

VT Center for Geographic Information

Vermont GIS Parcel Mapping Guideline

Version 1.0

Release Date: March 2013



Acknowledgements

This guideline was drafted by staff at the VT Center for Geographic Information (VCGI). VCGI would like to thank the members of the VT Parcel Data Standard and Guideline Subcommittee of the VCGI Technical Advisory Committee (TAC):

Judy Bond, GrassRoots GIS
Pam Brangan, Chittenden County Regional Planning Commission, GISP
Brad Holden, Licensed Surveyor, VSLS
Tricia Kules, Licensed Surveyor, VSLS
Shannon Lunderville, Town of Essex, GISP
Horace Shaw, Independent GIS Consultant
Mike Shellito, Cartographic Associates Incorporated
Michelle Wilson, VT Dept. of Taxes

These individuals volunteered their time on a monthly basis for over 2 years to hammer out a new GIS Parcel Data Standard and Guideline for use by the VT mapping community. Their tenacity, generosity, and thoughtful participation was **essential**, and very appreciated!

Statutory Authority

Vermont Statutes: Title 10: Conservation & Development – Chapter 8: Geographic Information – 10 V.S.A. § 123. Powers and duties

Copyright ©2013 by the Vermont Center for Geographic Information, Inc. (VCGI), on behalf of the State of Vermont. All rights reserved. VCGI is a public not-for-profit corporation formed to facilitate the development and use of geographic information by agencies of the state, its political subdivisions, and through them its citizens. Reproduction of this material may be made only after obtaining the specific approval of VCGI. Permission for single photocopy or single use of this material or part of this material is given to the political subdivisions of the State of Vermont.

If you have questions about this standard, or would like to check for the newest version, contact us:



VT Center for Geographic Information
802-882-3001
vci.vermont.gov
58 South Main St., Suite 2
Waterbury, VT 05676

Vermont GIS Parcel Mapping Guideline v. 1.0

VT Center for Geographic Information

March 2013

Table of Contents

Introduction	4
Purpose	4
Contracting For Mapping Services	4
Orthophotography (Base Maps)	5
Land Records Research And Examination	5
Record Description And Survey Plotting	6
Discrepancies List	6
Areas Database	7
Items To Be Provided By The Municipality	7
Public Viewing	8
Deliverables	8
Maintenance	8
Working With GIS Parcel Data	10
Overview of the Parcel Mapping Process	11
Appendix A: REQUEST FOR PROPOSALS	13
Appendix B: SAMPLE STATEMENT FOR PROPERTY MAPPING SPECIFICATIONS	14
Appendix C: ITEMS TO BE CONSIDERED IN EVALUATING MAPPING PROFESSIONALS	15
Appendix D: PROPERTY MAP AGREEMENT	16
Appendix E: SCHEDULE OF PAYMENTS	19
Appendix F: CONTRACTOR'S MONTHLY PROJECT REPORT	20

Introduction

Parcel maps (also referred to as tax maps or property maps) and the digital geographic data used to make them (GIS data) are among the most important local government information assets a town owns. They are a fundamental base for many municipal activities. GIS parcel data is NOT the equivalent of legal property records or land surveys, but the data does assist municipal officials with functions such as accurate property tax assessment, conservation, planning and zoning. Towns can link their maps to their Grand Lists and display local information. Officials can show tax-payers how proposed development or changes in municipal services and regulations will affect them and their neighbors. In many towns, parcel data also helps to provide public notices, plan bus routes, and carry out other municipal services.

The principal responsibility of the lister is to inventory and appraise all property at Fair Market Value (FMV). In order to appraise at FMV, a lister must be able to accurately locate the parcel and determine the size and shape. A complete set of Property Maps is highly advantageous to perform this function. Municipal property mapping efforts should try to support the needs of all municipal agencies in an effort to combine cost sharing benefits.

Adequate preparation is essential prior to entering any contract. The municipality needs to evaluate its needs for listers, planning professionals and volunteers, zoning administrators, and public works staff, all of whom will benefit from using the final product. Major considerations include the type of product and accuracy, evaluating existing resources of personnel, facilities, data processing, technical and administrative support, and determining funding and parcel data maintenance plans.

Purpose

This guideline will identify aspects of the parcel mapping process, issues to consider, and template documents that will assist listers and other town officials with their duties as they relate to the development of parcel maps and data. An overview of the process is provided before the template documents. Please refer to the VT GIS Parcel Data Standard at the VCGI web site (vcgi.vermont.gov) for technical specifications relevant to the creation or update of the parcel data used to create maps.

Contracting For Mapping Services

When considering a new mapping program or a major update to an existing property mapping program the following contracting considerations are advised. Please see the final section of the guideline before the Appendices "An Overview of the Tax Mapping Process" for specific identification of the steps involved and when each of the items or activities below come into play.

REQUEST FOR PROPOSALS

When contracting for mapping services, it is recommended that the municipality use the sample Request for Proposal (RFP) in Appendix A with technical specifications. A vendor should not be selected on the basis of cost alone.

TECHNICAL SPECIFICATIONS

The municipality must prepare a set of technical specifications that clearly defines the mapping services to be performed. The specifications should address the technical aspect of the project and specify the quality and quantity of the products to be delivered. The specifications should include such items as

geographic area to be mapped, types of maps to be produced, data to be displayed on the maps, data to be delivered and its format, source of data, labeling, deed records and technical reports. Sample specifications are given in Appendix B and should follow standards when applicable; the Vermont Parcel Data Standard provides specifications for digital parcel data (see Technical Resources section of VCGI's web site vcgi.vermont.gov).

EVALUATING MAPPING FIRMS

A level of technical expertise is required to evaluate mapping professionals and contract proposals. If the expertise is not available at the municipal level, the Regional Planning Commission can help in providing such assistance. Mapping professionals can be evaluated using the conditions given in Appendix C.

PARCEL MAP AGREEMENT

Appendix D contains a sample Parcel Map Agreement which can be used as part of the contract established between the municipality and mapping firm.

SCHEDULE OF PAYMENTS

Appendix E contains a sample Schedule of Payments which can be used as part of the contract established between the municipality and the mapping firm.

Orthophotography (Base Maps)

An **orthophoto** is an aerial photograph that has been rectified such that it is equivalent to a map of the same scale. It is a photographic map that can be used to measure distances relative to the projection of the orthophoto. The state of Vermont funds the collection of orthophotos with the following specifications in order to support municipalities' creation of tax maps and digital parcel data.

The Vermont Center for Geographic Information (and the Vermont Mapping Program before July of 2009) has acquired base map digital orthophotos that meet National Map Accuracy Standards (from 2011 forward the accuracy can be described as: "ASPRS Class I horizontal accuracy of +/- 1 meter RMSE (for both X and Y) for 50cm ground sample distance imagery and 2.44 meters at 95% confidence level according to the NSSDA standard methodology"). These orthophoto base maps are available in digital form at no cost to all municipalities in VT. In addition, municipalities can request paper copies of these orthophotos from their Regional Planning Commission at no or nominal cost.

VCGI is annually updating these images for a portion of the state in an on-going rotation. Please see the VT Imagery Program web page at VCGI's web site for the age and availability of historic and current orthophotos as well as the future acquisition plan (vcgi.vermont.gov).

Municipalities that wish to have additional coverage (for example, higher resolution in village areas) can contact their Regional Planning Commission for assistance.

Land Records Research And Examination

The basis of any mapping project is good land records research. Often extensive research must be undertaken to obtain a good description of a parcel. This is essential to the overall accuracy of the project. Surveys exist,

many done by Vermont Licensed Land Surveyors, that are not part of municipal records. Maximum effort should be employed to have all surveys (including digital survey files) incorporated into the mapping project.

METHOD

The method of choosing and examining the instruments of title shall be determined by the contractor; however, the methods developed shall provide for the following:

RECORDS RESEARCH

Records research shall be conducted to determine the survey, deed, or other means of description that defines each and every parcel of property in the municipality. Deed research shall be coordinated with the existing Grand List. Every reasonable effort shall be made to obtain a survey, metes and bounds description, or other description of every parcel, with description source to be documented in the Discrepancies List (see below). To keep projects costs down, the town may need to provide assistance with research.

DISCREPANCIES LIST

Parcels and associated reports for which no record of conveyance or description has been located shall be submitted in a clearly organized document called the "Discrepancies List" - see more information below.

The information to be set forth shall be an accumulation of all the efforts made as part of the records research and follow-up procedure. The reports shall be organized and cross indexed by SPAN (School Property Account Number) and parcel identification numbers that correspond with the map.

Record Description And Survey Plotting

RECORD DESCRIPTION AND PLOTTING

The firm doing the mapping shall determine the method of plotting descriptions for all parcels in the municipality. The best available description should be used to plot each parcel.

PROBLEMS

After attempting to plot parcels which cannot be resolved by the contractor through record research, communication with municipal staff, and personal contact with the reputed owner, or other methods, the problem descriptions shall be documented for presentation to the municipality on the DISCREPANCIES List.

REPORT

The presentation of such problem descriptions shall include all relevant material including adjacent deeds, survey plots, and/or records, and a report containing the contractor's explanation of the problem and their efforts to date to solve the problem. The contractor shall not be entitled to extra compensation for this work.

Discrepancies List

The Discrepancies List is important because it provides the municipality with complete documentation of the contractor's findings. Parcels and associated reports for which no description has been located shall be submitted in a clearly organized document called the "Discrepancies List." The information to be set forth shall

be an accumulation of all the efforts made as part of the record research and follow-up procedure. The reports shall be organized and cross indexed by SPAN and parcel identification numbers that correspond with the map.

The submittal of such report shall not necessarily relieve the contractor of their responsibility to continue efforts to map and identify the parcels properly. If, in the view of the municipality, the contractor has not used all the obvious and reasonably economical methods of approach, they shall request the contractor to do so at the contractor's expense.

CREATION OF A DISCREPANCIES LIST

A Discrepancies List not exceeding 5% of the total number of parcels (which is comprised of problem parcels and discoveries) in the municipality, shall be prepared for the municipality by the contractor and it shall provide for the following:

CONTENTS OF THE DISCREPANCIES LIST

All Discrepancies Lists will be in the format previously agreed to by the municipality. These lists will be delivered in accordance with the contract delivery schedule. Master files of these lists will be kept current during the entire project and a composite listing in alphabetical or numerical order will be delivered to the municipality at the end of the project.

PROBLEM PARCELS

Parcels for which an adequate description could not be located or parcels not locatable on the map but which are currently assessed, should be set in the Discrepancies List.

PARCEL DISCOVERIES - OWNER KNOWN / OWNER UNKNOWN

Owner Known includes those parcels found and mapped by the contractor for which the owner's name is known but was not on the most recent Grand List. Owner Unknown (or unclear) are all parcels found and mapped by the contractor for which the true owner cannot be satisfactorily determined and which are not on the most recent Grand List. A list will be prepared which shows the SPAN, parcel number, map number, owner (if known), deed acreage and computed acreage. The list shall also show the total acreage of all such properties in the municipality.

Areas Database

A database will be prepared that includes SPAN, parcel identification number, surveyed acreage, calculated acreage, assessed acreage, as well as the percentage difference for each parcel in the municipality. This database serves as a tool to determine the need for additional research.

Items To Be Provided By The Municipality

GRAND LIST

A digital version of the "working" Grand List will be provided for the contractor's use.

EXISTING MAPS AND DATA

In preparing parcel maps, all existing tax maps, surveys, orthophotos, and similar maps (including relevant existing digital files) shall be made available to the extent practical and reasonable.

MUNICIPAL CLERK'S OFFICE

Records shall be made available for the contractor's use at no charge within reasonable working hours. If there are fees associated with accessing public documents, the contract should identify whether the town or the contractor shall pay the fees.

Public Viewing

Parcel maps are to be made available for viewing by the public prior to the conclusion of the contract. Details of availability of the contractor for the public viewing shall be agreed upon by the contractor and the municipality as set forth in the contract.

Deliverables

DELIVERY SCHEDULE

The municipality and the Contractor shall develop a delivery schedule, with cut-off dates for map updates (e.g., property lines, subdivision lines) for all the deliverable products of the project. Prior to preparation of the contract, the cut-off dates will be determined and included in the contract delivery schedule. Any extensions shall be agreed upon between the municipality and contractor, including specific dates.

DELIVERABLES

The contractor shall deliver to the municipality the following materials to be prepared according to these technical specifications (some to be determined by the municipality). **These materials and any products, used to generate or to verify maps become the property of the municipality as soon as they have been prepared.**

- 1 Documentation of source materials and information located during contract referenced to each parcel, as specified in the contract.
- 2 All digital parcel map layers in GIS data format with the naming convention relative to April 1 of the Grand List year in which the parcel work was performed - please refer to the VT GIS Parcel Data Standard for requirements related to GIS data and metadata.
- 3 Hard copy parcel maps; number and size shall be specified in the contract and shall include an Index Map showing all map sheets with town boundary and roads.
- 4 All reports called for in these technical specifications, in hard copy and/or digital format, as specified in the contract.
- 5 Additional digital files relevant to the project, as specified in the contract.

Maintenance

Municipalities with digital parcel mapping are encouraged to develop an on-going maintenance program. This typically consists of adding new surveys or deeds and making line or code corrections to the maps and GIS data. A one or two year update cycle is recommended.

LONG-TERM

Maintenance of digital tax parcel data is detailed, technical, and time-consuming. Therefore the idea of a municipality maintaining or updating its own parcel data should be evaluated carefully. In general, most Towns subcontract this work to the private sector. Issues to consider are:

- 1 Does the municipality have the personnel resources (volunteer or paid) in terms of time and skills to devote to periodic updates?
- 2 Does the municipality have the necessary computer hardware and software to do this work, and is there adequate space in the Town offices?
- 3 The adage applies: You get what you pay for.

If a municipality decides to utilize a consultant for updates, there are varying levels of support the Town can provide to the consultant in terms of time and materials. Depending on the level of Town involvement, training is necessary to realize reduced costs. Adherence to time schedules are integral to success. Training includes, but is not limited to:

- 1 How to organize and deliver property transfer, subdivision, and survey information.
- 2 Techniques or protocols to edit paper tax maps or copies of the parcel data.
- 3 Data coding systems used, and most importantly, those for parcel numbers.
- 4 Techniques for review and how corrections will be done.

INTERIM MAINTENANCE

Contractors developing or revising a municipality's property map database shall maintain all data until all deliverable products are received and accepted by the municipality in accordance with the contract delivery schedule.

CONTRACTOR RESPONSIBILITIES - PROPERTY MAPS

The Contractor shall maintain the property maps until all products, digital or manual, are delivered to the municipality for final approval.

CONTRACTOR RESPONSIBILITIES - DISCREPANCIES LIST

The Contractor shall maintain the "Discrepancies List" of all parcel data, until all products, digital or manual, are delivered to the municipality for final approval.

INTEGRATION WITH OTHER GIS DATA

Integration refers to how geographic features in one GIS data layer match up, or align, with their counterparts in another data layer. For example, road centerlines from the Enhanced 9-1-1 program may or may not run up the center of the public road right-of-ways in parcel data. Or if the Town has zoning data, do zoning district boundaries which follow parcel boundaries match their parcel counterparts? One would expect these to match one another, but they often do not because they can originate from different sources.

The question of integration or data coordination becomes one of which data layer will be the benchmark to which the others will be compared. Tax parcels are the fundamental land management unit for municipal government, and are the revenue base for the Town's functions. Thus tax parcels should be the benchmark data layer for the Town's GIS. Having all the Town's GIS data match perfectly is not required (it is an imperfect world after all), but when questions arise when two data layers showing the same feature don't agree, the tax parcel data should be given preference, unless it can be demonstrated that the other source is of greater accuracy and precision. The following is suggested:

1. No data layer is completely accurate, and thus it more important to designate the benchmark data layer (tax parcels), and stick with it. As parcel data are updated they tend to become more accurate and precise as the problems are steadily rectified year after year.

2. If the Town has GIS data which preexists tax parcel data, then the sources of these data should be evaluated. In all likelihood the parcel data generated today will be of greater accuracy (closest to the actual location) and greater precision (less variable). Thus inserting preexisting data into tax parcel automation will in all likelihood reduce the parcel data's overall accuracy and introduce "noise" into them.
3. It does not make sense to make a potentially more accurate line match a less accurate one just because the less accurate one already exists. Tax parcels are too important a data layer. Plan on redoing the old data layer in the future.

Therefore if several sources of existing GIS data are to be used for constructing a parcel data layer, assess the accuracy and precision of each source beforehand. Compare these to the level of accuracy and precision that will result from the automation of the linework that must be made from scratch. Then considering time and budget constraints, select the most accurate and precise sources for use.

Working With GIS Parcel Data

TRAINING

While it is possible to learn how to use computer-based tax parcel maps on one's own, training will speed learning and use, and helps ensure that all the advantages of the Town's investment are realized. A minimum level of training includes, but is not limited to:

- 1 How to run GIS software, link the Grand List to tax parcels, query for parcel attributes, and produce maps.
- 2 How to organize data on the computer, use file naming conventions, and backup data.
- 3 How to acquire and load other GIS data.

The place and duration of training, number of trainees, and which computers will be used should be specified in the contract.

LINKING DATA

Each town's Grand List is a valuable database that can be used in many municipal applications. Joining the Grand List to a Geographic Information System (GIS) allows town officials to use the Grand List more efficiently in many applications. With the Grand List joined to the GIS, town officials can query the Grand List by location and other variables. Examples of spatial queries include generating a list of addresses of abutters for a lot, creating a map of all properties owned by the state or creating a map of all lots with assessed values higher than a certain amount. Creating maps or address lists from paper maps could take days.

The numbering system on the map may be the town's Grand List code or a coding based on the map page, block, and lot known as TAXMAP (in NEMRC). In order to facilitate the link to the Grand List, the GIS Parcel Data Standard requires inclusion of the SPAN (a state-assigned unique number) in the attributes.

All property must have a unique record in the Grand List with a corresponding SPAN. This includes non-taxable lots owned by municipalities, the State of Vermont and non-profit organizations such as religious groups and land trusts. This allows the link between the digital parcel data and the Grand List. Parcels associated with mobile home parks and condominiums may not be in the Grand List and therefore would not have a SPAN.

There are many other types of data that can be linked to parcel data. The state's E911 data will soon include the SPAN for that property, and this will facilitate linking of information contained in the E911 database (available from VCGI) such as site type (commercial, residential, public, etc.). Check VCGI's metadata for the E911 data or the E911 web site for more information about the attributes E911 maintains. And remember, it is the municipal E911 Coordinator who ensures that the E911 data is accurate and up-to-date.

Overview of the Parcel Mapping Process

Now that you have read through the descriptions of relevant issues and processes, let's look at an overview of the steps involved in the process of creating or updating parcel maps and the data used to create them.

1. Town officials decide to create or update tax maps, and recognize the importance of creating or updating the digital parcel data that is integral to tax maps. Town officials read this Parcel Mapping Guideline in order to understand best practices in this process.
2. Town officials sit down together to discuss goals of the mapping project. We recommend that **various town officials and volunteers** be included in this discussion, as maps and map data can be useful to a town in a variety of ways: Listers are obviously interested in boundary locations, acreage, and abutters; Zoning officials would be interested in setbacks, acreages, and locations of planned development; Planners are interested in the big picture and how the different areas of town are used; Conservation commission members might want to identify the locations of wildlife sitings, important natural resources, and trails. These are just a few examples.
3. After identifying the goals of the project, and thereby the products of the project (so many maps that show these features, as well as digital parcel data and zoning data and the natural resource inventory data, for example), Town officials would develop a more formal Request for Proposals (RFP) as described in this guideline. The RFP would contain as much specific detail as possible relating to the expectations and products of the project. See Appendix A.
4. The RFP would be disseminated in various ways: posted at the town website, sent via an email listserv (such as VGIS-L, coordinated by VCGI), or simply mailed to a selection of companies who do mapping (VCGI maintains a list of mapping firms who work in VT).
5. Proposals would be received by the indicated deadline, and town officials (hopefully, with the help of Regional Planning Commission staff, professional planning staff, or someone with knowledge of GIS) would review them and choose a mapping contractor based on an agreed upon set of criteria. See Appendix C.
6. Once the potential contractor has been notified, the town would draw up a mapping contract that specifies deliverables, timelines, payments, etc. This document is extremely important as it protects both the town and the contractor from misunderstanding and disappointment. See Appendix B and Appendix D.
7. Payment should be tied to the achievement of milestones or provisions of products as agreed upon in the contract. See Appendix E and Appendix F.
8. Once the project is complete and all products has been received, the contract can be closed and the contractor can be paid their final payment.

9. A copy of the parcel data (and any other data developed or updated during the project) should be shared with your RPC GIS specialist, as this data is integral to regional planning, and your town benefits from the RPC using up to date data. The RPC and VCGI can also help by distributing this important public information when members of the public request it.

10. Now is a good time to make sure everyone in the town office has access to the maps and data developed. In addition, town officials can discuss a plan for maintenance or update of the maps and data. Every year? Every 3 years? Make a plan and include the financing for that plan in town budgets as appropriate.

Appendix A

REQUEST FOR PROPOSALS

INVITATION TO BID

for
Property Mapping

Municipality of _____, Vermont

The Municipality of _____ is seeking bids for the property mapping of all parcels within the municipality. Enclosed find a proposed "Property Map Agreement" and "Property Mapping Specifications" upon which all bids must be based. Bid proposals must be received at the municipality office on or before _____ (Example: Tuesday, June 16, 2011)

The Municipality will review all proposals on the basis of price, firm expertise, personnel, previous experience, and other factors, and will choose the firm which the Municipality believes will provide the best job for the best price. The chosen firm may or may not be the low bidder and the Municipality reserves the right to accept or reject any proposal in the best interest of the Municipality of _____.

Prior to the submission of a bid proposal, representatives from each firm must visit the Municipality and review the existing Municipality records sufficiently to ascertain the status of the Municipality records to be used and to understand the magnitude of the job being bid. Upon said visit, the municipality shall assume that each firm clearly understands the problems, inconsistencies, and overall conditions associated with the Municipality of _____ land records, maps, etc., and that the bid proposal will take these problems into consideration when submitting a price to do a complete, accurate, and thorough job of property tax mapping for the Municipality of _____.

Each bidder shall submit with their bid proposal an additional statement of the qualifications and experience of the bidder and all supervisory personnel. Such statement shall include a list of its municipal clients in New England and the nature of the mapping projects completed within the last ten years. It shall also include the number of persons fully and gainfully employed and their present work assignments.

Each bid proposal must contain a written, detailed explanation of the methods the firm intends to utilize in deed examinations, plotting, etc., within the specifications as set forth by the Municipality.

The bid proposal shall also contain as an addendum individual cost increases or decreases for any options the contractor wishes to offer, as well as a brief written description explaining work which would be done and the product which would be completed for each option.

Appendix B

SAMPLE STATEMENT FOR PROPERTY MAPPING SPECIFICATIONS

The Municipality of _____ comprised of _____ acres of land, divided into _____ parcels shall be mapped as follows:

It is recommended that municipality and contractor agree on content of the map such as map text and paper size; this will determine the scale and page grid of the final product.

A common scale is 1:5000 using 36 inch paper, but may be plotted at the best scale for the size and density of the properties.

It is important to remember that the parcel maps reflect the land records of the town, but they are NOT the legal land records. Therefore, the maps must have a disclaimer such as (at a minimum):

"For informational purposes only, not to be construed as a legal land survey, or used for legal description or conveyance."

The following are but a few of the large landowners in the municipality that may have good documentation of their holdings:

_____ with _____ acres

_____ with _____ acres

_____ with _____ acres

Appendix C

ITEMS TO BE CONSIDERED IN EVALUATING MAPPING PROFESSIONALS

It is recommended that municipalities consult with other towns and/or their Regional Planning Commission for help when reviewing proposals and seeking feedback about mapping professionals' past work.

1. Responsiveness to the specifications and the contractor's proposed plan of performance. The plan of performance should include a schedule for accomplishing the work, including the time required for each phase.
2. Experience. Request a client list. Review one or two of the most recent projects, by examining the work and discussing the client's satisfaction with the mapping contractor's work.
3. Equipment and production facilities. Request a written statement of how maps are prepared. Ask for a listing and description of equipment to be used on the project.
4. Personnel. Ask for a listing of full-time employees of the firm available to work on the specified project and brief resumes of key mapping personnel. The caliber of workforce can be an important factor in a firm's ability to produce acceptable maps.
5. Support programs. Technical assistance and support for using and creating the maps and the numbering system employed on the maps should be provided.
6. Cost. Cost should be measured in relation to the service to be provided.

Appendix D

PROPERTY MAP AGREEMENT

This document can be used as template or checklist to ensure the agreement includes key elements.

This Agreement made this _____ day of MONTH, YEAR by and between the Municipality of _____, a municipal corporation located in the County of _____ and State of Vermont hereinafter "Municipality", and _____, a business organized and existing under and by virtue of the laws of the State of _____ and having its principal place of business in _____ in the County of _____ and State of _____ hereinafter "Contractor".

WITNESSETH:

That for and in consideration of the payments and agreements hereinafter mentioned:

1. **SCOPE OF SERVICES** In accordance with the contract documents, as hereinafter defined, Contractor will prepare and furnish to Municipality property maps of the entire municipality to be completed on or before _____. The property maps will be accurate as of _____.
2. **CONSIDERATION** Municipality will pay Contractor the sum of _____ Dollars in accordance with the payment schedule attached hereto as Exhibit A.
3. **CONTRACT DOCUMENTS DEFINED** The term "contract documents" means and includes the following:
 - A. Advertisement for bids;
 - B. Specifications;
 - C. Contractors bid;
 - D. This Property Map Agreement;
 - E. Notice of award;
 - F. Schedule of Payments;
 - G. Any change orders.
4. **TIME FOR PERFORMANCE** Work shall commence on or about _____, and shall be completed on or before _____, unless extended by mutual agreement of the parties hereto in writing. An established completion schedule is important.
5. **DELIVERABLES**
 - A. Documentation of source materials and information located during contract referenced to each parcel, as specified in the contract.
 - B. All digital parcel map layers in GIS data format - please refer to the VT GIS Parcel Data Standard for requirements related to GIS data and metadata - on the media specified (DVD, hard drive, etc.)
 - C. Hard copy parcel maps; number and size shall be specified in the contract and shall include an Index Map showing all map sheets with town boundary and roads.
 - D. All reports called for in these technical specifications, in hard copy and/or digital format, as specified in the contract.
 - E. Additional digital files relevant to the project, as specified in the contract

6. **OWNERSHIP OF MAPS, DIGITAL DATA AND RELATED DOCUMENTS** The original property maps, the digital data, and all documents and materials from which they were produced, or which established the accuracy thereof, including, but not limited to manuscripts, shall be delivered to and become the property of the Municipality. The Contractor may retain copies thereof for its files for future reference, but in no event shall copies be sold to third parties except upon the express written consent of the Municipality.

7. **RIGHT OF INSPECTION** The Municipality, through its Board of Listers, shall, at their discretion, make periodic inspections of the work accomplished by the Contractor and the Contractor shall make available all maps, documents, manuscripts and related material at all reasonable times and places.

8. **PAYMENT VOUCHERS** All vouchers requesting payment, along with monthly progress reports, in accordance with the Payment Schedule shall be presented to and approved by the listers before payment shall be required by Municipality.

9. **INSURANCE** Contractor agrees that it shall, at its sole expense, procure and maintain workers compensation and general liability insurance in an amount of not less than ONE MILLION DOLLARS (\$1,000,000.00), and shall upon request, deliver to the Municipality certificates evidencing said insurance.

10. **AVAILABILITY OF MUNICIPALITY'S RECORDS AND DATA** The Municipality will permit the Contractor to use, free of charge, in the performance of the work under this contract, the current and all available past Grand List books, all other applicable data from the Board of Listers and all deeds and surveys presently of record. All said materials shall be available to the Contractor during normal business hours at the respective offices where they are usually kept.

11. **NON-ASSIGNMENT** The Contractor agrees not to transfer, assign, encumber, sell or otherwise dispose of its rights under this Agreement.

12. NOTICES Any and all notices or other communications required or permitted by this Agreement or by law to be served or given to either the Municipality or the Contractor by the other party shall be in writing and shall be deemed duly served and given personally delivered to the party to whom it is directed, or in lieu of such personal service when deposited with the United States Postal Service by certified mail, return receipt requested, postage prepaid, addressed to the parties at the following addresses:

TO MUNICIPALITY: _____

W/ Copy to: _____

TO CONTRACTOR: _____

Either party may change its address for the purposes of this paragraph by given written notice of such change to the other party in the manner provided for in this paragraph.

13. ENTIRE AGREEMENT The contract documents contain the entire Agreement between the Municipality and the Contractor and any other agreements or representations between the parties hereto not expressly set forth in said contract documents are null and void and of no force and effect.

IN WITNESS WHEREOF this Agreement is entered into as of the date first above written.

MUNICIPALITY: BY _____

CONTRACTOR: BY _____

Appendix E

SCHEDULE OF PAYMENTS

Not later than the ___th day of each month during the term of this Agreement, the Contractor shall submit to the Municipality a partial payment voucher filled out and signed by the Contractor covering the work performed during the period covered by the voucher and supported by the Monthly Progress Report (see Exhibit F) and such data as the Municipality may reasonably require. Within 15 days of receipt of said voucher, the Municipality shall make payment to the Contractor or return the voucher to the Contractor indicating in writing its reasons for refusing to make payment. In the latter case, the Contractor may make the necessary corrections and resubmit the voucher, in which case payment shall be made within 15 days of said resubmittal.

Final payment voucher shall be no less than 10% of the total contract amount, and shall not be paid until the Municipality has had the opportunity to review and accept the completed product and deliverables. In no case shall that be more than 45 days from receipt of the voucher.

If the Municipality, while reviewing the completed contract work ascertains that it has not been performed in accordance with the contract documents, it shall return all of said work to the Contractor for revision as per the contract documents and the Municipality shall withhold further payments until the Contractor satisfactorily completes the terms of the contract.

If, after forty-five (45) days commencing upon receipt of the final contract work, the Contractor has not received formal acceptance or rejection in writing from the Municipality, the Contractor shall be deemed to have satisfactorily completed the contract and the Contractor shall be due the final payment of the contract.

Appendix F

CONTRACTOR'S MONTHLY PROJECT REPORT

MUNICIPALITY OF _____ PROPERTY MAPPING PROJECT

Name of Contractor: _____

Month/Year of Report: _____

1. List work features currently underway or completed (i.e., map compilation, drafting, digitizing, plotting, data base, etc.), the date work on each feature began, and the percentage of completion of each feature as of the date of this report:

DATE BEGUN	% COMPLETED	WORK FEATURE
------------	-------------	--------------

2. List those work features expected to be started in the coming month.

3. Describe briefly all problem areas presently being encountered or anticipated.

Signature

Title