



The Good, The Bad, and The Missing

Vermont's Parcel Data and the Role
of Listers in Improving Data Quality

Chaveli Miles | chaveli.miles@vermont.gov

Tim Terway | tim.terway@vermont.gov

VALA Conference | September 17, 2021

Overview & Outline



The Good

Statewide GL-joined Data with Maintenance
Voluntary Collaboration to Create and Sustain

The Bad

Data in Hand, Now Time to Improve

The Missing

Details: Technical and Oversight

Ways Forward

Opportunities for Technical and Oversight Improvements

Listers Continue Playing a Role

Parcel Data in Vermont



ACT 158 §44 STATEWIDE PROPERTY PARCEL MAPPING PROGRAM

The purpose of the Statewide Property Parcel Mapping Program is to:

- Develop a statewide property parcel data layer.
- Ensure regular maintenance, including updates, of the data layer.
- Make property parcel data available to State agencies and departments, regional planning commissions, municipalities, and the public.

Valuable input provided from **professional groups** that have bearing on the provisioning, storage, use and/or upkeep of parcel data and land records in Vermont.

VT Assessors
and Listers
Association

VT League of
Cities and
Towns (VLCT)

VT Board of
Land
Surveyors

VT Society of
Land
Surveyors
(VSLS)

VT Association
of Planning
and
Development
Agencies
(VAPDA)

VT State
Archives &
Records
Administration
(VSARA)

Members of
VT Planners
Association
(VPA)

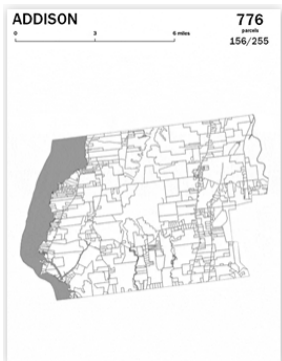
VT Realtors
Association
(VRA)

VT Municipal
Clerks and
Treasurers
Association
(VMCTA)

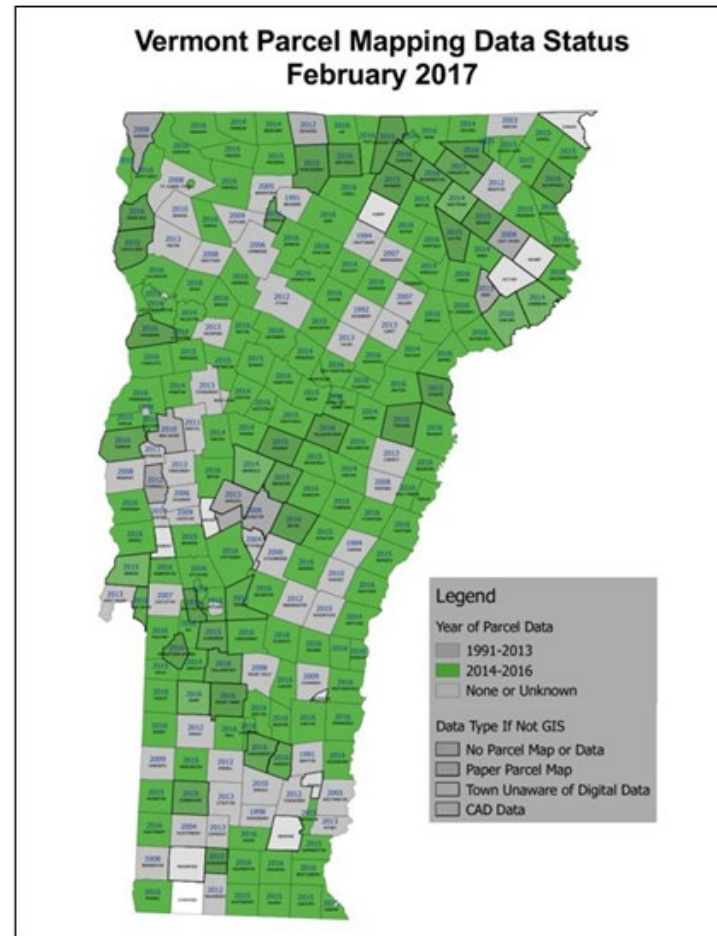
and MORE!

Statewide Parcel Mapping Project

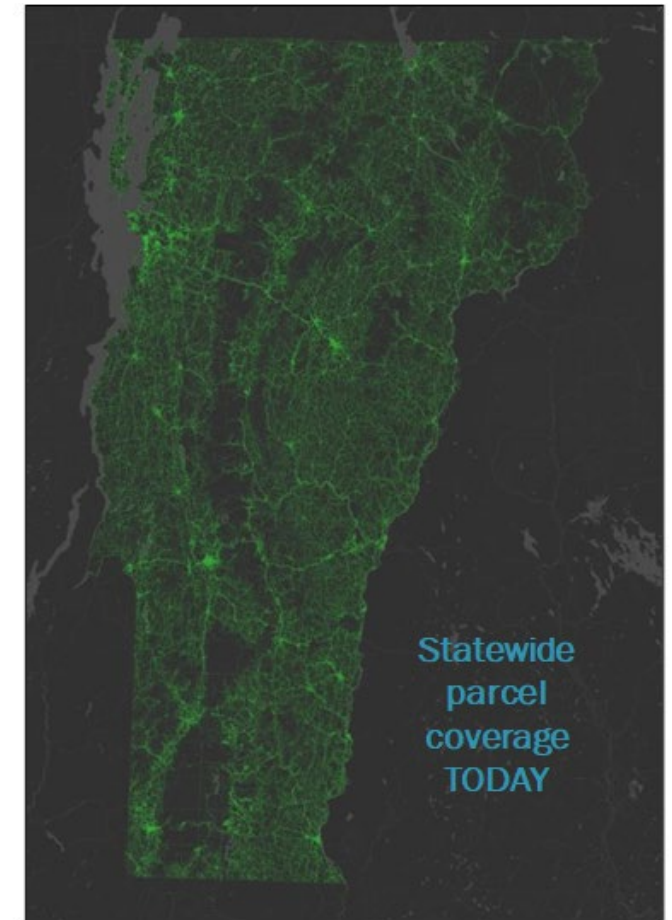
The **Statewide Property Mapping Project** was a three-year (2017-2019) funded effort to create or update digital GIS parcel data for all of Vermont's municipalities. The project was successfully completed in December 2019.



To



58% match with Grand List

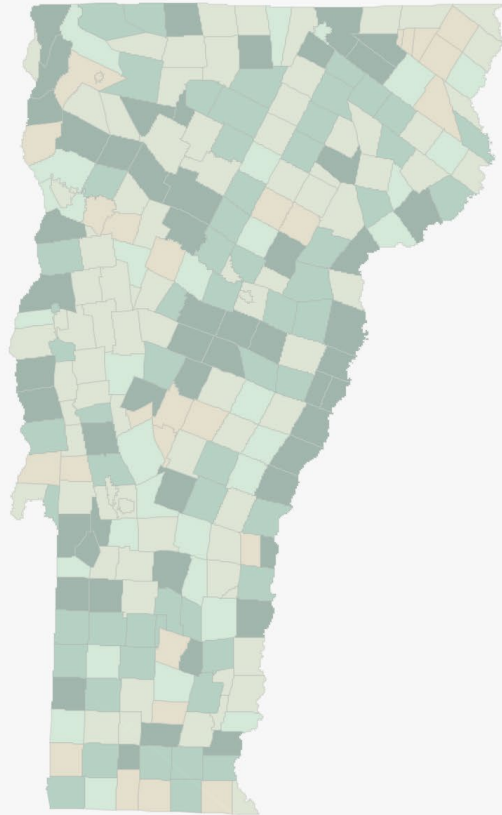


99% match with Grand List

Parcel Program At A Glance



**Current GIS
Recency**
<6 mo. to
>3 yrs.



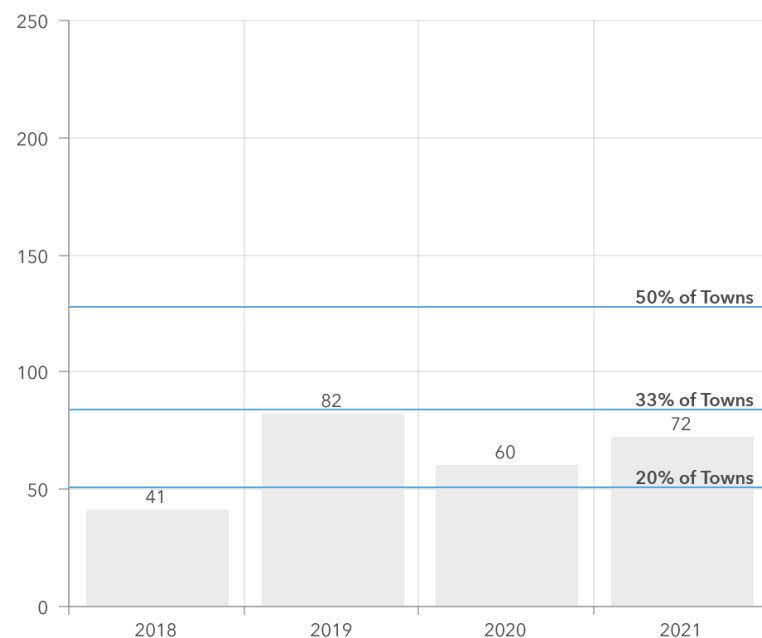
- Geometry updated within the last 6 months
- Geometry updated between 6 and 12 months ago
- Geometry updated between 1 and 2 years ago
- Geometry updated between 2 and 3 years ago
- Geometry updated more than 3 years ago

Practices Tracked Here: maps.vcgi.vermont.gov/parcelstatus

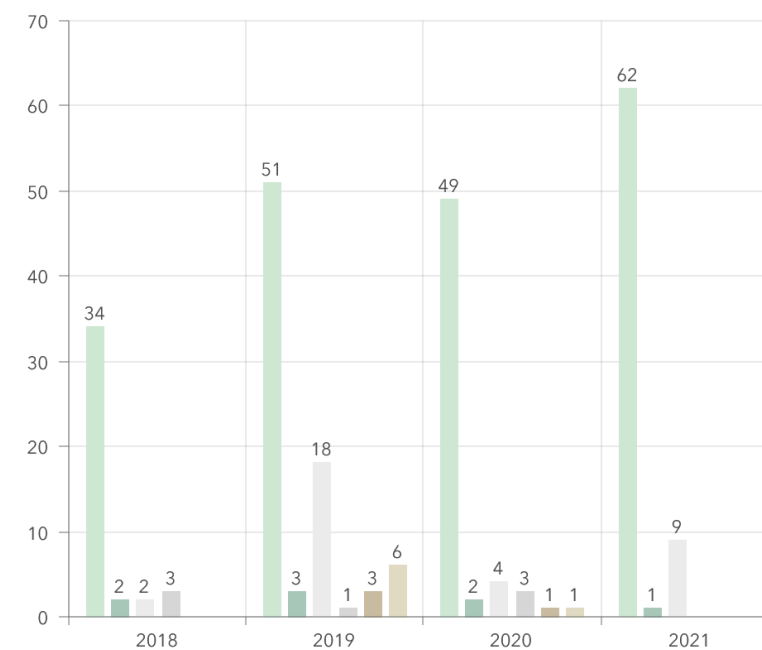
Parcel Program At A Glance

Current GIS Status Year and Method

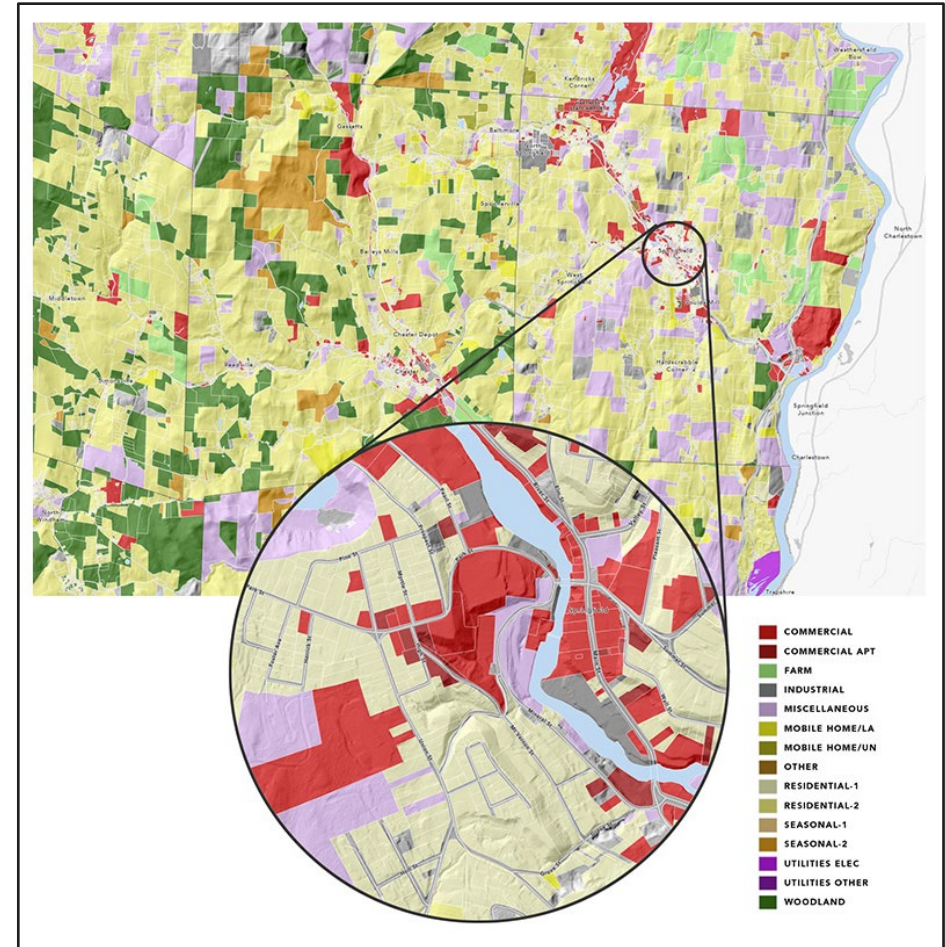
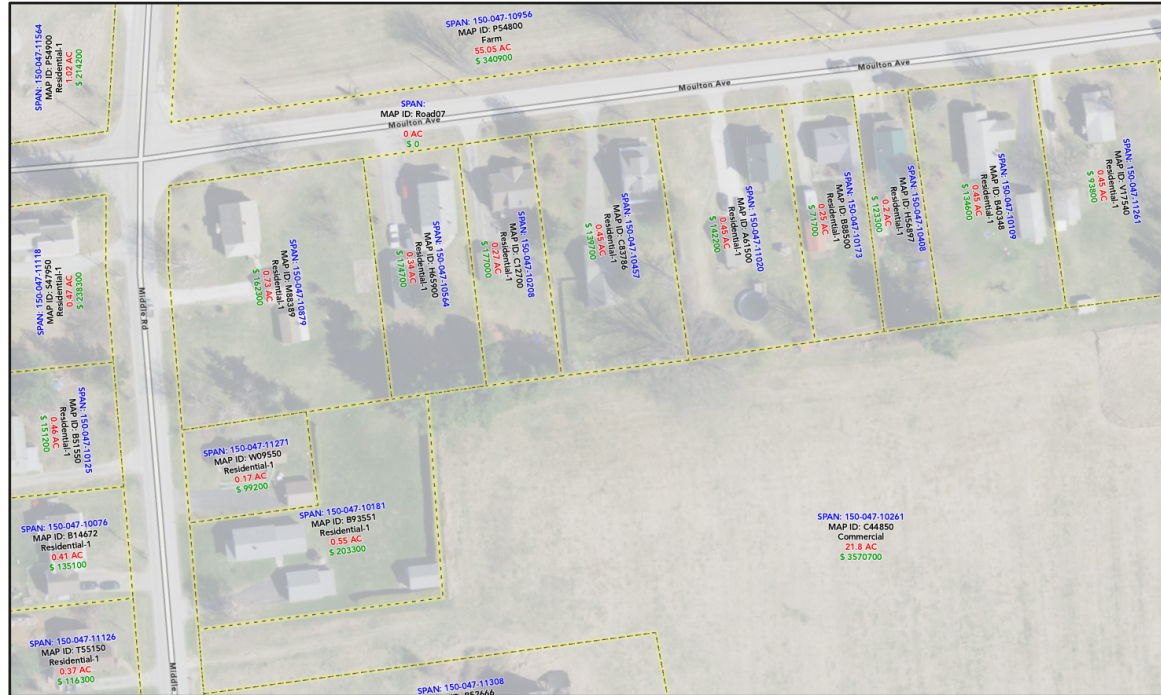
Most Recent Published Town GIS Updates by Year



Most Recent Published Town GIS Updates by Year by Known Map Capacity



Parcel Data Use Cases



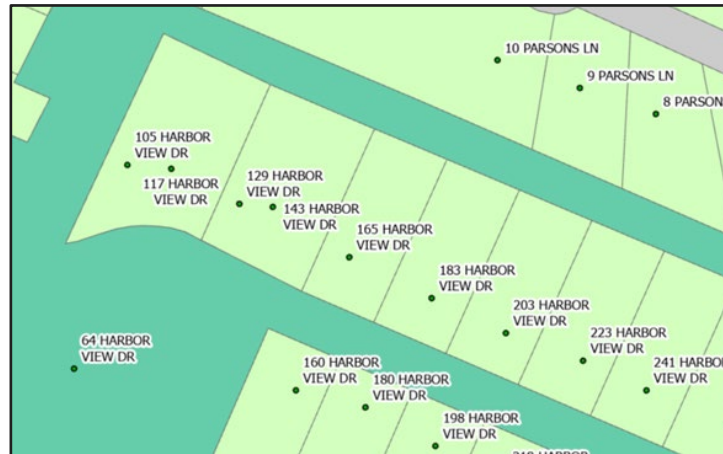
Parcel Data Use Cases

VERMONT PROPTAX CONFIGURATION

INTEGRATED PROPERTY TAX MANAGEMENT SYSTEM



Unlanded Buildings

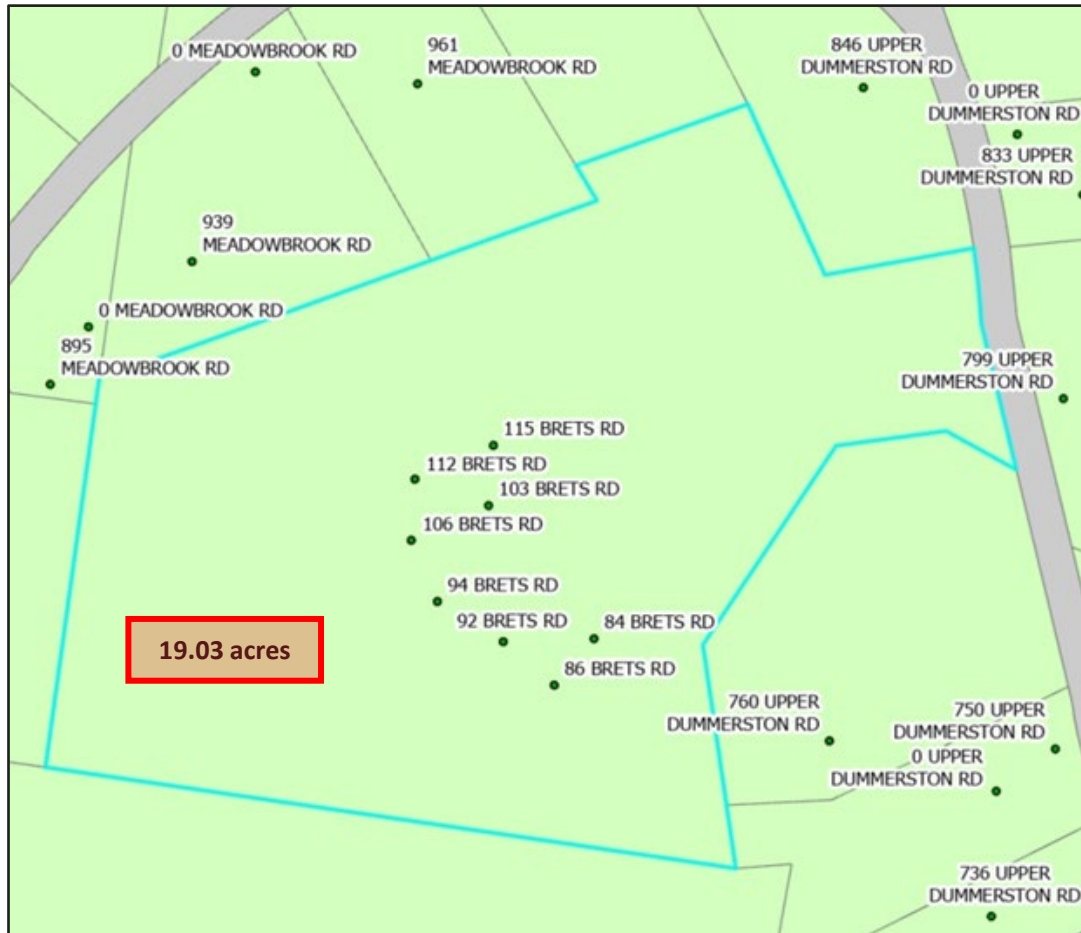


Building footprints used to distinguish between condos and common land parcel in Saint Albans Town.



A mobile home is another type of **unlanded building** that will be tracked differently by municipalities (Alburgh).

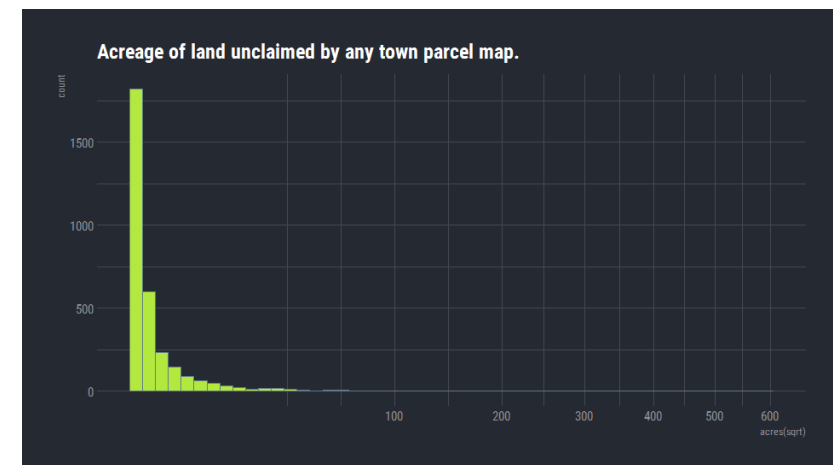
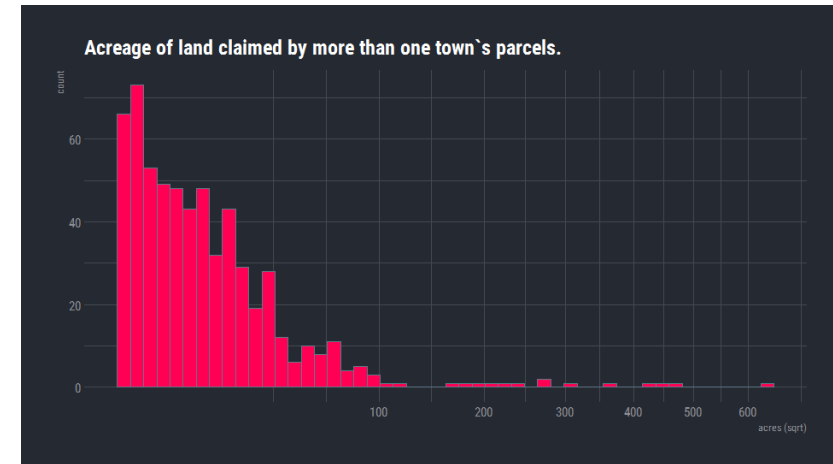
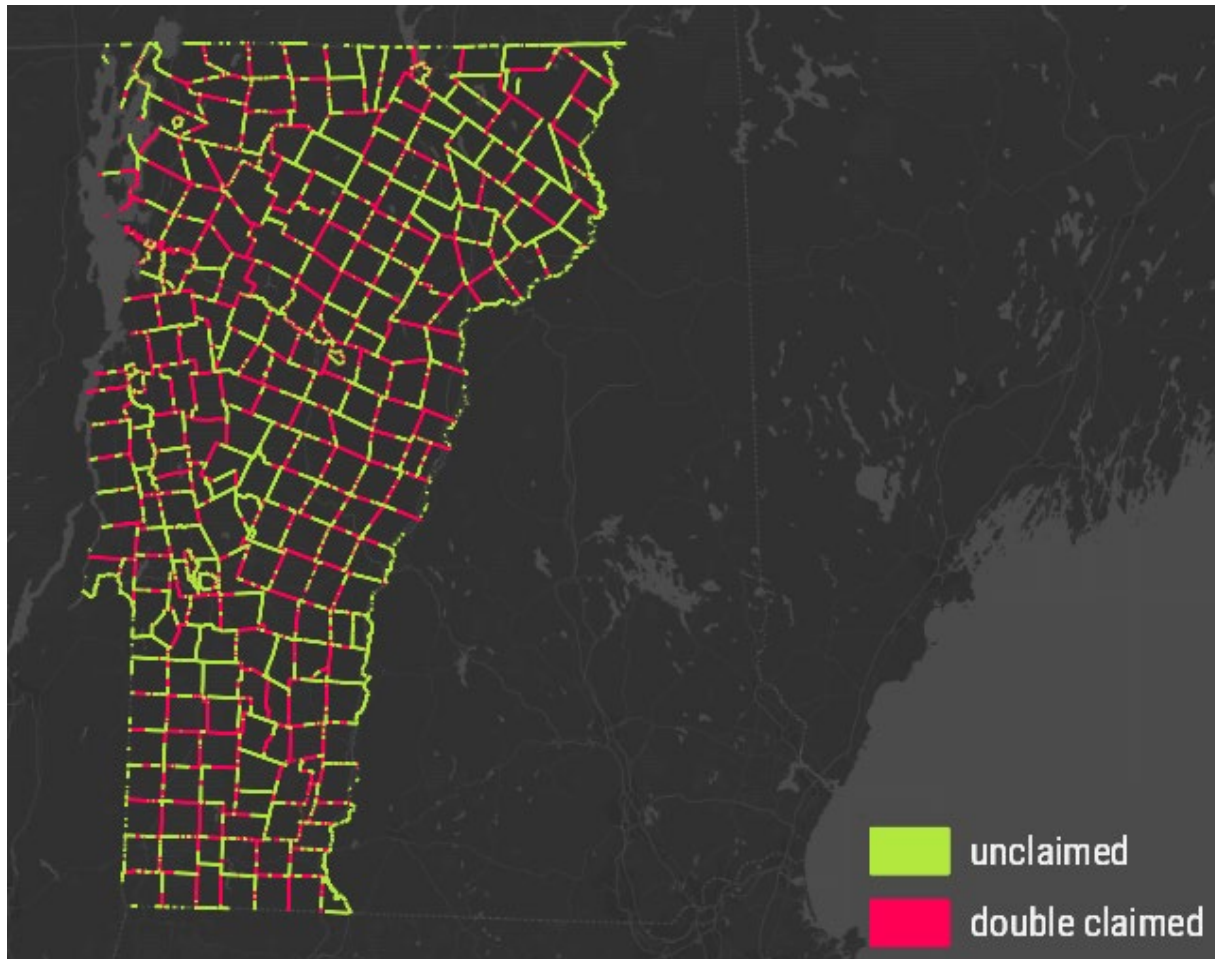
Unlanded Buildings and Grand List Acreage



acresgl	descprop	locaprop	cat	rescode	e911addr
0.0	CONDOMINIUM	NULL	Other	T	84 BRETS RD
0.0	CONDOMINIUM	NULL	Other	T	86 BRETS RD
0.0	CONDOMINIUM	NULL	Other	T	92 BRETS RD
0.0	CONDOMINIUM	NULL	Other	T	94 BRETS RD
0.0	CONDOMINIUM	NULL	Other	T	106 BRETS RD
0.0	CONDOMINIUM	NULL	Other	NS	112 BRETS RD
0.0	CONDOMINIUM	NULL	Other	T	115 BRETS RD
0.0	CONDOMINIUM	NULL	Other	T	103 BRETS RD

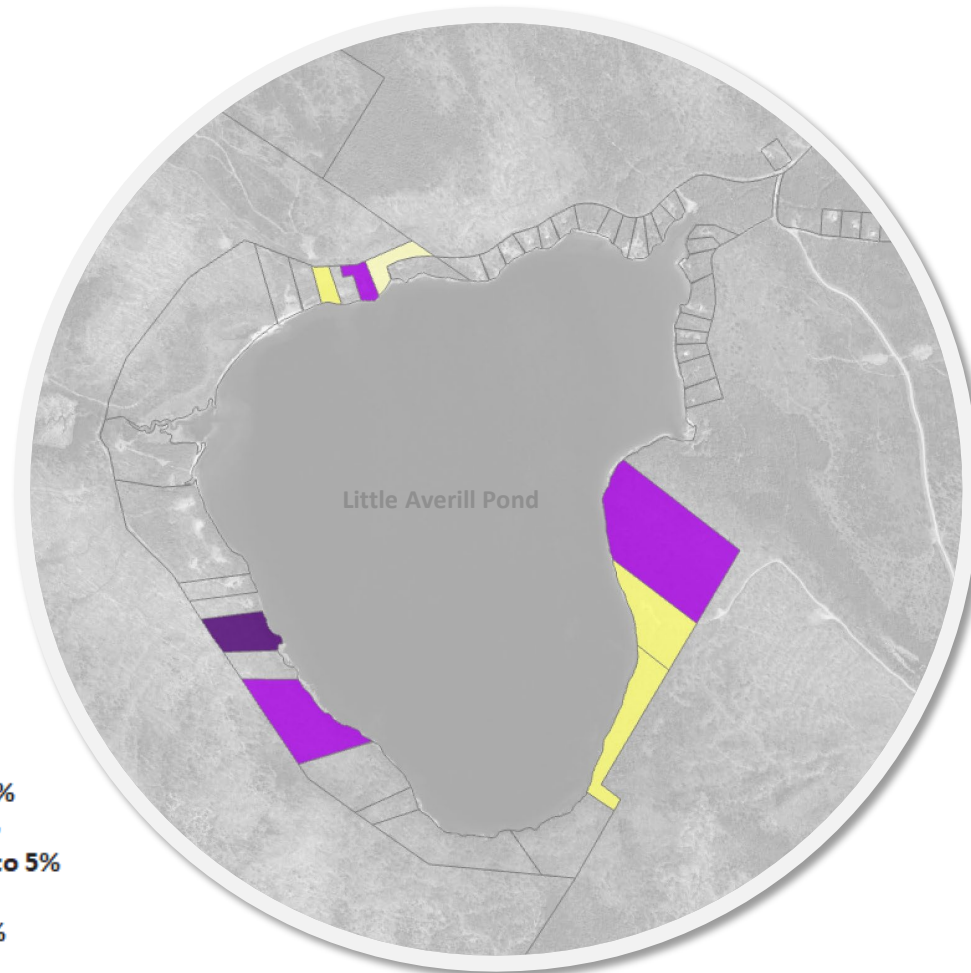
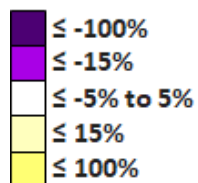
Land parcel with
condos in
Brattleboro and
the assoicated
Grand List
entries for each
address.

Acreage Discrepancies



Acreage Discrepancies (Continued)

GIS acreage is **larger** than Grand List acreage and GIS acreage is **smaller** than Grand List acreage.



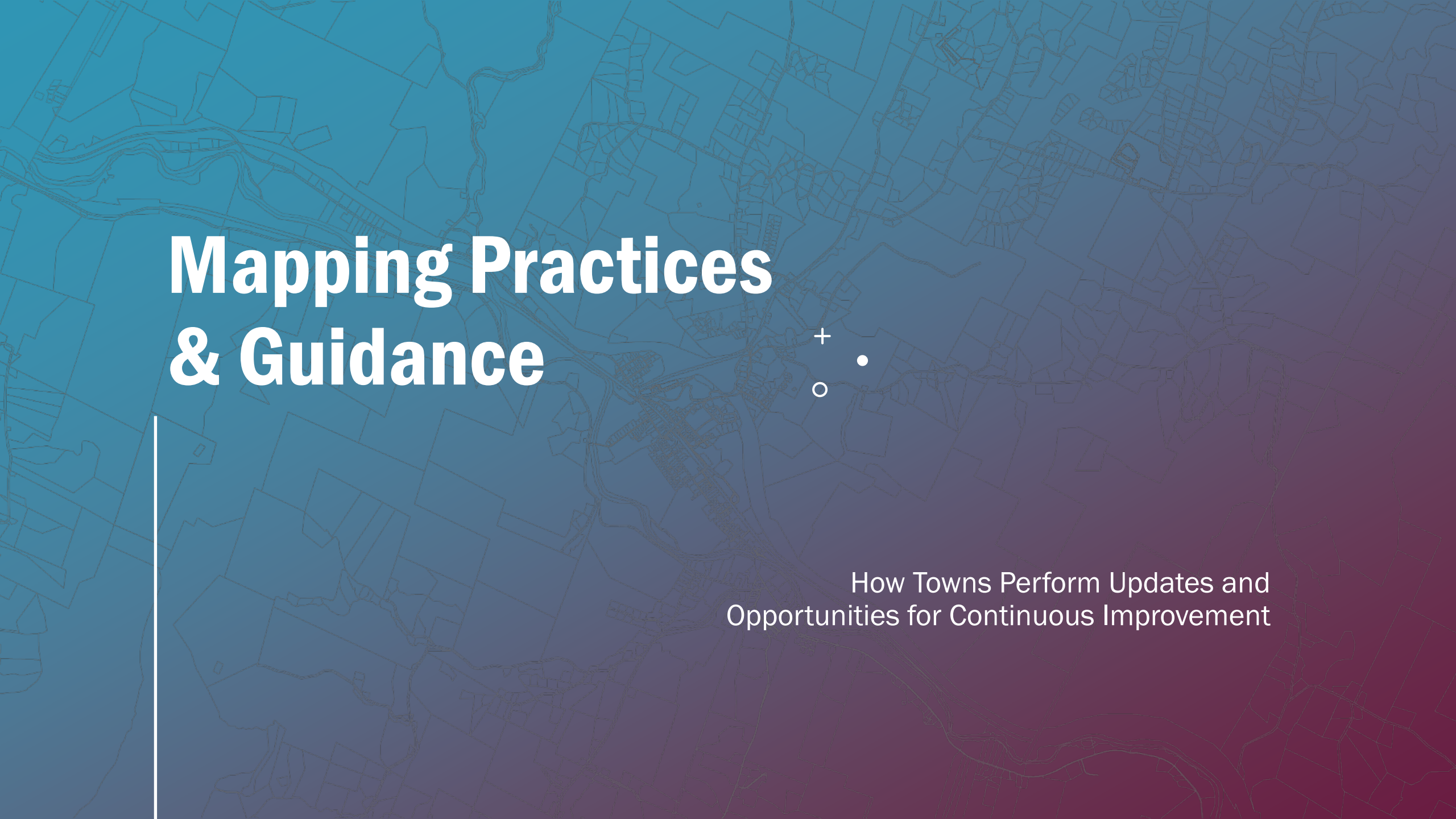
Grand List Acres



ACRESGL	GIS_Acres	AC_Diff	AC_Diff_PC
2.4	2.189686	0.210314	9.60476
1.01	1.044191	-0.034191	-3.274397
0.95	0.975636	-0.025636	-2.627598
1.94	1.941824	-0.001824	-0.093907
0.45	0.446132	0.003868	0.86697
0.9	0.933035	-0.033035	-3.540574
4.28	5.115441	-0.835441	-16.331746
1.34	1.480033	-0.140033	-9.461463
1.04	0.650914	0.389086	59.775432
1.1	1.211612	-0.111612	-9.211833
0.18	0.175923	0.004077	2.317578
1.15	1.186032	-0.036032	-3.038069
1.25	1.292603	-0.042603	-3.295936



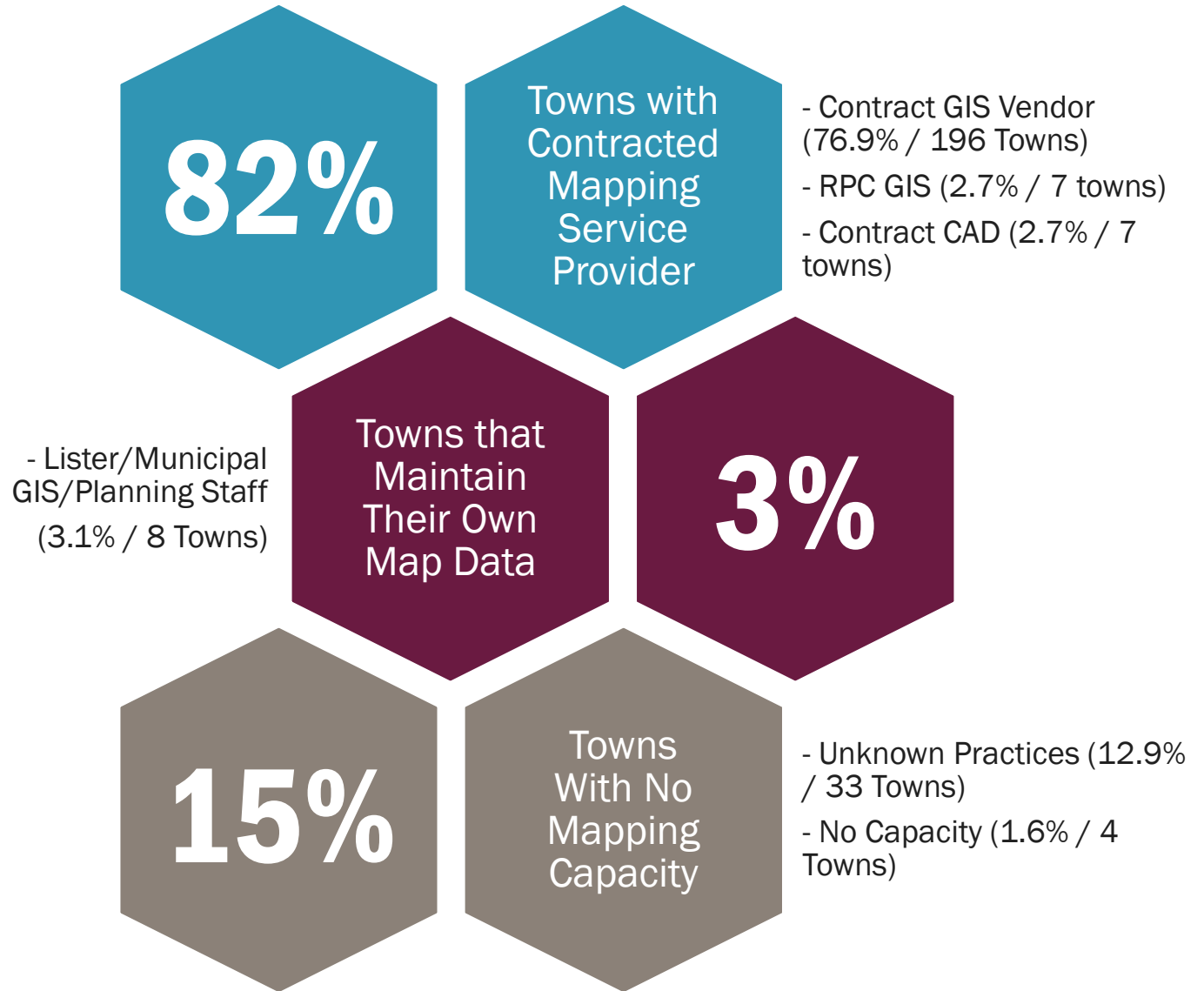
**~421 sq. miles
still un-attributed.**



Mapping Practices & Guidance

How Towns Perform Updates and
Opportunities for Continuous Improvement

How are towns maintaining parcel data?



Practices Tracked Here:
maps.vcgi.vermont.gov/parcelstatus

Guidance: Towns With Contracted Vendor

Ongoing Prep and Upkeep

- Maintain a running list of parcel changes from year to year.

Change type	Old SPAN(s)	New SPAN(s)	Date of Change	Included in Parcel Map Update (Y/N)	Plat Reference
Subdivision					
Merge / Adjacent ownership					
Geometry change					
Boundary line adjustment					

Guidance: Towns With Contracted Vendor

Ongoing Prep and Upkeep

- Maintain a running list of parcel changes from year to year.
- Develop a list of updates to current map geometry and attributes that address current discrepancies. This can be aided by using the [VT Parcel Viewer](#). SPAN, ownership, parcel geometry, and map/GIS acreage are worth reviewing.
- Collect and organize source data: plats, deeds, and surveys with coordinate geometry (COGO). Copies of recent surveys may also be available in the [Vermont Land Survey Library](#).
- Share the list of updates and available source data with your mapping service provider.
- Prioritize issues to be addressed in the current update and those to be reserved for later updates. Not all edits may make it in one update cycle.
- Work with the vendor to address issues. This includes discrepancies and those identified by viewing parcel line and attribute information with reference to aerial imagery.

Performing and Reviewing Updates

- Barre City Parcel Review

Layers

 - Barre City - VT_PARCELS_BARRE_CITY_2018_line_parcel
 - Barre City - VT_PARCELS_BARRE_CITY_2018_poly_active
 - Barre City - VT_PARCELS_BARRE_CITY_2018_poly_parcel
 - EXEMPT
 - MATCH
 - UNMATCHED
 - others
 - CGI Color Imagery Service
 - Barre City - TABLE_VT_PARCELS_BARRE_CITY_2018_intersection

Options = Filter by map extent | Zoom In | Clear selection | Refresh

GIS_SPAN	GUST_SPAN	YEAR	TOWN
036-011-10002	036-011-10002	2,018	BARRE CITY
036-011-10003	036-011-10003	2,018	BARRE CITY
036-011-10004	036-011-10004	2,018	BARRE CITY
036-011-10005	036-011-10005	2,018	BARRE CITY
036-011-10006	036-011-10006	2,018	BARRE CITY
036-011-10007	036-011-10007	2,018	BARRE CITY
036-011-10008	036-011-10008	2,018	BARRE CITY
036-011-10009	036-011-10009	2,018	BARRE CITY
036-011-10010	036-011-10010	2,018	BARRE CITY

10726 seconds 0 rendered

Guidance: Towns With Contracted Vendor

Performing and Reviewing Updates

- Answer questions about parcels that have missing or inaccurate data. Provide vendor source data such as plats, deeds, surveys in a timely manner.
- Obtain draft GIS maps from the vendor for review before they are finalized. It is now common for these to be made available online and viewable in a web browser.
- Perform quality control checks on draft GIS maps. Verify that desired changes are reflected, SPAN use is maintained, parcels without a SPAN are reviewed with the vendor and resolved, inactive parcels are included and reviewed, and parcels that have multiple SPANs (Condos, Mobile Homes) are accounted for via an intersection table.
- Approve final map products once reviewed issues are addressed.
- Take delivery of final map products and the updated discrepancies list for future resolution. Make sure you confirm that the town owns the final deliverables it paid for and will not have to pay again to access them in the future.

Guidance: Towns With Contracted Vendor

Submittal and Use

- Verify that your mapping service provider understands how to upload final mapping products (shapefiles, geodatabase) to VCGI. If not, [guidance is here](#).
- Verify that the final map package has been uploaded to VCGI by the vendor. You can check the status of submittals and publishing by town [here](#).

Vermont Parcel Program Town Mapping Status

Search and Select a Town: Statewide

Select a town from the drop down menu above. Select town information below to isolate it on the map.

Addison

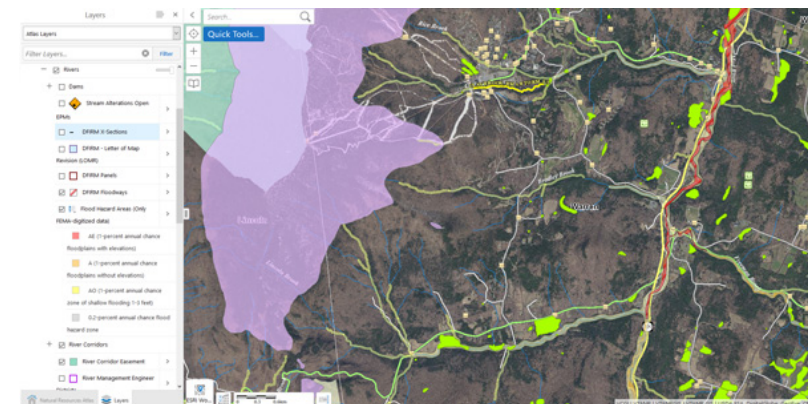
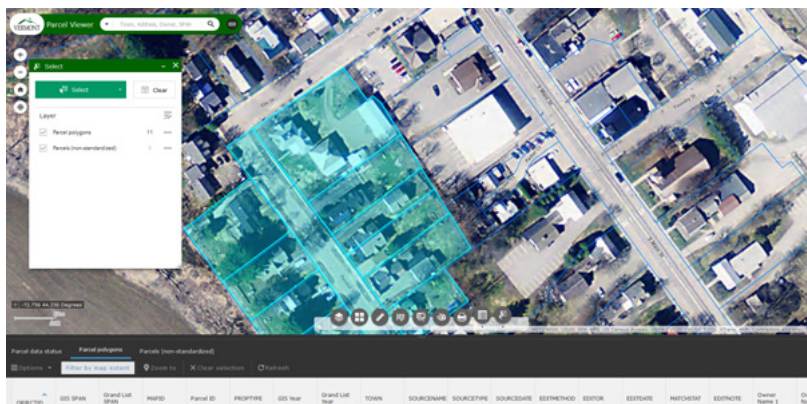
Published GIS Date	2019-06-17
Current Map Capacity	Contract GIS Vendor
Current Vendor	CAI
Update Month if Known	
Update Frequency if Known	Annual
Contract Length	
Next Estimated GIS Update	
Status Last Updated	3/5/2021
Most Recent Geometry Submittal	2021-09-08
Submittal Reviewed by Town	No
Submitting Entity	CAI
Submitted By	
Submission ID	Addison 2021-09-08T13:13:24.000Z
Regional Planning Commission	Addison County Regional Planning Commission
Published GIS Notes	
Parcel Project (2017-19) Vendor	CAI

All Towns Currently Joined With
2020
Statewide Grand List
Status Last Updated: 2021-09-15

Guidance: Towns With Contracted Vendor

Submittal and Use

- Verify that your mapping service provider understands how to upload final mapping products (shapefiles, geodatabase) to VCGI. If not, [guidance is here](#).
- Verify that the final map package has been uploaded to VCGI by the vendor. You can check the status of submittals and publishing by town [here](#).
- Freely use updated parcel data via online tools such as the [VT Parcel Viewer](#), [Interactive Map Viewer](#), [ANR Atlas](#). The same parcel data are provided by all applications.



Guidance: Towns Without Map Capacity

Obtaining Mapping Capacity

- Review uses, examples, and frequently asked questions about parcel data [here](#).
- Review parcel data maintenance practices of other towns. Maintenance practices known by VCGI are available and regularly updated [here](#).
- Review the latest parcel data for your town in the [VT Parcel Viewer](#) and the [data status of your town](#) as published by the [parcel program](#). Detail about publishing and data dates is [here](#).
- Review list of GIS vendors who work in Vermont that is available [here](#), updated annually, and GIS vendors working with other municipalities [here](#). RPCs may also be able to contract for parcel mapping services and are worth [contacting](#).
- Determine the frequency and immediate need for updates based on the number of discrepancies and changes year over year. Estimate funds for upkeep given these changes.

Guidance: Towns Without Map Capacity

Obtaining Mapping Capacity (Cont'd)

- Determine if there are staff with the municipality that have the training, time and resources to support the town in making GIS/digital data and map updates. If a staff member is to perform updates, see the steps under “Mapping is performed by an employee of the municipality”.
- If no staff members are available to perform updates, reach out to the list of mapping service providers and/or your [Regional Planning Commission](#) to determine if they are available to support the town.
- Send a Request for Proposals (RFP) to vendors that expressed willingness to perform mapping updates. Mapping guidelines and a template RFP for procuring mapping practices are available [here](#).
- Select a vendor from the proposals based on price, qualifications, and needs. Digital parcel data and map maintenance in GIS format is strongly recommended. Once a vendor is selected, perform the tasks outlined under “Towns with a Contracted Mapping Service Provider.”

The “Missing”: For Consideration & Improvement



Inactive Parcels

GIS and Grand List Acreage

Common Land Buildings

Public Right-of-Way

Surveys & Documentation

Professionalization & Resources for Town Parcel Upkeep

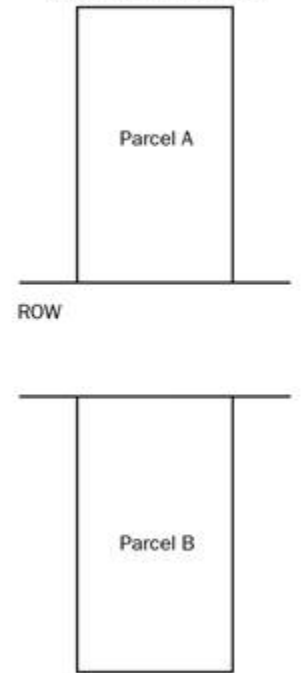
Collective, Ongoing Formal Oversight

Inactive Parcels

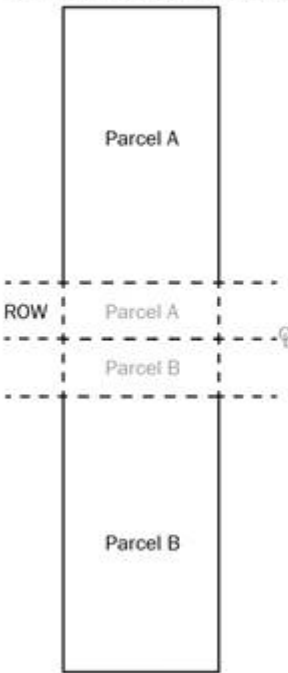
A) Standardize & Require
B) Eliminate
**Which would be
more useful?**



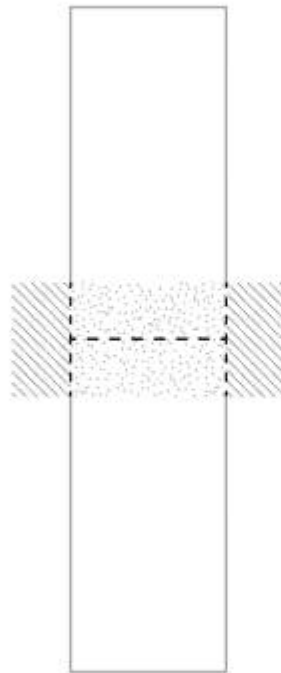
A Current Practice and As-Published: Mapped to ROW (Functional Depiction)



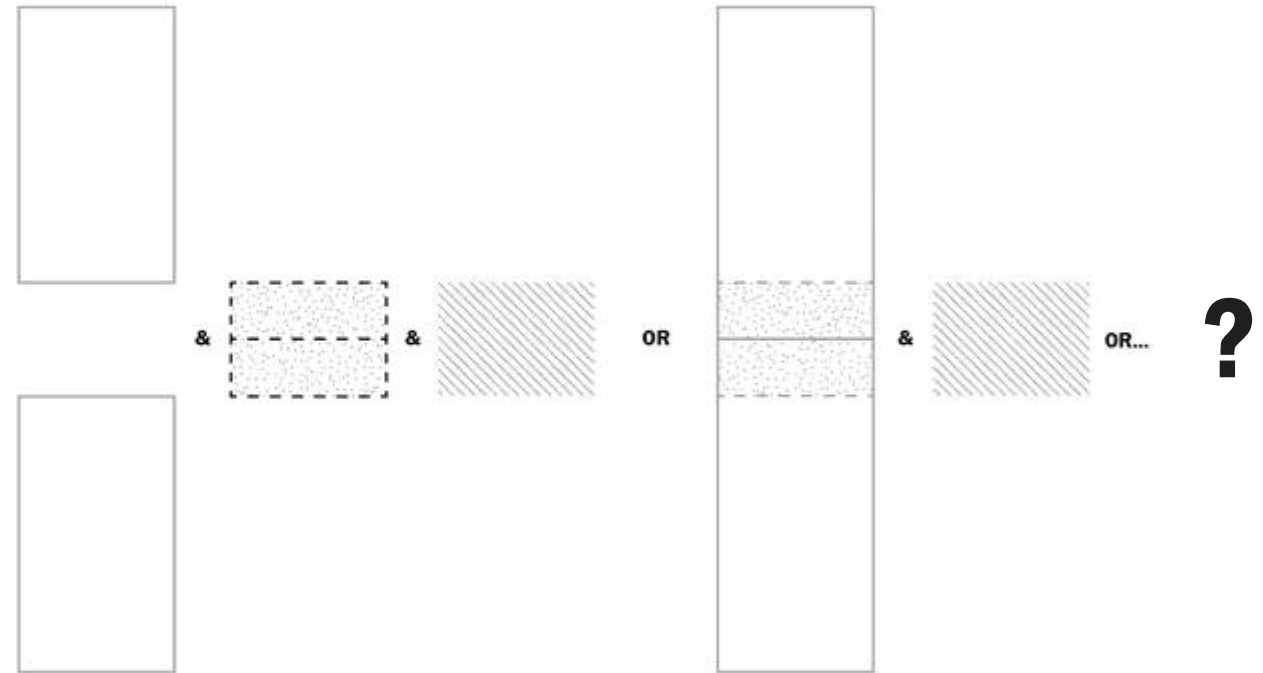
B Technical Depiction for Non-VTrans Owned Roads



C ROW Zone Stacked



D Full Display of ROW Zone



Specify Rules in Tricky Settings

Public Right-of-Way

“Not until recently has the question come up with Town Listers of whether or not to include the area of a property in the public roadway when calculating land area for property taxes...there does not seem to be any clear statement in law that this area shall be subtracted from the total acreage when calculating the taxable area of a property. I have found the law for the State of Washington [[RCW 84.36.210](#)], but not for Vermont.”

“This issue is becoming more important now that we have GIS mapping of all properties in the State. More and more property owners and Listers are using this information and issues over the differences in acreages are arising. The GIS guidelines on parcel mapping recommend best practice as properties be mapped to the edge of the right-of-way.”

The background of the slide is a light pink map showing various land parcels and roads. In the top left, there is a teal rectangular box containing the text 'GIS Acreage'. On the left side, there is large, bold, black text. At the bottom right, there is a dark grey silhouette of the state of West Virginia with the text 'West Virginia' inside it, and a black arrow pointing to the right.

GIS Acreage

Learn from Examples Elsewhere: What holds for VT?

What is the difference between Deeded and Calculated Acreage?

Deeded Acreage: The official acreage listed in the deed which is the historic record of conveyance for property ownership and the primary legal record defining the property and its boundaries.

Calculated Acreage: Derived from using mapping software or geographic information systems (GIS) to calculate the area or acreage of the geometry of a digital parcel. A calculated acreage provides a general estimate only. It is not the legally recognized acreage and should not be used for assessment purposes.

Since the tax map parcels are not mapped to “surveyor” scale, the calculated acreage should only be used as a reference or estimate. The deeded acreage is the authoritative source for tax assessment purposes in West Virginia. Paragraph 7.6.e.2. of the [WV 189 CSR 3](#) "Statewide Procedures for the Maintenance and Publishing of Surface Tax Maps" states that if the deeded acreage does not match the calculated acreage, then the deeded acreage shall take precedence. If there is a large discrepancy between the deeded and calculated acreages, then a land survey may be required.

[Source: WV Revised Tax Map Rules](#)



Oversight

Learn from Examples Elsewhere: What holds for VT?

Recommendations for Property Tax Division

- ➡ 1. **Staffing:** Identify a Lead GIS Manager or Program Supervisor for surface tax maps.
- ➡ 2. **Outreach & Training:** Develop and sponsor effective GIS training programs for assessors and mappers. Provide outreach and technical support services to include publishing map resources (standards, best practices, etc.) on the Property Tax Division's website.
- ✓ 3. **Data Sharing:** Ensure there is a reciprocal relationship between the Property Tax Division and counties for sharing mineral and surface tax parcels.
- ✓ 4. **Standards:** Develop uniform statewide GIS database standards.
- ✓ 5. **GIS/IAS Integration:** Supervise integration of county statewide GIS parcels and IAS records into a statewide layer for "viewing only" purposes. Develop an easy process for counties to download IAS data to merge with GIS parcels.
- ~ 6. **Maintenance:** Establish a digital maintenance program for counties that need to outsource parcel maintenance. Assist counties interested in locating reputable vendors to outsource digital parcel maintenance.
- ➡ 7. **Monitoring:** Update monitoring procedures. When monitors are writing county inspections reports, ensure the appropriate regulations are cited for deficiencies.

[Source: WV Revised Tax Map Rules](#)



Technical

Take Homes: Ways Forward For VT

- Regular, planned, and **documented continual maintenance** is key: from property transfers (quick) to geometry (slow)
- **SPANS for all parcels** (When in doubt, attribute!)
 - If parcel is not in GL utilize notes to provide context (i.e., utility, common land, national guard, cemetery, etc.), vendor carries to EDITNOTE field
- Normalize tracking of **unlanded buildings** (condos/mobile homes): How could practices normalize statewide?
- **Edge-matching** without uniform town boundaries: for now, work with neighboring towns
- Develop regular tracking practices and **cross-referencing of source material** (e.g., plat #, book/page...)
- **Review parcels in reference** to best-available GIS info (e.g., aerial imagery) and surveys
- **Prioritize changes and professionalize maintenance**



Oversight

Take Homes: Ways Forward For VT

- Create and Regularly Convene **Cross-interest Workgroup** To Identify Means of Addressing Issues and Divvy Tasks/Roles
 - **Statute Review**, legal perspective
 - Ideally not solely led by Mapping/GIS professionals...
 - **Adhere and advance best practices** across the U.S.; particularly in New England/Decentralized Local Gov.
 - **Ongoing clarification and education** of what parcel data are/are not within contributing professional circles
- **Normalize definitions and practices**, with efforts toward requirements and incentive changes as needed
 - Increased visibility and use = increased questions and scrutiny
 - Vehicles: per parcel appraisal fees, VTPIE/CAMA integration, necessity of inactives
- Continue to **improve explanations and muni training** of content and process as quality improves
- **Money & skilled staff** do not hurt...

Resources

Tools

Data

[Vermont Parcel Program Overview](#)

[Parcel Program FAQ's](#)

[Vermont Parcel Viewer](#)

[Municipal Parcel Data Status](#)

[Vermont Parcel GIS Data](#)

[Vermont GIS Parcel Data Standard](#)

[Vermont Parcel Mapping Guidelines](#)

[Vermont Land Survey Library](#)

Chaveli Miles | chaveli.miles@vermont.gov

Tim Terway | tim.terway@vermont.gov

VALA Conference | September 17, 2021



The Good, The Bad, and The Missing

Vermont's Parcel Data and the Role
of Listers in Improving Data Quality

Chaveli Miles | chaveli.miles@vermont.gov

Tim Terway | tim.terway@vermont.gov

VALA Conference | September 17, 2021