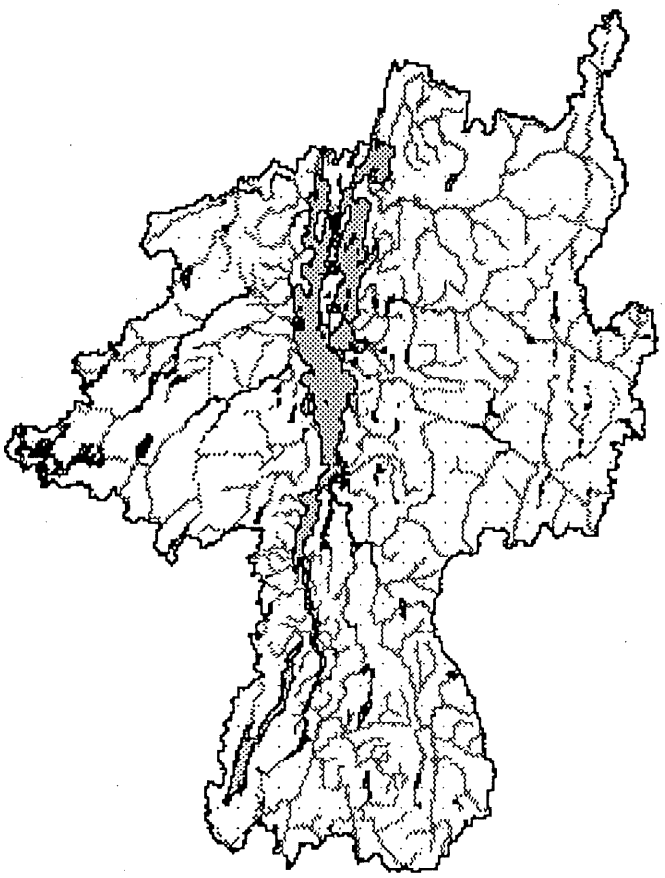
Technical Report No. 18

Catalog of Digital Spatial Data for the Lake Champlain Basin



Lake Champlain Basin Program

Prepared by
Vermont Center for Geographic Information, Inc.

for
the Lake Champlain Management Conference

September 1996

PUBLICATION SERIES

THIS PROGRAM IS SPONSORED BY U.S.E.P.A. AND THE STATES OF NEW YORK AND VERMONT

This technical report is the eighteenth in a series of reports prepared under the Lake Champlain Basin Program. Those in print are listed below.

Lake Champlain Basin Program Technical Reports

1. *A Research and Monitoring Agenda for Lake Champlain.* Proceedings of a Workshop, December 17-19, 1991, Burlington, VT. Lake Champlain Research Consortium. May, 1992.

2. *Design and Initial Implementation of a Comprehensive Agricultural Monitoring and Evaluation Network for the Lake Champlain Basin.* NY-VT Strategic Core Group. February, 1993.

3. (A) *GIS Management Plan for the Lake Champlain Basin Program.* Vermont Center for Geographic Information, Inc., and Associates in Rural Development. March, 1993.

   (B) *Handbook of GIS Standards and Procedures for the Lake Champlain Basin Program.* Vermont Center for Geographic Information, Inc. March, 1993.

   (C) *GIS Data Inventory for the Lake Champlain Basin Program.* Vermont Center for Geographic Information, Inc. March, 1993.

4. (A) *Lake Champlain Economic Database Project. Executive Summary.* Holmes & Associates. March 1993.

   (B) *Socio-Economic Profile, Database, and Description of the Tourism Economy for the Lake Champlain Basin.* Holmes & Associates. March 1993

   (B) *Socio-Economic Profile, Database, and Description of the Tourism Economy for the Lake Champlain Basin. Appendices.* Holmes & Associates. March 1993

   (C) *Potential Applications of Economic Instruments for Environmental Protection in the Lake Champlain Basin.* Anthony Artuso. March 1993.

   (D) *Conceptual Framework for Evaluation of Pollution Control Strategies and Water Quality Standards for Lake Champlain.* Anthony Artuso. March 1993.

5. *Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 1.* Alan McIntosh, Editor, UVM School of Natural Resources. February 1994.

   Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 1. Executive Summary. Alan McIntosh, Editor, UVM School of Natural Resources. February 1994.

6. *(A) Lake Champlain Nonpoint Source Pollution Assessment.* Lenore Budd, Associates in Rural Development Inc. and Donald Meals, UVM School of Natural Resources. February 1994.

   (B) Lake Champlain Nonpoint Source Pollution Assessment. Appendices A-J. Lenore Budd, Associates in Rural Development Inc. and Donald Meals, UVM School of Natural Resources. February 1994.

7. *Internal Phosphorus Loading Studies of St. Albans Bay. Executive Summary.* VT Dept of Environmental Conservation. March 1994.

   (A) *Dynamic Mass Balance Model of Internal Phosphorus Loading in St. Albans Bay, Lake Champlain.* Eric Smeltzer, Neil Kamman, Karen Hyde and John C. Drake. March 1994.

   (B) *History of Phosphorus Loading to St. Albans Bay, 1850 - 1990.* Karen Hyde, Neil Kamman and Eric Smeltzer. March 1994.

   (C) *Assessment of Sediment Phosphorus Distribution and Long-Term Recycling in St. Albans Bay, Lake Champlain.* Scott Martin, Youngstown State University. March 1994.

8. *Lake Champlain Wetlands Acquisition Study.* Jon Binhammer, VT Nature Conservancy. June 1994.

9. *A Study of the Feasibility of Restoring Lake Sturgeon to Lake Champlain.* Deborah A. Moreau and Donna L. Parrish, VT Cooperative Fish & Wildlife Research Unit, University of Vermont. June 1994.

10. *Population Biology and Management of Lake Champlain Walleye.* Kathleen L. Newbrough, Donna L. Parrish, and Matthew G. Mitro, Fish & Wildlife Research Unit, University of Vermont. June 1994.

11. (A) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin. Executive Summary.* Yellow Wood Associates, Inc. January 1995.

    (B) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin.* Yellow Wood Associates, Inc. January 1995.

    (C) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin. Appendices.* Yellow Wood Associates, Inc. January 1995.

12. (A) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program. Executive Summary.* Holmes & Associates and Anthony Artuso. March 1995

    (B) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program.* Holmes & Associates and Anthony Artuso. March 1995

13. *Patterns of Harvest and Consumption of Lake Champlain Fish and Angler Awareness of Health Advisories.* Nancy A. Connelly and Barbara A. Knuth. September 1995.

14. (A) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program. Executive Summary - Part 2.* Holmes & Associates and Anthony Artuso. November 1995

    (B) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program - Part 2.* Holmes & Associates and Anthony Artuso. November 1995

15. *Zebra Mussels and Their Impact on Historic Shipwrecks.* Lake Champlain Maritime Museum. January 1996.

16. *Background Technical Information for Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin.* Lake Champlain Basin Program. June 1996

17. (A) *Executive Summary. Economic Analysis of the Draft Final Plan for the Lake Champlain Management Conference.* Holmes & Associates and Anthony Artuso. July 1996

(B) *Economic Analysis of the Draft Final Plan for the Lake Champlain Basin Management Conference.* Holmes & Associates and Anthony Artuso. July 1996

18. *Catalog of Digital Spatial Data for the Lake Champlain Basin* . Vermont Center for Geographic Information, Inc. September 1996.

This report was funded and prepared under the authority of the Lake Champlain Special Designation Act of 1990, P.L. 101-596, through the U.S. Environmental Protection Agency (EPA grant #EPA X 001840-01). Publication of this report does not signify that the contents necessarily reflect the views of the States of New York and Vermont, the Lake Champlain Basin Program, or the U.S. Environmental Protection Agency.

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September 1996

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The States of Vermont and New York, the Province of Quebec, the Lake Champlain Basin Program and VCGI are not accountable for any errors in or misuse of the data. The States of Vermont and New York, the Province of Quebec, the Lake Champlain Basin Program and VCGI make no representations of any kind, including but not limited to the warranties of merchantability or fitness for a particular use, nor are any such warranties to be implied with respect to the data.

1. INTRODUCTION

Because of the growing concern of the health of Lake Champlain and its surrounding basin, Congress passed Public Law 101-596, the *Lake Champlain Special Designation Act of 1990.* Sponsored by Senators Patrick Leahy and James Jeffords (VT) and Senators Daniel Patrick Moynihan and Alfonse D'Amato (NY), this legislation called for the development of a Pollution Prevention, Control, and Restoration plan for Lake Champlain. The Lake Champlain Basin Program (LCBP) was established to coordinate the activities envisioned by the Special Designation Act.

The LCBP

The LCBP is a government-funded initiative working in partnership with agencies, organizations and individuals toward the development and implementation of the Plan. The program is guided by the Management Conference (LCMC), a 31-member board representing a broad spectrum of Lake-Basin interests and organizations from both New York and Vermont, including local government and citizen representatives, scientists, state legislators, state government and federal agencies. The Management Conference is advised by a Technical Advisory Committee (TAC), composed of resource managers, physical and social scientists and business and economic experts, and by the New York and Vermont Citizens Advisory Committees. The Management Conference is also advised by two subcommittees, the Education and Outreach Committee and the Plan Formulation Team (PFT), and works with the Lake Champlain Research Consortium (LCRC), formed by seven academic institutions in the Lake Champlain Basin.

GIS and the Lake Champlain Basin

The *Lake Champlain Special Designation Act of 1990* established federal program coordination and -- in section 304(b) directed that:

"For the purposes of enhancing and expanding basic data collection and monitoring. . .the Secretary of the Interior. . .shall -- in cooperation with appropriate universities and private research institutions, and the appropriate officials of the appropriate departments and agencies of the State of New York and Vermont, develop an integrated geographic information system of the Lake Champlain basin;" -- PL 101-596, Section 304(b)

In 1990 *geographic information systems* technology were just coming into common usage within agencies of the Federal government, the states, and -- in Vermont -- the regional planning commissions covering the Lake Basin. A geographic information system is a *system of computer hardware, software, and procedures designed to support the capture, management, manipulation, analysis, and display of spatially*

referenced data. (Also spatial information system, land information system, etc.)

Appropriate state agencies from both New York and Vermont pursued projects of GIS technology development and needs analysis using first-year LCBP funds. A contractor was engaged to survey the needs of public-sector and commercial GIS users within the Basin, and organizations which considered themselves to be potential users of the integrated geographic information system to be developed for the LCBP. The contractor's report highlighted several key points, including the need for:

- **sharable publicly-funded both existing and to-be-developed spatial information** within the Basin, according to the differing policies and practices of the agencies and jurisdictions involved,
- a unified consensus **plan for the integration and development of GIS-compatible data bases** to support the purposes and projects of the LCBP,
- the designation of **standards and procedures** for data development and use, in order to assure shareability of the information, and
- the focusing of key responsibilities within a single organization which could function as an **LCBP/GIS Service Center.**

The LCBP/GIS Service Center

USEPA Region I (Boston), on behalf of the LCBP, issued a "Request for Proposals" for services described in the needs analysis, and the Vermont Center for Geographic Information, Inc. (VCGI), located in Burlington VT, was selected to act as the service center. VCGI worked closely with a Data Subcommittee of the LCBP Technical Advisory Committee in the first year of service center operations, on which were represented many important agencies and contractors using GIS for Basin-related projects. In the final two years of LCBP/GIS service center activities, direction has been provided by the Plan Formulation Team.

The annual work plan of the service center evolved over the three years of project funding, reflecting:

- long-term (multi-year) data needs identified by the TAC and others,
- projected availability of funds from year to year, weighed in the balance with the relative importance of non-GIS-related LCBP activities, and
- short-term (one-year) priority activities identified by the LCBP as part of the annual contracting process.

Significant activities and products which have resulted from the LCBP/GIS Service Center project include:

1. Providing ongoing technical support and data availability for LCBP research projects,
2. Developing relevant standards and procedures for use in development of LCBP-funded data bases,
3. Assuring responsible archiving and documenting of data sets developed for or used by LCBP projects, and providing public access to this information,
4. Managing the single largest long-term GIS data development project of the LCBP -- the acquisition of Basin-wide land-cover classification developed from satellite imagery,
5. Producing maps for a recreational bicycling guide to the Basin and providing preliminary support for the maps to be developed for a revised map atlas of the Basin, and
6. Publication of the "LCBP Data Catalog."

GIS Opportunities in the Lake Champlain Basin

Data Development Needs -- With the development of the initial GIS needs assessment and plan for the Basin (1991) it became apparent that public agencies and researchers identified particular needs for data to pursue the purposes of the LCBP, but which could not be met given the time and budget constraints of the LCBP. For example agencies on both sides of Lake Champlain asserted that high-quality, large scale spatial data describing agricultural soils and surface waters would be important. Also, while the LCBP/GIS Service Center was able to invoke an international agreement to gain a promise of eventual data availability from Quebec provincial ministries, it was clear that the digital spatial data would not be available within a time frame short enough to be useful. The LCBP/GIS Service Center has been able to work with federal (US), state and provincial agencies to address these needs, with the result that:

- this *LCBP Data Catalog* includes entries for the "best available" data bases currently available covering these themes, and
- agencies have made progress toward organizing and funding other data development efforts to support related data development.

Data Integration Needs -- Since 1990 awareness of the efficiencies and powerful benefits of using spatially-referenced databases has increased markedly among public agencies, business, and others. Students, community groups and local governments have all learned about the challenges facing the basin, and used LCBP information. Much of this

change is due to the increased availability and ease of use, and the reduced cost of acquiring GIS computer hardware and software, data, and expertise. As more users of GIS-compatible computers find new uses for information developed by the LCBP, they will increasingly:

- ask additional and more sophisticated questions about the Basin, its condition, and its human and natural dynamics, and
- be able to provide the responsible public agencies with their own additions and corrections to the information already collected.

Further, many of the researchers who have participated in the LCRC had not previously been exposed to techniques involved in the collection and analysis of GIS-compatible information. As a consequence they may not have considered the possible benefits to others of using GIS to assure compatibility with other types of information. They may have considered this technology, but found that uncertainties and costs could not justify the use of GIS within the budgets and time frames of their particular projects. The opportunity still exists for future conversion of many non-GIS databases describing the Basin so they can be displayed and analyzed with other data themes on a common map base.

Data Display and Use -- The greatest opportunity for ongoing use of current and to-be-developed LCBP GIS data consists not in the publication of high-quality Basin maps, but in the empowerment of students, businesses, and community groups in using desktop GIS software and LCBP data to make their maps, to learn about their own communities and problems, and to ask better questions of the government agencies responsible for protecting the Basin. The LCBP has assured through the publication of this catalog and the ongoing archiving and distribution of LCBP data bases by VCGI that this information will be available to the public. Use of GIS desktop software by LCBP staff, schools and businesses within the Basin, and its potential educational value for the Lake Champlain Basin Science Center, will help to generate expanded interest in the use of this important information resource.

2. DATA LAYER DESCRIPTIONS

Unless otherwise stated, data layers here are in Universal Transverse Mercator (UTM) meters coordinate system (North American Datum 1927), in ARC/INFO format, and are available for the entire Lake Champlain Basin Area.

Section 3 provides the technical specifications for each data layer, including feature types, original scale and status of the data. The descriptions below refer to the technical information in **Section 3** by the corresponding ARC/INFO layer names in italics, as in layer *LAKEBATH.*

For most data layers the original scale is emphasized. Data scale often limits the appropriate map size or other uses of a data layer, as every experienced data user should be aware. Data users should have a good sense of how original scales affect the cartographic usefulness and accuracy of data products and maps, and can refer to any introductory GIS text for further guidance.

ADMINISTRATIVE BOUNDARIES

Layer *CNADMIN* and *USADMIN.* These layers contain the provincial and state boundaries for Canada and the United States. This is small scale data useful only for regional mapping purposes. The *USADMIN* originates out of the Non-Point Pollution Study and is based on 1:3,000,000 scale ArcWorld Data (an ESRI data product).

ARCHEOLOGICAL DATA

Layers *VTARCH* and *NYARCH.* These coverages were developed to catalog the historical sites within the Lake Champlain Basin. This data has several important attributes for counting the number of prehistoric and historic sites. There is also an attribute for counting the number of structures considered historic with each town in the basin. These data layers are general in nature and do not provide any additional information about historic sites within the towns. However, for applications which need to identify areas containing a rich historical record these coverages would be suitable. Users should verify the counts by inspection, as the data has not been checked.

BATHYMETRY

Layer *LAKEBATH.* This layer contains bathymetry data for Lake Champlain. The data were digitized from NOAA nautical maps by the New York APA. *LAKEBATH* can be used to get a good understanding of what the water depths are around the lake. There are over 20,000 points for which data were collected.

BIKE MAP DATA

Layers *BIKE_SEC, BIKBOX_1* through *BIKBOX_6, LAKEBOX, CNBIKBOX, VTRDBKBX, NYRDBKBX, BIKE_RDS, VTPARKS,* and *NYPARKS.* These coverages were used to develop the Bike Route map for the Lake Champlain Basin Program. The coverages titled: *BIKE_SEC, BIKBOX_1* through *BIKBOX_6,* and *LAKEBOX* are polygon coverages which depict the boundaries of different sections of

the LCBP area. For example, *LAKEBOX* contains a box which delineates the boundary of the lake. Layers *CNBIKBOX* and *NYBIKBOX* contain roads encompassing the bike route with special attributes to identify the actual route.

BIKE_RDS is a coverage which contains all of the roads found along the bike path. This is a useful layer to those interested in using the bike path. Coverages *VTPARKS,* and *NYPARKS* contain a wide variety of recreational sites found along or near the bike path. These two databases provide a detailed breakdown of what activities and services are provided along the bike path.

BOUNDARY COVERAGES

Layers *LCBP_BND, LCBP_NFL, BASNFLVT,* and *STUDY.* These coverages represent some of the boundaries used by the Lake Champlain Basin Program. *LCBP_BND* delineates the boundary for the Lake Champlain Basin. The data was gathered from USGS topographic maps. *LCBP_NFL* represents the boundary of the Lake Champlain Basin within the Northern Forest Lands Study area. Layer *BASNFLVT,* was developed to show the areas of the Lake Champlain Basin and the Northern Forest Lands study in relation to the entire area of the state of Vermont. Layer *STUDY* was developed for the Mallet's Bay Recreation Study and it shows the extent of the study area used for that project.

CENSUS BOUNDARIES

Layers *VTMCDP, BASTNPOP* and *NYMCDP.* These coverages can be linked to various data bases on a key field named **FIPS6,** which is a geo-referencing code developed by the U.S. Census. These coverages contain an attribute **POPULATION** which provides population data by **FIPS6.** For *VTMCDP* the population data is from 1990. For *NYMCDP* is collection date of the population data is unknown. Layer *BASTNPOP* contains 1990 population data for 53 towns throughout the Basin. This layer also contains annotations for a select few (larger population centers) towns.

CITY BASED DATA

There are several data sets which are specific to the City of Burlington. Layers *STREET, SEWERS, MANHOLE* and *CATCHBSN.* These layers were developed by the Planning Department within the City of Burlington. Layer *STREET* is comprised of Burlington's street network with annotations of all the street names and a clearly delineated boundary between Burlington and surrounding political entities. Layer *SEWERS* contains the sewer lines within Burlington as well as annotations with certain specifications about each line. Layer *MANHOLE* is a point coverage which identifies the location of each manhole within the city. Attributes of the layer contain the manhole id and structure number. Layer *CATCHBSN* provides the locations of catch basins within the city of Burlington.

CONTOURS

Layer *CON100.* This layer was generated from *NVLATBAS. NVLAT* is a USGS derived lattice with 90 meter sampling of data points. The 100 foot contours are useful for cartographic purposes only. Based on the spacing of the data points in the original lattice the interpolation algorithm can only produce a general rendition of hypsography. *NVLAT* is also available for distribution.

DIGITAL ELEVATION MODEL (DEM)

File *NVDEM90.* This DEM file contains digital elevation model data for the entire basin area. The DEM has been re-sampled to 90 meter spacing between points. Because of the 90 meter spacing, any data developed from this DEM file should only be used in small scale applications. *NVLATBAS* is the lattice generated from *NVDEM* and is available for distribution as well.

DIGITAL LINE GRAPH (DLG) DATA

Layers *NYDLGSW, NYDLGTN1, NYDLGTN2, VTDLGSW, VTDLGTN1,* and *VTDLGTN2.* These data layers contain 1:100,000 surface water data for the Lake Champlain Basin. Layers *NYDLGSW* and *VTDLGSW* contain the original DLG data. Layers *NYDLGTN1, NYDLGTN2, VTDLGTN1,* and *VTDLGTN2* have been thinned to varying degrees for cartographic purposes. When using these layers the user should be aware that not all the surface water bodies are shown. These data sets should be considered suitable only for small scale applications as some water bodies are not included in this data.

ECONOMIC DATABASES

The Economic Database files are the appendices of Lake Champlain Technical Report 4B, *Socio-Economic Profile, Database, and Description of the Tourism Economy for the Lake Champlain Basin.* The purpose of this project was to identify and interpret socioeconomic data for defining the Lake's role in the economy of the Lake Champlain Basin areas of Vermont, New York, and Quebec. Consisting of a report and 62 databases, the data can be used to analyze relationships between key socioeconomic variables and the various water quality parameters being monitored. The data are primarily U.S. Census data at the town level. The databases were re-formatted by VCGI to be compatible with Arc/Info coverages created as part of the Lake Champlain Basin Program.

ISLANDS

Layers *ISLANDSL* and *ISLANDS.* Layer *ISLANDSL* contains the island polygons derived from the *LAKEUSGS* layer. Layer *ISLANDS* contains the islands derived from the *VTBASH20* data layer. The two coverages are quite similar in terms of delineating the island boundaries. However, *ISLANDS* contains only those islands found on the Vermont side of lake and it contains attribute data related to watershed delineation (see *VTBASH20* documentation). Layer *ISLANDS* also contains several addition arcs splitting the islands into their respective drainage basins.

LAKE

Layers *LAKEUSGS*, *LAKE_SEG*, and *LAKE_ZON*. Layer *LAKEUSGS* was developed from USGS data at 1:24,000 scale. It clearly delineates Lake Champlain and many of its islands. The island polygons do not contain any data except a code which identifies the island as not being part of the lake. Layer *LAKE_SEG* contains the same data as *LAKEUSGS* with one exception, arcs which delineate the different sections of the lake have been added. For example, an arc has been added across the mouth of St. Albans Bay to distinguish it from the rest of the lake. *LAKE_SEG* contains 94 distinct lake segments. Layer *LAKE_ZON* contains the recreational zones found on the lake. Although the lines which separate the various recreational zones on Lake Champlain are clear, attributes associated with each zone are not well-developed. Other lake coverages developed as parts of other projects are listed in the table at the end of this section.

LAND COVER DATA

The Lake Champlain Land Use data layer was created from interpretation of Landsat Thematic Mapper (TM) satellite imagery. It covers the state of Vermont and the Lake Champlain watershed in New York and Canada. Land cover classes derived from the imagery include: urban/built-up, row crops, hay/pasture, other mixed open, brush or transitional, deciduous forest, coniferous forest, mixed forest, and water. The data is suitable for use in 1:24,000 scale mapping and analysis. It is in Arc/Info grid format.

MALLETTS BAY DATA

The Malletts Bay Recreation Resources Management Plan was a project completed in 1995 which developed many interesting data layers used in recreational resource management applications. Data acquisition and development focused only on the immediate proximity to Malletts Bay. Layer *STUDY* (see Boundaries) contains the limits to the study area.

The Malletts Bay project produced many useful GIS data layers plus other products (digital plot files and scale bars). Some of the data themes include parcel data, utilities, deeryards, soils, no wake zones, mooring management zones, contours, and viewpoints; individual layers are listed in the table at the end of this section.

VCGI will provide all the coverages and other products developed under this projects as a single data product. Single data layers may be requested if desired. The data documentation for these coverages are available only in paper format, through the Lake Champlain Basin Program.

NON-POINT POLLUTION

This theme contains a host of coverages generated as a result of the Lake Champlain Basin Program's Non-point Pollution Assessment

Project. The project produced a set of reports and a set of data layers which involved the use of a wide number of themes. The varying types of data which are made available through this project include land use data from the mid 1970s, hydrologic data for the basin, location of precipitation gauging stations, and delineation of phase two watersheds.

VCGI will provide all the coverages and other products developed under this project as a single data product. Single data layers may be requested if desired. The data documentation for these coverages is available only in paper format, through the Lake Champlain Basin Program.

POLITICAL BOUNDARIES

Layers *NYPOLA, NYPOL, VTPOLA*, and *VTPOL*. The layer NYPOL contains the original USGS 1:24,000 political boundaries. Attributes of NYPOL follow USGS standards and codes. NYPOLA is an annotation coverage which goes with NYPOL. It contains the town names as annotation. Layer VTPOL was derived from the Vermont GIS *TBHASH* data layer and contains 1:5,000 source scale data for the data on the Vermont side of the Basin. Layer *VTPOL* contains an item named **FIPS6** which can be used to link back to several available digital databases which contain a variety of data for the Basin (See Economic Tables). VTPOLA contains the town names as annotation for the *VTPOL* coverage. As of the publishing data of this catalog there is no digital data layer for Canadian political boundaries. This data is expected to be developed and available for distribution in the future.

POINT POLLUTION SOURCES

As of the date of publication, the LCBP clearinghouse had not developed or acquired data that identifies point pollution sources within the Lake Champlain Basin Program. This data is expected to be developed and available for distribution in the future.

POLLUTION SOURCE INVENTORIES

Layers *NYPSI* and *VTPSI*. Layer *NYPSI* was developed by New York Department of Environmental Conservation (NYDEC) in 1991. The date of the source data as well as the scale is unknown. *NYPSI* is a well attributed data layer with information regarding the ownership and location of each facility. However, many of the attributes seem to be coded and the user may need some additional documentation from NYDEC to determine the types of pollutants. Layer *VTPSI* is a rather generalized pollution source inventory developed by the U.S. Environmental Protection Agency. *VTPSI* contains over 1,300 data points. The layer is generally poorly attributed and the attribute which identifies what type of pollutant is located at a particular site is coded. Users may need to seek further information from the EPA.

RECREATIONAL DATA

Layer *LCBP_REC*. This layer contains the locations of a wide variety of outdoor recreation sites throughout the Vermont side of the lake. There is no such layer for the New York side.

REGIONAL DATA

Layer *LCBPREG*. *LCBPREG* is a polygon layer delineating the political boundaries of Northeastern United States and South Eastern Canada. The data was collected from a small scale source for the purpose of showing users where the Lake Champlain Basin fits into a regional view.

ROADS

Layers *CNRD_BAS, NYRD_BAS* and *VTRD_BAS*. The roads data developed for the Lake Champlain Basin Program comes from a wide variety of sources and there are clear differences in the quality of the data which relates to Vermont, New York and Canada. The Vermont data is a subset from the Vermont GIS statewide data layer. The source data is 1:5,000 or better and extensive attribute data have been gathered. Surface type, road classes, Route Numbers are all found in this portion of the data set. The New York data is circa 1980 and only has one attribute regarding individual arcs. The Canadian Roads data were digitized from 1:50,000 scale source maps and no attributing of the data has taken place. All three layers are suitable for base mapping. The completeness and accuracy of the New York and Canadian data is questionable; users interested in detailed analysis and/or networking should be aware of these limitations.

SUBMERGED ARCHEOLOGICAL DATA

Layer *SUNKEN*. Layer *SUNKEN* is a point coverage locating underwater preserves in Lake Champlain. The data provides the user with the location of the wreck, detailed information about the ship and some information regarding the water conditions from a diver's perspective.

SURFACE WATERS

In addition to the DLG surface waters data described in the section headed **DLG DATA**, there are several other data layers which were developed for general cartographic purposes related to surface waters. Layer *CNSW_BAS* was developed from USGS quad sheets for the Canadian portion of the basin. There is very limited attributing with only major and minor USGS codes in place. Layer *CNSWTHN2* was derived from *CNSW_BAS* primarily for cartographic purposes. The linework has been heavily thinned for mapping at small scales (1:100,000 or less). Layer *NYSW* contains New York linear surface waters data developed by the USGS. The scale of the source data is 1:24,000 and the attributes were developed by the USGS. Layer *VTSW* contains polygonal and linear surface water features for the Vermont side of the lake. The attribute structure is not the same between the Vermont side and the New York side of the lake. *VTSW* has additional attributes not found in the *NYSW* layer. Layer *VTSWUSGS* contains

USGS 1:24,000 data for most of approximately 1/3 of the Lake Champlain Basin on the Vermont side of the lake. This data contains a greater degree of detail than the *VTSW* layer.

WATERSHED/ DRAINAGE BASIN DATA

Layers *LCBP_HU8*, *NYBASH2O*, and *VTBASH2O*. Layer *LCBP_HU8* contains the 8 digit hydrologic units from the USGS. Within this cover there are many annotations which contain codes which a water resource analyst may find uses for. The coverage comes from 1:24,000 source data. Layers *NYBASH2O* and *VTBASH2O* both contain eleven-digit hydrologic unit data for the Lake Champlain Basin. These data originated from the USGS and were modified to fit the Lake Champlain Basin Program's needs. The source data scale is 1:24,000. The attribute data is quite complex as the data is attributed by both the river basin and lake segment. Any of these layers is suitable for analysis and mapping purposes. The *LCBP_HU8* coverage is not as detailed in terms of its attributes or its linework as the other two coverages.

WETLANDS MONITORING

As of the date of publication, the LCBP clearinghouse had not developed or acquired a map or any data that delineated wetlands for the entire region. At a future date such a map will be made available directly through the Basin Program.

3. **TECHNICAL SPECIFICATIONS FOR DATA LAYERS** -- Listed in alphabetical order, by coverage name. All coverages listed are currently available from VCGI. See **Thematic Index** (Part 6) for major thematic groupings. See last page for abbreviations.

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
AIDS	Geographic coordinates of 5 navigational aids located inside Mallets Bay.	Point	Malletts Bay, Vermont	0.2	US Coast Guard's Light List, Vol 1, 1994	Unknown
ARCH_SEN	Areas within the Mallets Bay Project Area which may contain sensitive archaeological sites.	Poly	Malletts Bay, Vermont	0.2	Various	1:5,000
ARDLIN	Line set for ARD Non Point Assessment project			0.5		
ARDSHD	Shade set for ARD Non Point Assessment project			1.0		
BASELUT	Look-up table			0.1		
BASEMAP	Fig.7.2 Plot.		Lake Champlain Basin	2.0		
BASIN	Lake Champlain Basin Boundary		Lake Champlain Basin	0.6		1:24,000
BASINFIG	Lake Champlain Basin boundary at 1:1,000,000.	Poly	Lake Champlain Basin	0.4		1:1,000,000
BASINLL	Basin Projected to Lat Long.	Poly	Lake Champlain Basin	0.4		1:24,000, 1:25,000
BASTNPOP	Selected towns in the basin with census 1990 data	Point	Lake Champlain Basin	0.1		
BIKBOX_1	This is a box used for creating the bike path maps	Poly		0.1		
BIKBOX_2	This is a box used for creating the bike path maps	Poly		0.1		
BIKBOX_3	This is a box used for creating the bike path maps	Poly		0.1		
BIKBOX_4	This is a box used for creating the bike path maps	Poly		0.1		
BIKBOX_5	This is a box used for creating the bike path maps	Poly		0.1		

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
BIKBOX_6	This is a box used for creating the bike path maps	Poly		0.1		
BIKERDS	Contains just the roads involved with the bike path	Line			Derived from road coverages	
BIKE_RDS	Contains all the roads involved with the bike path map	Arc	Lake Champlain Basin	0.3		1:24,000
BIKE_SEC	All the bike boxes maps placed together for the bike map	Poly	Lake Champlain Basin	0.1		
BIOMB	Natural heritage sites within the Malletts Bay Project Area	Poly	Malletts Bay, Vermont	0.2	VT. Agency of Natural Resources (VANR)	Unknown
CATCHBSN	Catch basins in the City of Burlington	Point	City of Burlington	0.7		
CN	ArcWorld data 1:3,000,000 scale data for study area location map.	Poly	Canadian Basin	4.0	Canadian Dept. Energy, Mines and Resources	1:50,000
CNADMIN	ArcWorld data 1:3,000,000 scale data for study area location map.	Poly	Canadian Basin	0.2	ESRI	1:3,000,000
CNADMIN	Canadian administrative boundaries from USGS;	Arc	Canadian Basin	0.9	Canadian Dept. Energy, Mines and Resources	1:50,000
CNBIKBOX	Subset of the Canadian roads which were included on the bike path map project.	Arc	Canadian Basin	0.3	Canadian Dept. Energy, Mines and Resources	1:50,000
CNRD_BAS	Canadian roads from VCGI	Arc	Canadian Basin	0.5	Canadian Dept. Energy, Mines and Resources	1:50,000
CNSWLINE	ArcWorld data 1:3,000,000 scale data for study area location map.	Arc	Canadian Basin	5.0	ESRI	1:3,000,000
CNSWPOLY	ArcWorld data 1:3,000,000 scale data for study area location map.	Poly	Canadian Basin	4.0	ESRI	1:3,000,000
CNSWSTL	Canadian surface waters from non point study (cartographic)	Arc	Canadian Basin	0.2	Canadian Dept. Energy, Mines and Resources	1:50,000

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
CNSWTHN2	Canadian surface waters thinned for cartographic purposes	Arc	Canadian Basin	0.2	Canadian Dept. Energy, Mines and Resources	1:50,000
CNSW_BAS	Canadian surface waters	Arc	Canadian Basin	0.6	Canadian Dept. Energy, Mines and Resources	1:50,000
CON100	100 foot contours generated from 90 meter spaced lattice from USGS	Line	Lake Champlain Basin			90 meter spaced lattice
CONSMB	20' Contours generated from VCGI supplied DEM data. Part of the Malletts Bay Recreation Project	Line	Malletts Bay, Vermont	0.2	Chittenden County Orthophotos	Unknown
DEERMB	Deeryards within the Malletts Bay Recreation Project	Poly	Malletts Bay, Vermont	0.2	VT ANR data	1:24,000
DEPTH3	20' bathymetric contours for Malletts Bay, Vermont	Line	Malletts Bay, Vermont	0.2	NOAA navigational chart	1:40,000
ECTABLES	Data tables: Economic assessment project			0.0		
EPA_LU	Land use data from EPA	poly	Lake Champlain Basin	3.7		
GRID5	ArcWorld data 1:3,000,000 scale data for study area location map.	Arc	Lake Champlain Basin	1.0		1:3,000,000
HIST	Location of VT historical Sites and Structure Survey for the Malletts Bay Recreation Project	Point	Malletts Bay, Vermont	0.2	Orthophotos	1:5,000
ISLANDS	This coverage contains Islands in Lake Champlain derived from the lake	Poly	Lake Champlain Basin	0.1		
LAKEBATH	Lake Bathymetry; source APA; source from nautical maps (NOAA)	Point	Lake Champlain Basin	1.2		
LAKEBOX	A box encompassing the lake used for the bike path map	Poly	Lake Champlain Basin	0.1		
LAKEFIG	Simplified Lake Champlain shoreline for plotting at 1: 1,000,000.	Poly	Lake Champlain Basin	0.1		1:1,000,000
LAKELL	Lake Champlain Shoreline Projected to Lat/Lon	Poly	Lake Champlain Basin	0.1		1:24,000, 1:25,000

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
LAKEUSGS	This coverage contains the lake boundary from USGS: 1:24,000 source.	Poly	Lake Champlain Basin	1.2		1:24,000
LAKE_REC	Lake Champlain Shoreline Outdoor Recreation Sites	Point	Present (LC Shoreline) Finished LC basin	337.0	1:10000 PLOTS	1:10000
LAKE_SEG	This coverage contains the lake with segments attributed.	Poly	Lake Champlain Basin	0.4		
LAKE_ZON	Contains the lake with recreational management zones attributed.	Poly	Lake Champlain Basin	0.4		
LANDCOV	Land cover data from Landsat Thematic Mapper Satellite imagery	Grid	Lake Champlain Basin			
LCBPLOGO	LCBP logo	Poly		0.1		
LCBPNFL	Vermont portion of the basin and the VT NFL boundary	Poly	Vermont Basin	0.3		
LCBPREG	Regional map of the LCBP (New York, New England, Quebec)	Poly				
LCBPVGIS	VGIS logo with LCBP service center text	Poly		0.1		
LCBP_BND	Lake Champlain Basin Boundary delineated from USGS quads.	Poly	Lake Champlain Basin	0.3		1:24,000
LCBP_HU8	8 digit hydrologic units from USGS;	Poly	Lake Champlain Basin	0.6		1:24,000
LCBP_NFL	basin boundary with VT NFL boundary	Poly	Vermont Basin	0.3		
LOGOUVM	Logo for ARD and UVM.	Poly		0.1		
LU94MB	Land Use/Cover for the Malletts Bay Recreation Project	Poly	Malletts Bay, Vermont	0.3	Unknown	1:18,000
LUFIG	Lake Champlain 1973-1976 land use simplified	Poly	Lake Champlain Basin	2.0	GIRAS data	1:250,000
LUSEN	1093-1976 Land use for northern (US) portion of the lake Champlain basin	Poly	Lake Champlain Basin	4.0	GIRAS data	1:250,000

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
LUSES	1973-1976 landuse for the southern portion of the Lake Champlain basin	Poly	Lake Champlain Basin	0.8	GIRAS data	1:250,000
MANHOLE	Contains Manhole locations for the city of Burlington, Vermont.	Point	City of Burlington	0.2		
MOOR_MAN	Contains geographic coordinates for the town's mooring management zones.	Poly	Malletts Bay, Vermont	0.2	Unknown	Unknown
NVLATBAS	Lattice from USGS thinned to 90 meter spacing	Lattic e	Lake Champlain Basin	17.7		
NWIMB	Wetlands data from VCGI, no changes made, for Malletts Bay Recreation Project	Poly	Malletts Bay, Vermont	0.2	U.S. Fish and Wildlife Service	1:80,000
NYAGEMP	Agricultural employment by town	None	New York Basin	0.1		
NYARCH	Archeological data by town.	Arc	New York Basin	0.3		
NYBASH20	14 digit hydrological units attributed by river basin and lake segment	Poly	New York Basin	2.3		1:24,000
NYBASINS	Original 14 digit hydrological units from USGS; 24k source.	Poly	New York Basin	2.2		1:24,000
NYBPB	New York political boundaries for NY portion of basin.	Poly	New York Basin	0.5		
NYDLGSW	NY DLG surface waters	Arc	New York Basin	0.7		1:100,000
NYDLGTN1	NY DLG surface waters thinned for cartographic purposes.	Arc	New York Basin	0.1		1:100,000
NYHUFIG	Hydrologic Units for NY portion of basin for plotting at 1:1,000,000	Poly	New York Basin	0.1		1:1,000,000
NYMCDP	Original USGS political boundaries with MCDP from census.	Arc	New York Basin	0.2		
NYPARKS	The location of parks in NY ; used for the bike path map	Point	New York Basin	0.1		

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
NYPOL	Original USGS political boundaries 1:24k source.	Arc	New York Basin	0.3		1:24,000
NYPOLA	Annotations for NY political boundaries	Poly	New York Basin	0.3		
NYPSI	Point Source Pollution from NYDEC - source scale unknown.	Point	New York Basin	0.4		
NYRDBKBX	New York roads involved with the bike path map	Arc	New York Basin	1.3		
NYRDS	NY roads data; source APA ; data is circa 1980.	Arc	New York Basin	2.7		
NYSW	NY surface waters from USGS; 24k source.	Arc	New York Basin	7.5		1:24,000
NYSWSPL	NY surface waters simplified to plot at 1 : 1,000,000 scale	Poly	New York Basin	0.1		
NYUNITS	11 digit hydro units at 1:24,000 for NY portion of LC basin.	Poly	New York Basin	1.4		1:24,000
PARCELMB	Parcel boundaries for Malletts Bay Project area , Line work Only	Line	Malletts Bay, Vermont	0.2	Unknown	Unknown
PH2FIG	Point location of Phase II watersheds for report figure.	Point	Lake Champlain Basin	0.1		
PRIV_MOR	Boat Moorings for the Malletts Bay Recreational Project	Point	Malletts Bay, Vermont	0.2	Unknown	Unknown
QUAL	Water Sampling locations for Colchester, Vermont.	Point	Malletts Bay, Vermont	0.2	Unknown	1:24,000 and 1:18,000
RAINFIG	Point locations of precipitation gauging stations.	Point	Lake Champlain Basin	0.1		
RAINPOLY	Thiessen polygons generated around precipitation gauge locations.	Poly	Lake Champlain Basin	0.9		
RDSMB	Roads for the Malletts Bay Recreation Project, extracted from statewide road centerline data.	Line	Malletts Bay, Vermont	0.5	Orthophotos	1:5000
REC_ACC	Recreational access point for the Malletts Bay Recreational Project	Point	Malletts Bay, Vermont	0.2	Unknown	Unknown

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
REC_AREA	Locations of various recreational activities within Malletts Bay, Malletts Bay Recreation Project	Point	Malletts Bay, Vermont	0.2	Various	Unknown
REG_AREA	200' no wake zone and two special anchorage areas. Part of the Malletts Bay Recreation Project	Poly	Malletts Bay, Vermont	0.2	Unknown	Unknown
S250K	Scale bar for 1:250,000 scale.	Poly		0.1		
SCALE1M	Scale bar for 1:1,000,000 scale.	Poly		0.1		
SEWERS	Sewers line locations for the city of Burlington.	Poly	City of Burlington	0.7		
SHORELIN	Lake Champlain Shoreline in Malletts Bay	Poly	Mallets Bay, Vermont	0.2	Orthophotos	1:5,000
SOILSMB	Soils for the Malletts Bay Recreation Project,	Poly	Malletts Bay, Vermont	0.2	USDA, NRCS, Soils of Chittenden County, Vermont	1:20,000
SQ1MI1	Areal 1:1,000,000 scale.	Poly		0.1		1:1,000,000
STREET	Street Locations for the City of Burlington	Poly	City of Burlington	0.8		
STUDY	Boundary of the Mallets Bay Recreation Project; it is the Shoreline coverage buffered by 2,000 ft.	Poly	Mallets Bay, Vermont	0.2	Orthophotos	1:5,000
SWMB	Surface Waters for the Malletts Bay Recreation Project.	Line	Malletts Bay, Vermont	0.2	USGS topographic maps	1:24,000
TB	Town boundaries for the Mallets Bay Recreation Project	Poly	Mallets Bay, Vermont	0.2	USGS topographic maps	1:24,000
US	ArcWorld data 1:3,000,000 scale data for study area location map.	Poly	United States	1.8		1:3,000,000
USADMIN	ArcWorld data 1:3,000,000 scale data for study area location map.	Arc	United States	0.4		1:3,000,000
USSWLINE	ArcWorld data 1:3,000,000 scale data for study area location map.	Arc	United States	2.8		1:3,000,000
USSWPOLY	ArcWorld data 1:3,000,000 scale data for study area location map.	Poly	United States	1.3		1:3,000,000

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
UTMB	Utility water and electrical transmission lines for the Mallets Bay Recreational Project	Line	Malletts Bay, Vermont	0.2	Orthophotos	1:20,000
VIEWPOLY	Inventory of scenic resources for Malletts Bay.	Point	Malletts Bay, Vermont	0.2	Various	Unknown
VTAGEMP	Contains agricultural employment by town	Poly	Vermont Basin	0.3		
VTARCH	Contains Archeological data by town.	Arc	Vermont Basin	0.3		
VTBASH20	11 digit hydrological units attributed by river basin and lake segment	Poly	Vermont Basin	1.0		1:24,000
VTBASINS	Contains original 11 digit hydrological units from USGS/NRCS; 1:24k source	Poly	Vermont Basin	1.2		1:24,000
VTBPB	Political boundaries for VT portion of LC basin.	Poly	Vermont Basin	0.7		
VTDLGSW	Contains the DLG surface waters.	Poly	Vermont Basin	1.2		1:100,000
VTDLGTN1	Contains the thinned DLG surface waters for cartographic use.	Poly	Vermont Basin	0.8		1:100,000
VTDLGTN2	This coverage contains DLG surface waters heavily thinned for cartographic purposes	Poly	Vermont Basin	0.5		1:100,000
VTHUFIG	VT portion of LC basin for plotting at 1: 1,000,000.	Poly	Vermont Basin	0.2		1:1,000,000
VTISLAND	Coverage of islands extracted from USGS lake Coverage.	Poly	Vermont Basin	0.2		
VTMCDP	Contains VT towns with MCDP added from census.	Poly	Vermont Basin	0.3		
VTPARKS	Location of parks in Vermont; used for the bike path map	Point	Vermont Basin	0.1		
VTPOL	Contains Vermont towns from USGS.	Poly	Vermont Basin	0.3		1:24,000
VTPOLA	Contains Annotation for VT towns not edited.	Poly	Vermont Basin	0.3		
VTPSI	Contains point source inventory from EPA (downloaded over the Internet)	Point	Vermont Basin	0.1		

Coverage	Description	Type	Geographic Area	Size	Source Map Info.	Src. Scale
VTRAINFG	VT hydro units intersected with precipitation polygons for display.	Poly	Vermont Basin	0.1		
VTRDBKBX	Vermont roads involved with the bike path map	Arc	Vermont Basin	0.4		
VTRDS	Road center lines from 1:5000 orthophotos (or better)	Arc	Statewide	2000.0	1:5000 orthophotos (or better)	1:5000 (for line work)
VTSW	Contains Vermont Surface Waters 1:24K source.	Poly	Vermont Basin	1.0		1:24,000
VTSWSPL	VT surface waters simplified to plot at 1:1,000,000 scale.	Arc	Vermont Basin	0.1		1:1,000,000
VTSWUSGS	Contains the patch (roughly Chittenden county] of surface waters by the USGS, 1:24k source	Arc	Vermont Basin	3.5		1:24,000
VTUNITS	VT 11-digit hydrologic units at 1:24,000 for VT.	Poly	Vermont Basin	1.8		1:24,000
ZONEMB	Zoning districts for the Malletts Bay Recreation Project	Poly	Malletts Bay, Vermont	0.2	Unknown	Unknown

Abbreviations:

APA	Adirondack Park Agency
CDEMR	Canadian Department of Energy, Mines and Resources
DLG	Digital Line Graph
ESRI	Environmental Systems Research Institute
NFL	Northern Forest Lands
NPA	Non-point source Pollution Assessment
NRCS	Natural Resources Conservation Service (USDA)
NYDEC	New York Department of Environmental Conservation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VANR	Vermont Agency of Natural Resources
VCGI	Vermont Center for Geographic Information, Inc.

4. REQUESTING DIGITAL DATA

Digital data come in various digital formats and can be stored on various types of digital media. The combinations of formats and media often make it difficult to estimate the cost of data reproduction. Because of the specific information required, the data request should generally be submitted by the person or contractor who will actually be preparing maps or otherwise using the data.

A *Data Request Form* is all that is needed to request data. These additional documents may be referred to when submitting a data request:

- *Formats and Media for Distribution of VGIS Data*,
- *Pricing Schedule*, for media, handling time and photocopying, and
- *Notice Regarding Copyright and Warranty*, of data supplied by VCGI.

These documents are provided in Appendix B, although they are subject to change. Updated versions will be provided to subscribers of the *VGIS Data Catalog* and the *VGIS Handbook.*

Special Data Processing Options

Several options are available for special data processing, including:

- customized data packaging for a given area,
- providing data in a non-standard horizontal datum, projection or coordinate system,
- providing data in DXF format with attributes converted to 'layers' or other DXF data characteristics.

These options are explained on the *Request for Special Data Processing* form (in Appendix B). The option for customized data packaging is further described in the next section.

Tile Structures

Tile structures are used to geographically separate large data layers into smaller, more manageable pieces. GIS town and county boundaries are too imprecise to be used as tile boundaries for most data layers. Most large data layers are therefore divided up into groups of either orthophotos or USGS 7.5' quadrangles. Appendix C includes maps and descriptions of the various tile structures in use.

The data requestor has two options when requesting data:

- specify the tiles needed on the *Data Request Form*, or
- use the *Request for Special Data Processing* to request that VCGI provide the data combined for their specified area.

For example, consider soils data which are provided in square tiles measuring 12 km on a side (3 by 3 orthophotos). A given town might require 4 soils tiles (that extend into neighboring towns), which makes the data more difficult to display and query, and which uses unnecessary space on the hard disk. A request for soils data for this town could ask that the data be combined and 'clipped' to the town boundary. This custom packaging is particularly helpful for use with ArcView. Any time spent on the special processing is included in the cost of reproduction.

5. REQUESTING DIGITAL DATA

A sample *Data Request Form* is given on the pages following this section. In this example, a request is made for a project in the Windham Regional Planning Commission, which includes Windham County, Vermont along with the four towns of Searsburg, Readsboro, Winhall and Weston. The project requires a base map showing roads, surface waters and town boundaries. Detailed surface waters from the orthophotos are available only for Windham County; the Digital Line Graph (DLG) waters will be used for the other four towns. The 1:5000 road centerline data will be used for the entire area, along with the best available town boundaries. In addition, the contractor wants the \UTOOL directory, described with the other data products.

Section I of the request form provides information on where the data and invoice will be sent. Data format options in this section are described in *Formats and Media for Distribution of VGIS Data.*

In Section II, line 1 requests the surface waters coverages for Windham County, based on the technical specifications given in the *VGIS Data Catalog* or its *Summary*. Lines 2 and 3 request the DLG surface waters needed for the four towns outside of Windham County. The tile numbers for these towns are determined from the maps in Appendix C. Lines 4 and 5 request the 1:5000 roads for Windham and Bennington Counties, line 6 requests the town boundaries, and line 7 requests the \UTOOL directory.

The status for each data layer must be 1 or 6; any other status is not yet available for distribution, or the data manager should be contacted directly. The number of tiles requested is then given for each line. The average tile size and estimated total size are optional, but are used here since the data requester wants to estimate the storage requirements and cost of reproduction (as described below). The "Date of Data Update" is only used with requests for archived data; data update dates are listed with the detailed documentation in the *VGIS Data Catalog*.

Section III is for estimating the cost of the request on a per tile basis using 3.5" floppy disks. The actual cost of reproduction will depend on the type of data requested, the media used to distribute the data, and the time needed to prepare the data. There is no easy way to estimate this cost, but experience has shown that the figures used in this section give reasonable estimates in most cases.

Vermont Center for Geographic Information, Inc.
206 Morrill Hall, UVM
Burlington, Vermont 05405-0106
(802) 656-4277 Fax: (802) 656-0776

DATA REQUEST FORM

INSTRUCTIONS:

Please use this form to request data from VCGI. The *VGIS Data Catalog* describes available data layers and products, and includes these related documents:

- *Request for Special Data Processing* form;
- *Formats and Media for Distribution of VGIS Data* lists available data formats and magnetic media;
- *Pricing Schedule* lists the costs of media, handling time and photocopying;
- *Notice Regarding Copyright and Warranty* has information on the use of VGIS data.

The requestor will be invoiced for the cost of data reproduction. An estimate of this cost can be made in Section III below. The requestor agrees to pay the actual cost of reproduction by completing this form.

Large data layers are often divided into separate geographic 'tiles', as described in the *VGIS Data Catalog*. Data users must request the individual tiles they need, or use the *Request for Special Data Processing* to have data clipped and joined to their specified area.

SECTION I - USER & DATA INFORMATION

Send data to (name, address, town, state, zip):

Name Karl Novak
Address GIS Consultants
217 Leeks Lane
Champlain VT 05471
Phone 633-2911 Fax 633-6266

If not the same, send invoice for the cost of data reproduction to:

Trisha Brown
Precision Planning, Inc.
P.O. Box 987
Darriton VT 05198
Phone 299-3334 Fax

Area for which data are requested (towns, counties, etc.) Windham RPC

Data layer format: *(check one)*

(✓) pcARC/INFO COVERAGE (check here ___ if for use with ArcView)
( ) ARC EXPORT: ___ full (default) or ___ no compression, maxlines: _____ (default = none)
( ) DXF (attribute format: SPECIAL_PROCESSING DELIMITED FIXED DBF NO_ATTRIBUTES)
( ) ARC UNGENERATE (attribute format: DELIMITED FIXED DBF NO_ATTRIBUTES)
( ) Datum: ___NAD27 or ___NAD83 (NAD27 is the default)

Media format: *(check one)*

(✓) 3.5" HD disk 1.44 MB ( ) Bernoulli™ 44 MB disk cartridge
( ) DC2000 40MB Mini Tape Cartridge (Thetamat™ format) ( ) Zip Disk (100MB)
( ) 4 mm DAT tape ( ) 8 mm tape: ___ 5 GB or ___ 2.3 GB
Workstation tape format: ( ) tar ( ) ltf (for use with VMS) ( ) other - specify parameters:
blocksize: _____ other: _____
( ) Internet public ftp account (direct transfer) - your I-net address: _____

( ) Request for Special Data Processing attached. Use this form to: have data tiles clipped & joined for a specified area (as for use with ArcView); to receive data in a non-standard horizontal datum or projection (default is NAD27, State Plane meters); or to receive data in DXF format with specific layers or other characteristics.

Do you have a subscription to the *VGIS Data Catalog*: ( ) Yes (✓) No
(If not, photocopied documentation will be included; note that the *Summary* is not the *VGIS Data Catalog*)

Data desired by what date: ____/____/____ (A.S.A.P.) *As soon as possible*

SECTION II - DATA REQUESTED (use additional sheets or the *Data Request Form - Supplement* as needed)

	Coverage or Directory Name, including tile number(s)	Status*	Number of Tiles Required	Average Tile Size (KB) *(optional)*	Estimated Total Size (KBytes) *(optional)*	Date of Data, for archived data only *(optional)*
1	SWnnn\WNDM	1	25	318	7950	
2	DLGSW11	1	1	339	339	
3	" 12	1	1	"	"	
4	RDS25 (Windham Co.)	1	1	2000	2000	
5	RDSØ3 (Benn. Co.)	1	1	2000	2000	
6	TBHASH	1	1	409		
7	\UTOOL	1	—	—	—	
	Totals:		30 tiles		12,628 KBytes *(optional)*	

*Status: 1 = Available from VCGI, 6 = Preliminary release available from VCGI, other statuses not available from VCGI.

SECTION III - CONSERVATIVE COST ESTIMATE

The cost of data reproduction varies greatly with combinations of media and data formats. The cost can be roughly estimated below on a per tile basis for data provided on 3.5" disks. For other media, costs can be estimated from the size of the request and media fees listed in the *Pricing Schedule*. In either case, *the requestor will only be invoiced for the actual cost of data reproduction, and will be notified if their estimate is too low.*

Please check one (estimates are for 3.5" disks; other media may be more or less expensive):

- (✓) For pcARC/INFO COVERAGE format on 3.5" disks: conservative estimate of $5 + $5 per tile.
- ( ) For other standard data formats on 3.5" disk: conservative, rough estimate of $5 + $12 per tile.
- ( ) For a *Request for Special Data Processing* on 3.5" disks: *very* rough estimate of $12 + $20 per layer.

Conservative estimated cost: $ 145.

I agree to pay VCGI the actual cost of distributing the requested data. I understand that VCGI will contact me in advance if the actual cost will exceed the conservative estimated cost.

Signature: Trisha Brown Date: 6/31/96

INDEX TO DATA LAYERS

This index includes the data layers described in Part 4, Data Layer Descriptions, and Part 2, Data Layer Summary.

AGRICULTURE	
NYAGEMP	Agricultural employment by town
VTAGEMP	Contains agricultural employment by town
ARCHAEOLOGICAL	
NYARCH	Archaeological data by town.
VTARCH	Contains Archaeological data by town.
BIKE	
BIKERDS	Contains just the roads involved with the bikepath
BIKE_RDS	Contains all the roads involved with the bike path map
CNBIKBOX	Subset of the Canadian roads which were included on the bike path map project.
NYPARKS	The location of parks in NY; used for the bike path map
NYRDBKBX	New York roads involved with the bike path map
VTPARKS	Location of parks in Vermont; used for the bike path map
VTRDBKBX	Vermont roads involved with the bike path map
BOUNDARY	
BASIN	Lake Champlain Basin Boundary
BASINFIG	Lake Champlain Basin boundary at 1:1,000,000.
BASINLL	Basin Projected to Lat Long.
CNADMIN	Canadian administrative boundaries from USGS;
ISLANDS	This coverage contains Islands in Lake Champlain derived from the lake
LCBPNFL	Vermont portion of the basin and the VT NFL boundary
LCBP_BND	Lake Champlain Basin Boundary deliniated from USGS quads.
LCBP_NFL	basin boundary with VT NFL boundary
VTHUFIG	VT portion of LC basin for plotting at 1: 1,000,000.
VTISLAND	Coverage of islands extracted from USGS lake Coverage.
VTMCDP	Contains VT towns with MCDP added from census.
VTPOL	Contains Vermont towns from USGS.
VTPOLA	Contains Annotation for VT towns not edited.
CARTOGRAPHIC	
ARDLIN	Symbol set used in NPA study
ARDSHD	Symbol set used in NPA study
BASEMAP	Fig.7.2 Plot.
BASEMAP2	Plot file
BIKBOX_1	This is a box used for creating the bike path maps
BIKBOX_2	This is a box used for creating the bike path maps
BIKBOX_3	This is a box used for creating the bike path maps
BIKBOX_4	This is a box used for creating the bike path maps
BIKBOX_5	This is a box used for creating the bike path maps
BIKBOX_6	This is a box used for creating the bike path maps

BIKE_SEC	All the bike boxes maps placed together for the bike map
CN	ArcWorld data 1:3,000,000 scale data for study area location map.
CNADMIN	ArcWorld data 1:3,000,000 scale data for study area location map.
CNSWLINE	ArcWorld data 1:3,000,000 scale data for study area location map.
CNSWPOLY	ArcWorld data 1:3,000,000 scale data for study area location map.
GRID5	ArcWorld data 1:3,000,000 scale data for study area location map.
LAKEBOX	A box encompassing the lake used for the bike path map
LCBPLOGO	LCBP logo
LCBPVGIS	VCGI logo with LCBP service center text
LOGOUVM	Logo for ARD and UVM.
US	ArcWorld data 1:3,000,000 scale data for study area location map.
USADMIN	ArcWorld data 1:3,000,000 scale data for study area location map.
USSWLINE	ArcWorld data 1:3,000,000 scale data for study area location map.
USSWPOLY	ArcWorld data 1:3,000,000 scale data for study area location map.
ECONOMIC	
BASTNPOP	Selected towns in the basin with census 1990 data
ECTABLES	Data tables from the LCBP Economic Development study
LAKE	
LAKEBATH	Lake Bathymetry; source APA; source from nautical maps (NOAA)
LAKEFIG	Simplified Lake Champlain shoreline for plotting at 1: 1,000,000.
LAKELL	Lake Champlain Shoreline Projected to Lat/Lon
LAKEUSGS	This coverage contains the lake boundary from USGS: 1:24,000 source.
LAKE_SEG	This coverage contains the lake with segments attributed.
LANDUSE	
LUFIG	Lake Champlain 1973-1976 landuse simplified
LUSEN	1093-1976 Landuse for northern (US) portion of the lake champlain basin
LUSES	1973-1976 landuse for the southern portion of the Lake Champlain basin
OTHER	
BASEHP	Plot file
BASELUT	Lookup table
CATCHBSN	Catchbasins in Burlington
CLASSLUT	Called in RANKHP and RANKHP2.SML and RESULT.SML
EPA_LU	EPA land use information
LCBPREG	Regional map of the LCBP (New York, New England, Quebec)
MANHOLE	Contains Manhole locations for the city of Burlington, Vermont.
RAINFIG	Point locations of precipitation gauging stations.
RAINPOLY	Thiessen polygons generated around precipitation gauge locations.
S250K	Scale bar for 1:250,000 scale.
SCALE1M	Scale bar for 1:1,000,000 scale.
SEWERS	Sewers line locations for the city of Burlington.
SQ1MI1	Areal 1:1,000,000 scale.
POLITICAL	
NYBPB	New York political boundaries for NY portion of basin.
NYMCDP	Original USGS political boundaries with MCDP from census.

NYPOL	Original USGS political boundaries 1:24k source.
NYPOLA	Annotations for NY political boundaries
NYPSI	Point Source Pollution from NYDEC - source scale unknown.
VTBPB	Political boundaries for VT portion of LC basin.
RECREATION	
LAKE_REC	Lake Champlain Shoreline Outdoor Recreation Sites
LAKE_ZON	Contains the lake with recreational management zones attributed.
ROADS	
CNRD_BAS	Canadian roads from VCGI
NYRDS	NY roads data; source APA ; data is circa 1980.
STREET	Street Locations for the City of Burlington
VTRDS	Road center lines from 1:5000 orthophotos (or better)
TOPOGRAPHY	
CON100	100 foot contours generated from 90 meter spaced lattice from USGS
LANDCOV	Landcover data from Landsat Thematic Mapper Satellite imagery
NVLATBAS	Lattice from usgs thinned to 90 meter spacing
WATER	
CNSWSTL	Canadian surface waters from non point study (cartographic)
CNSWTHN2	Canadian surface waters thinned for cartographic purposes
CNSW_BAS	Canadian surface waters
LCBP_HU8	8 digit hydrologic units from usgs;
NYBASH20	!4 digit hydrological units attributed by river basin and lake segment
NYBASINS	Original 14 digit hydrological units from USGS; 24k source.
NYDLGSW	NY DLG surface waters
NYDLGTN1	NY DLG surface waters thinned for cartographic purposes.
NYHUFIG	Hydrologic Units for NY portion of basin for plotting at 1:1,000,000
NYSW	NY surface waters from USGS; 24k source.
NYSWSPL	NY surface waters simplified to plot at 1 : 1,000,000 scale
NYUNITS	11 digit hydrounits at 1:24,000 for NY portion of LC basin.
PH2FIG	Point location of Phase II watersheds for report figure.
VTBASH20	11 digit hydrological units modified to have been att. by riv.basin and lake seg.
VTBASINS	Contains original 11 digit hydrological units from USGS/NRCS; 1:24k source
VTDLGSW	Contains the DLG surface waters.
VTDLGTN1	Contains the thinned DLG surface waters for cartographic use.
VTDLGTN2	This coverage contains DLG surface waters heavily thinned for cartographic purposes
VTPSI	Contains point source inventory from EPA (downloaded over the Internet)
VTRAINFG	VT hydrounits intersected with precipitatation polygons for display.
VTSW	Contains Vermont Surface Waters 1:24K source.
VTSWSPL	VT surface waters simplified to plot at 1:1,000,000 scale.
VTSWUSGS	Contains the patch (roughly Chittenden county] of surface waters by the USGS, 1:24k source
VTUNITS	VT 11-digit hydrologic units at 1:24,000 for VT.

Data Layers specific to Malletts Bay

This index includes the data layers described in Part 4, Data Layer Descriptions, and Part 2, Data Layer Summary. All layers listed on this page are also listed, by general theme, in the preceding pages of Part 6.

AIDS	Geographic coordinates of 5 navigational aids located inside Mallets Bay.
ARCH_SEN	Areas within the Mallets Bay Study Area which may contain sensistive archaeological sites.
BIOMB	Natural heritage sites within the Malletts Bay Study Area
CONSMB	20' Contours generated from VCGI supplied DEM data. Part of the Malletts Bay Rec. Project
DEERMB	Deeryards within the Malletts Bay Recreation Project
DEPTH3	20' bathymetric contours for Malletts Bay, Vermont
HIST	Location of VT histoical Sites and Structure Survey for the Malletts Bay Recreation Study
LU94MB	Land Use/Cover for the Malletts Bay Recreation Project
MOOR_MAN	Contains geographic coordinates for the town's mooring management zones.
NWIMB	Wetlands data from VCGI, no changes made, for Malletts Bay Recreation Project
PARCELMB	Parcel boundaries for Malletts Bay Study area , Linework Only
PRIV_MOR	Boat Moorings for the Malletts Bay Recreational Study
QUAL	Water Sampling locations for Colechester, Vermont.
RDSMB	Roads for the Malletts Bay Recreation Project, extracted from statewide road centerline data.
REC_ACC	Recreational access point for the Malletts Bay Recreational Study
REC_AREA	Locations of various recreational activities within Malletts Bay, Malletts Bay Recreation Project
REG_AREA	200' no wake zone and two special anchorage areas. Part of the Malletts Bay Recreation Project
SHORELIN	Lake Champlain Shoreline in Malletts Bay
SOILSMB	Soils for the Malletts Bay Recreation Project,
STUDY	Boundary of the Mallets Bay Rec. Study, it is the Shoreline coverage buffered by 2,000 ft.
SWMB	Surface Waters for the Malletts Bay Recreation Project.
TB	Town boundaries for the Mallets Bay Recreation Project
UTMB	Utlitiy water and electrical transmission lines for the Mallets Bay Recreational Project
VIEWPOLY	Inventory of scenic resources for Malletts Bay.
ZONEMB	Zoning districts for the Malletts Bay Recreation Project

APPENDIX A - DEFINITIONS OF TERMS

Annotation — Text appearing on a map; see **Feature Type**.

ARC/INFO — Geographic Information System software used in the Vermont GIS community.

Areal extent — The geographic area covered by a data layer.

Attribute — Information associated with a map feature, such as the surface type of a road.

Coverage — An ARC/INFO layer of data.

Coverage name — The data layer's ARC/INFO name, limited to 8 characters for pcARC/INFO.

Data layer — A separate map layer with a specific theme, such as *roads*, generally corresponding to one ARC/INFO coverage or multiple coverages for tiled data layers.

Digitize — To convert from map (printed) form into a GIS (computer) format.

Feature type — Types of features represented in ARC/INFO GIS data, including:

Point:	Point features and attributes only
Line:	Line features and attributes only
Poly:	Polygon (area) features and attributes only; areas are called polygons since their borders are represented by line segments
Annotation:	Map text

Metadata — A description of a database which is in an accepted standard exchange format and which itemizes accuracy, currentness, consistency, and completeness. It must include the procedures that have been applied in processing the data, the date(s) of processing, the region of coverage, and the agency or agent which developed, maintains and distributes the data.

Scale — Map scale is the ratio of distance on the map page to distance on the ground. The scale of a data layer equals the scale of the layer's source maps. If more than one scale was used then the smallest scale may be given since it is the least accurate (note that a 1:25,000 scale is smaller than a 1:5000 scale). Generally a data layer should not be output at scales larger than the source map scales.

Tile structure — A tile structure is used to geographically divide up a data layer. Current delineation of town and county boundaries are too imprecise to be used for dividing up most data layers. Appendix C has maps and descriptions of various tile structures in use. Most large data layers are divided up into groups of either orthophotos or USGS 7.5' quadrangles.

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APPENDIX B

FORMATS AND MEDIA FOR DISTRIBUTION OF VGIS DATA

I. PURPOSE

To describe data formats and media available for distribution of VGIS data (provided as options on the Data Request Form).

II. DATA FORMATS FOR GIS DATA LAYERS

A. pcARC/INFO Coverage. An Arc/Info data layer is made up of one or more *coverages*. This data format is for use with the pcArc/Info (version 3.4.2, equivalent to 3.4D Plus and 3.4D), or pcArcView software.

B. ARC/INFO EXPORT Interchange File. Data will be provided in Arc/Info's EXPORT interchange file format, for coverages, INFO files, plot files or map compositions. EXPORT format is an ASCII text file, generally used only with Arc/Info software for transferring data between hardware platforms. A coverage directory is combined into a single EXPORT file that is 1.5 to 3 times the size of the original coverage.

For EXPORT format, data requestors can specify *full compression (/F)*, the default, or *no compression (/N)*, and the maximum number of lines (*maxlines*) per export file (default is no maxlines). Full compression usually works and is preferred, but should be tested for transfer to a given platform. No compression requires more media but is needed in some cases when transferring data between hardware platforms. Setting 'maxlines' is only needed in rare cases for specific platforms.

C. DXF Format. The DXF (Drawing Interchange File) format is used by many Computer Aided Design (CAD) and other computer mapping software packages to exchange data between platforms. DXF format stores feature coordinates and information on feature types in a single file. Arc/Info's *ARCDXF* command is used to convert Arc/Info coverage line, point and/or annotation features into a single DXF file (ASCII text format).

The *Request for Special Data Processing* form can be used to specify how Arc/Info data should be converted to DXF format. With no special processing, the DXF file generated from a coverage will have all lines in a single DXF 'layer', and/or all points in a single DXF 'layer'. Annotations will be converted to text entities, placed into DXF layers corresponding to Arc/Info annotation levels. With special processing, the requestor can specify how Arc/Info attributes (for lines, points and/or polygons) will be converted to DXF `LAYER`, `COLOR` and/or `THICKNESS` characteristics.

If no special processing is requested, existing line, point and/or polygon attributes can be provided with the DXF data. By default, attributes will be provided in a comma-delimited format. Other formats are available, but only for data stored in pcArc/Info format at VCGI (some data are stored in host, or workstation, Arc/Info). Users may request these attribute formats, which will be provided *if available*:

DELIMITED	- attributes delimited by commas (text in double quotes); the default, available for all coverages
FIXED	- attributes in fixed columns
DBF	- attributes in .DBF format (for xBase DBMSs)
NO_ATTRIBUTES	- no attributes will be provided

Data provided in DXF format will include any of the following files that apply to a given coverage <cover>:

<cover>.dxf - DXF file with feature coordinates

<cover>.lav - line attribute values
<cover>.pav - point attribute values
<cover>.lit - line item (field) definitions
<cover>.pit - point item (field) definitions
<cover>.aat - arc (line) attribute table (in .dbf format)
<cover>.pat - point attribute table (in .dbf format)

For polygon coverages, the polygon label point coordinates will be provided along with any available polygon attributes.

Some software packages are apparently unable to read DXF files generated by Arc/Info. VCGI cannot guarantee that a particular software package will be able to import data provided in DXF format.

D. ARC/INFO UNGENERATE Format. Arc/Info's *UNGEN* (or *UNGENERATE*) command is used to create this format from an Arc/Info coverage. The format provides the x,y coordinates of arcs and/or points in ASCII files. Ungenerate format is not generally usable by other software packages without manual manipulation of the data.

For polygon coverages, the polygon label point coordinates will be ungenerated, and any available polygon attributes will be provided.

Existing line, point and/or polygon attributes will be provided with the ungenerated data. By default, attributes will be provided in a simple delimited format. Other formats are available, but only for data stored in pcArc/Info format at VCGI (some data are stored in host, or workstation, Arc/Info). Users may request these attribute formats, which will be provided *if available*:

DELIMITED - attributes delimited by commas (text in double quotes); the default, available for all coverages
FIXED - attributes in fixed columns
DBF - attributes in .DBF format (for xBase DBMSs)
NO ATTRIBUTES - no attributes will be provided

Ungenerated data for coverage <cover> will include applicable files:

<cover>.ugl - ungenerated line coordinates
<cover>.ugp - ungenerated point coordinates
<cover>.lav - line attribute values
<cover>.pav - point attribute values
<cover>.lit - line item definitions
<cover>.pit - point item definitions
<cover>.aat - arc (line) attribute table (in .dbf format)
<cover>.pat - point attribute table (in .dbf format)

E. Other Formats. Some users might require other data formats for their software packages. VCGI may be able to provide other formats upon request. If not, VCGI can provide a list of commercial contractors who can provide data conversion and processing services.

III. FORMATS FOR DATA PRODUCTS

The format for each VGIS data product is described with the product's documentation. Many data products come as ASCII text files, xBase (.DBF) files, and pcArc/Info coverages.

IV. DOS MEDIA AND DATA TRANSFER METHODS

A. Magnetic diskettes, Bernoulli II™ cartridges, and Iomega ZIP Cartridges.

1. 3.5" high density (HD) disk (1.4 MB).
2. Bernoulli II™ disk cartridge (44 MB).
3. Iomega ZIP™ disk cartridge (100MB).

Data in DOS format (for IBM-compatible PCs) will be backed up to disks (or cartridges) using data compression software (PKZIP, in self-extracting files). Instructions for restoring the data will be provided.

B. DC 2000 Mini Data Tape Cartridge (40 MB), using Mountain Tape backup.

VCGI performs backup onto DC2000 Mini Data Cartridge in a Thetamat™ format to 40 MB tapes. Full compatibility between Mountain, Archive and Colorado Memory Systems has been certified by an independent laboratory (BYTE, May 1990). Thetamat™ format can be used with Mountain, Archive, Colorado Memory Systems Inc., Alloy, Wangtek, QIC-40, or 40 Mbyte systems, but there is no guarantee at this time that a tape written with Mountain Tape Backup can be read by all of these systems. Our current backup rate using DC2000 tapes is about 1000 kilobytes/minute.

V. WORKSTATION TAPE FORMATS AND DATA TRANSFER METHODS

VCGI will write data to the following tape cartridges with its DECstation workstation (with the Ultrix operating system - DEC's flavor of unix), or perhaps with other workstations to which VCGI has access. Available tape formats are described after the tape cartridge descriptions.

There may be additional charges for use of other workstations. As always, the data requestor will be informed in advance if VCGI expects the total cost of data distribution to exceed the requestor's estimated cost.

Tape drive controllers vary between computers, as do the various versions of unix, so there is no guarantee that a tape written by VCGI will be readable on other platforms.

Workstation Tape Cartridges

A. 4 mm DAT Tape (1.2 or 1.8 GB).

Data will be written to a 4 mm DAT tape cartridge (1.2 GB for 60 m, 1.8 GB for 90 m) with a DEC TLZ06 tape drive.

B. 8 mm Tape (5 GB or 2.3 GB).

Data will be written to an 8 mm tape from a unix workstation. Data requestors must specify the desired tape size (5 GB or 2.3 GB).

Workstation Tape Formats

For unix users, tapes will be written with the 'tar' command. In rare cases the `tar` command is not compatible between unix systems.

For VMS users, data will be written with this unix command (where `rmtxh` is tape unit x):

```
% ltf -cfB /dev/rmtxh 800 file1 file2 ...
```

In VMS, the tape can then be read into the current directory with these commands (where `MTA0:` is the user's tape drive):

```
$ MOUNT/DENSITY=6250/BLOCKSIZE=800 MTA0: ULTRIX
$ COPY MTA0:*.*.*
```

For non-unix systems, an ANSI-labelled tape can be written with unix utilities (`ltf` or `dd`). The desired blocksize and any other tape parameters should be specified with the data request. Please call VCGI if you are unsure of the proper tape parameters for your system.

VI. INTERNET DIRECT TRANSFER METHOD

A. Internet ftp public account (direct transfer, no media).

Data can be transferred directly from VCGI over the Internet by connecting to the VCGI ftp (file transfer protocol) public account. Arc/Info data layers must be in EXPORT format.

VCGI will notify the data requestor (by phone or E-mail) when the data is ready to be downloaded. There is no media fee.

To access the VCGI public ftp account, connect to the VCGI server as follows (underlined text is typed by the user):

ftp vcgi.uvm.edu	From the user's system
Username: ftp	User logs into VCGI server
Password: _____	Input your E-mail address as your password
ftp:vcgi> cd pub	User changes to the public directory 'pub', where the data will be placed for downloading

The ftp commands vary slightly from system to system. Typical commands include:

ftp:vcgi> ?	Help
ftp:vcgi> status	Show settings for file transfer
ftp:vcgi> ascii	Set file type to ASCII (text)
ftp:vcgi> binary	Set file type to BINARY
ftp:vcgi> get <file>	Get one file from our system
ftp:vcgi> put <file>	Put one file to our system
ftp:vcgi> nointeractive or prompt	Turn interactive prompting off (or toggle).
ftp:vcgi> mget <files>	Multiple get, wildcards OK
ftp:vcgi> mput <files>	Multiple put, wildcards OK
ftp:vcgi> bye or quit	Quit FTP

Be sure to set the file type for transfer to ASCII for Arc/Info EXPORT files.

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DATA REQUEST FORM

INSTRUCTIONS:

Please use this form to request data from VCGI. The *VGIS Data Catalog* describes available data layers and products, and includes these related documents:

- *Request for Special Data Processing* form;
- *Formats and Media for Distribution of VGIS Data* lists available data formats and magnetic media;
- *Pricing Schedule* lists the costs of media, handling time and photocopying;
- *Notice Regarding Copyright and Warranty* has information on the use of VGIS data.

The requestor will be invoiced for the cost of data reproduction. An estimate of this cost can be made in Section III below. The requestor agrees to pay the actual cost of reproduction by completing this form.

Large data layers are often divided into separate geographic 'tiles', as described in the *VGIS Data Catalog*. Data users must request the individual tiles they need, or use the *Request for Special Data Processing* to have data clipped and joined to their specified area.

SECTION I - USER & DATA INFORMATION

Send data to (name, address, town, state, zip):

Name _____

Address _____

_____

_____

Phone _____ Fax _____

If not the same, send invoice for the cost of data reproduction to:

_____

_____

_____

_____

Phone _____ Fax _____

Area for which data are requested (towns, counties, etc.) _____

_____

Data layer format: *(check one)*

( ) pcARC/INFO COVERAGE (check here ___ if for use with ArcView)
( ) ARC EXPORT: ___ full (default) or ___ no compression, maxlines: _____ (default = none)
( ) DXF (attribute format: SPECIAL_PROCESSING DELIMITED FIXED DBF NO_ATTRIBUTES)
( ) ARC UNGENERATE (attribute format: DELIMITED FIXED DBF NO_ATTRIBUTES)
( ) Datum: ___NAD27 or ___NAD83 (NAD27 is the default)

Media format: *(check one)*

( ) 3.5" HD disk 1.44 MB ( ) Bernoulli™ 44 MB disk cartridge
( ) DC2000 40MB Mini Tape Cartridge (Thetamat™ format) ( ) Zip Disk (100MB)
( ) 4 mm DAT tape ( ) 8 mm tape: ___ 5 GB or ___ 2.3 GB
Workstation tape format: ( ) `tar` ( ) `ltf` (for use with VMS) ( ) other - specify parameters:
blocksize: _____ other: _____
( ) Internet public ftp account (direct transfer) - your I-net address: _____

( ) Request for Special Data Processing attached. Use this form to: have data tiles clipped & joined for a specified area (as for use with ArcView); to receive data in a non-standard horizontal datum or projection (default is NAD27, State Plane meters); or to receive data in DXF format with specific layers or other characteristics.

Do you have a subscription to the *VGIS Data Catalog*: ( ) Yes ( ) No
(If not, photocopied documentation will be included; note that the *Summary* is not the *VGIS Data Catalog*)

Data desired by what date: ____/____/____ A.S.A.P. - *As soon as possible*

SECTION II - DATA REQUESTED (use additional sheets or the *Data Request Form - Supplement* as needed)

Coverage or Directory Name, including tile number(s)	Status*	Number of Tiles Required	Average Tile Size (KB) *(optional)*	Estimated Total Size (KBytes) *(optional)*	Date of Data, for archived data only *(optional)*
	Totals:	_____ tiles		_____ KBytes *(optional)*	

*Status: 1 = Available from VCGI, 6 = Preliminary release available from VCGI, other statuses not available from VCGI.

SECTION III - CONSERVATIVE COST ESTIMATE

The cost of data reproduction varies greatly with combinations of media and data formats. The cost can be roughly estimated below on a per tile basis for data provided on 3.5" disks. For other media, costs can be estimated from the size of the request and media fees listed in the *Pricing Schedule*. In either case, *the requestor will only be invoiced for the actual cost of data reproduction, and will be notified if their estimate is too low.*

Please check one (estimates are for 3.5" disks; other media may be more or less expensive):

( ) For pcARC/INFO COVERAGE format on 3.5" disks: conservative estimate of $5 + $5 per tile.

( ) For other standard data formats on 3.5" disk: conservative, rough estimate of $5 + $12 per tile.

( ) For a *Request for Special Data Processing* on 3.5" disks: *very* rough estimate of $12 + $20 per layer.

Conservative estimated cost: $ _____.

I agree to pay VCGI the actual cost of distributing the requested data. I understand that VCGI will contact me in advance if the actual cost will exceed the conservative estimated cost.

Signature: _____ Date: _____

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PART 6: APPENDIX B

PRICING SCHEDULE

I. PURPOSE OF SCHEDULE

To establish charges referenced in *VGIS Handbook*: Part 1 - Policies, Section C, "Pricing of Products and Services." This schedule will remain in effect until superseded.

II. MEDIA CHARGE

VCGI procures, stores, formats and ships new electronic media, in order to guarantee reliable reproduction. VCGI media charges consist of the approximate actual VCGI cost of media, . Charges for media available from VCGI include:

3.5 in. HD diskette (1.44 MB)	$ 0.80*	$ 0.52/MB
Bernoulli II disk cartridge (44 MB)	$ 90.00	$ 2.05/MB
DC2000 Mini Tape Cartridge, Thetamat™ (40 MB)	$ 14.00	$ 0.35/MB
4 mm DAT Tape (1.2GB)	$ 15.00	$ 0.01/MB
8 mm Tape (5 GB or 2.3 GB)	$ 17.00	$ <0.01/MB
Zip Disks (100MB)	$ 16.50	$ .16/MB

III. PROCESSING CHARGE

VCGI incurs costs directly associated with reproducing and distributing VGIS Information Products, and with providing other technical services not related to the provision of access to public records. VCGI processing charges consist of a direct labor rate plus the associated indirect costs as explained in the *VGIS Handbook*, Part 1, Section C: "Pricing of Products and Services."

A. The professional services of VCGI personnel may be required to fill requests for electronic public records . Data distribution will be performed at the rate of **$.30 per minute** (excepting the first thirty minutes), as provided for by rule.*

B. The professional services of VCGI personnel may be requested to provide services unrelated to the copying or production of public records. Analyzing requests, performing data transformations, or performing other specialized data processing services requested by a customer will be charged at rates which cover all costs of the staff assigned, as required by 10 VSA 123. Labor rates vary from approximately **$20 - $50 per hour**, and VCGI cheerfully provides estimates and charge rates for specific tasks, upon request.

IV. PHOTOCOPY & OTHER CHARGES

Paper documents distributed with the data are four cents **($.04)** per single-sided page, and six center **($.06)** per double-sided page.* The estimated actual cost of postage and packaging materials will be added, when applicable.

* Pursuant to the "Uniform Schedule of Public Record Charges for State Agencies" required by Act 159 of 1996

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NOTICE REGARDING COPYRIGHT AND WARRANTY

• PLEASE READ THIS NOTICE •

1. NOTICE is hereby provided by the **STATE OF VERMONT**, acting by and through the **Vermont Center for Geographic Information, Inc.** (hereinafter referred to as "VCGI"), to the individual, governmental organization, partnership, corporation or a member of a joint venture (hereinafter referred to as **"User"**).

2. DATA PRODUCTS AND HARDCOPY PRODUCT OWNERSHIP

2.1 Data and Hardcopy Products. VGIS Data and hardcopy products are protected under copyright laws of the United States. Certain information contained within and produced directly from the database is the intellectual property of the State of Vermont.

2.2 Process. VGIS Data or Data Products will be provided to **User** only after a completed **VCGI** *Data Request Form* has been received. If the **User** has contracted with a third party to process the data, the third party consultant or contractor is that person within a third party organization with authority to enter into legal agreements for that organization contracted by the **User** to process VGIS Data. The third party should read this notice to understand the terms and conditions contained within this notice and are fully understood, and accepted in their entirety.

3. DEFINITIONS

3.1 Vermont Center for Geographic Information, Inc. (VCGI) - The public, not-for-profit Vermont Corporation responsible for the administration and implementation of the Vermont Geographic Information System (VGIS).

3.2 Administrative Authority - 3 VSA 20 and Executive Order #92-3A

3.3 VGIS Data - Primary digital data archived within electronic storage media at **VCGI**.

3.4 VGIS Data Products - Digital data files derived from primary digital data, plotfiles, graphic plots, and printed tabular listings directly extracted or produced from the VGIS Data.

4. USER'S RESPONSIBILITY TO SAFEGUARD DATA. VGIS Data and Data Products including all copies and partial copies made are, and shall remain, the exclusive property of the State of Vermont and its governmental entities. The **User** should safeguard VGIS Data or Data Products from theft, loss, or use contrary to the terms of this notice. If loss or misuse of the supplied information should become evident, the **User** agrees to immediately notify **VCGI**.

5. PERMITTED USES

5.1 The **User** may copy VGIS Data for computer backup purposes.

5.2 VGIS Data or Data Products may be used on computer equipment owned or leased by the **User** or by third parties under contract to **User** organizations.

5.3 Graphic displays and printed tabular listings may be derived from VGIS Data or Data Products and may be distributed or used in publications and presentations, provided that credit is given to VGIS as a source of information, and notice of copyright [© [Year] State of Vermont] is shown.

5.4 Entering into third party agreements for one time use of VGIS Data or Data Products is permitted subject to the following conditions:

a. Any use of VGIS Data must be in support of written contracts by the **User**, and for application in the **User's** project(s).
b. The third party contractor must read and adhere to the terms of this Notice.
c. The third party contractor may retain and use the VGIS Data only for the period of time during which the specific contract requiring its use is in effect.
d. **VCGI** may request:
   1. A signed copy of all related third party contracts.
   2. Written notification when the contract has been completed and VGIS Data and Data Products have been returned to the **User**.

6. USES PROHIBITED

6.1 Any sale, distribution, loan of or offering for use of VGIS Data and Data Products either in whole or in part other than is permitted under this Notice.

6.2 The direct reproduction of provided VGIS Data or Data Products with an intent to sell, without the written consent of the **VCGI**.

6.3 Omission, removal or alteration of VGIS copyright notification.

7. TERM

7.1 User Rights. The **User** has the right to use VGIS Data and Data Products as specified in this Notice.

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July, 1992