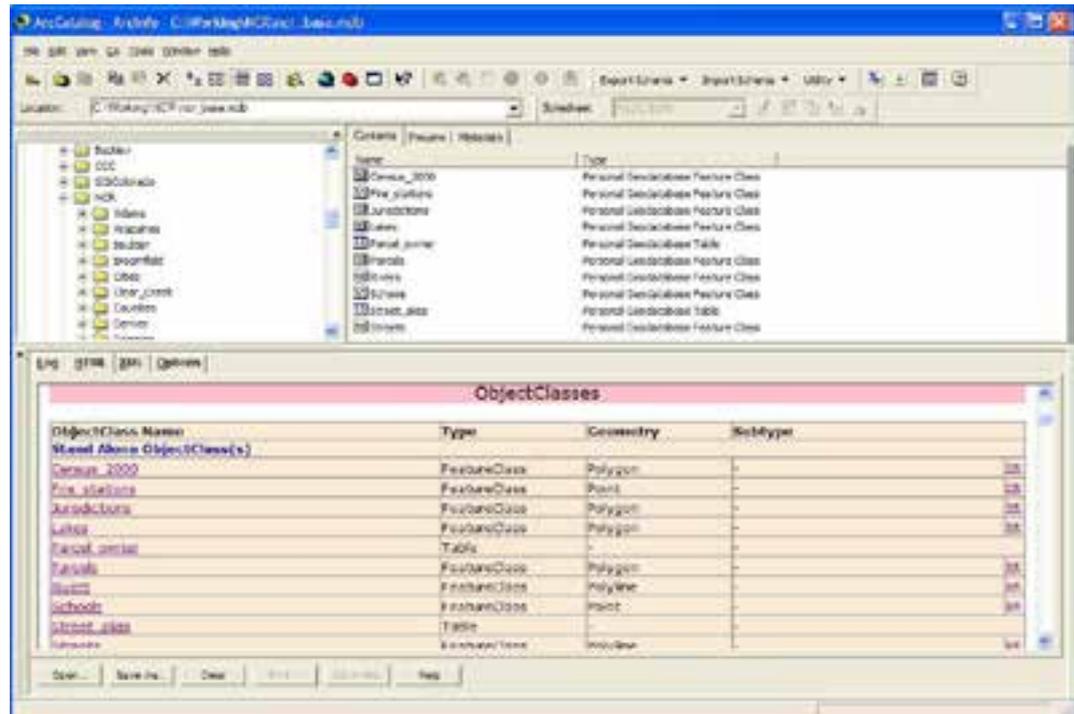
# *Purpose and Challenges*

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- Regional GIS data warehouse
- Intended for public safety and/or homeland security partner use
- Emergency management planning focus
- Need for continuous region-wide dataset
- Phase 1 had to overcome significant challenges, including:
  - Building a common data model – ten counties and eight initial data layers
  - Developing 21 ETL workspaces

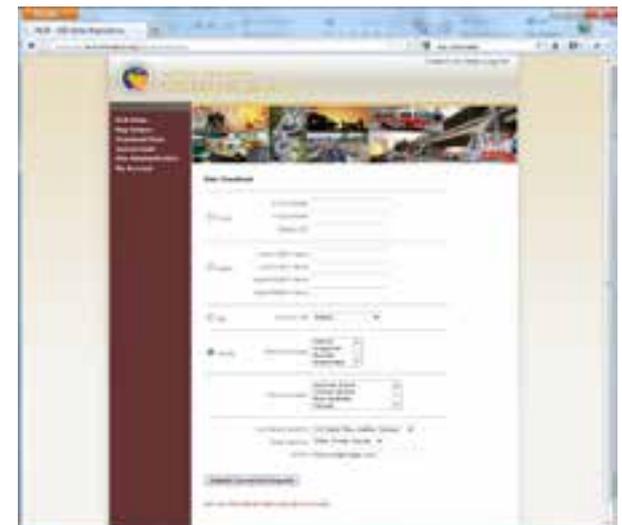
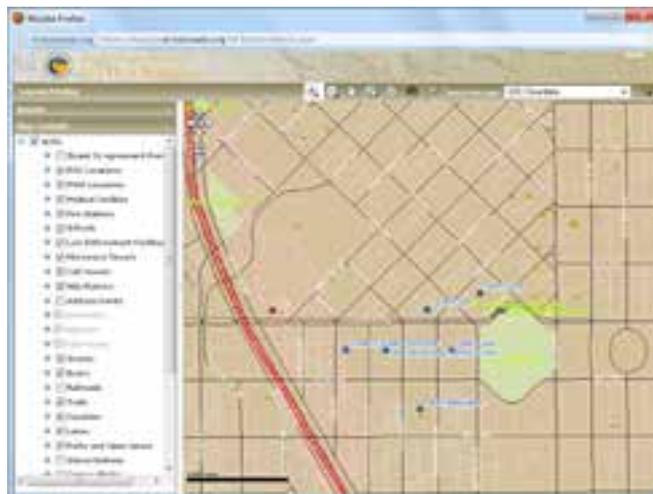
# NCR Phase I – Data Layers

- Eight base data layers plus one non-spatial class
  - Parcels, with ownership detail table (1:M)
  - Roads
  - Census Blocks
  - Municipalities
  - Lakes
  - Streams
  - Fire stations
  - Schools



# NCR Phase I - Portal

- Members can upload their data into a common schema
- Users with sufficient privileges can download data in their schema
- Data supports a AGS mapping interface



# *NCR GIS Data Repository Benefits*

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- Unique planning tool
- Continuous region-wide dataset
  - Data no longer ends at county boundary.
- Dialog between counties improves coordination
- Potentially serves as a model for inter-region and state-wide coordination



# ***NCR Phase II – Added 16 New Layers!***

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- **Railroads**
- **Address Points**
- **Trails**
- **Parks and Open Space**
- **Flood Zones**
- **Contour Data (Topography)**
- **State Highway Mile Markers**
- **Major Medical Facilities**
- **Aerial Photography**
- **Fire Response Districts**
- **School Districts**
- **Law Enforcement Facilities**
- **Police Response Districts**
- **Radio Towers**
- **EOC Locations**
- **Public Safety Answering Points**

# ***NCR Phase IV – 25 More Layers to be added***

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- **US National Grid**
- **(2) Siren locations and ‘Sound sheds**
- **Building Rooflines**
- **Mortuary and Crematorium locations**
- **Regional ESN layer**
- **Tier 2 Hazmat locations**
- **Oil and gas transmission lines**
- **Fire Hydrants**
- **(3) Bus Routes, Light Rail lines/Stations**
- **2010 Census Geography**
- **Locked gates/barriers**
- **Common Place names/CAD ‘sites’**
- **Helipads/Designated Landing Zones**
- **Urgent care clinics**
- **Public POD locations**
- **Nursing homes**
- **College campuses**
- **(2) Group homes (licensed facilities**
- **(3) Dams (NDI), Bridges (NBI/LBI) and RRX (GX-FRWA)**

# *NCR GIS Repository Data Access*

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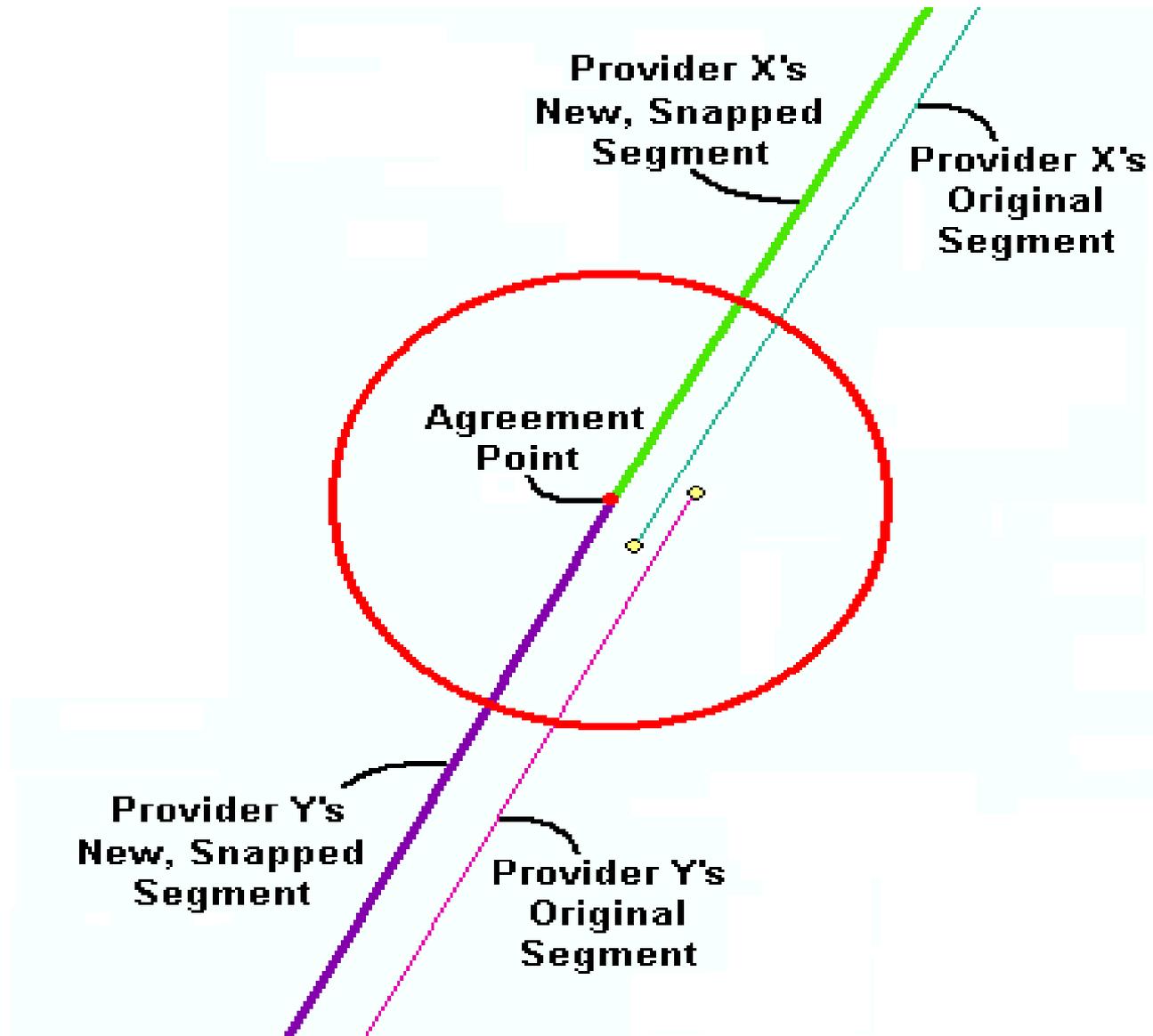
- 10 County Members
- 2 neighboring Counties that added their data layers.
- State of Colorado Agencies via the Office of IT.
- Urban Drainage and Flood Control District (UDFCD).
- Regional Transportation District (RTD).
- Denver Water.
- Denver Regional Council of Governments (DRCOG).
- City of Aurora. (CopLink Host site)

# *Overview of the “Agreement Points” Project*

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- The concept – from Washington State DOT
- Phase III NCR grant funded Phase A
- Regional Partners funded Phase B (Urban Drainage District and RTD)
- Future Efforts

# Implementation of Agreement Points



# Current Project Goals

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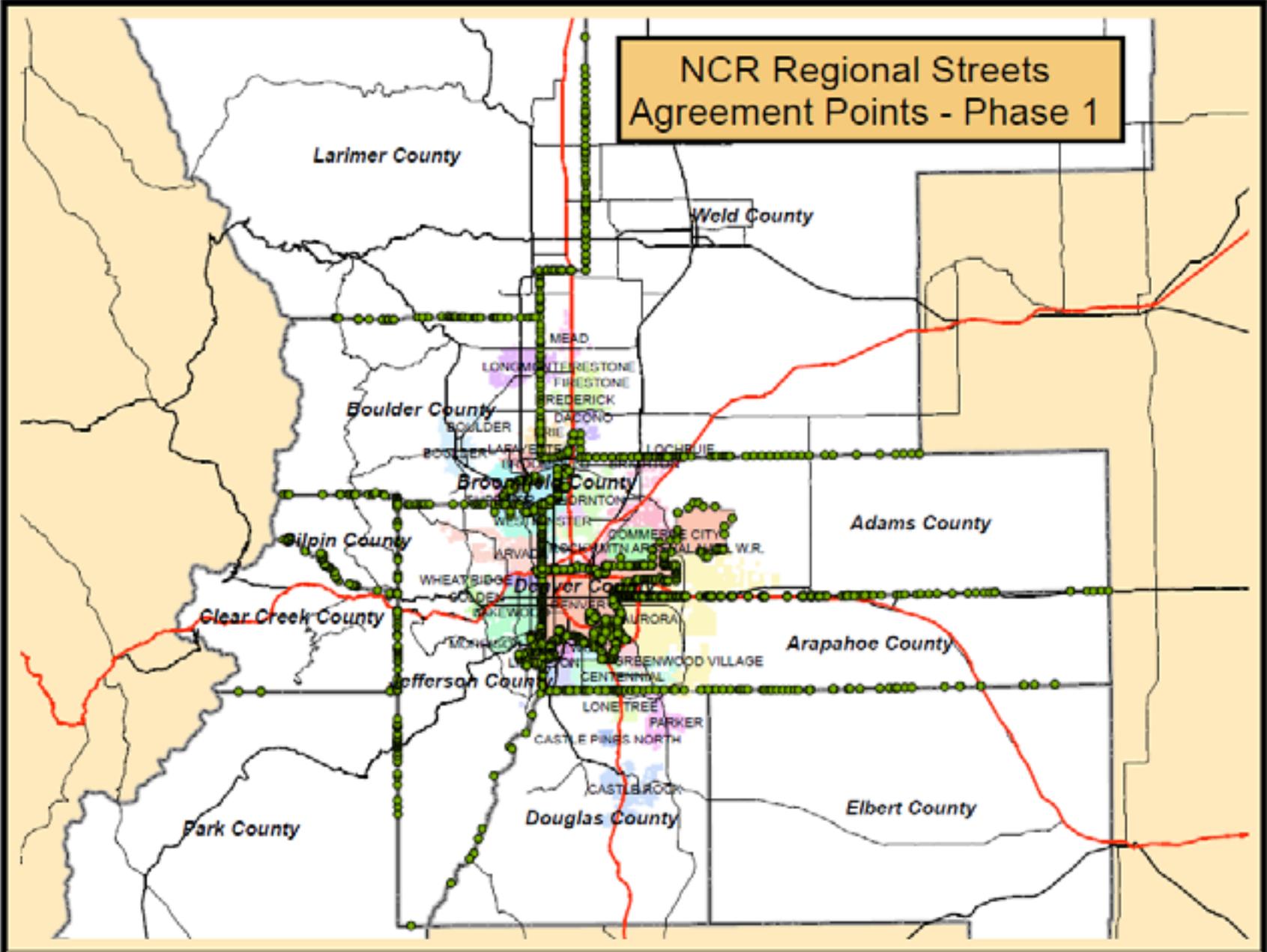
- Establish agreement points along all county and municipal boundaries in NCR area
- Quarterly updates by all participants
- Points are maintained and available on:
  - The NCR GIS Repository (restricted access)
  - The DRCOG Regional Data Catalog (open access)
- **All** jurisdictions maintaining centerline layers participate and honor the agreement points
- Establish topological integrity for local street layers along all jurisdictional boundaries

# Agreement Points Project A

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- Project Phase A is complete:
  - N = **2351** points covering **750** County Border miles.
  - All NCR Counties' street layers will be snapped and uploaded to NCR Repository by September.
- 13 Counties collaborated:
  - 10 NCR, Weld, Larimer & Park
- 11 Cities as well:
  - Arvada, Aurora, Centennial, Commerce City
  - Englewood, Greenwood Village, Lakewood
  - Longmont, Thornton, Westminster, Wheat Ridge

# NCR Regional Streets Agreement Points - Phase 1

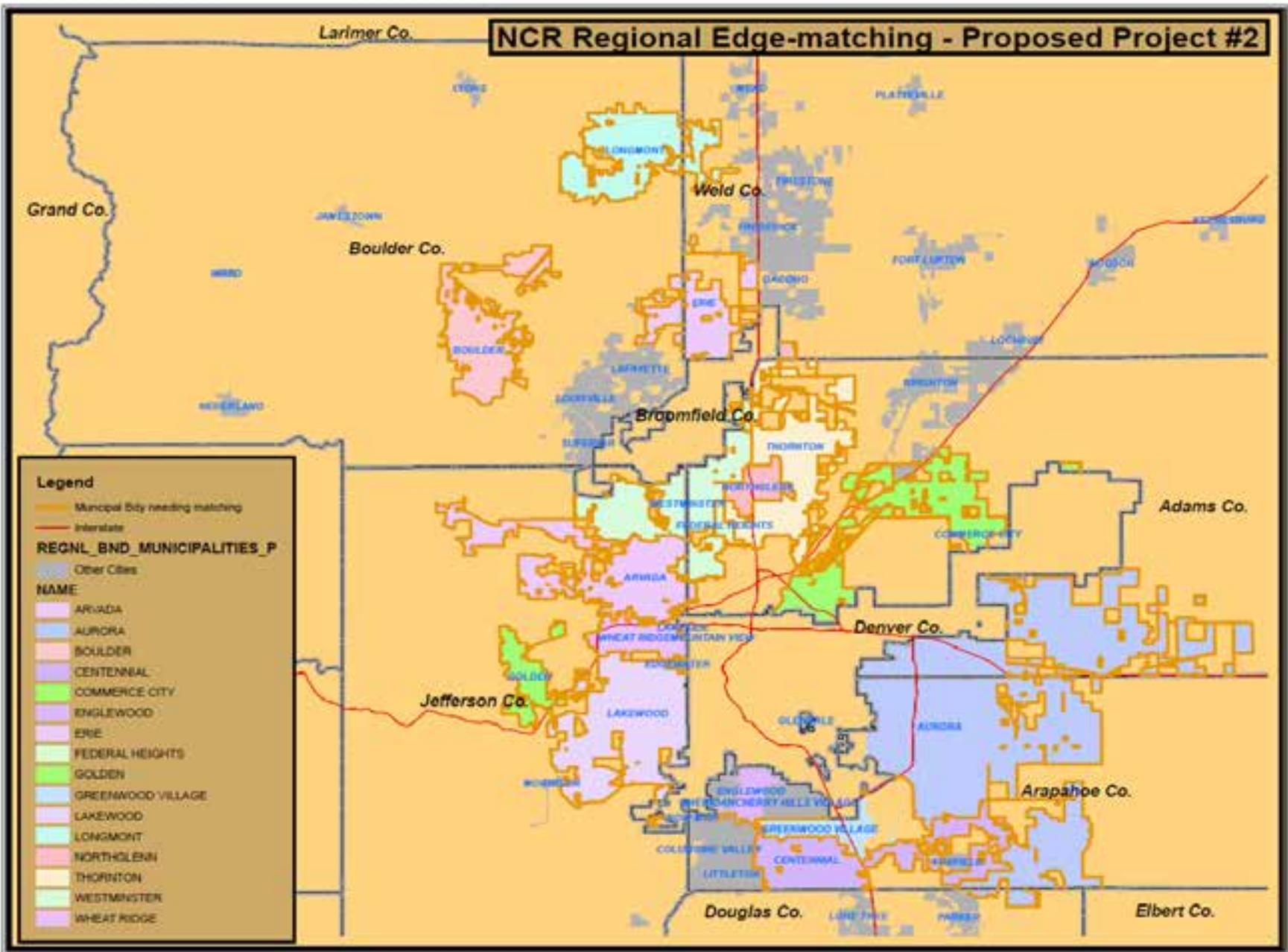


# Agreement Points Project B

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- Project Phase B has started:
  - 16 Groupings have been organized.
  - Anticipating ~**4500** points covering **900** Border miles
  - Covers City/City and City/Unincorporated boundaries.
  - Expected to be complete by late Fall.
- 5 Counties Collaborating:
  - Adams, Arapahoe, Boulder, Douglas and Weld
- 14 Cities as well:
  - Arvada, Aurora, Boulder, Centennial,
  - Commerce City, Englewood, Erie, Federal Heights
  - Greenwood Village, Longmont, Northglenn, Thornton
  - Westminster, Wheat Ridge

# NCR Regional Edge-matching - Proposed Project #2



# What's Next on the Geometry Front?

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- When Phase B is complete, we will have the geometric basis for a seamless, routable, regional street layer.
  - (Assuming all participants snap to agreement points.)
- The integration infrastructure for county-wide data for the Metro area is in place @ [gis.ncrcolorado.org](http://gis.ncrcolorado.org)
- The next challenge is to develop a process to include city-maintained data:
  - City->County->NCR?
  - City->NCR?
  - Role of DRCOG Regional Data Catalog?
  - Other?

# Attribute Content And Integration

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- Attributes in the original NCR Centerline data model:
  - Left/Right, From/To Address, Zip Code
  - FULL\_NAME and Parts, Alias, CFCC, FuncClass
  - From/To Z\_Elev, Speed\_Lim, Left/Right Juris
- Attributes that were added this year:
  - HwyShield, HwyNum
  - ProviderID, Owner, Left/Right ESN
  - Max Weight, Height and Width
  - Dual\_CW, Divided, Median, Surf\_Type
  - LRSSRoute, From\_Meas, To\_Meas
  - Left/Right City & Left/Right County will replace Left/Right Juris
- Of course, adding an attribute column and getting it populated are two separate tasks...
- Focus among NCR Counties will be getting current and new attributes populated and uploaded
- Long range goal: develop a common data model for streets and implement at city and county level

# Lessons Learned

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- Building collaborative partnerships takes focus and sustained commitment
- Technical issues can be fixed with technical solutions. Political issues are not so simple...
- Confidence-building measures are the foundation for future success
  - Start small, succeed, and then take on larger challenges.
- Collaboration on data can lead to closer working relationships in other areas
- Select contractors carefully. We could not have accomplished what we did without ours.

# Questions/Discussion