

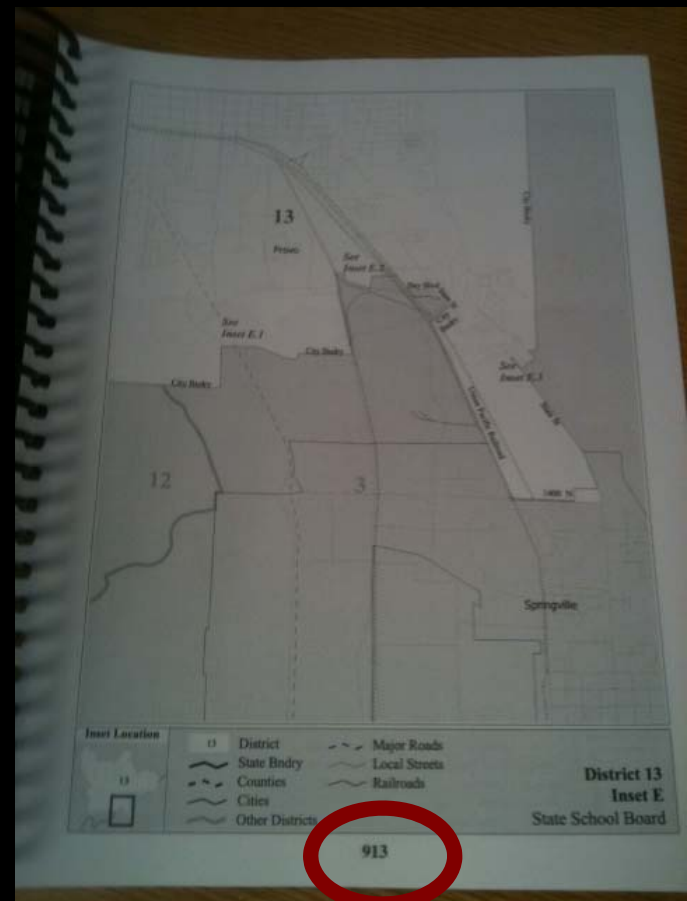
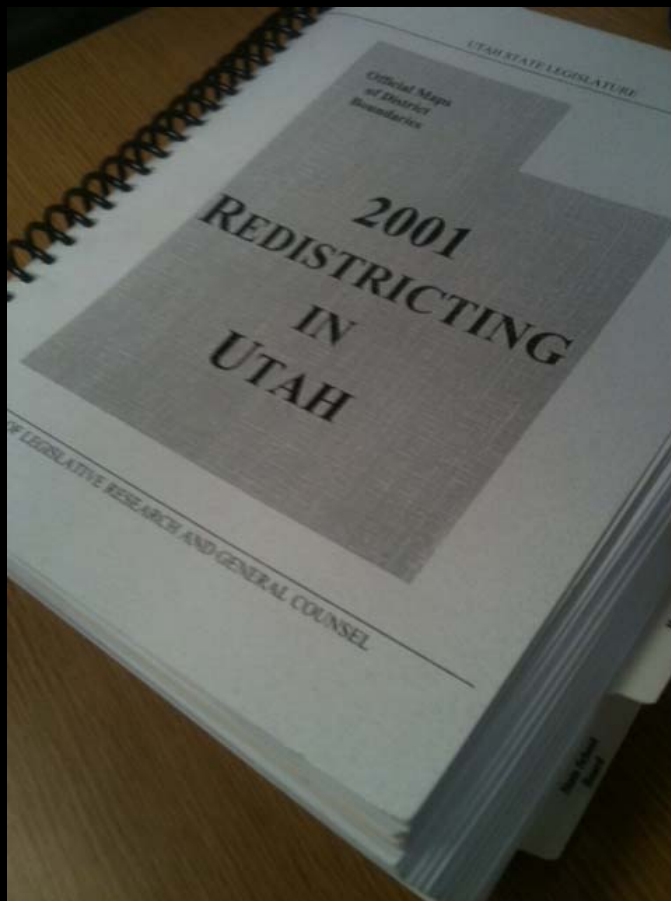
# Elections-Related GIS: design-build exercises in Utah

Bert Granberg

Utah AGRC

April 18, 2012

# Utah's 2001 Redistricting Product



# Precinct Assignment, Pre-GIS

Precinct Segments for - E 1050 N \*\*\* TEST DATA \*\*\*

Print Plot Street

Prec	Min	Max	Side	Res	Voters
B005:I-S-	100	804	E	31	49
B005:I-S-	101	373	O	18	37
B003:I-S-	443	885	O	18	37
B004:I-S-	826	960	E	6	12
B004:I-S-	915	1007	O	8	20

Without Defining Segment      0      0

100      1007

Even

Odd

Buttons: Add Segment, Delete Segment, Undo Changes, Cancel, View Stats & Save

# Catalysts

## Utah County Republican Rep. Craig Frank out; finds out he didn't live in House district after all

By [Lisa Riley Roche](#), Deseret News

[Print](#) | [Font \[+\]\[-\]](#) | [2 Comments](#)

Published: Monday, Jan. 10 2011 6:00 p.m. MST

[Recommend](#)

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[URL](#)



Rep. Craig Frank, R-Cedar Hills (left)

Scott G. Winterton, Deseret News

[Enlarge photo](#)

### Related

[Richardson resigns Utah House seat](#)

Jan. 6, 2012

[Barney Frank announces retirement](#)

Nov. 28, 2011

['Friction' over new voting precincts](#)

Nov. 7, 2011

[SD lawmakers approve new 35 voting...](#)

Oct. 24, 2011

SALT LAKE CITY — Former Rep. Craig Frank, R-Cedar Hills, said he found out Friday he didn't legally represent District 57 when he was fooling around on a new House website.

Frank said he clicked on a feature that allows users to find out who their state lawmaker is by typing in their address. "I clicked on that for fun, to look for myself," he said. "To my surprise, my picture didn't come up."

Instead, he discovered that he and his family actually had moved out of District 57 two years ago, making him ineligible to serve and leaving residents of the Cedar Hills area without a representative.

Utah State Senate | Redistrict x  
www.redistrictutah.com/category/maps/senate-maps

2011 Redistricting Committee | Historic 2001 Information | Utah Legislative Sites

## Redistrict Utah

Online Home of Utah's 2011 Redistricting Effort

Basics | Bills: Passed Maps | Bills: Special Session Maps | Maps | Meetings | Perspective | Your Map

Posts from the 'Utah State Senate' Category

Subscribe

**Senate: SB3001, Final Utah State Senate Boundaries Designation, by Sen. Okerlund**

Deviation from Ideal Population:  
Largest District: 0.00% (3 persons)  
Smallest District: 0.00% (3 persons)

Enrolled SB3001, sponsored by Senator Ralph Okerlund.

[Read more](#)

**Senate: r wren "Senate 27 and 16 realignment"**

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- Redistricting Technical Changes
- Lieutenant Governor Greg Bell: 2012 Political District Maps
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- Congress: Leonard S. Platzier "Fair 4 Utah Compromise"

# Utah's 2011 Redistricting Initial Product

Redistricting Block Assignment - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Redistricting Block Assignment

le.utah.gov/servlet/BlockAssignment?ses=2011S3&bno=SE

UTAH STATE LEGISLATURE Home | Site Map | Calendar | Code/Constitution | House | Senate | Search

## Block Assignment File for S.B. 3002 19th Substitute Congressional Boundaries Designation

A block assignment file is an electronic text file that identifies and assigns each of Utah's 115,406 census blocks to a particular district.

A [census block](#) is any one of the 115,406 individual geographic areas into which the [United States Census Bureau](#) has divided the state of Utah, to each of which the Census Bureau has attached a discrete population tabulation from the 2010 decennial census.

### Block Assignment File

Official Text File: [download](#)

View as Map Boundaries using: [RedistrictUtah.com](#)

File Name: SB3002S19\_BlockAssignment.txt  
Security Code: d7ad4010744b340539a41b596a9b04d0

About the security code: The security code associated with the block assignment file is used to assist in confirming that the information in the file remains unchanged throughout the process.

Mozilla Firefox

http://le.utah.gov/...BlockAssignment.txt

```
490519604001196,3
490519604001223,3
490519604001200,3
490519604001287,3
490519604001195,3
490519604001227,3
490519604001219,3
490519604002087,3
490519604002049,3
490519601001015,3
490519604001137,3
490519604001203,3
490519604001207,3
490519604001201,3
490230102003052,4
490230102003111,4
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490230102002152,4
490230102002364,4
490230102002244,4
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490230102003022,4
490230101003031,4
490230101003030,4
490230101003026,4
490230101003041,4
490230101001047,4
```

# Adjust Block-Based District Boundaries

- Off of Residences

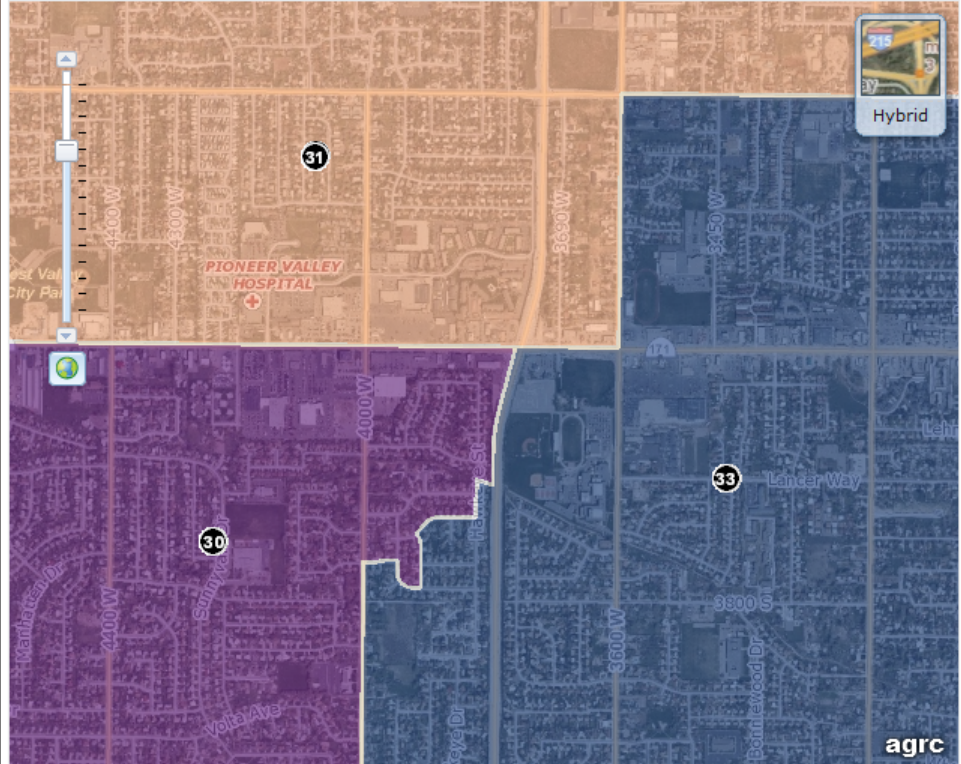


- To More Accurate County Boundaries





Elections » District Maps



Disclaimer: This map takes effect on January 1, 2012, for purposes of nominating and electing officials and on January 1, 2013, for all other purposes. [More info](#)

Click on the map to see the political districts for that location.

Print Current Map To PDF

Districts

Transparent Opaque

- US Congress [\(PDF Maps\)](#)
  - State Senate [\(PDF Maps\)](#)
  - State House [\(PDF Maps\)](#)
  - State Board of Education [\(PDF Maps\)](#)
- [PDF Maps by County](#)

Find Location

Address

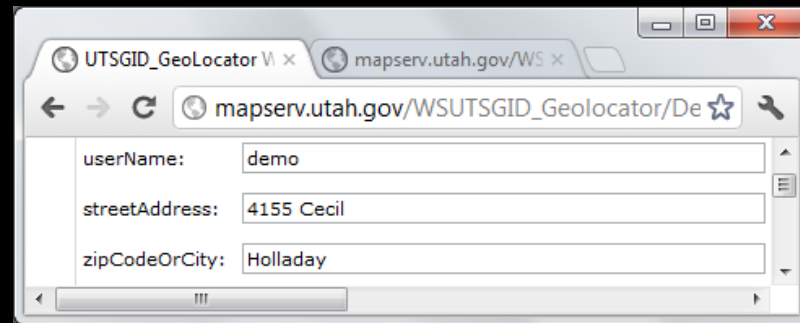
Zip or City

Find

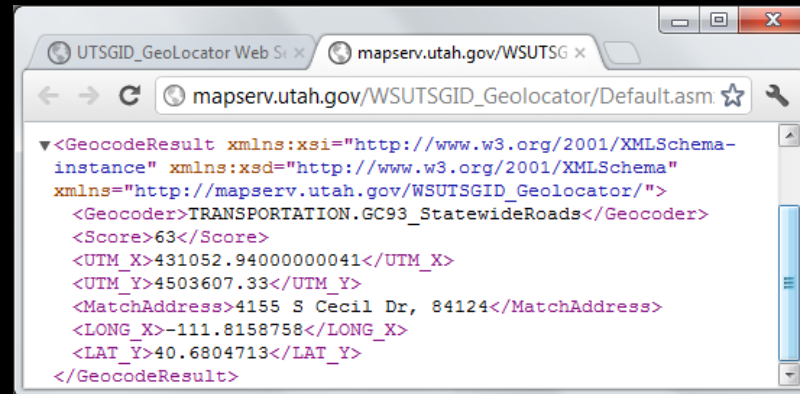
# Basic GIS Foundation

## Address Locator Web Services

- first point then centerline
- zip or placename



UTSGID\_GeoLocator V x mapserv.utah.gov/WS x  
mapserv.utah.gov/WSUTSGID\_Geolocator/De ☆  
userName: demo  
streetAddress: 4155 Cecil  
zipCodeOrCity: Holladay



UTSGID\_GeoLocator Web Si x mapserv.utah.gov/WSUTSG x  
mapserv.utah.gov/WSUTSGID\_Geolocator/Default.asm ☆  
▼<GeocodeResult xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://mapserv.utah.gov/WSUTSGID\_Geolocator/">  
<Geocoder>TRANSPORTATION.GC93\_StatewideRoads</Geocoder>  
<Score>63</Score>  
<UTM\_X>431052.94000000041</UTM\_X>  
<UTM\_Y>4503607.33</UTM\_Y>  
<MatchAddress>4155 S Cecil Dr, 84124</MatchAddress>  
<LONG\_X>-111.8158758</LONG\_X>  
<LAT\_Y>40.6804713</LAT\_Y>  
</GeocodeResult>

## Heads-Up Address QC & Editing

## Spatial Query Web Services

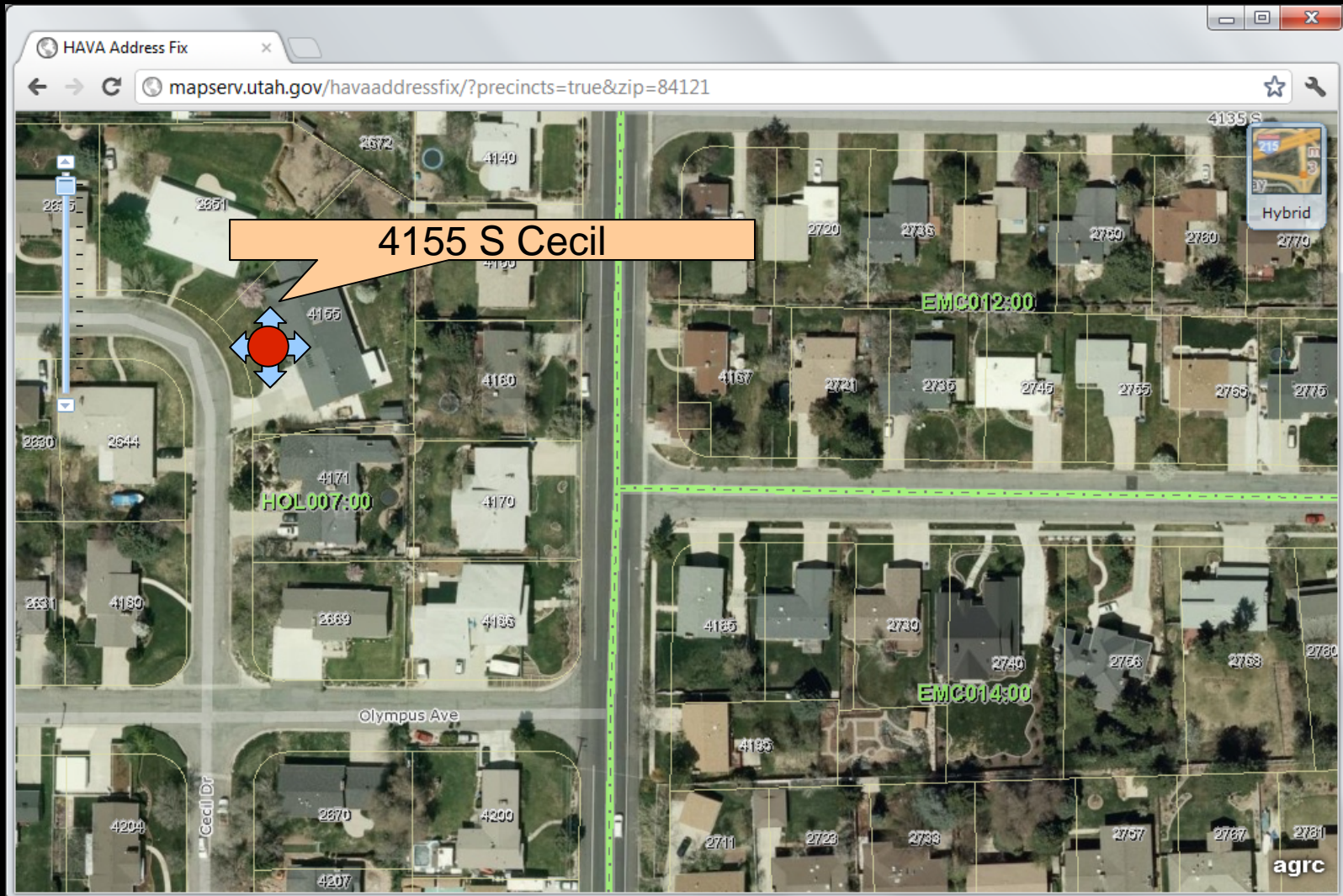
- Voter Residence to Precinct (Assignment)
- Precinct to District (QC)

## Interactive Maps for Public Information



# Embeddable Precinct Map

Clerks place/edit address points within VISTA app



# Precinct/SubPrecinct Data Model

In the Utah VISTA database, Precincts and Sub Precincts are tracked using a unique Identifier of up to 10 characters to represent a specific balloting unit (wherein all voters in a specified precinct receive the same ballot). Precincts are Identified using up to 6 characters; example: SJ001A or 007. Sub Precincts are Identified using a 6 character precinct Identifier, a "\*" character, and up to 3 characters for the Sub Precinct Identifier; example: SJ0003:SW2.

The Lt. Governor's office is requesting that counties provide Precinct - Sub Precinct plan boundaries (all precincts in their county and, where applicable, sub precincts) in a digital geographic file format so the boundaries can be represented on map displays to be built into VISTA and other voter information applications. While the standards speak to digital files, paper or other map-based products may be acceptable if they convey the information requested.

In order to simplify the integration of county-defined Precinct - Sub Precinct Areas into a statewide dataset, we ask that Precincts and Sub Precinct geographic boundary submissions meet the following requirements:

**Boundary Geometry:**

- **GIS Format Data Files:** All new Precinct - Sub Precinct Area data should be provided in a shapefile (please include the .shp, .shx, .dbf, .prj, and .xml component files) or file geodatabase format. An empty shapefile and filegeodatabase schema are available for download at:
  - [ftp://ftp.agrc.utah.gov/VISTA/Vista\\_GISBallotAreas\\_Empty.zip](ftp://ftp.agrc.utah.gov/VISTA/Vista_GISBallotAreas_Empty.zip).
- **Full, Seamless Coverage:** Ballot Area polygons should seamlessly cover the full geographic extent of the county. The following topological rules should hold valid: 1) must not overlap; and 2) must not have gaps.
- **One Record Per Unique Precinct - Sub Precinct Area:** Each VISTA Precinct or Sub Precinct will have one and only one geographic area record. Where two or more areas have the same VISTA Precinct or Sub Precinct Identification number, these should be merged into a single geographic feature and corresponding attribute record. No Precinct-level polygon should be submitted if that Precinct is subdivided into Sub Precincts.
- **Standard Coordinate System:** Ideally, all submissions will represent Precinct - Sub Precinct Areas using Universal Transverse Mercator coordinates (NAD83, Zone 12 North). However, boundaries stored in other industry standard coordinate systems will be accepted if they are both defined within the data file(s) and documented in the metadata (see below).

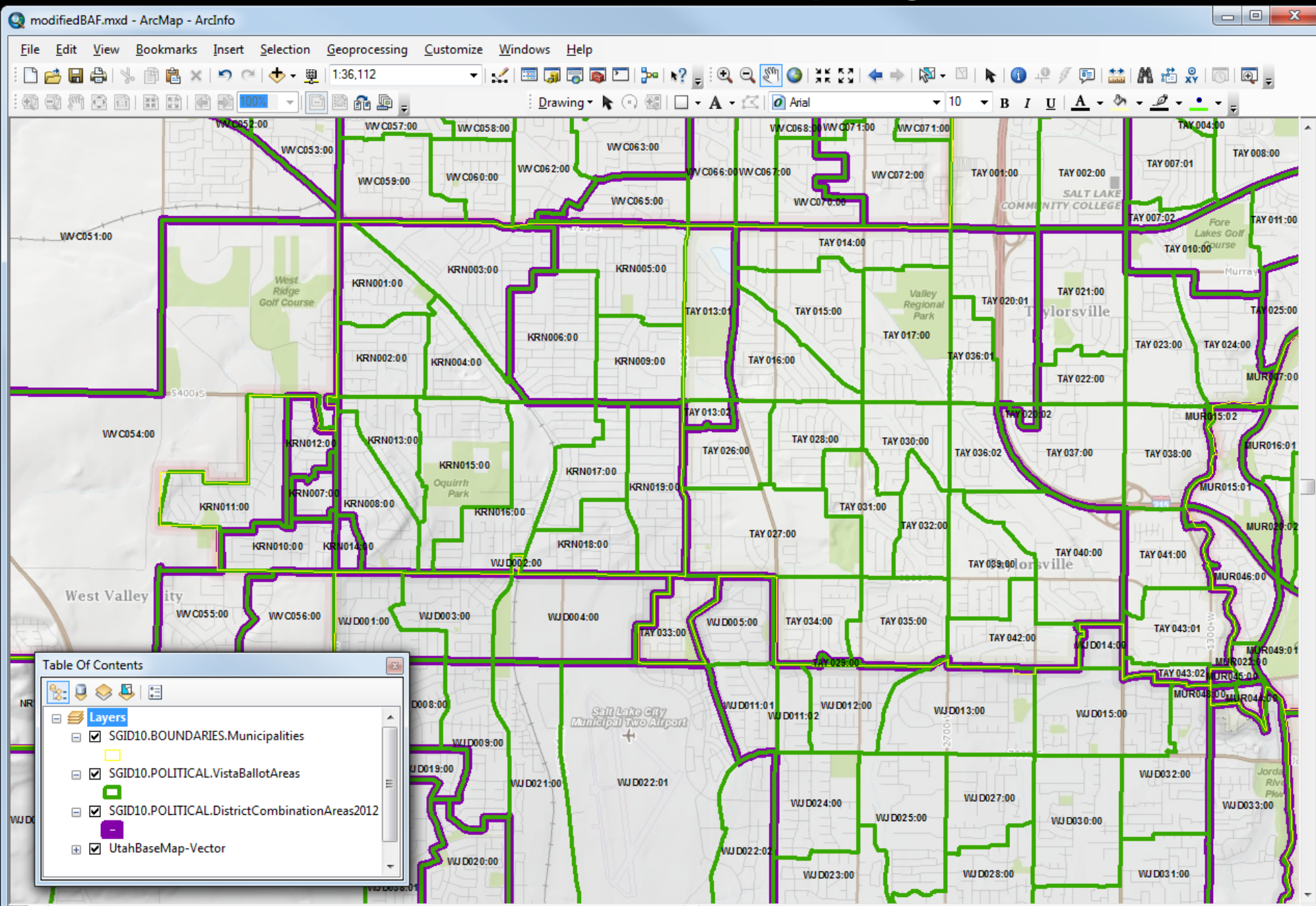
**Descriptive Attributes:**

- **Database Field/Column Definitions:** The table below indicates the field names and definitions for attributes requested for each Precincts and Sub Precincts record

Field/Column Definition for Ballot Areas

Name	Type	Length	Description	Example
Shape	Geometry	n/a	Geometry associated with Ballot Area	polygon boundary in UTM NAD83 Zone 12 N coordinates or other industry standard defined and documented coordinates
County ID	Numeric	2	County ID Number	Beaver = 1, Box Elder = 2, Cache = 3, ..., Weber = 29
VistaID	Text	10	Ballot Area ID. Composed of the VISTA Precinct Name and where applicable, a colon (:) and the VISTA Sub Precinct ID. VistaIDs must exactly match one, and only one precinct or sub precinct in the state VISTA database.	BRGC09:CFD, SJ001A, SJ0003:SW2, 007, 12:B
PrecinctID	Text	6	VISTA database unique identifier for Precinct area. Up to six alphanumeric characters	BRGC09, SJ001A, SJ0003, 007, 12
SubPrecinctID*	Text	4	VISTA database unique identifier for subprecinct area. Up to 4 alphanumeric characters	CFD, null**, SW2, null**, B

# Goal: District – Precinct – Municipal Agreement



# Why GIS ??

- Visualization
- Automation
- Transparency
- Flexibility
- Precision/Integration (with boundaries!)

# Why Not ??

- General Unfamiliarity with GIS Technology
- Unfamiliarity with Existing Data & Services

# Precinct Assignment, Pre-GIS

Precinct Segments for - E 1050 N \*\*\* TEST DATA \*\*\*

Print Plot Street

Prec	Min	Max	Side	Res	Voters
B005:I-S-	100	804	E	31	49
B005:I-S-	101	373	O	18	37
B003:I-S-	443	885	O	18	37
B004:I-S-	826	960	E	6	12
B004:I-S-	915	1007	O	8	20

Without Defining Segment      0      0

100      1007

Even

Odd

Buttons: Add Segment, Delete Segment, Undo Changes, Cancel, View Stats & Save

# Address Points & Precincts Mgt

