

VT Center for Geographic Information

Vermont Protected Lands Geospatial Data Standard - DRAFT

Version 1.0

Acknowledgements

This data standard was derived from the coding scheme of the Vermont Conserved Lands Database project. The VCLD project was managed for many years by the Spatial Analysis Laboratory at the University of Vermont. Please see the Introduction to this standard for more details about that project and the partners involved in it. This first version of the Protected Lands Geospatial Data Standard was drafted by VCGI staff following meetings of the contributing partners identified below:

Jon Osborne, VT Land Trust
Chris Moore, VT Land Trust
Dan Farrell, The Nature Conservancy
Sean McFaden, The UVM Spatial Analysis Lab
Thomas Tenyah, Green Mountain National Forest
Kris Hammer, VT Housing and Conservation Board
Ryan Knox, VT Agency of Natural Resources
Reed Sims, USDA Natural Resources Conservation Service
Mike Brouillette, VCGI

These individuals volunteered their time to hammer out a new Protected Lands data scheme as a first step towards instituting a new data update protocol for this data layer. 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

Updates

V. 1.0: June 2015

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



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Introduction

Property ownership is commonly considered to consist of a “bundle of rights” that define the social relationships between people in relation to that property. Conservation in this context involves selling or giving away or in some way limiting the expression of some of those rights. The Vermont Protected Lands Database contains lands that have some level of protection against permanent conversion to developed land uses. This protection is afforded by a wide range of landowner types and conservation measures but can be generalized into three primary categories: 1) public ownership by a government agency or entity committed to natural resources protection (e.g., national forests, state parks, town forests); 2) private ownership by a conservation organization (e.g., The Nature Conservancy); and 3) conservation easements on privately-owned lands (e.g., Vermont Land Trust easements on working farmland and forests). The first two categories focus on direct ownership of land (i.e., fee ownership) while the third focuses on transfer of a property's development rights to a third-party entity (e.g., a land trust) that will theoretically hold these rights in perpetuity. Other protection measures include deed restrictions and covenants. It is important to keep in mind that conservation does not imply public access.

The Vermont Protected Lands Database was originally a project of the University of Vermont Spatial Analysis Lab and cooperating organizations which included The Vermont Land Trust, The Nature Conservancy, the Vermont Housing and Conservation Board, the Vermont Agency of Natural Resources, and regional planning commissions throughout the state. The original coding scheme was used as the labeling protocol for the Vermont Protected Lands Database. The original coding scheme of the Vermont Protected Lands Database was developed by the University of Vermont, Spatial Analysis Lab. In order to facilitate data sharing and analysis, some of the coding scheme was adapted from New Hampshire's GRANIT (Geographically Referenced Analysis & Information Transfer System) database of New Hampshire Conservation Lands.

This standard includes an updated version of the Coding Scheme reflecting decisions made by the Protected Lands Database Work Group during an effort to plan for a sustainable update process for this important geospatial data layer. VCGI has agreed to coordinate a somewhat distributed data maintenance and compilation effort once updates adhere to this data standard.

What is Included in this Database

The Vermont Protected Lands Database includes land parcels that are expected to remain protected from land conversion or development. With the exception of state-owned boat and fishing access areas, the minimum size for inclusion in the CLD is two acres. Protection mechanisms range from fee-simple public ownership of lands managed to maintain natural resource features, private fee ownership with publicly owned easements, private ownership with easements privately owned by conservation organizations, to fee-simple ownership by private conservation organizations. The information below provides a bit more detail about the types of conservation commonly used.

- Public lands held by agencies with conservation or natural resource oriented missions. Public lands are not normally legally protected from sale, swap or conversion, but the likelihood of such disposition is low. Often, however, public lands are encumbered by private and/or public conservation easements or other conservation restrictions, as well.
- Municipal natural resource holdings. These may include town forests, fire district lands, watershed areas, and school wood lots having limited conversion threats and high ownership stability, although they may not be encumbered with legal protection mechanisms.

- Public boating and fishing access areas. Although these areas are often small and no longer contain natural cover, they provide important public access to natural resource features of adjacent lands and waters in the state, and are therefore included in the CLD. Most often these are owned in fee by the state and administered by the Agency of Natural Resources. Others may be municipally or federally owned, or public access may be encumbered on a private land parcel by easement.
- Public and private educational institution holdings with natural resource uses and protections. Examples include University of Vermont School of Natural Resources research forests and natural areas, Johnson State College woodlands, and Yale University School of Forestry lands.
- Publicly owned rights on private lands. These may include Agency of Natural Resources hunting rights, public access rights, and Forest Legacy conservation easements.
- Parcels owned in fee by non profit organizations dedicated to conserving land or resources. Although not necessarily legally protected from conversion, developing these holdings would breach organizational mission statements and/or non profit tax status.
- Private parcels with conservation easements held by non profit organizations. These include easements on agricultural lands, woodlands, or other "open lands." Note that many agricultural conservation easements protect against residential subdivision, but landowners may retain limited building and subdivision rights on their protected lands. Furthermore, farmers on such protected lands often are required to follow forest management plans but may be permitted to clearcut areas to reclaim additional pasture or cropland.

Objectives of this Data Standard

1. Define attributes and acceptable attribute values for a geospatial database identifying protected land in Vermont.
2. Define data format and structure for the Protected Lands Database
3. Define Metadata requirements for the Protected Lands Database
4. Provide procedures for submitting new or updated Protected Lands Geospatial Data to VCGI, so that the data can be included in the next update to the Protected Lands Database.
5. Define the intended time frame for updates to the Protected Lands Database

Applicability of this Data Standard

Compliance with this standard is recommended for any municipal, regional, state, federal, or nonprofit data creator who creates or updates geospatial data describing protected land. This requirement will not usually be burdensome for most data partners, as digital geospatial data developed by those experienced in the issues of GIS data and application development would comply with most, if not all, of the requirements as a matter of good professional practice. Any state agency that supplies funds to organizations or regional planning agencies to develop or update Protected lands geospatial data should require that this standard be used.

There is no intent to provide a standard for developing the authoritative definition of property boundaries or to specify limits for legal boundary determination or property conveyance purposes. Matters related to those more definitive interests remain the purview of the professional title attorney and/or licensed land surveyor.

Templates are Available

VCGI provides metadata and geodatabase templates that can help in the conversion to or creation of data that meets this Data Standard: vsgi.vermont.gov or call 802-882-3002.

Protected Lands Geospatial Data Standard Requirements

Minimum Deliverables: GIS data and metadata having the characteristics described below.

Coordinate System and Datum: Vermont State Plane Meters, NAD 83 (National Spatial Reference System (NSRS) or most current).

Characteristics, Features, and Format:

- Deliverable shall consist of one geodatabase containing all Protected lands features maintained by that data partner (and any other partners whose data they have incorporated).
- Geodatabases shall follow a naming convention:
 - CadastralConserved_PROTECTEDLND_ORGANIZATION_YEAR (e.g. CadastralConserved_PROTECTEDLND_VLT_2015)

Attributes: All features shall have the following attributes at a minimum. Values refers to the actual number, code or characters that will appear in the attribute table for each feature. See more in-depth description of each attribute’s values in the section below the overview table.

Field Name	Values	Description	Text/Short	Number of places
POLYID	POLYgon IDentifier Code	Unique number assigned by VCGI or Data Partner	Text	15
TOWNNAME	Name of Town – matching names found in BoundaryTown_TWNBND	Name of Town in which largest portion of the parcel is contained. Assigned by Data Partner.	Text	50
NAME	Project Name	For public lands, NAME is equivalent to the name of the public project (e.g., Green River Reservoir State Park, Bradford Town Forest, West Hill Pond Access Area). For private lands, NAME is equivalent to the protecting entity (e.g., The Nature Conservancy, Vermont Land Trust, McConnell Pond Conservation Fund).	Text	50
PTYPE1	See Domain Table	Primary Protection TYPE codes assigned based on the legal restrictions and/or ownerships associated with each polygon of a protected project.	Text	5
PTYPE2-5	See Domain Table	Complementary field to be used after Primary Protection TYPE is assigned to the polygon. PTYPE2-5 codes reflect the legal restrictions and/or ownerships associated with each polygon of a protected project.	Text	5

		Specifically designed to allow listing of all fee owners, easement co-holders, and reverter clause beneficiaries of a property.		
PAGENCY1	See Domain Table	Primary Protecting AGENCY or organization responsible for protection of the parcel.	Text	5
PAGENCY2-3	See Domain Table	Secondary and tertiary protecting agencies.	Text	5
ACRES		Area of polygons calculated in ArcGIS or other GIS program and converted to acres.	Numeric	10 (2 decimals)
SOURCE	See Domain Table	Sources of geospatial information comprising each polygon	Text	3
SOURCENOTES		Used to clarify details about source data.	Text	80
DATEACQUIRED	DATE	The date that all parties signed (closing). NOT date it was recorded at town. Closest to actual date or 0101YYYY if actual date not known.	Date format	8
NOTES		Notes field often used to note problem polygons, specific site names, etc.	Text	80
GAPSTATUS	See Domain Table	Protection level.	Text	2
DESIGNATION	See Domain Table	Description of the property related to its use or function	Text	4
PUBACCESS	See Domain Table	Allows the cartographer to distinguish Public Ownership from Private Ownership to help protect the rights of private landowners.	Short	1
PUBACCNOTES		Notes field regarding public access clarifications and restrictions	Text	80
DATEREWISED		History of record entries. Record each revision (new, updated or corrected data). Include date and explanation.	Text	80

Metadata Required: the format shall meet the Content Standard for Digital Geospatial Metadata (CSDGM): <http://www.fgdc.gov/metadata/geospatial-metadata-standards#csdgm> and shall be provided in digital format.

Detailed Descriptions of Attributes and Values

POLYID

Each polygon in the database representing a protected land parcel has a unique POLYID. In 2014 or 2015, a new POLYID was assigned for each feature, and thereafter new POLYID's were assigned sequentially by the VCGI data manager.

TOWNNAME

If the parcel lies within 2 or more towns, the name of the town containing the largest area of the parcel or project is used. Assigned by Data Manager based on the town names used in the VGIS data layer BoundaryTown_TWNBND5.

NAME

For public lands, NAME is equivalent to the name of the public project (e.g., Green River Reservoir State Park, Bradford Town Forest, West Hill Pond Access Area). For private lands, NAME is equivalent to the protecting entity (e.g., The Nature Conservancy, Vermont Land Trust, McConnell Pond Conservation Fund). Names of private landowners (as in the case of many conservation easements) are not indicated in the database.

PTYPE1

Primary Protection TYPE codes assigned based on the legal restrictions and/or ownerships associated with each polygon of a protected project. The PTYPE1 field is intended to reflect legally mandated restrictions on the property. Protecting agency records and deeds should be consulted for specific details. The PTYPE1 code normally reflects the most restrictive protection mechanism. In the case of public parcels, PTYPE1 reflects the primary public protection mechanism, even where a private mechanism may be more restrictive. Other restriction mechanisms are indicated by the PTYPE2-5 attributes.

- 01** Fee Ownership
 - 02 Fee Ownership Except Timber Rights
 - 02.1 Fee Ownership Except Lifetime Wood Rights
 - 03 Fee Ownership Except mineral rights
 - 04 Fee Ownership Except Oil Rights
 - 05
 - 06 Fee Ownership Except Hunting Rights
 - 07
 - 08
 - 09 Fee Ownership Except Multiple Rights

- 10** Conservation Easement (general) –
 - 11 Trail easement
 - 11.1 Winter Trail Easement
 - 12 Historical Preservation Easement
 - 13 Scenic Easement
 - 14 Flowage Easement
 - 15 Rails to Trails Easement
 - 16 Ecological Protection Zone
 - 17 River Corridor
 - 17.1 Stream Bank
 - 18 Agricultural Easement
 - 19 Hunting Rights Conservation Easement

- 20** Deed Restrictions (General)
 - 21 Agricultural Preservation Deed Restrictions

- 22 Archeological Preservation Deed Restrictions
- 23 Set Aside area of Development Deed Restriction
- 24 Flowage Deed Restrictions
- 25 Act 250 Deed Restrictions
- 26 Conservation Deed Restrictions
- 27 Recreation easement
- 28
- 29
- 30 Reverter**
 - 31 Management Agreement
 - 32 State of Vermont 'Natural Area' Designation
 - 33 Executory Interest
 - 34 Remainder Interest
 - 35 Lease
 - 36
 - 37 Covenant
 - 37.1 No Development Zone within Covenant
 - 38 Parcel to be conveyed to other entity
 - 39
 - 39.1 No Development Zone within Easement

PTYPE2-5

Complementary field to be used after PTYPE1 is assigned to the polygon. PTYPE2-5 codes reflect the legal restrictions and/or ownerships associated with each polygon of a protected project. Specifically designed to allow listing of all fee owners, easement co-holders, and reverter clause beneficiaries of a property.

PAGENCY1

Primary Protecting AGENCY or organization responsible for protection of the parcel. All agencies or organizations involved should be indicated by PAGENCY1 or PAGENCY2-3. A public agency that owns the land is usually listed as the PAGENCY1.

00,000 - 29999 **Vermont Municipalities:** FIPS Census Codes 01005 - 27120
 [See APPENDIX A - VERMONT TOWN CODES]

30000 - 39999 **Federal:**

- 30000 US GOVERNMENT (General)
 - 31000 US Dept. of Interior, Fish & Wildlife Service
 - 31100 US Dept. of Interior, National Park Service
 - 32000 US Dept. of Agriculture, Forest Service
 - 32010 Forest Legacy Program
 - 32100 US Dept. of Agriculture, Natural Resource Conservation Service (NRCS)
 - 32200 US Dept. of Agriculture, Farm Services Agency (FSA)
 - 33000 US Dept. of Defense, Army Corps of Engineers, Army National Guard
 - 33050 US Dept. of Defense, Army National Guard

40000 - 49999 **State:**

- 40000 STATE OF VERMONT (General)
- 41000
- 42000 VT Division for Historical Preservation
- 43000 VT Agency of Agriculture, Foods, and Markets
- 44100 University of Vermont
- 44200 Johnson State College
- 44300 Castleton State College
- 44400 Lyndon State College
- 45000 VT Agency of Natural Resources (ANR)
- 45100 VT ANR - Dept. of Fish and Wildlife (DFW)
- 45200 VT ANR - Dept. of Forest Parks and Recreation (FPR)
- 45300 VT ANR - Dept. of Environmental Conservation (DEC)
- 46000 VT Agency of Transportation
- 47000 VT Housing and Conservation Board (VHCB)
- 48000 VT Dept. Buildings and General Services
- 49000 VT Dept. of the Military

50000 - 59999 **Private Organizations: -**

- 50000 Private Individuals
- 50105 Addison County Community Trust
- 50110 Appalachian Trail Conference
- 50120 Atlas Timberlands Partnership
- 50150 American Farmland Trust
- 50200 Brattleboro Retreat
- 50210 Boy Scouts of America, Inc. Green Mountain Council
- 50220 Big Basin Forest Trust
- 50300 C
- 50310 Catamount Trail Association
- 50315 Center for Northern Woodlands Education
- 50320 Central VT Community Land Trust
- 50330 Charlotte Land Trust
- 50340 Colchester Land Trust
- 50350 Connecticut River Watershed Council
- 50360 Cross Vermont Trail Association
- 50370 The Conservation Fund
- 50400 D
- 50450 Duxbury Land Trust
- 50500 Equinox Preservation Trust
- 50510 East Montpelier Trails
- 50600 Fort Ticonderoga Association
- 50610 Farm and Wilderness Foundation
- 50620 Friends of the Mad River

- 50700 Green Mountain Club
- 50715 Greensboro Land Trust
- 50720 Green Mountain Audubon Society
- 50730 Guilford Preservation Inc.
- 50800 Hinesburg Land Trust

50810 HOWL-Vermont Women's Land Trust
 50850 Habitat For Humanity
 50900 Isle La Motte Reef Preservation Trust
 51000 J
 51010 Jericho Underhill Park District
 51020 Jericho/Underhill Land Trust
 51100 K
 51110 Keeping Track, Inc.
 51200 Landmark Trust
 51210 Lake Champlain Land Trust
 51220 Lewis Creek Association
 51300 Meadowsend Timberlands Partnership
 51305 Mount Anthony Preservation Society
 51310 Merck Forest Foundation
 51320 McConnell Pond Conservation Fund
 51330 Middlebury Area Land Trust
 51340 Mad River Planning District
 51350 Mad River Watershed Conservation Partnership
 51360 Manchester Community Land Trust
 51400 New England Forestry Foundation
 51405 New England Power Corporation
 51410 Northern Rivers Land Trust
 51415 Northeast Wilderness Trust
 51500 Otter Creek Gorge Land Trust
 51600 Passumpsic Valley Land Trust
 51610 Putney Mountain Association
 51620 Preservation Trust of Vermont
 51700 Q
 51800 Richmond Land Trust
 51810 Roxbury Land Conservation Association
 51900 Smoky House Foundation
 51905 Sterling Falls Gorge Natural Area Trust
 51910 Stowe Land Trust
 51920 Shelburne Farms
 51930 South Burlington Land Trust
 51940 South Hero Land Trust
 52000 T
 52010 The Nature Conservancy
 52020 The Trust for Public Land
 52030 Tinmouth Land Trust
 52100 Upper Valley Land Trust
 52200 Vermont Land Trust
 52220 Vermont Institute of Natural Science (VINS)
 52230 Vermont River Conservancy
 52300 Whipstock Hill Preservation Society
 52305 Winooski Valley Park District
 52310 Windmill Hill Pinnacle Association
 52320 Weston Land Conservation Trust
 52400 X
 52500 Y

PAGENCY2-4

Complementary field to be used after Primary Protecting AGENCY is assigned to the polygon. Codes assigned for co-holders of conservation easement or reverter organizations.

[Same as PAGENCY1 codes].

ACRES

Area of polygons calculated in ArcGIS or other GIS program and converted to acres.

SOURCE

Sources of spatial information comprising each polygon. This field is intended to delineate the specifics of each source, facilitating the prioritization of future update efforts. Note that it is appropriate to list multiple sources.

- 1.0 orthophoto
- 2.0 1:24,000 USGS topoquad-based map
- 3.0 Other georeferenced map (explain in SOURCE_NOTES)
- 4.0 Survey map, digitized and georeferenced to 1:5000 orthos
 - 4.1 COGO entry of survey data
 - 4.2 COGO entry of deed data
- 5.0 Other analog map,
 - 7.2 Vermont Town Parcel Data
 - 7.3 CAD Data
- 9.0 On-screen modification
- 9.1 Unknown source
- 10.0 Other Map Interpretation (explained in SOURCE_NOTES)
- 11.0 GPS Data

SOURCE_NOTES

Used to clarify details about source data. Used often to illuminate poor quality data (e.g. "SW corner is confusing"). SOURCE_NOTES allows targeting data most in need of revision.

DATEACQUIRED

Date of acquisition. This is the date that all parties signed (the closing). NOT date it was recorded at town. Closest to actual date or 0101YYYY if actual date not known.

NOTES

Notes field often used to note problem polygons, specific site names, etc. (e.g., CONFIRM STATUS, SHELBURNE POND SITE)

GAPSTATUS

Protection Level on a scale from 1 to 4. U.S. National Gap Analysis Program definitions with examples adjusted for Vermont (National Biological Survey Gap Analysis Program Handbook, version 1).

- 1 An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked

through management. **Examples: Wilderness Areas**, National Parks, Nature Conservancy Preserves, Audubon Society Preserves, Wilderness Areas, Forest Service Research Natural Areas.

- 2 An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance. **Examples: State Parks**, State Wildlife Management Areas with low intensity forest management.
- 3 An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (e.g., logging, OHV recreation) or localized intense type (e.g., mining). It also confers protection to federally listed endangered and threatened species throughout the area. **Examples: Managed Forests**, non-reserved National Forest areas, wetland easements.
- 4 There are no known public or private institutional mandates or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types. The area generally allows conversion to unnatural land cover throughout or management intent is unknown. See the PADUS Standards Manual for a summary of methods. **Examples: Land that could be permanently developed**, state school land, Department of Defense land, & agricultural easements.

DESIGNATION – description of the property related to its use or function

MF	Municipal Forest
ML	Municipal Land
MP	Municipal Park
NAT	Nature Reserve/ Preserve/ Sanctuary
NF	National Forest
NP	National Park
NRA	National Recreation Area
NS	National Seashore
NWA	National Wilderness Area
NWR	National Wildlife Refuge
PCL	Private Conserved Land
RNA	Research Natural Area
SF	State Forest
SL	State Land
SP	State Park
TL	Tribal Land
WMA	Wildlife Management Area
WSL	Water Supply Land
AA	Access Area
SB	Stream Bank
FCS	Fish Culture Station
DAM	Dam

FLP Forest Legacy Program
MISC FWD miscellaneous property
RCE River Corridor Easement
GMCC Green Mountain Conservation Camp
EASE FWD easement property
SDNA State Designated Natural Area
OTH Other Land (use only if everything else does not apply)
UNK Unknown

PUBACCESS

Many protected land parcels are privately owned with legal conservation restrictions held by private entities. Other parcels are privately owned with public easements or public rights held. The display of protected lands data should always distinguish Public Ownership from Private Ownership to help protect the rights of private landowners. Extremely sensitive delineations should be coded as proprietary data (i.e., 4) and not distributed to the public.

1 = Public Access
2 = Privately Owned with easements allowing public access/use – see PUBACCNOTES or contact protecting agency for details
3 = Privately Owned Land – no legally mandated public access
4 = Publicly Owned Land – access limited – see PUBACCNOTES or contact protecting agency for details

PUBACCNOTES – explanation of property access limitations

DATEREvised - History of record entries. Record each revision (new, updated or corrected data). Include date and explanation.

Domain table for attribute values – make sure this allows pick list for data updaters.

Data Submission Procedure

VCGI will compile Protected Lands Geospatial data that meets this standard on an annual basis, starting in 2015. During the first year after this first compilation, the protected lands data committee will convene 6 months after the data is published, in order to review domain table values and add/edit as needed. Thereafter, such changes will be made as part of the annual data submission and compilation effort.

VCGI will only accept data submitted by one of the following identified Protected Land Geospatial Data Partners:

The Vermont Land Trust
The Nature Conservancy
The VT Housing and Conservation Board
The VT Agency of Natural Resources
The Natural Resources Conservation Service
The Green Mountain National Forest
Any Regional Planning Commission in VT

Other entities can request to be included in the list of Protected Land Geospatial Data Partners by contacting VCGI. They must demonstrate that they have the technical ability to meet the data standard described above.

If they do not have the technical ability necessary, an attempt will be made to pair them up with an existing Data Partner who can submit data for them.

VCGI will provide Geodatabase and Metadata templates to data partners on request.

Data partners are expected to include only those parcels for whom:

They are the primary protecting agency, or

They are serving as data manager

When questions arise as to which data partner is responsible for data from non-data partner sources (e.g. smaller land trusts, municipalities) data partners and VCGI will communicate with one another to resolve the question of who shall submit parcels.

VCGI will develop procedures to ensure that duplicate parcels are not included in the final published database.