



# GIS and SBE Relationships with Federal, State and County Agencies

NC State Board of Elections

[www.ncsbe.gov](http://www.ncsbe.gov)

# Outline

- SBE Audits
- CBE Responsibilities
- Issues/Challenges
- The Future



# SBE Audits

SBE is responsible for the proper voter placement within statewide jurisdictions, but not the creation of those jurisdictions.

SBE conducts an electronic audit every weekend and makes those results available on every Monday morning for use by CBE election officials.

SBE can run the audits “On Demand” if requested by a CBE.



# SBE Audits

The following are jurisdictions audited by SBE:

- NC Senate District
- NC House District
- Congressional District
- Judicial Districts
- Precinct
- VTD
- County Boundaries



# SBE Audits

What is an SBE jurisdictional audit?

An SBE jurisdictional audit is:

- 1) SBE imports all voter addresses into SBE GIS system.
- 2) SBE maintains all voter addresses in separate database.
- 3) Audit is performed in SQL Server database using stored procedures.
- 4) Stored procedure uses SQL 'STIntersects' and several joins to overlay addresses, jurisdictions to identify mismatches.
- 5) Exceptions such as voters not in the correct jurisdiction and addresses not found are identified for the county in shapefiles, dbf and kmz file formats.



# Sample Jurisdictional Audit

## Using SEIMS GIS Audit Files and Google Earth

The screenshot displays the Google Earth interface with a map of Brunswick County, North Carolina. The map is overlaid with a blue boundary representing a jurisdictional audit area. A data popup window is open over a specific precinct, displaying the following information:

16	
PREC_ID	16
ENR_DESC	16_SHINGLETREE 1
COUNTY_ID	10
COUNTY_NAM	BRUNSWICK
Shape.STArea()	881403088.865025
Shape.STLength()	138589.552775
OF_PREC_ID	

The interface includes a search bar, a 'Places' list on the left, and a 'Layers' panel at the bottom left. The 'Layers' panel shows a 'Primary Database' layer with sub-layers for 'Borders and Labels', 'Places', 'Photos', 'Roads', '3D Buildings', 'Ocean', 'Weather', 'Gallery', 'Global Awareness', and 'More'. The status bar at the bottom indicates the imagery date as 4/9/2013 and provides coordinates: 34°55'26.33" N, 77°45'47.08" W, with an elevation of 76 ft and an eye altitude of 35.21 mi. The system clock shows 2:15 PM on 11/5/2013.



# Sample Jurisdictional Audit

## GIS Shapefile (.DBF) – Unmatched Records

The screenshot shows a Microsoft Excel spreadsheet titled 'BRUNSWICK\_GEO\_PRECINCT\_REVIEW.dbf'. The data is organized into columns A through R. Column A contains 'COUNTY\_ID', B contains 'GIS\_PREC', C contains 'SEIMS\_PREC', D contains 'GEOCODE\_I', E contains 'SEIMS', F contains 'SEIM', G contains 'SEIM', H contains 'SEIM\_VRN', I contains 'LNAME\_VR', J contains 'HOUSE\_N\_VR', K contains 'H ST', L contains 'ST\_NAME\_VR', M contains 'ST\_T', N contains 'ST\_S', O contains 'UNIT', P contains 'UNIT\_N', Q contains 'UNIT\_C', and R contains 'UNIT\_N'. Row 8 is highlighted in yellow, and the cell at the intersection of column D and row 8 is selected with a black border. The value in this cell is '523383'. The spreadsheet also shows a ribbon with various tabs like File, Home, Insert, etc., and a status bar at the bottom.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	COUNTY_ID	GIS_PREC	SEIMS_PREC	GEOCODE_I	SEIMS	SEIM	SEIM	SEIM_VRN	LNAME_VR	HOUSE_N_VR	H ST	ST_NAME_VR	ST_T	ST_S	UNIT	UNIT_N	UNIT_C	
2	10	02	01	503422	01	07	018	08	000600035397	WILLIS	7591			FAWNBROOK	WAY	NE		
3	10	02	01	503422	01	07	018	08	000600034555	WILLIS	7591			FAWNBROOK	WAY	NE		
4	10	02	01	503422	01	07	018	08	000600037446	WILLIS	7591			FAWNBROOK	WAY	NE		
5	10	15	13	523383	13	07	017	08	000001456908	ALEXANDER	408			WHITEVILLE	RD			10
6	10	15	13	523383	13	07	017	08	000001460602	ABERNETHY	408			WHITEVILLE	RD			35
7	10	15	13	523383	13	07	017	08	000001460463	LUCERO	408			WHITEVILLE	RD			
8	10	15	13	523383	13	07	017	08	000001447345	MISLAN	408			WHITEVILLE	RD			20
9	10	15	13	523383	13	07	017	08	000001450394	WHITE	408			WHITEVILLE	RD			
10	10	15	13	523383	13	07	017	08	000001450584	AYCOCK	408			WHITEVILLE	RD			36
11	10	15	13	523383	13	07	017	08	000000067255	ROBINSON	408			WHITEVILLE	RD			8
12	10	15	13	523383	13	07	017	08	000000067256	ROBINSON	408			WHITEVILLE	RD			8
13	10	15	13	523383	13	07	017	08	000000046806	CASPER	408			WHITEVILLE	RD			
14	10	15	13	523383	13	07	017	08	000000054123	BOZEMAN	408			WHITEVILLE	RD			32
15	10	15	13	523383	13	07	017	08	000000036236	SNEAD	408			WHITEVILLE	RD			7
16	10	15	13	523383	13	07	017	08	000000041410	CLEMMONS	408			WHITEVILLE	RD			19
17	10	15	13	523383	13	07	017	08	000600001677	ROGERS	408			WHITEVILLE	RD			APT27
18	10	15	13	523383	13	07	017	08	000600001980	MINTZ	408			WHITEVILLE	RD			26
19	10	15	13	523383	13	07	017	08	000001475054	NYE	408			WHITEVILLE	RD			37
20	10	15	13	523383	13	07	017	08	000001461537	EVERSOLE	408			WHITEVILLE	RD			35
21	10	15	13	523383	13	07	017	08	000600011339	CLEMMONS	408			WHITEVILLE	RD			19
22	10	15	13	523383	13	07	017	08	000000020977	RISING	408			WHITEVILLE	RD			33
23	10	15	13	523383	13	07	017	08	000000031307	SCHMALER	408			WHITEVILLE	RD			41
24	10	15	13	523383	13	07	017	08	000600034860	SENGSIRI	408			WHITEVILLE	RD			25
25	10	15	13	523383	13	07	017	08	000600025315	SINGLES	408			WHITEVILLE	RD			11
26	10	15	13	523383	13	07	017	08	000600015699	HILL	408			WHITEVILLE	RD			27
27	10	15	13	523383	13	07	017	08	000600018987	FRINK	408			WHITEVILLE	RD			17



# Sample Jurisdictional Audit

## Satellite View

The screenshot displays the Google Earth interface. The main window shows a satellite view of a residential neighborhood with a road and a golf course. A data popup window is open over a specific location, displaying the following information:

14	
PREC_ID	14
ENR_DESC	14_FRYING PAN
COUNTY_ID	10
COUNTY_NAM	BRUNSWICK
Shape.STArea()	306823937.40095
Shape.STLength()	86354.53627
OF_PREC_ID	

The interface includes a search bar, a 'Places' list on the left, and a 'Layers' panel at the bottom left. The status bar at the bottom right shows coordinates (33°57'36.32" N, 78°22'09.29" W), elevation (20 ft), and altitude (583 ft). The system tray at the bottom indicates the time is 2:25 PM on 11/5/2013.





# CBE Responsibilities

County Board of Elections will be responsible for making all of the necessary changes due to redistricting updates and audits.

CBEs will utilize the SEIMS Geocode application to make updates to correct street ranges in the incorrect jurisdictions. Counties can use the assistance of their county GIS or Mapping Department.



# Sample Jurisdictional Tools

## NC Congressional Current & Previous

North Carolina 2001 & 2011 Congressional District Redistricting Maps

Enter your Address, press the search button, then click a color in a map to see your district

Address

New State Redistricting Maps  
[2011 Congressional District Map](#)  
[2011 Senate District Map](#)  
[2011 House District Map](#)

Previous State Redistricting Maps  
[2001 Congressional District Map](#)  
[2003 Senate District Map](#)  
[2009 House District Map](#)

Side-By-Side State Redistricting Maps  
[2001 & 2011 Congressional District Maps](#)  
[2003 & 2011 Senate District Maps](#)  
[2009 & 2011 House District Maps](#)

2001 Congressional District Map

2011 Congressional District Map

Map data ©2012 Google - Terms of Use Report a map error



# Sample Jurisdictional Tools

NC 2011 State Redistricting | x

www.app.sboe.state.nc.us/webapps/redistrict/NCRedistrictchoose.html

## NC 2011 State Redistricting Map Overlays

This statewide map will show you boundary lines on any or all of the state district maps.

Click on any spot on the map for the district name. Currently this only works on one map layer (district) at a time.

**2011 Statewide Redistrict Maps** (more info)

- Congressional Maps - (blue) (more info)
- Senate Maps - (green) (more info)
- House Maps - (purple) (more info)

**Enter Address** (find me) within ...

441 N harrington st, 27603 1/2 mile

**Search** reset map **2 results found**

View or download the raw data:  
House District Maps: Google Tables | KML  
Senate District Maps: Google Tables | KML  
Congressional District Maps: Google Tables | KML  
All 3 maps in a single file: Google Tables | KML

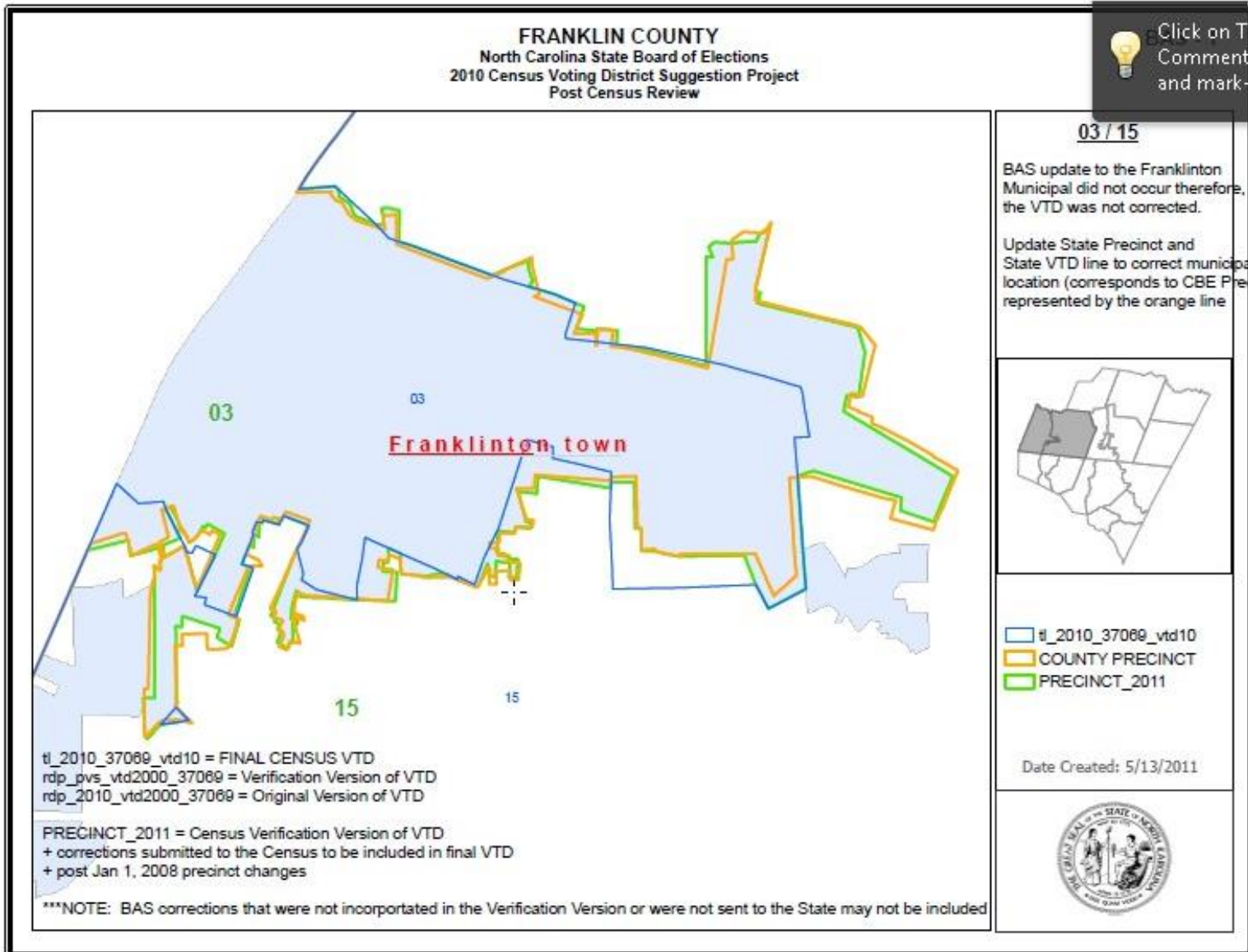
Map Satellite

Senate District # 16

Map data ©2012 Google - Terms of Use Report a map error



# Issues/Challenges



# The Future?

- SBE is continuing to work with the counties, the state, census, and private entities to ensure the most accurate assignment of address points.
- Utilize a web interface to allow counties to view audits and correct individual address points.
- Looking into a mechanism to allow counties to run audits “On Demand.” This will allow counties to upload local jurisdictions and audit anytime.
- Looking to integrate SEIMS Geocode and GIS to utilize jurisdictional boundaries and address points rather than street segment assignment in the SEIMS Geocode application.





# Thank You

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