ELECTION ACCURACY

ELECTION EFFICIENCY

Elections GEOSUMMIT

December 8, 2022

elections.NSGIC.org

GIS & Elections

State of the States

Neil MacGaffey
Retired Director MassGIS
GIS Office of Massachusetts

State Election Director Report 2022

Themes and Takeaways

1. General
2. Voter Address Management
3. Precinct Boundary and Other Data Management
4. Transitioning to GIS

Themes and Key Takeaways:
General

1. **Significant Participation by Election Directors**
2. **GIS integration into Voter Registration Systems**
3. **Challenges: Lack of GIS Expertise and Resources**
4. **Concern Election Office Leadership Turnover**
5. **Future is Bright**

Themes and Key Takeaways:
Voter Address Management

1. Voter Address Audits Increasing
2. Geocoding Capabilities and Address Points
3. Transition is Slow

Themes and Key Takeaways:

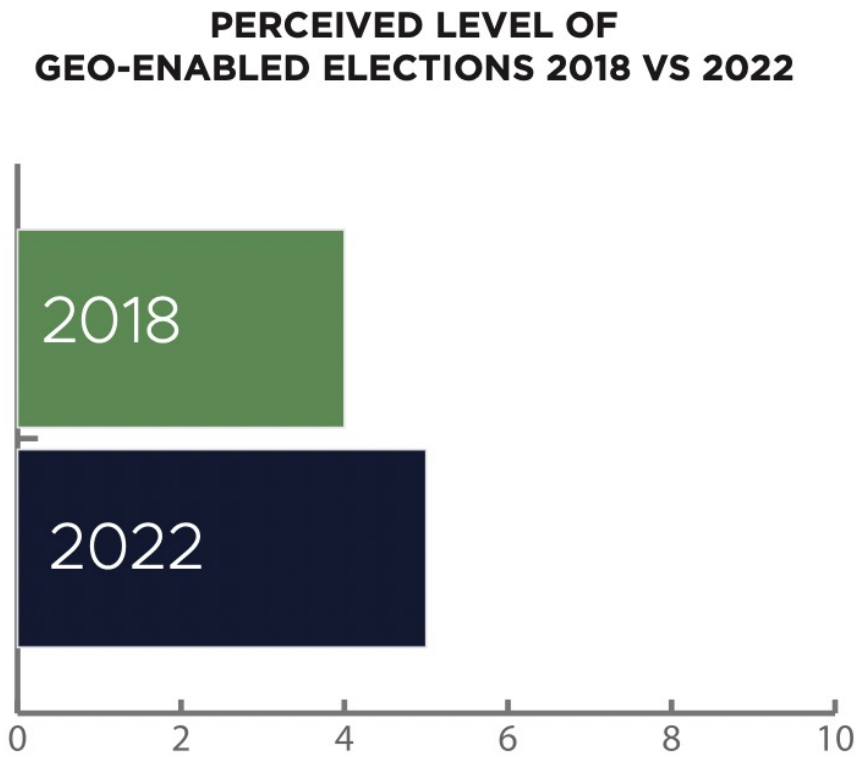
Precinct Boundary and Other Data Management

1. **Greater Collaboration Needed**
2. **Progress in Geo-Enabling Audits**
3. **Audit Frequency Lags**

Themes and Key Takeaways:
Transitioning to GIS

1. **Progress Being Made**

2. **Greater Engagement**



Conclusions and Personal Insights

1. **Continued Education is Vital**

2. **Cross-Agency Collaboration is Key**

Address point locations and:

- **Precinct Boundaries?**
- **NextGen 9-1-1 Call Center Boundaries?**
- **Broadband Service Provider Territories?**

Questions

Thank You!

GIS in Elections

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Partnership: SOS, MSL, & Counties

A Seat at the Table

- **2018:**
  - National States Geographic Geo-Enabled Election (GEE) Project Began – Montana on Steering Group
  - MLIA Grant Funded Voting Boundary Project
  - SOS Explores New State-wide Voter Registration System
  - MSL & SOS Begin Discussions on Integrating GIS into Elections State-wide System

Exploration & Beginning Implementation

- **2019:**
  - Montana State Library Partner's with the Montana Secretary of State's Office
  - Montana Land Information Council (MLIAC) Prioritizes Exploring NSGIC GEE Best Practices through Annual Land Information Plan & MLIA Grant Program
  - Montana Participates in 2 Rounds of NSGIC's Pilot Project for Geo-enabling Elections

Partnership: SOS, MSL, & Counties

Exploration & Beginning Implementation (cont'd)

- **2020:**
  - MSL Awards 2 MLIA Grants to Counties for GEE
  - Election Administrators Data Sharing Partnerships

Commitment to Geo-Enabling Montana Elections

- **2021:**
  - Created Foundational Voting Unit Layers: Precinct & Precinct Split Boundaries
  - Geocoding Voter Addresses (MSDI Geocoding Service)
  - Official Agreement Between Montana State Library (MSL) & Secretary of State
  - MSL Hired GIS Specialist Dedicated to the GEE Project
- **2022**
  - New Opportunities for Outreach – MACR
  - Prepare datasets for Go-Live

Partnership: SOS, MSL, & Counties

The Future

- **2023**
  - Implementing Workflows
  - Go Live – New Elections Systems
  - Continued GIS Coordination Support to County GIS Professionals & Election Administrators
  - Redistricting

Statistics

Number of Counties Submitted to SOS

55/56 (98%)

Number of Unique Districts

2452

Total Number of Election District Types

33

Number of Splits Sent to SOS

2459 of 2947 (84%)

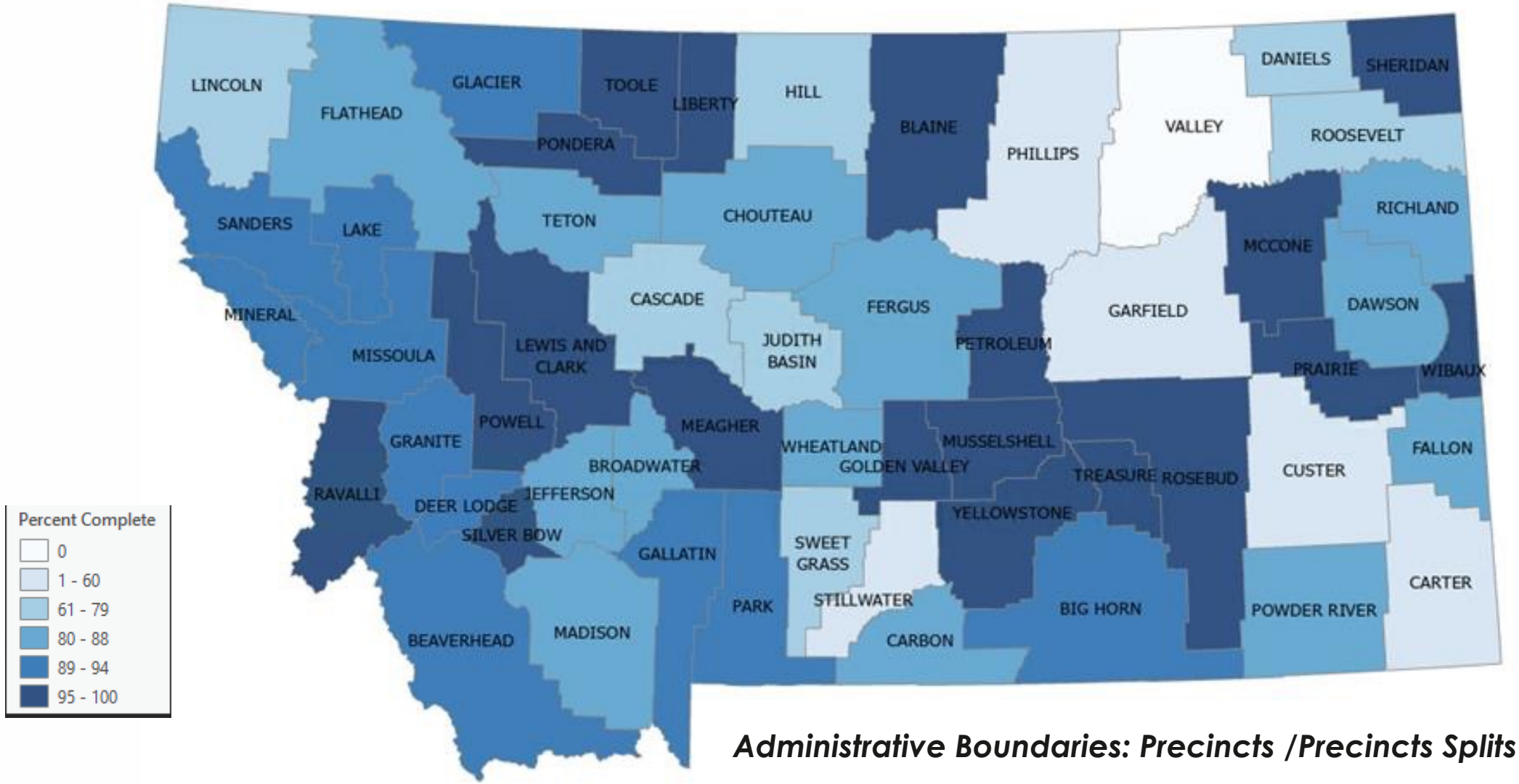
County with the most Splits

Flathead - 299

County with the fewest Splits

Treasure/Meagher - 2

Boundary Data Collected to Date

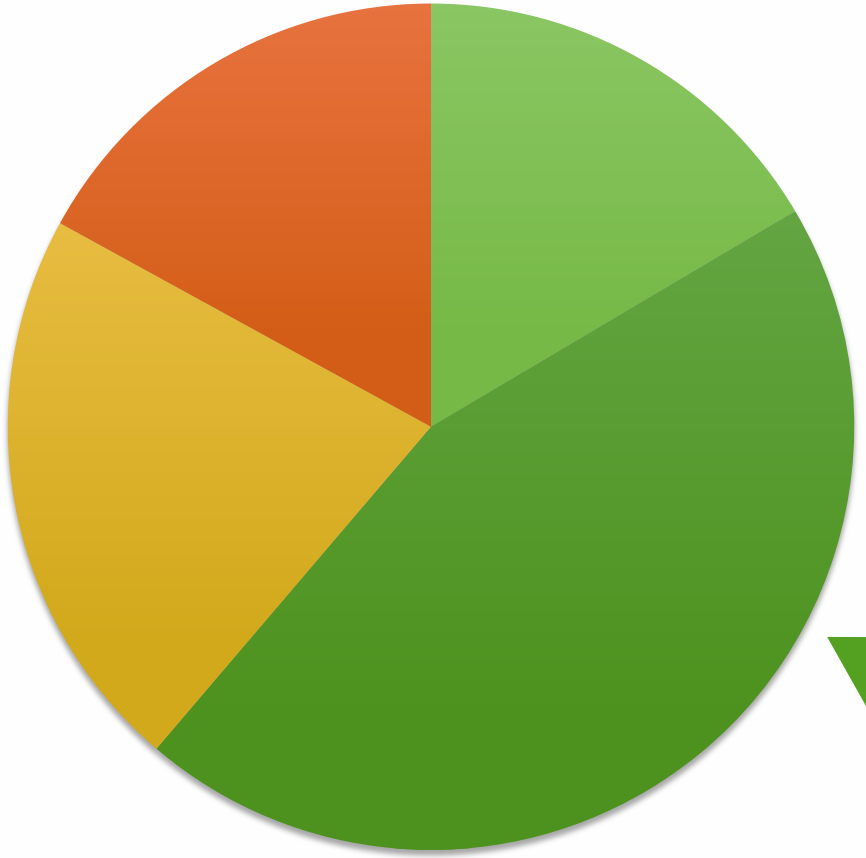


Administrative Boundaries: Precincts /Precincts Splits

Boundary Data Collection

Precincts & Precinct Splits Gathered Overtime: 2019-2023

Refined process to automate split generation



Started Working with EA/County GIS Professionals

Boundary Data Collection: Redistricting

PREPARED

UNPREPARED

Intended Consequences

- Goal: a single, authoritative address point dataset for NG9-1-1, elections, navigation, package delivery, etc.
- Leveraging a single address point dataset for other uses, including voter addressing, increases the return on investment and helps improve data quality
- Coordination of Address Data at Local Level
  - Election Administrators (EA) will coordinate with their local addressing authority (GIS, 9-1-1, etc.) to ensure new voter addresses are in the GIS data, and correct discrepancies with existing voter addresses

One Address Dataset for All!

Boundary Data Collection: Redistricting

2023

GEE TEAM

Thank you

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GIS in Elections

Voter Registration and Tools

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GIS Meets Elections

- **Redistricting and Registration - Voting Precincts**
  - State draws congressional, state senate, state house lines first
  - Cities/Towns draw their local lines next
  - RIDOS Election team brings precinct and districts into Central Voter Registration System (CVRS) as address range text table

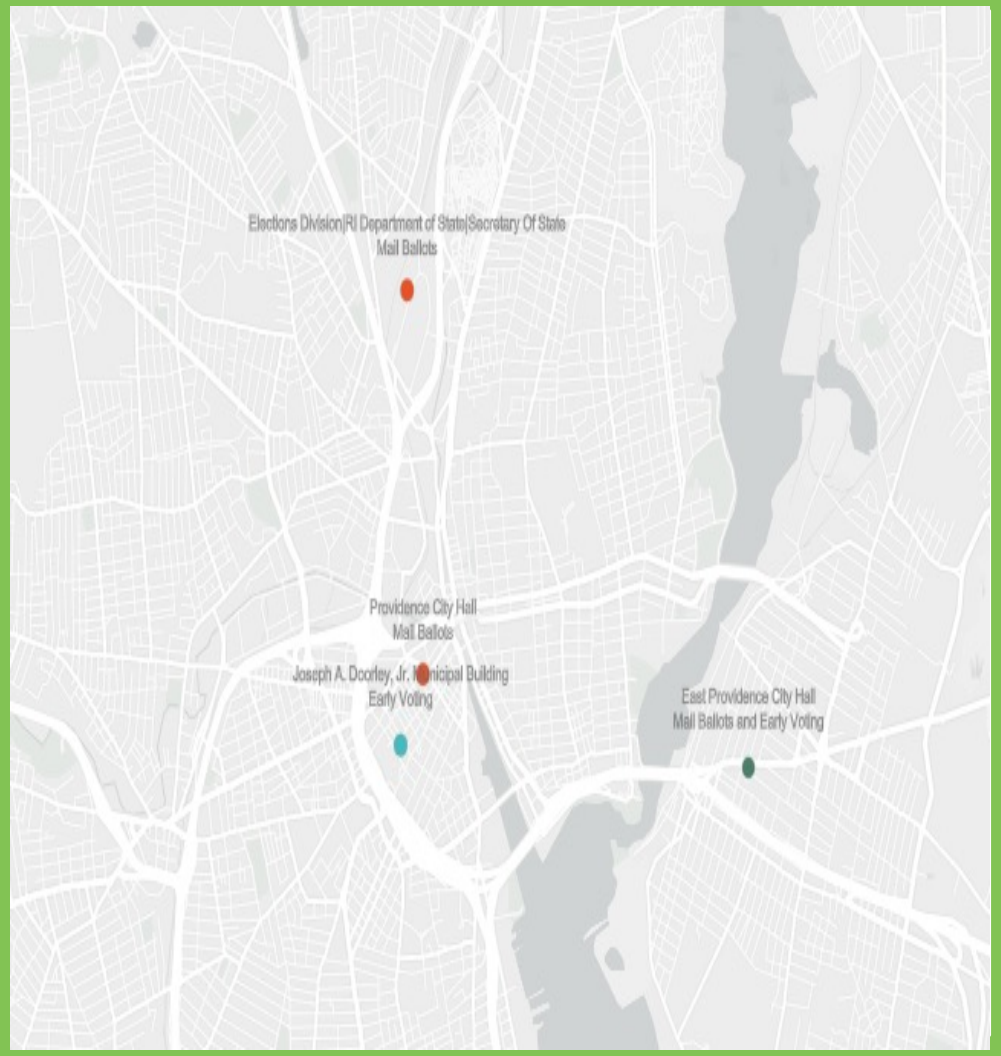
- **Commitment to Transparency - Created Public Interactive Tools**

Legislative Districts Downloader	Drop Box Locator	Proposed Legislative Boundaries Comparison tool

- **Discoveries**
  - Picturing legislative lines leads to improvements

Drop Box Locator

- Interactive tool
- Find closest mail ballot drop box
- Early voting
- English/Spanish



What's Next

- **Geocoding Voter Addresses**
  - Geolocating by hand to the apartment/unit level using mix of sources
  - Working with CVRS software developer to extract verified, rooftop-level lat/long from Smarty Streets
- **Collaboration across state departments for GIS tools**
  - Statewide Parcel Database
  - Statewide Addressing tool
  - Seat at the RIGIS Table
- **CVRS Transformation from Street Range Table to individual address points for registration verification**
  - Brings together geolocating, verified addresses, and statewide addressing tool

GIS in Elections

Voter Registration and Tools

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GIS & Voter Records

Processes and Lessons Learned

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Overview

- **Where we were**
  - Customized legacy voter registration system reaching end of life
- **Where we are**
  - Modernizing the voter registration system with a COTS product
- **Where we are going**
  - Ready for additional upgrades
- **Constraints**

Where we were…

- **Customized legacy voter registration system reaching end of life**
  - Voters assigned to a precinct split based on block ranges
  - No address standardization
  - Custom non-GIS tool for polling place and district look-ups

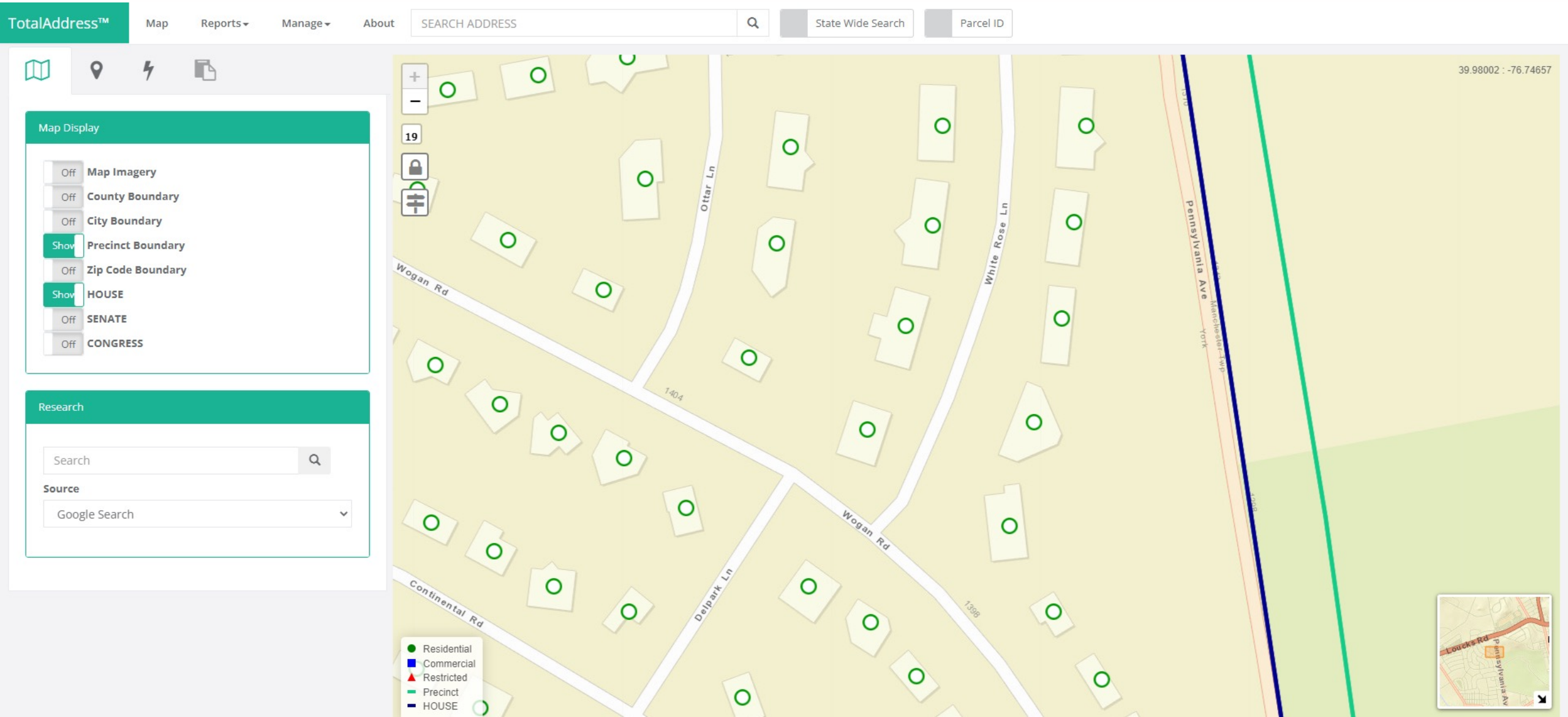
Where we are…

- **Modernizing the voter registration system with a COTS product**
  - Introducing address standardization
  - Majority of addresses geocoded to “rooftop” accuracy
  - GIS tools for assigning voters to precincts
  - GIS solution for managing address points and layers
    - Designed for non-GIS users

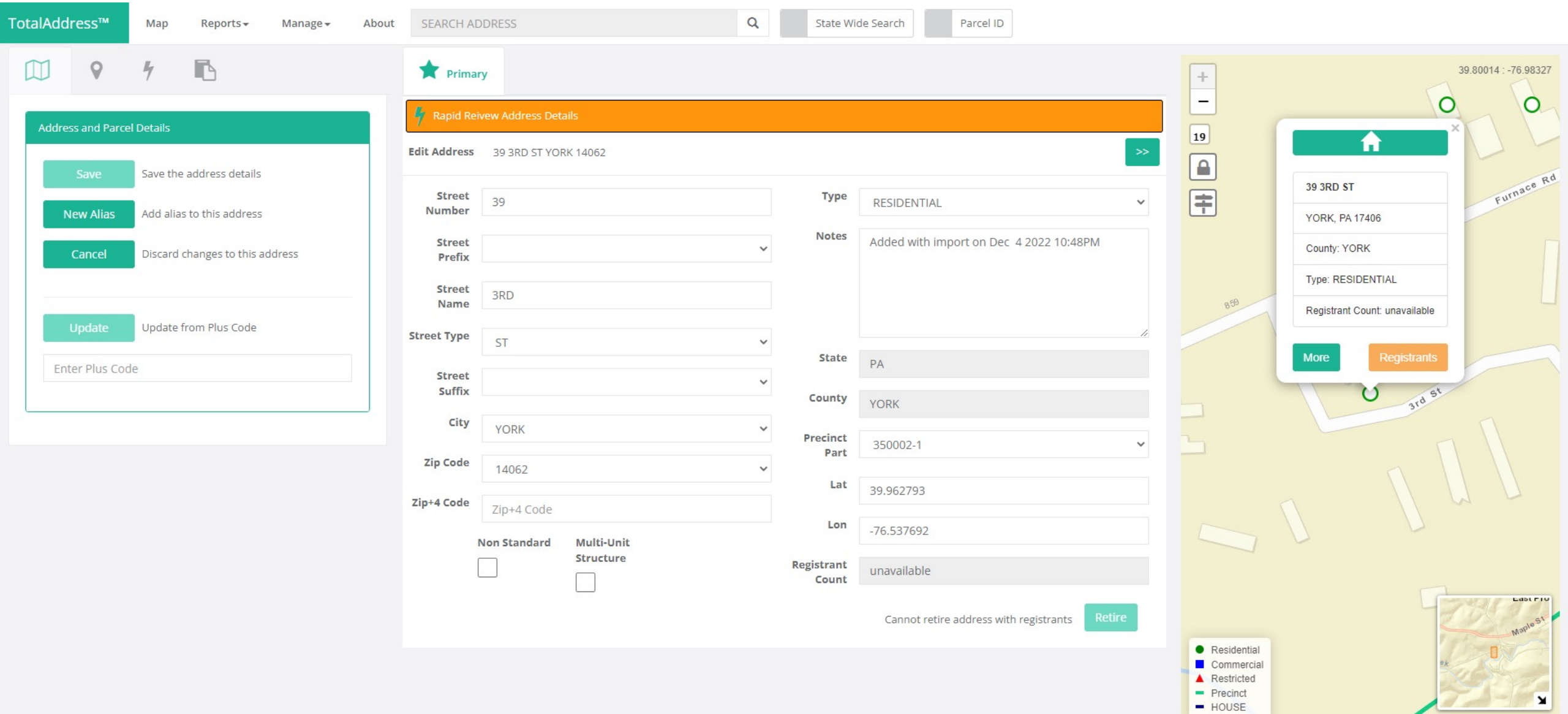
SUREAddress

- **SUREAddress - GIS/Address module of the SUREVote system**
  - User Interface to manage address points and layers
  - Allows election officials to import addresses with coordinate data (lat/long)
  - Allows election officials to review address points and move points if required
  - Allows importing layer data

SUREAddress



SUREAddress



SUREVote

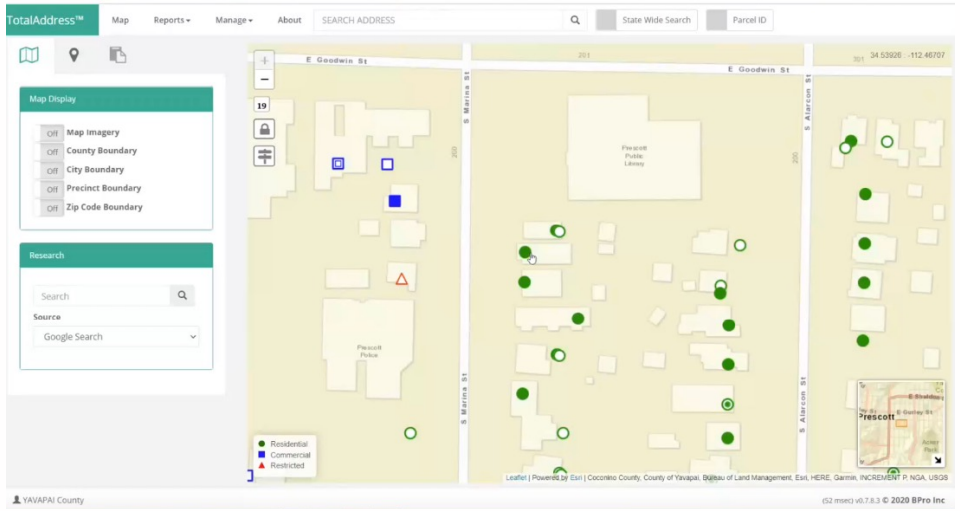
- **GIS and SUREVote Integration Steps**
  - Developing governance, with county input, to formalize GIS processes for maintaining these datasets going forward to keep SUREVote current
  - Gather required layers from county GIS and other sources
  - Ensuring the layers meet requirements and are accurate
  - Maintaining historical layers
  - Geocode addresses to attach coordinates (lat/long)
  - Update frequency

Current and future voter precinct assignment process

Legacy	SureVote
• Precinct boundaries get converted to block ranges • Block range information typed into SURE • Address looked up in the block range information • Voter assigned a precinct split based on the block range	• Statewide precinct split map layer created • Precinct split Map Layer imported into Total Address • Review finalize and adopt the precinct split layer. • Voter Address location is geocoded • Precinct split assigned based on the location of the address in the layer • County Officials review and finalize the assignment

Where we are going…

- **Ready for more upgrades**
  - Completely automated GIS tool for assigning and verifying voter precinct assignments
  - Majority of addresses are standardized and have “rooftop” accuracy
  - Map centric dashboards and search tools for the public and internal staff
    - Where do I vote?
    - Who is on my ticket?
    - What are my legislative districts?
  - Using GIS for redistricting



- 67 varieties of data management
- Mix of GIS knowledge and staffing
- Legacy data maintained differently by different counties

CONSTRAINT

The Pennsylvania Department of State (DOS) monitors election activities for all 67 counties.

- Not all data available in GIS format
- Non standardized addresses created bottlenecks for geocoding
- Validation

CONSTRAINT

Aggregating data from multiple sources.

- COTS product
  - Data elements and format requirements
  - Configuring for PA specific needs
  - Change orders
- Timing
  - Redistricting
  - Election events
  - Other projects in the State related to addresses (PEMA NG911)

CONSTRAINT

Project management with election priorities and limited staff.

GIS & Voter Records

Processes and Lessons Learned

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GIS in Vermont Elections

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2021 Pilot Project

- **The Vermont Elections Division and the Vermont Center for Geographic Information (VCGI) were participants in the 2021 Geo-Enabled Elections Pilot Program.**
  - VCGI is Vermont's active, state-level GIS coordinating group, VCGI has a high-quality point-based addressing system as part of the E911 program.
  - The Vermont Elections Division is responsible for the administration of statewide elections in VT, including management of the statewide voter checklist.
- **Our participation in the pilot program was highly successful, achieving the following important successes:**
  - Building a working relationship between VCGI and the Elections Division that did not exist before. *Members of the core team met throughout the process - giving VCGI insight into the current election and voter registration processes and helping the Elections Division understand ways to leverage geospatial data and technology to improve processes and the accuracy of data.*

2021 Pilot Project – cont.

- Geocode and Validate addresses for the Statewide voter registration checklist - *We achieved over 90% location matching with a first pass of the data without any cleaning or modifications. We classified the unmatched addresses into different categories and found that an additional 6% could be matched by addressing some basic formatting issues and accounting for some idiosyncratic practices by certain municipalities. The unmatched addresses were provided to the clerks and grouped by type of issue to assist with the verification process. Any verified or unverified geocoded address that raised questions regarding whether or not they were in the appropriate district was flagged as a high priority.*
- *Identify voting districts and document process – A review of voting district and ward assignments was completed. The existing process of creating sub-municipal districts, which only exist in a handful of municipalities, currently lacks standards and a formalized process. The group identified this as an issue that could be addressed to help avoid the potential for future boundary related election issues.*
- *Better position Vermont for redistricting – Town and City clerks were able to improve the accuracy of their voter checklists with the lists of unmatched addresses, facilitating accurate redistricting of those voters with the adoption of new district lines. VCGI will continue to perform a semi-annual audit of new addresses.*

Continuing Work in 2022

- Biggest Accomplishment from Pilot Project was establishing the working relationship with VCGI, which proved critical in 2022.- *As John Adams from VCGI noted in our project summary: "We should have done this sooner. GIS data & technology are extremely well suited to help ensure our elections are accurate and efficient. It did not take very much work to geocode the vast majority of addresses in the voter checklist and confirm their validity and that they are located in the appropriate district. In a day and age when emotions around election security are notably high, its certainly helpful to have additional checks in place to affirm the integrity of our democracy."*
- *This proved extremely valuable when the new district lines for the state legislature were adopted in April of 2021–*
  - *Our current election management system (EMS) uses a street listing / street address approach for assigning voters to districts.*
  - *This requires the clerks to review new district lines and update their street listings accordingly.*
  - *When these lines bi-sect a town or city, knowing exactly where the line falls is critical.*
  - *The maps produced by the legislature did not contain the necessary level of detail.*

Continuing Work in 2022 - Redistricting

- The Elections Division was able to turn to VCGI to create the detailed maps required to enable the clerks to do what they needed to do:
  - *Recognizing that maps defining the new districts in sufficient detail for the clerks to update their street listings **did not exist** – I placed a call to John at VCGI and explained what we needed.*
  - *In a matter of days, VCGI produced a set of three different web-based interactive maps displaying the new Senate and House Districts for the VT Legislature. The maps had search features by address, district, etc. and were interactive, user-friendly, and had the level of precision to appropriately update the street listings.*
  - *Links to these maps were immediately forwarded to town and city clerks across VT and when they were received **the relief was palpable**. Where the work had stalled for many clerks, it was quickly re-started and completed with far greater ease, accuracy, and speed than would have been possible without the maps produced by VCGI.*
  - *The value of the working relationship between the Elections Division and VCGI in facilitating the creation of these maps for use by the clerks can't be overstated.*

Continuing Work in 2022 - Other

- Geocoding audit of voter registration file in relation to the new districts.
  - *We intend to engage in this soon as we put the 2022 General Election behind us.*
- Published updated voting districts, local districts, and voting tabulation areas.
  - *Ensures that results being reported have a corresponding geography*.
- VCGI & Elections will work together as boundaries are refined to identify impacted addresses.
  - *Many districts in Vermont are based on town boundaries, which can be poorly defined and have not been surveyed. As the accuracy of those boundaries are incrementally improved, we will work together to make sure voting district boundaries are managed accordingly.*
- Election management system RFP –Geo-coding voter checklist.
  - *Opportunity to move towards a geo-enabled system – VT is working on an RFP for a new EMS now, for posting in early 2023, and having a geocoded voter checklist would be the preferred outcome of this procurement process to put VT on the forefront of this effort.*

Thank You!

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Questions

Thank You!

Geo-Enabled Elections and Redistricting Work Group

Promoting effective coordination and the use of geospatial data and technologies in the election process

NSGIC
National States Geographic Information Council

GeoEnabled Elections and Redistricting Work Group

Steering Group Co-Chairs

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Mission

Promote effective coordination and the use of geospatial data and technologies in the election process.

Why are we pursuing this?

Purpose of Work Group

- Identify challenges and opportunities and make recommendations for better integration of geospatial data into the election process
- Advocate for state election programs
- Interact and coordinate with state and local partners for integrating geospatial data
- Host the Elections GeoSummit as an annual or biannual event

What are some of our objectives?

The Work Group Membership Roster

The work group is open to all

You do not need to be a NSGIC member

Strive to represent diverse segments of the election process

Invite anyone interested in elections and GIS to engage

The work group will have a NSGIC staff member as staff liaison

Question: Who can join the Work Group?

Answer: You!

The Work Group Meeting Schedule

Virtual (using Zoom)

Fourth Wednesday of the month at 10:00 am MT (Noon ET)

- Even months: full work group
- Odd months: steering committee

NSGIC mid-year and annual conference

Meeting minutes and recordings for presentations will be available on the NSGIC website

When and where do we meet?

Bimonthly* meetings (60-90 minutes)

Time in between meetings used to review, refine, and validate work products as necessary.

*Bimonthly is a terrible word. It can mean twice a month or every two months. In this case, we mean once every two months.

What is the time commitment?

Steering Committee Goals

Establish the **new** Geo-Enabled Elections and Redistricting Working Group within NSGIC.

Develop the Geo-Enabled Elections Theme questions for the 2023 NSGIC Geospatial Maturity Assessment.

Keep elections.nsgic.org up to date

Latest news and information – including a summary and the recordings of this event

2023 Steering Committee Goals

What is the Geospatial Maturity Assessment (GMA)?

STATE	OVERALL GRADE	STATE	OVERALL GRADE
Alabama	B	Montana	B
Alaska	B-	Nebraska	B
Arizona	B-	Nevada	C
Arkansas	B+	New Jersey	B+
California	B-	New Mexico	B
Connecticut	B	New York	A-
Delaware	B	North Carolina	A-
District of Columbia	A-	North Dakota	B
Florida	B+	Ohio	B
Georgia	D+	Oklahoma	B
Idaho	B-	Oregon	A-
Illinois	C	Pennsylvania	B+
Indiana	A	Rhode Island	B
Iowa	B+	South Carolina	B
Kansas	A-	South Dakota	B
Kentucky	B+	Tennessee	A-
Louisiana	C+	Texas	B+
Maine	B	Utah	B
Maryland	B+	Vermont	B+
Massachusetts	A-	Virginia	B-
Michigan	B+	Washington	B+
Minnesota	A-	West Virginia	B
Mississippi	B	Wisconsin	B-
Missouri	C+	Wyoming	C+

2023 Working Group Goals

- **Engage Geo-Enabled Elections and Redistricting Community on My.NSGIC.ORG**

- **Engage State Election Director community**
  - Bimonthly meetings: Create a "Voices from the States" rolling thirty-minute presentation opportunity for the community to connect, share, and learn
  - Annual/Biennial Elections GeoSummit
  - Geospatial Maturity Assessment results – outreach to get communities to understand value and opportunity of geo-enabling elections

GeoEnabled Elections and Redistricting Work Group

Steering Group Co-Chairs

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