

VT Center for Geographic Information

Statewide Parcel Program Plan FY21

Final | Version 1.5

Update History

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“The challenge of parcel data is keeping the data current and making it usable to municipal officials.”

- *State of Vermont Case Study, Digital Parcel Mapping Handbook, URISA, 1999*

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Summary

The creation and upkeep of parcel map information is a responsibility of each Vermont municipality. Each town has different mapping practices and capacity, many have none, and for those that do there is no current requirement to share the map information with the State for public benefit. Considering these challenges, the Statewide Parcel Mapping Project (2017-2019) enabled statewide coverage of digital parcel map data in GIS format, successfully making this public information as joined with the grand list available and accessible for all towns in Vermont. The project, however, relied on one-time funds to do so. A statewide parcel data layer that remains useful requires additional work and resources to achieve. This document outlines a plan for maintaining GIS parcel data as a public information resource.

The Statewide Property Parcel Mapping Program is proposed to have a shared maintenance model among towns, their map vendors, and VCGI. As VCGI provides statewide GIS mapping resources for towns and the broader public free of direct charge, the Program relies on towns and/or their vendors to voluntarily share parcel map updates with VCGI for inclusion in the statewide layers and applications that towns, in turn, are encouraged to use. For towns without established parcel mapping practices, VCGI provides guidance materials for them to use while considering the move to professional map maintenance, and as a last resort, will update a town without map capacity's parcel data once a year using available information, including copies of land surveys of boundary line changes that are now required Statewide. The Program as proposed thus requires an additional staff person at VCGI, and their roles and duties are outlined in this document.

There are challenges and risks with the proposed plan. First, it depends on towns and their vendors voluntarily sharing data updates with VCGI, relying on the value provided by the State's GIS data and map applications to encourage participation. Second, it depends on shared data updates from towns being easily made compliant with the parcel data standard and without contractual means of enforcement. Third, improvements to spatial accuracy, mapping practices and documentation are not guaranteed. Fourth, and perhaps most significantly, a third to half of Vermont municipalities are not known to update their parcel map information annually, let alone doing so digitally in a SPAN-using GIS format. Lastly, because there are so many municipalities without mapping capacity, they may not receive the quality or comprehensiveness of updates as they would with such capacity, and that specifically provided by a dedicated map professional.

The proposed Program aims to address these challenges, while assuming future changes in mapping-related activities will also benefit the Program. Activities include using the land survey library now implemented statewide for documenting parcel line changes, maintaining widely accessible and useful online parcel mapping tools, continuing to provide learning resources for citizens and town officials, and working in close collaboration with the Tax Department as they roll out the new integrated property management system that ideally will reflect the map related aspects of the grand list.

Purpose

The purpose of the Statewide Property Parcel Mapping Program ([19 V.S.A. § 44](#)) is to:

- (1) maintain a statewide property parcel data layer by collecting, standardizing and combining parcel data overseen by Vermont municipalities;
- (2) ensure regular maintenance, including updates, of the data layer; and
- (3) make property parcel data available to State agencies and departments, regional planning commissions, municipalities, and the public.

These parcel data are to enable their users to more easily understand who owns what property where in Vermont by associating parcels with the Statewide Grand List. Users across agencies and jurisdictions are increasingly reliant on the spatial aspects of property ownership to effectively meet business needs. This includes, for example, ensuring access to reliable and current parcel data that reflects municipal grand lists, which in turn is used for other work such as supporting correct information for permits, infrastructure projects, planning and targeted investments, evaluation of publicly funded programs, adequate emergency response, aiding research, and more.

The initial three-year project (2017-2019) staffed by VTrans, VCGI, and ADS established a basis for the ongoing maintenance program. The program will seek to maintain statewide data generated by the project and is intended to be overseen by VCGI. The purpose of this document is to clarify associated tasks, roles, responsibilities, and budgeting for this work. It is also to specify the manner of ongoing operations in the parcel program.

Scope

This document applies to the first year of the ongoing parcel maintenance program expected to be overseen by VCGI. It outlines anticipated VCGI tasks, staffing, roles and responsibilities, budget, and the transition from project to program and continuing the program itself beginning Fiscal Year 2021 (FY21; July 1, 2020).

The workflow outlined here is intended to evolve with input from participating groups as the program evolves. VCGI encourages participants to help us improve the effectiveness of the parcel program now and in the future.

Program Description

Context

In Vermont, the creation and upkeep of parcel information is a responsibility of each municipality. These 255 municipalities and unincorporated entities have major differences in their staffing, resources, skills, needs, and perspectives regarding the upkeep of their parcels, be they analog or maintained digitally.

Administered by the State of Vermont, the [Statewide Parcel Program](#) data development project lasted for three years (2017-2019) and created for the first time a [complete and uniform digital parcel dataset](#) for [every municipality](#) in Vermont. This involved [obtaining](#) and [standardizing](#) these municipal data such that they are joinable with their grand list [as submitted to the Tax Department](#).

The project used a combination of Federal Highway Administration funds and pooled resources from multiple VT State Agencies to pay map vendors for the creation and/or conversion of municipal parcel data adherent to a statewide digital parcel data standard. Vermont municipalities were divided in to three groups to be completed over three years, with funds made available for one respective year of data conversion/creation per each town. State staff processed, combined, and published these data as a free public resource as they became available. The cost of paying map vendors for the creation of this initial dataset ranged between \$457,000 and \$617,000 annually. Total costs for the data development project were roughly \$2.9 million. The return on investment for the project considering the many uses of parcel data was estimated to range from 1.58 to 4.55, or in dollar terms, from \$6 to \$9 million dollars in expected benefits over a five-year period.

This positive return on investment requires a commitment to ongoing parcel data maintenance such that the information remains complete, up to date, accurate, and useful. As a precursor to the data development project, [a maintenance plan](#) was developed by a consultant specifying two alternatives for ongoing parcel data maintenance once the initial funding-of-vendors portion was complete. One alternative called for shared maintenance responsibility among VCGI, private vendors, Regional Planning Commissions (RPC's), as well as integration with municipal CAMA software and other professional groups such as the Vermont Assessors and Lister's Association (VALA). The other alternative involved shifting technical data editing and upkeep to VCGI, contingent on additional staffing, documentation, verification, and incorporation of boundary line changes.

Overview

The proposed program is a hybrid of these two alternatives. **First**, we recommend continuing to support a "shared maintenance responsibility" model for those towns with contracted map vendors, [many of whom participated](#) in the three-year data development project. For these towns, an annual submission workflow is recommended such that vendors are asked by VCGI to submit annual municipal parcel data updates to VCGI via an online form. Submission of updates by vendors would occur once the data are reviewed and approved by the municipality and when the vendor submits their final deliverable to the town. A second tier of municipalities with town-managed GIS parcel data would

also be requested for data in this way. VCGI would maintain correspondence with vendors and towns to ensure timely, quality, and reliable parcel data for these towns. The parcel data standard will change from an acceptance/rejection function based on grand list match rate as confirmed by a QC tool in the project to one that explains what VCGI ultimately publishes upon receipt and review of vendor data in the program. Updates from vendors and GIS-capable towns would begin during year three of the parcel project (2019; FY20), with a full rollout of this component in summer 2020 (FY21).

Second, the passage of [H.526 / Act 38](#) in the 2019 legislative session (effective January 1, 2020) establishes a [statewide land survey library](#) and requirement for surveys of boundary line changes to be submitted to the library by VT licensed land surveyors. As a new public resource, the library's contents may provide a basis on which parcel changes can be made. (It is estimated that Vermont should see an average of 3,500 parcel changes per year, although not uniformly distributed). Following a "shared maintenance responsibility" model, priority would be given to map vendors on contract with towns to use the library as additional documentation of line changes for their annual updates. Equal priority would be for those towns who maintain their own parcel data to also use the library for documentation of changes. For those municipalities that do not contract with map vendors or maintain their own parcel data, VCGI would use the library to justify and make updates for those towns. This would require VCGI staff to make and publish the edits, as well as to maintain contact with said municipalities to notify of changes. As a continued practice of the parcel project, VCGI would provide line changes and match to the respective grand list as-is, and not perform additional services that map vendors often contract with towns to provide (e.g. annotations and cartography, printing, custom CAMA integrations, etc.). This will help maintain reasons for towns to continue to work with vendors should it suit their mapping needs as well as ensure VCGI's capacity to maintain useful edits without the additional burden of providing custom map development for towns.

Third, significant outreach and education work is expected to be needed in order to ensure mutual understanding among participants and the effectiveness of the proposed program. Regular communication between VCGI, vendors, municipal officials, other agencies and groups will be required. VCGI staff are expected to provide support and guidance for involved parties. This includes the development and deployment of in-person and online training and educational resources, as well as the update of tools, applications, sites, standards, policies, and guidelines that relate with parcel data maintenance in Vermont.

Fourth, several possible and ongoing changes could have bearing on the proposed program. These include changes in the content, availability, and distribution of grand lists and the integration of a future property information management system with statewide parcel data, to legislative changes that, for example, alter funding for per-parcel appraisal fees or establish municipal parcel coordinators. These possible developments are expected to be considered and included within the proposed program on an as needed and as-available basis. Several of them [are outlined here](#).

The projected annual cost of the proposed program in FY21 is \$226,856. See the program budget and funding section for detail.

Roles and Responsibilities

The following groups play a role in Vermont’s Statewide Property Parcel Mapping Program. Their anticipated responsibilities are summarized below.

Parcel Advisory Board	VCGI	Map Vendors
Municipalities with Contracted Map Vendors	Municipalities who Maintain Their Own GIS Parcel Data	Municipalities without Map Vendors or Capacity
Licensed Land Surveyors	Tax Department	Regional Planning Commissions
Other State Agencies	Other Groups	New Partners

1. Parcel Advisory Board

As stated in [19 V.S.A. § 44](#), the Property Parcel Data Advisory Board

is created for the purpose of monitoring the Statewide Property Parcel Mapping Program and making recommendations to the Agency of how the Program can be improved to enhance the usefulness of statewide property parcel data for State agencies and departments, regional planning commissions, municipalities, and the public.

The transition from the data development project to program will retain these oversight responsibilities of the board. The content of their consideration, however, will shift to:

- Evaluate and confirm sources of ongoing financial support for program
- Consider and confirm changes of funding, direction, and practices of program; including the roles and responsibilities of stakeholders
- Communicate purpose, usefulness, and ongoing needs of program to legislature and other respective bodies

The Parcel Advisory Board may be replaced at the end of the data development project with a different entity that performs similar functions. As of December 2019, this new guidance body is expected to take effect in 2021.

2. VCGI

- Oversee day to day activities of parcel program
- Maintain and evolve statewide GIS parcel data standard for published parcel data
- Maintain related policies, standards, and guidelines for parcel mapping
- Receive, review, publish, and catalog standard-compliant municipal parcel data

- Develop and maintain applications for public access to parcel data received from municipalities
- Develop and maintain Vermont Survey Library for copies of documentation of parcel boundary changes
- Maintain IT infrastructure for making parcel data publicly available
- Perform periodic updates for select municipalities without vendors or mapping capacity using survey library and respective annual statewide grand list
- Provide resources, training, and communications regarding standardized VT GIS parcel data
- Periodically review uses and effectiveness of parcel program and new needs
- Develop strategies for updates to parcel program as needed

3. Map Vendors

- Obtain and maintain contracts with VT municipalities for regular parcel data updates, ideally in GIS format with continued use of the unique SPAN for parcels in addition to local parcel ID's
- Perform parcel data maintenance, ideally compatible with the Vermont GIS parcel data standard (e.g. SPAN use)
- Use [Vermont Land Survey Library](#) as resource for aiding parcel data updates
- Voluntarily [share municipal parcel data updates](#) with VCGI upon their completion and town approval via a webform at vcgi.vermont.gov/data-and-programs/share-map-data
- Participate in parcel program updates hosted/offered by VCGI
- See full guidance doc of [working with VCGI here](#)

4. Municipalities with Contracted Map Vendors

- Obtain and maintain contracts with map vendors for regular parcel data updates, ideally in GIS format with continued use of the unique SPAN for parcels in addition to local parcel ID's
- Share needed information for map updates with vendors (e.g. grand list, land records)
- Specify standard-compatible criteria for data received from vendors (e.g. use SPAN numbers) in contracts, set time for reviewing data and checking discrepancies before finalized, ensure data products are delivered to Town upon completion of services
- Request vendors [share parcel data updates](#) with VCGI
- Participate in available training or resources related to parcel data upkeep and use
- [Review and confirm](#) your map vendor with VCGI, particularly when it changes

5. Municipalities who Maintain their own Digital Parcel Data

- Perform parcel data maintenance, ideally in GIS format with continued use of the unique SPAN for parcels in addition to local parcel ID's
- Consider building upon GIS parcel data completed and freely available for your town as part of the parcel project
- Use the [Vermont Land Survey Library](#) as resource for aiding parcel data updates

- Voluntarily [share annual municipal parcel data updates](#) with VCGI via a webform at vcgi.vermont.gov/data-and-programs/share-map-data
- Use the [Vermont Parcel Viewer](#) as needed for viewing shared and published updates
- Participate in parcel program updates hosted by VCGI
- [Review and confirm](#) your map vendor with VCGI, particularly when it changes

6. Municipalities without Map Vendors or Capacity

- Consider obtaining and maintaining contracts with map vendors for regular parcel data updates, ideally with GIS vendors capable of producing standard-compatible data (e.g. SPAN use)
- Review available parcel mapping guidelines and guidance contract language available from VCGI
- Follow guidance for municipalities with contracted map vendors, including reminding them to [share digital parcel updates](#) with VCGI upon completion
- Review published parcel data with VCGI if updates available
- [Review and confirm](#) your mapping practice with VCGI, particularly when it changes

7. Licensed Land Surveyors

- Contribute digital copies of surveys of boundary changes to [Vermont Land Survey Library](#)
- Adhere to evolving digital survey standards set by Board of Land Surveyors

8. Tax Department

- Evolve grand list access to support easy, stable join with standardized parcel data via SPAN
- Display and link to statewide parcel data within property information management system software
- Coordinate with VCGI on guidance and communication with municipalities regarding mapping practices
- Consider hosting open API for associated tabular data (e.g. property transfers)
- Consider requesting updates to municipal parcel data to be submitted to VCGI with the annual submittal of their grand list and/or completion of work by contracted map vendor
- Develop formal strategies and communications for improving the recording and receipt of inactive parcels
- Consider modification of reappraisal payments to provide incentive for SPAN-attributed parcel data upkeep
- Consider designation of municipal parcel coordinator
- Coordinate with VCGI to add mapping practices to lister handbook, calendar, and other guidance and training offerings

9. Regional Planning Commissions

- Host annual info/update sessions led by VCGI on the parcel program for their municipalities
- Field questions and point to guidance from VCGI regarding nature of parcel data and its upkeep
- Forward any received municipal parcel data updates to VCGI

10. Other State Agencies

- Coordinate with VCGI to ensure ongoing usefulness of available parcel data and prevent data duplication
- Support legislative requests for program support from parcel advisory board
- Coordinate with VCGI on the development of formal strategies for improving the tracking and receipt of easements and/or protected lands and their bearing on standardized parcel data

11. Other Groups

- Other mapping-related groups such as the Vermont Assessors and Lister's association should consider coordinating with VCGI on guidance and training related to parcel mapping in VT

12. New Partners

The program team may obtain feedback and guidance from new partners across Vermont who use grand list-joined parcel data in their work. A potential new partner group would be a statewide GIS Advisory Council comprised of GIS professionals and users statewide that, in addition to state government members of the Enterprise GIS Consortium, share ways to improve the parcel program given their uses and needs. This Advisory Council, when formed, could be convened annually to discuss program activities.

Procedures

There are three parcel data maintainers in the “shared responsibility” model of the proposed program:

- map vendors
- municipalities with mapping capacity
- VCGI

Map vendors and municipalities with mapping capacity include both those with and without GIS capacity. VCGI is expecting to perform updates only for those municipalities without vendors or mapping capacity, as well as convert to GIS those digital map data maintained by vendors or municipalities in other digital formats (e.g. CAD). All Vermont municipalities are placed into one of

these three groups based on VCGI's knowledge throughout the parcel project. The group in which a municipality is classified, and thus its procedures for parcel data upkeep, will be reviewed annually by VCGI and changed to reflect their current status.

As of December 2019:

- ~32 mapping entities working in Vermont on municipal parcel mapping including towns with their own capacity
- 23 vendors are estimated to have GIS capacity
- 9 GIS-capable vendors have had experience with the VT GIS parcel data standard
- ~59% (150 total) of the state's 255 civil divisions are known to currently work with a map vendor
- ~55% (141 total) are known to currently work with a map vendor with known GIS capacity
- ~3% (8 total) have their own GIS parcel mapping capacity
- ~33% (84 total) have unknown future mapping practices
- ~3% (8 total) are confirmed to have no vendor or mapping capacity

Creating, Procuring, Reviewing, and Publishing New Parcel Data

1. Municipalities with contracted Map Vendors with GIS Capacity and Parcel Data Standard Experience

GIS vendors who contract with municipalities prepare and submit data for those towns compatible with the Vermont Parcel Data Standard (e.g. SPAN use for all parcels). Vendors upload submissions for the respective municipality to a secure website form hosted by VCGI once the standard-compatible parcel data for a municipality has been completed, reviewed and approved by the town.

The Parcel Program Technical Lead at VCGI records the date of submittal within the tracking database. Once town-reviewed and approved data is received and recorded, the VCGI Technical Lead downloads the data from the secure website and inspects the data for quality control. Quality control includes looking for SPAN use and match rate with the corresponding annual grand list, valid topology, proper geolocation and other measures. An expected difference in the QC tool within the program relative to the one used in the data development project is that the tool for the program will shift from an acceptance/rejection purpose with required use by vendors to providing information and guidance on what VCGI ultimately publishes within the statewide parcel layer and without required vendor/town use.

If submitted data passes QC, VCGI readies the data for publication as an overwrite of the town's existing data, while backing up previous annual releases. If it does not, they communicate with to the vendor briefly describing the reasons why the new data is not ready for publication and ways for the data to be improved and published. VCGI will work with them to do so.

If the source data contains "optional" deliverables such as inactive parcels, easements, an ETL tool or related documents, this information is also tracked by VCGI and made available upon request. New data are added to a development database and are joined with the current statewide grand list by VCGI and pushed to production databases on a weekly basis.

Public-facing parcel data products within the VT Geodata Portal and other applications are updated by the above workflow on a rolling basis.

2. Municipalities with contracted Map Vendors with GIS Capacity and no Parcel Project / Parcel Data Standard Experience

Procedures for this group are like those in group (1), except that parcel data standard compatibility (e.g. SPAN usage, etc.) is expected require more outreach, training, and correspondence between VCGI and the GIS vendor in question. Background on the standard will be provided at least annually for all vendors (see the communication section). This exchange between vendor without standard experience and VCGI is expected to begin while a vendor is working on updates for a municipality, and will continue through their ultimate completion, verification of standard compatibility, transfer to and publishing by VCGI.

3. Municipalities with GIS Capacity

The procedure for this group is like those in group (1) where municipalities hire GIS map vendors, with the municipality itself taking the place of the GIS vendor in this group.

4. Municipalities working in CAD with contracted Map Vendors or on their own

Procedures for this group will take one of two forms. The first type will treat the CAD vendor much like a GIS vendor, except that the CAD vendor is not expected to convert their data to GIS format that is compatible with the data standard. Instead, they will be contacted by VCGI and encouraged to share their finalized, municipality-reviewed CAD data with VCGI who will convert the data to standard-compliant GIS format. CAD data will also be submitted by the vendor via the web form used for obtaining GIS data from vendors.

The second type is for those municipalities with a CAD vendor who either does not submit their data, or the CAD data they submit cannot be directly converted to a standard-compliant GIS format. In these cases, VCGI will use the CAD data to the greatest extent possible, in addition with survey materials submitted to the Vermont Survey Library, to create a standard-compliant GIS parcel data layer for the respective municipality.

5. Municipalities without GIS mapping capacity

Procedures for this group of municipalities will rely on VCGI obtaining updated grand list information from the Tax Department for a municipality that can be joined with their existing standardized parcel data. They will also depend on submitted surveys of line changes (e.g. line adjustments, subdivisions occurring within that municipality) from licensed land surveyors per 2019's Act 38 to the Vermont Survey Library, which will be used as documentation by VCGI to justify updated parcel linework. Once grand list and any parcel geometry updates are complete and the data are published, VCGI will notify a municipal official of updated parcel data and ways to access it.

Communications

Status of Parcel Data

VCGI maintains several websites and applications that provide information about the current status of the parcel program, as well as the available parcel data it has obtained from municipalities. Citizens, municipalities, professionals and the public are encouraged to view and use these resources to stay up to speed about the current status of the parcel program and the data it makes available.

- **Available Parcel Data** - maps.vcgi.vermont.gov/parcelstatus – This web map displays the most current Vermont Parcel Data Standard-compliant data available for each municipality in the state. It automatically updates when new data for a municipality is published.
- **Parcel Viewer** – maps.vcgi.vermont.gov/parcelviewer – In addition to displaying the status of available data, the Vermont Parcel Viewer shows the parcel geometry and grand list attributes of the best available data when zoomed in to the web map. This tool aims to provide viewing access to the GIS parcel data obtained and processed by the program to anyone with an internet connection. Additional functionality includes the ability to search by address or SPAN and make measurements. Data presented in the viewer is updated as soon as received data is reviewed and deemed compliant with the parcel data standard by VCGI.
- **Town Parcel Map Vendor Status** - maps.vcgi.vermont.gov/TownParcelMappingStatus/ - This map depicts VCGI's known parcel map vendor status of Vermont municipalities. It is intended to help keep track of who is working on parcel upkeep per each town. Town officials are encouraged to share changes in their parcel mapping practices with VCGI so that the map can be kept up to date.
- **Other online map applications:** *Vermont Interactive Map Viewer* - <https://maps.vermont.gov/vcgi/html5viewer/?viewer=vtmapviewer> ; *ANR Atlas* - <https://anrmaps.vermont.gov/websites/anra5/> ; *e911 Viewer* - <https://maps.vermont.gov/e911/Html5Viewer/?viewer=e911viewer> ; *Planning Atlas* - <http://maps.vermont.gov/ACCD/PlanningAtlas/index.html?viewer=PlanningAtlas> ; These web map applications all feature a “standardized parcel” layer that reflects the best available municipal parcel data obtained and processed by the program. These data are not a separate product, but rather point to and reflect the same parcel data as maintained by VCGI. These map applications aim to provide viewing access of parcel data in relation with other Vermont GIS data to anyone with an internet connection.

Parcel Data Access

Vermont municipal parcel data obtained, processed, and published by the program is made available for download or streaming in GIS format at the Vermont Open Geodata Portal here:

<http://geodata.vermont.gov/pages/parcels>. These data reflect the best available parcel data for each

municipality. Future iterations of this page may also host earlier versions of parcel data, as well as associated tables and documentation.

Educational and Training Opportunities

Training and educational opportunities such as articles, videos, and in-person events will be offered by VCGI for vendors and municipalities regarding the upkeep of parcel data adherent to the VT GIS Parcel Data Standard and the program itself. These opportunities will be announced via the events calendar at vcgi.vermont.gov, direct communication with vendors, as well as with municipalities via the aid of Regional Planning Commissions for their respective towns.

Tax Department Training and Coordination

Training and coordination with the Tax department are planned as part of the parcel program. These include in-person workshops for Tax Department District Advisors on using the now statewide, freely-available online parcel mapping tools; in-person workshops for listers and assessors on digital parcel data maintenance best practices and how to use online mapping tools; and coordination with the developers who will oversee the design and implementation of the forthcoming Integrated Property Tax Management System (IPTMS) to ensure consistent and effective map functionality within the new grand list management system.

Frequently Asked Questions

Answers to frequently asked questions about parcel data and the parcel program are provided here: <https://vcgi.vermont.gov/resources/frequently-asked-questions/parcel-program-faqs>. These range from basics including the what, who, how, when, and why of standardized GIS parcel mapping to detailed responses. Questions and answers are updated periodically.

Program Updates

A customer relation management (CRM) database of municipal, vendor, RPC, and related contacts is maintained by VCGI. This includes the name, email and phone contact information of individuals and municipalities that is sortable by multiple criteria: parcel project year, date of most current data, status of data submissions, current vendor, current mapping practice, and more. This database will be used for sending targeted emails to municipal contacts as needed, as well as tracking correspondence with individual towns and vendors. A web form for receiving parcel data updates directly from vendors or municipalities is also built into this CRM database, enabling contact information and correspondence to be related with data status and submissions.

Additional program updates are provided via the news and updates section of VCGI's website: <https://vcgi.vermont.gov/articles>, emails to the [VGIS-L listserv](#), and VCGI's [social media outlets linked here](#).

Individual Municipality Parcel Data Updates

Communications about a specific municipality's parcel data updates will depend on the type of maintenance a town employs, whether that is through a vendor, on their own, or no upkeep.

For Municipalities Who Contract with a GIS Vendor:

- Vendors will be asked by VCGI at least once a year about which towns they expect to be working with that year, and with what scope of services (e.g. GIS services)
- Vendors will be asked by VCGI to review documentation about updates to the VT GIS Parcel Data Standard, if applicable
- Vendors will be asked by VCGI at least once a year to submit copies of their municipal parcel data once completed and reviewed by a town via a web form hosted at vcgi.vermont.gov
- VCGI will confirm the receipt, review and publishing of a municipality's data update with the originating vendor

For Municipalities Who Maintain their own GIS Parcel Data:

- Municipalities with GIS capacity will be asked by VCGI at least once a year about status of updates
- They will be asked by VCGI to review documentation about updates to the VT GIS Parcel Data Standard, if applicable
- These municipalities will be asked by VCGI at least once a year to submit copies of their parcel data once completed via a web form hosted at vcgi.vermont.gov
- VCGI will confirm the receipt, review and publishing of a municipality's data update with a municipal official from the town

For Municipalities Without GIS Mapping Vendor or Capacity

- Municipalities will be asked by VCGI at least once a year to confirm their expected mapping practices
- VCGI will update parcel data for municipalities without map vendors or capacity by using any available CAD data and/or survey information for line changes submitted by licensed land surveyors to the Vermont Survey Library, which are viewable in the web application hosted at survey.vermont.gov
- VCGI will communicate the publishing of a municipality's data update with a municipal official from the town

Program Budget & Funding

1. Budget

VCGI, VTrans, and ADS have been working together throughout the three-year parcel project, data development portion of the program that will complete in December 2019. At that point, the project is expected to fully transition to the program, with VCGI responsible for ongoing program management. Proposed program staffing is based on experience with the three-year project. A detailed description of tasks for FY20, most of which are expected to continue into FY21 / the first year of the program, are presented in the FY20 Statewide Parcel Project Plan document.

Program Manager

1.0 FTE

Primary roles: Upkeep of data standard, overseeing QA/QC, overseeing associated staff, overseeing applications, data delivery and publishing, maintaining correspondence and understanding and with vendors and municipal contacts

Program Technical Lead

1.0 FTE

Primary roles: day to day maintenance of parcel data, applications, data publishing and delivery

Other Program Costs

Server related costs and ArcGIS Online Credits.

		FTE	Amount
Position 1: PG26	Program Manager (New Position, PG26/2)	1.0	\$89,886
	Overhead		\$13,645
	Indirect		\$8,851
Position 2: PG24	Program Technical Lead (Existing Position)	1.0	\$81,982
	Overhead		\$13,645
	Indirect		\$8,851
Part Time Technician	Part Time Technician		\$0
	Overhead		\$0
	Indirect		\$0
Other Program Costs	Program Server/ Hosting Related Costs		\$9,995
VCGI FY21 Total		2.0	\$226,856

Table 1: Budget Requirements for Parcel Program Staffing. All figures are based on based on a 'load factor' of 1.8 (+3% for FY21) and ADS CFO estimates for overhead / indirect.

2. Funding

A variety of long-term funding options were considered for the program. While the initial three-year project was primarily paid for with FHWA funds (81.08%), FHWA cannot be used as the primary funding source in FY21. In 2016, various Agencies and Department (AOT, AoA, AAFM, ACCD, ANR, AHS, DPS, PSD, TAX), signed an MOU committing to sharing program costs. The overhead costs of administering this MOU for a small program are high and all parties involved are interested in a simplified approach. Based on these factors, and feedback from the Office of Finance and Management, **the recommended funding source for the program is the ADS Internal Service Fund**. Using the ADS internal service fund will leverage the greatest amount of federal funds going towards the program while lowering administrative overhead.

By following this recommendation, the Agency of Digital Services would manage parcel data as a basic service available for all agencies.

Challenges and Risks

The proposed program is not without challenges and risks, which can be summarized as:

- Potential return to uneven statewide coverage, quality, and parcel data current-ness within “shared responsibility” approach, greatly reducing the usefulness of parcel data as well as limiting applications and programs that now rely upon statewide coverage
- Differences in needs, uses and understanding of parcel data by the state and municipalities complicates the coordination and data sharing on which the proposed plan depends

Related Documents

This document is built on the lessons learned in the initial three-year parcel project to date as well as the 2015 Parcel Data Lifecycle and Maintenance Plan [which can be found here](#).

Other related documents include:

[The Vermont Digital Parcel Data Standard v.2.3.](#)

[The 2018 Statewide Digital Parcel Data Report](#)

[H.526 \(Act 38\)](#) – 2019 Bill that establishes statewide survey library

[AOT Parcel Project Independent Review](#)

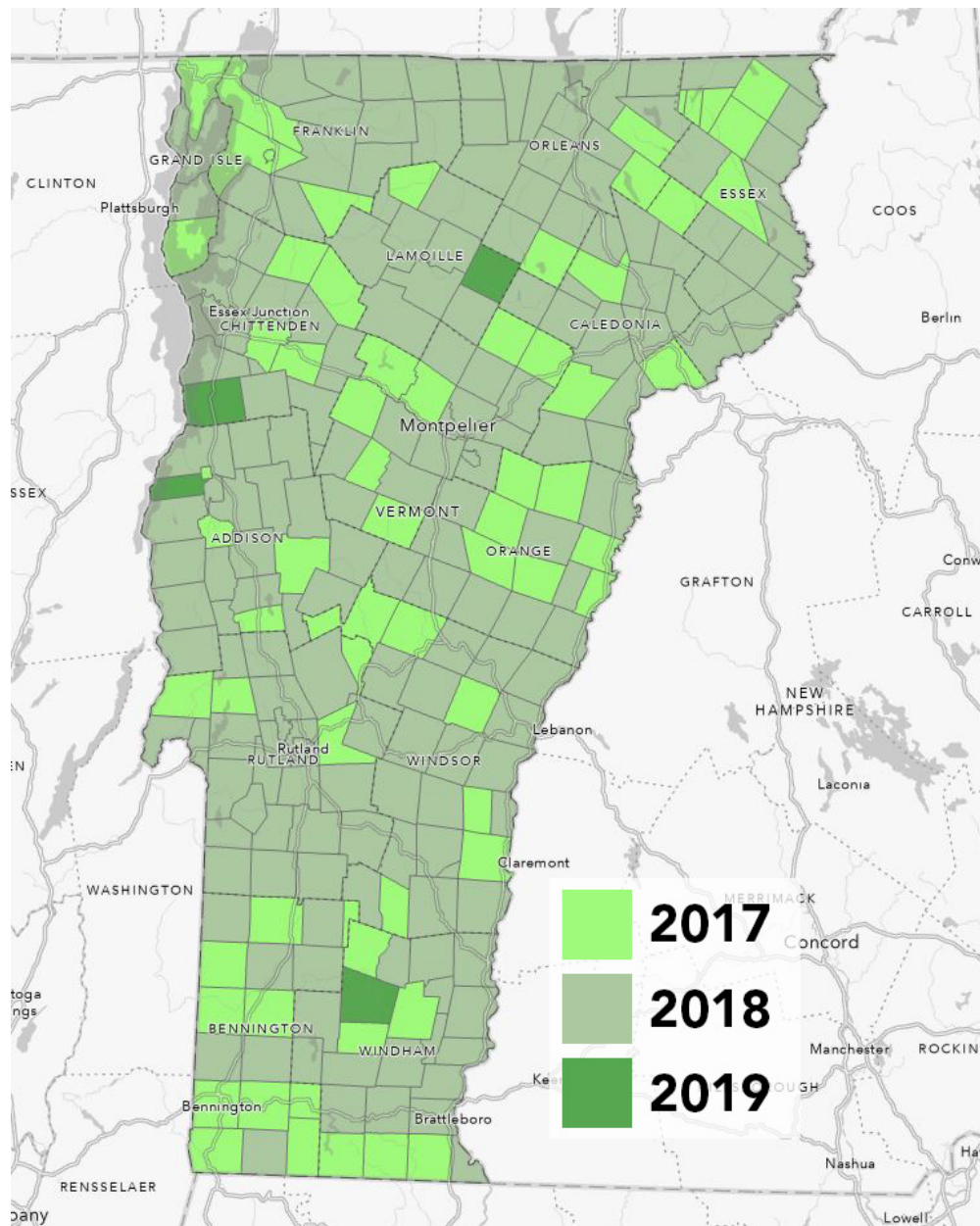
[The 2015 Vermont Statewide Digital Parcels Return on Investment Study](#)

[Vermont GIS Parcel Mapping Guidelines](#)

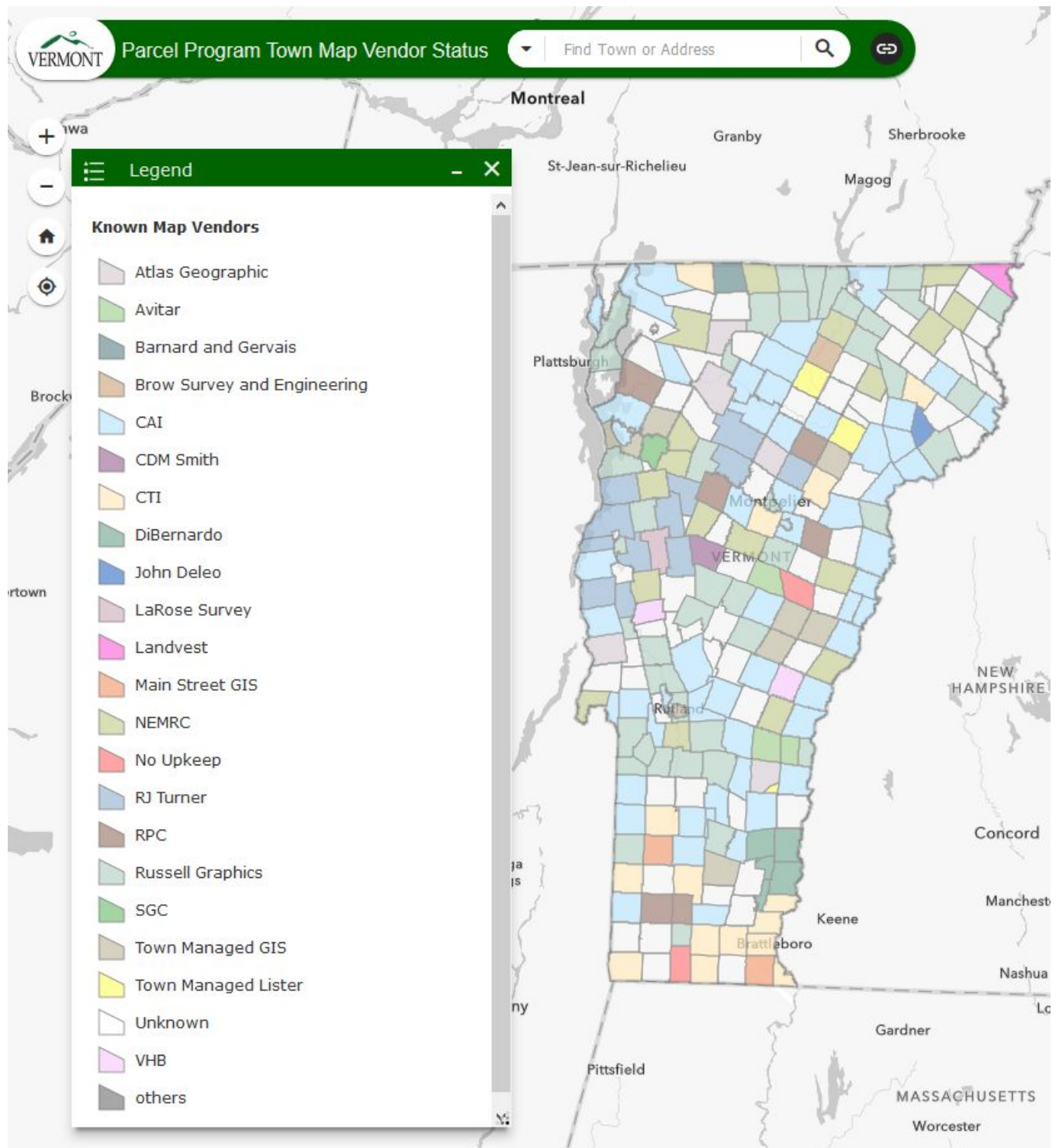
Appendices

This document is built on the lessons learned in the initial three-year parcel project to date as well as the Vermont Statewide Digital Parcel Lifecycle & Maintenance Plan prepared by AppGeo, and the 2017 Independent Project Review Desai Management Consulting.

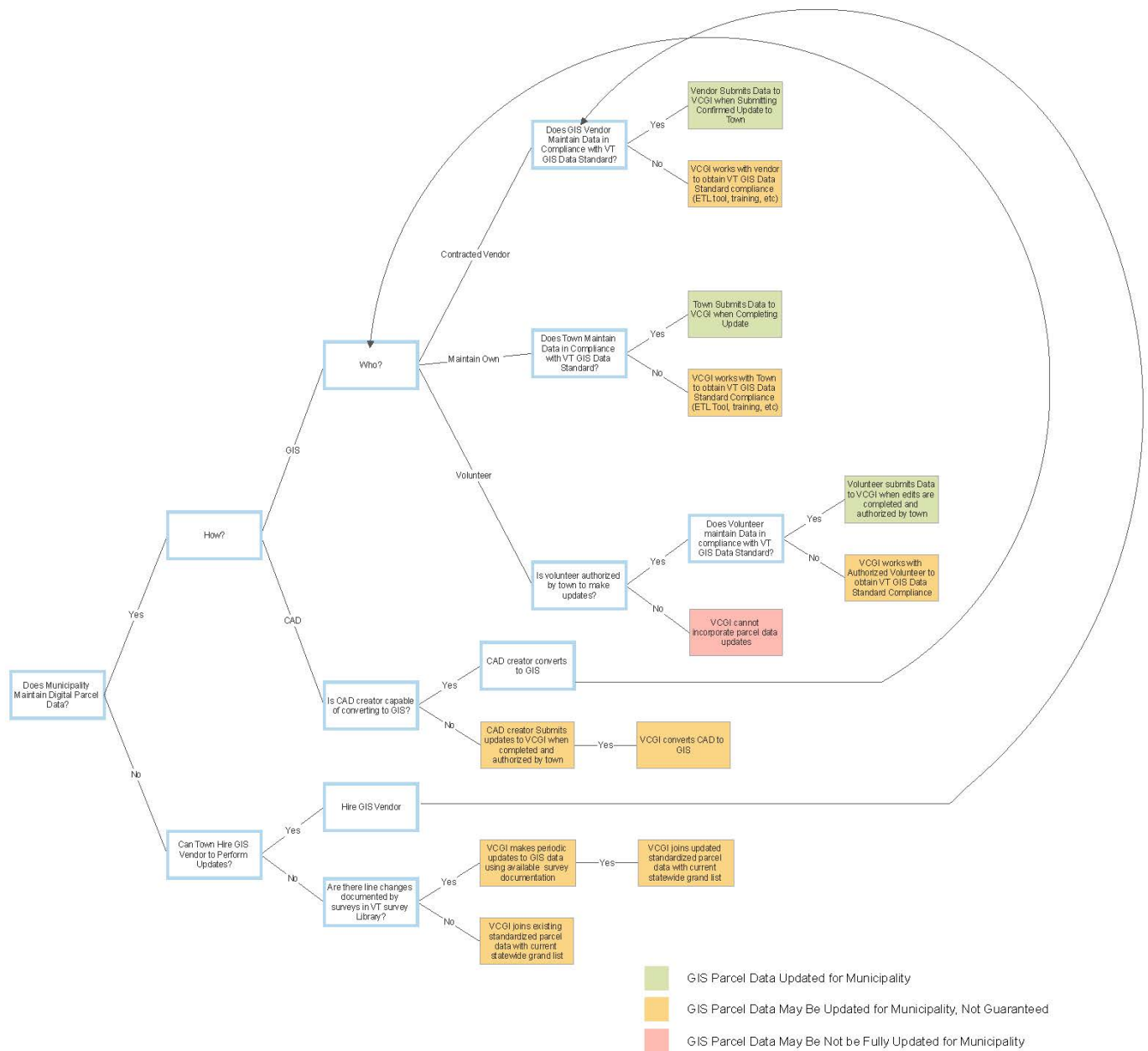
Parcel Program Data Status as of March 2020



Known Town Parcel Mapping Vendor Status as of March 2020



Proposed Parcel Program Decision Tree Based on Municipal Parcel Data Maintenance



Sample Uses of Grand-List Joined, Standardized Parcel Data by State Agencies and Related Groups

VCGI – Vermont Center for Geographic Information

- Obtain, process, and publish statewide, grand list-joined parcel dataset and make publicly available
- Join statewide grand list with parcels via SPAN number
- Track and analyze change in parcel count by municipality year by year
- Validate map vendor work via QC tool that checks match status of municipal parcel data with statewide grand list
- Understand differences between a parcel's listed acreage and GIS acreage
- Develop applications for GL attribute visualization (e.g. value per acre per parcel)
- Understand differences between municipal and state grand lists for mapping purposes (e.g. inactive parcels)
- Support related map information required by statute (e.g. current use, TIF districts, zoning and land use plans)
- Support mapping applications and products that use grand list-joined parcel data for public use (e.g. VT Interactive Map Viewer, ANR Atlas, e911 viewer, etc.)

VTrans – Agency of Transportation

Acquisition Section of Right of Way

- Get the addresses including the 911 if available in the Grand List
- Span and parcel number
- Total acreage of parcel
- Total value of property we may need to measure damages for compensation
- Total land value to determine if a Waiver Valuation or Real Estate Appraisal will be needed
- Total land value to use in the valuation of land, rights or easements in a Waiver Valuation for compensating property owner's
- Total 2-acre Homestead value, if available, on Grand List to use in the valuation of land, rights or easements in a Waiver Valuation for compensating property owners

Appraisal Section of Right of Way

- Key data for research, with SPAN, parcel ID, owners, addresses, property descriptions, category, acreage, total assessed value, land assessed value and improvement assessed values

Plans & Titles Section in Right of Way

- Uses the Grand List Report as a one-stop-shop for owner name, owner mailing address, parcel 911 address, parcel SPAN, and acreage. This form is one of the few items we find that is consistent in every town, meaning every town has this and it always looks the same.

Agency of Natural Resources (ANR)

ANR enters SPAN for most of its activities. It is then used as a reference for:

- Applications
- Permits

- Enforcement Actions
- Complaints
- Abutter notifications
- Public Comment Periods
- Responding to inquiries/FOIA requests about information on parcels
- Parcels enrolled in UVA
- All programs within ANR use the SPAN to query for past violations
- The Grand List information is used for a preliminary identification of landowners and sending out correspondence
- The GL DB cultural data (CAT, RESCODE) are used during investigations and to pull our data apart for analysis. The DESCPROP data often contains very useful info, especially for WW issues. We do not use the property value info extensively, but it is valuable.
- We use SPAN#s like SS#s for property and all of DEC should do the same. All permits should be associated with a SPAN#. Once we tag a permit with a SPAN# we will forever have a direct connection to a current owner

Forest, Parks and Recreation (FPR)

- Forest Legacy program makes extensive use of both parcels and associated grand list data in pursuit of conservation effort to protect large contiguous and productive forest blocks, habitats for wildlife dependent on large contiguous forest blocks, threatened and endangered species habitat, State fragile areas and undeveloped shoreline, significant wetlands and important recreation corridors
- Administer the forestland elements of the UVA program
- During enforcement activity for Acceptable Management Practices or Heavy Cut we depend on SPAN and ownership data to ensure that enforcement action is being carried properly. Accurate and current info is critical.
- Determine landowners when attempting to gain access to streams and wetlands where private property is a concern
-

Vermont Geological Survey

- Improving water well locations in the Drinking Water and Ground Water Well Completion Reports Database using digital Grand Lists and Parcel data
- Identifying land owners for access to key areas for field work and geologic mapping

VAPDA – Vermont Association of Planning and Development Agencies

- Identify landowners for notification of needing access for stream geomorphic assessments. Need names and addresses for notification.
- Identifying landowners that are in areas ideal for conservation efforts – need names for outreach efforts and to gauge interest
- Identify landowners for outreach for special projects – like for High Meadows where we identified landowners in flood resilient important areas and send them information.
- joining parcel data to grand list to visualize property values on a map
- using the joined data in interactive map viewers to identify owner name
- Housing Unit Count to monitor implementation of state and local land use goals

- Data on building heat source to monitor state energy goals and serve as substitute since delivered fuels data is not available
- Access consistent descriptive information about the use of the property

ACCD – Agency of Commerce and Community Development

Division for Historic Preservation

- Names and addresses of current property owners with State Register and/or National register structures and/or archaeological sites on them.
- Names and addresses of current property owners and parcel boundaries as part of State and/or Federal regulatory reviews.
- Names and addresses of current property owners and parcel boundaries to engage with as part of proactive archaeological or architectural survey

Housing and Community Development

- Analyze rates of economic growth/attrition by municipality.
- Make comparisons that indicate municipal fiscal capacity, like: grand list value to population, grand list value per parcel, grand list value to municipal budget,
- Measure the impacts of DHCD investments to areas prioritized for growth.
- Analyze correlations between growth and planning/implementation.

E911 – Enhanced 911 Board

- Confirm address locations when there are discrepancies. It would be great if the 911 addresses could be associated with all of the parcel/grand list data. Currently this is only partial.
- Our 251 municipal 911 Addressing Coordinators use this data to confirm correct 911 address locations.

Public Safety / Emergency Management

- Use Grand-List-joined parcel-data as input to disaster damage-assessments--by calculating aggregate property values within impacted area. Accurate damage assessments support requests for presidential disaster declarations.
- Use Grand-List joined parcel-data to search for government-owned or other parcels for temporary disaster-recovery operations such as debris processing and supply distribution.
- Use Grand-list joined parcel-data to identify ownership of a parcel for operations such as fire-fighting and HAZMAT.
- Use Grand-List joined parcel-data for police investigations and crime analysis by identifying ownership of parcels.

Overview of VCGL's Expectations in Working with Map Vendors & Professionals

December 2019

Statewide Parcel Program | vcgi.vermont.gov/parcels

Shared Responsibility Maintenance Plan

Overview of Working with Map Vendors

1. **Parcel Project Completion and Data** - The parcel “project” refers to the one-time-per-town state funding made available to vendors for GIS parcel data creation or update between 2017 and 2019 as administered by VTrans for every Vermont municipality. The project will be complete by December 2019. *Thank you for helping to make this happen!* It is now the most used spatial dataset in Vermont. You can view the parcel data here: maps.vcgi.vermont.gov/parcelviewer and access it in full here: geodata.vermont.gov/pages/parcels

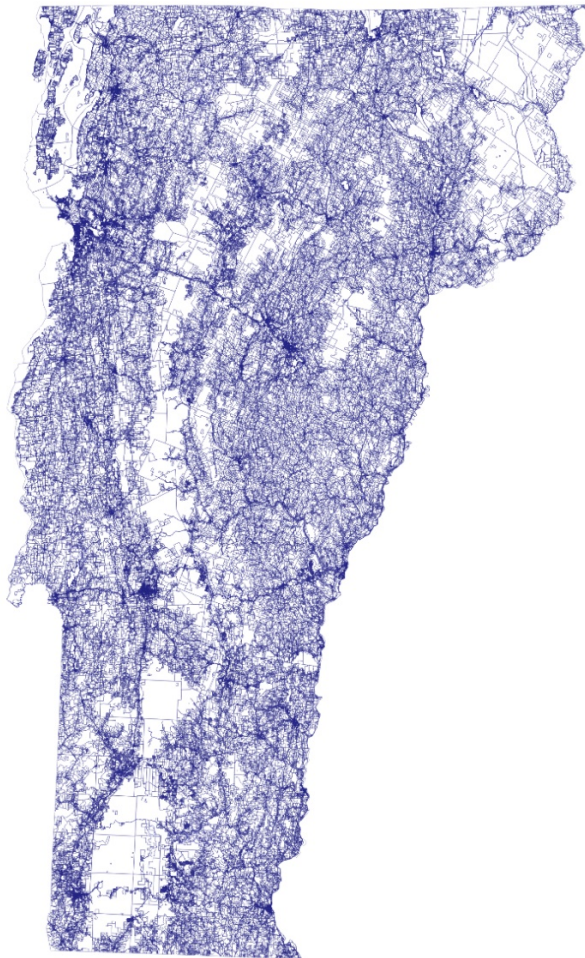


Figure 1: The parcel project digitized over 300,000 parcels statewide and joined them with the grand list.

2. **The Ongoing Parcel Program** - The parcel “program” refers to the ongoing maintenance effort for publishing grand list-joined municipal parcel data in Vermont beyond the project and beginning in

statewide grand list year 2019. The goal of the program is to continue to make current and reliable grand list-joined parcel data available in GIS format for every town in Vermont. This program will be overseen by the Vermont Center for Geographic Information (VCGI). Program information will be updated at vcgi.vermont.gov/parcels as needed.

3. **Contracts, Funding and Participation** - Unlike the project, there is no state funding available for payments to vendors for GIS mapping services as part of the parcel program. Contracts for map products and services are the responsibility of each municipality. There will be no contracts administered by the state for municipal GIS parcel data maintenance and participation in the program is voluntary.
4. **Map Vendors** - Vendors who share municipal parcel data with the program are not limited to the PDF [list of vendors](#) who participated in the project.
5. **VT GIS Parcel Data Standard** - The [VT GIS parcel data standard](#) will evolve with the program. The standard will change from an acceptance/rejection function based on grand list match rate as confirmed by a QC tool in the project to one that provides guidance on SPAN-adherence, topology, layers and other factors to vendors with different workflows. The standard will become a document of what VCGI publishes rather than what applies to what we receive. Vendors are advised to follow the standard as best as possible. In short, VCGI will work directly with vendors to ensure usable data given their process, and vendors are encouraged to contact us when questions arise.
6. **Submitting Updates** - VCGI will work directly with a municipality's map vendor, if they have one contracted, or the town itself if they maintain GIS parcel data, to obtain and publish updated municipal parcel data [that builds upon that which was created in the project for a respective town](#). We will ask vendors annually for updates should they exist and take them after they have been reviewed and accepted by a respective town official. A web form for submitting municipal updates to VCGI is now found at vcgi.vermont.gov/data-and-programs/share-map-data. The form there replaces the project's Sharepoint site for submitting data. We will work with vendors/towns to follow rolling submission dates for receiving new parcel data.
7. **Using the Vermont Survey Library for Updates** - VCGI will also be overseeing the Vermont Survey Library at landsurvey.vermont.gov effective January 1, 2020. The library will house digital copies of surveys of boundary line adjustments as produced and uploaded by VT licensed land surveyors and made available to the public. Map vendors are encouraged use the surveys in the library for confirming and updating parcel boundaries for their respective towns.
8. **Recommendations to Towns** - VCGI will recommend towns contract with a GIS vendor of their choice for maintaining parcel data for those that are without a contracted vendor or in-house GIS capacity.
9. **Towns without Vendors or GIS Capacity** - For towns without a contracted vendor or in-house GIS capacity who do not end up contracting with a vendor, VCGI will produce updates for those towns

using the most recent annual statewide grand list and available documentation of line changes uploaded to the Vermont Survey Library. These data may not be as current and accurate in attribution as those maintained by a town or their vendor.

10. **Parcel Viewer Web Application** - VCGI will maintain associated data layers and the statewide parcel viewer found at maps.vcgi.vermont.gov/parcelviewer with updated municipal parcel data as it is submitted to us by vendors and after internal review. As with the project, the data will be joined by VCGI with the annual final statewide grand list for a respective municipality, without altering the statewide grand list. Vendors who provide more feature-packed web viewers for towns may continue to do so as towns wish.
11. **Participation in Program** - Participation is voluntary but is preferred due to the benefits provided to the userbase of parcel data, which is now the most used spatial dataset in the state. Additional programs and applications are currently being built or devised using the statewide parcel layer, and as such towns may wish to participate in order to have their latest and greatest parcel data reflected in this layer. Two examples are a new property information management software to be used by all Vermont municipalities, as well as an updated, digital current use program. The date of a municipality's most recent parcel data obtained and published by VCGI is viewable here: maps.vcgi.vermont.gov/parcelstatus
12. **Points of Contact** – For more information, please refer to vcgi.vermont.gov and/or contact:
 - Tim Terway – Project Management and Parcel Program Questions
 - tim.terway@vermont.gov
 - 802-585-0820
 - David N. Fox – Parcel Program Technical Lead
 - david.n.fox@vermont.gov
 - 802-522-3054

“Shared Responsibility Model” – Parcel Program Ongoing Maintenance Plan

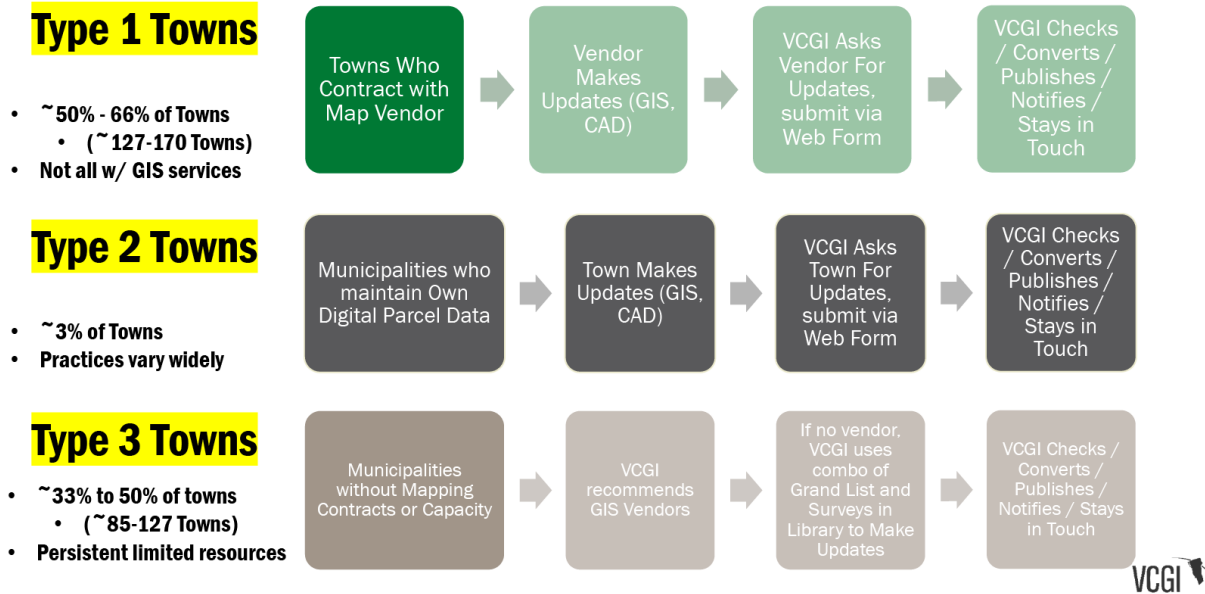


Figure 2: Three Types of Vermont Municipalities Regarding Parcel Data Maintenance