



VERMONT

Enterprise GIS Strategic Plan/2008

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Executive Summary

Why have Vermont State Agencies developed an Enterprise GIS Strategy?

The purpose of Enterprise Geographic Information System (GIS) Strategy is to define a common vision and establish a formal alliance among state agencies to efficiently and effectively expand and improve the state's use of GIS technology and to improve outreach and coordination with stakeholders outside state government. Ultimately the strategy is designed to provide faster and higher quality services, streamlined processes, and a less costly government.

In the past, state agencies have been largely on their own in developing in-house GIS capabilities. Some agencies such as Transportation, Natural Resources, Agriculture, E-911, and Commerce have developed sophisticated systems. Other agencies are making less or limited use of GIS. The Vermont Center for Geographic Information (VCGI) develops GIS technical guidelines, distributes GIS data to the general public, and promotes information exchange among the agencies.

As these entities have formed relationships and have worked towards an increased level of sharing and collaboration it became evident that a more formal alliance was required. This Enterprise GIS Strategic Plan is designed to realize that vision. As such, this Strategic Plan is in alignment with the September 8, 2005 report of the Vermont Institute on Government Effectiveness which concluded that modernizing both the state's information technology (IT) and management of information technology is the key to greater efficiency and better service in state government.

This Plan is an important part of the state's 'comprehensive strategy' for the development and use of Vermont's Geographic Information System (VGIS)¹. The VGIS represents a broad spectrum of geospatial activities and constituencies throughout the state of Vermont, including academic, town, regional, non-profit, state, private sector, and the general public. This Plan articulates a strategic vision for the development and use of geospatial technology within state government; a critical component of the VGIS. It's a dynamic document, one that will be updated on a regular basis in order to leverage emerging opportunities in a rapidly evolving geospatial industry.

What are the Enterprise GIS Strategic Plan's vision and goals?

This Strategic Plan aims to establish a dynamic Enterprise GIS framework within state government which:

- Promotes and leverages efficient use of the state's Geographic Information Technology (GIT) resources;
- Recognizes opportunity through coordination and resource sharing;
- Promotes quality and consistency through standardization;
- Addresses data access needs;
- Enhances the effectiveness of GIS services and solutions; and
- Improves decision making throughout state government.

¹ Vermont Statute (Title 10 VSA - Chapter 8 § 121)

Who was involved in developing the Enterprise GIS Strategy?

An alliance of State agencies convened a taskforce (Enterprise GIS Taskforce or EGT) to prepare the strategic plan.

The EGT has the support of the Governor's administration and includes the following agencies, departments, and other state organizations. See Appendix A for participant's names and contact information.

- VT Dept. of Information and Innovation
- VT Center for Geographic Information
- VT Agency of Human Services
- VT Dept. of Public Service
- VT Dept. of Education
- VT Dept. of Agriculture, Food and Markets
- VT Agency of Commerce and Community Development
- VT Agency of Natural Resources
- VT Dept. of Health
- VT Natural Resources Board
- VT Mapping Program
- VT Agency of Transportation
- VT Dept. of Labor

What are the Primary Objectives of the Plan?

The eighteen (18) objectives addressed in the plan follow.

Management, Coordination and Planning

1. **Objective:** Configure the EGT into an ongoing consortium to guide the Enterprise GIS initiative and for the purposes outlined in this Strategic Plan.
2. **Objective:** Maintain and continue to develop the state's GIS Strategic Plan.
3. **Objective:** Review and assess implementation of this Strategic Plan and companion Business Plan(s).

Coordinating Resource Use, Outreach and Marketing

4. **Objective:** Encourage and pursue opportunities for shared GIS projects and contracts between VT state agencies.
5. **Objective:** Provide and exchange information with internal and external stakeholders regarding the availability of GIS resources and services.
6. **Objective:** Promote the benefits and uses of state GIS products and services.
7. **Objective:** Document the strategic advantages of increasing GIS capabilities through Enterprise GIS activities.

Data Management and Sharing

8. **Objective:** Catalogue geospatial datasets developed by VT state agencies.
9. **Objective:** Improve the management of geospatial datasets maintained by VT state organizations.
10. **Objective:** Coordinate the distribution of data for VT state agencies.
11. **Objective:** Develop and maintain GIS policies, standards, and guidelines for VT state agencies.
12. **Objective:** Reduce barriers for data sharing among VT state agencies.

Hardware and Software Management and Sharing

13. **Objective:** Foster sharing of GIT hardware and enable centralized purchasing of GIS software licensing for VT state agencies.

Human Capacity

14. **Objective:** Coordinate GIS training and education for state government GIS technicians, users and managers.
15. **Objective:** Develop model state government GIS job specifications and career ladders.
16. **Objective:** Develop guidelines for core competencies for non-GIS state agency staff that require some GIS skills for their positions.
17. **Objective:** Foster the capability of GIS for state government organizations not currently using GIS.
18. **Objective:** Foster sharing of expertise and informal consulting among VT state agencies.

Current Situation

Vermont State organizations² currently have a wide range of geographic information technology (GIT), which includes many strengths as well as opportunities for improvement. A self-assessment of Vermont state government GIS capacity follows.

Background and Context

The original vision for an overall statewide GIS plan was articulated by the legislature in 1994. Vermont Statute (Title 10 VSA - Chapter 8) established the Vermont Center for Geographic Information (VCGI) to develop the Vermont Geographic Information System (VGIS), a comprehensive strategy for the development of statewide GIS including:

- Data and mapping standards.
- Potential applications and their priorities.
- Priorities for collecting and digitizing information.
- Geographic location standards for all data collection.
- Software and hardware standards.
- Management needs.
- Private sector cooperation.
- Costs and benefits of use.
- Financing considerations.
- Ways to make information gathered available to regional and municipal entities, commercial entities, the public, and others.
- Ways to assure that data gathered by governmental entities conforms to the geographic information system.
- An implementation schedule.

The September 8, 2005 report of the Vermont Institute on Government Effectiveness recommended unequivocally that modernizing both the state's information technology and management of information technology is the key to greater efficiency and better service in state government. The Enterprise GIS strategic planning process is in alignment with Governor Douglas' charge to state government to enhance its level of coordination and thus efficiency.

Management, Coordination and Planning

Vermont state organizations are not starting from scratch in terms of efforts to enhance coordination and collaboration across organizational boundaries. This strategic plan builds upon and enhances existing coordination efforts. For example, the Tax Department's aerial photo program is a significant asset for all state government GIS programs, and a few organizations have cooperated to pool resources and share technical services on a business need and Service Level Agreement (SLA) basis. In addition, the agencies of Commerce, Transportation, and Natural Resources, in conjunction with the VCGI, have created a Memorandum of Understanding to share in the purchase and support of Enterprise web mapping solutions.

For the most part, GIS use by state organizations has largely emerged in a decentralized fashion from specific programs within each organization. Some organizations have moved to coordinate and centralize GIS functions, others have not. Currently no one organization oversees statewide GIS technology use and maintenance, GIS software licensing, GIS training, or GIS data production. However, VCGI manages the development of GIS standards and coordinates data distribution efforts. No one organization oversees the budgeting for GIS from a statewide perspective.

Few state organizations have GIS Strategic Plans. Managers of GIS programs are aware of their GIS needs and benefits. At the commissioner and director level, awareness fluctuates within state government.

² Terms such as "organization" are defined in the Glossary, which is Appendix D

Funding and Other Resources

GIS budgeting occurs at the program level, with the exception of a few agencies, where it is included as a line item in agency level budgets. Some organizations had original limited funding to begin GIS, but have not secured consistent and continuing data and maintenance support in their budgets. Some federal agency financial support is conditioned upon broad distribution of data while other federal agency financial support is conditioned upon restricting the sharing of GIS data and resources. Some organizations have limited GIS resources based chiefly on whether federal and state financial support is available. Because of the complexity of GIS applications, many organizations have inadequate resources to meet their existing GIS personnel, equipment, maintenance, and training needs. A few organizations also have inadequate software licensing.

Data Management and Sharing

Adoption and use of GIS practices varies due to the differences in resources, priorities, and foci among state organizations. Some data produced by the agencies of Transportation, Natural Resources, and other agencies is distributed by the agencies themselves or via VCGI to local and regional government, private business, and to the general public. Most GIS data is collected to serve the needs of each organization's internal users. Because of this, much of the state's GIS data is maintained for internal use with little distribution to other state organizations or users outside of state government. Some organizations restrict access to their GIS data for security and confidentiality reasons.

Human Capacity

The State's GIS professionals are highly competent, collegial, and willing to share ideas with their counterparts across state government. Simultaneously, agency GIS users and professionals have heavy demands on their time and creativity. Depending on the organization, time of year, and other variables, internal agency demands for GIS services outstrip the resources to provide them. Systematic work plans are sometimes set aside while staff is diverted to address short-term needs.

The staff members of some individual programs in these organizations are struggling to develop GIS expertise in areas where they believe GIS could be useful. Some organizations lack the planning and resources to provide adequate training for GIS users and GIS technical staffers, and some organizations have no dedicated GIS staff at all. In some instances, frontline and mid-level state managers are not trained to appreciate or take full advantage of GIS decision support. Overall, there is a very limited statewide career ladder for GIS technical staff.

Summary

From this assessment, the upcoming objectives follow as a means to move the current situation forward and address areas that are in need of improvement.

**GIS and Emergency Planning
Ice Jams - 2007**



< Aircraft Sorties



Aerial Photos >

A thick layer of snow and ice had capped Vermont's rivers throughout the winter of 2007. State and local officials were concerned about ice jams and associated flooding hazards. As a result, subject matter experts were flown along pre-determined routes to survey ice jam hazards. Areas of concern were plotted on maps and then integrated into the State's GIS system. Interagency cooperation was critical to the success of the mission. Agencies contributed personnel and resources necessary to the mission, including GIS personnel, data, and tools.

**Shared Resources
Web Mapping Solutions**



The Problem: Geographic Information Systems (GIS) are currently used in many agencies, representing a considerable investment. Each agency has specific data needs but share a need for common basemap information and visualization software.

The Challenge: Enable agencies to display mapping information, both internally and externally, using web-based solutions.

The Solution: A team from ACCD, ANR, VTrans and VCGI selected specialized software (Geocortex IMF) to enable this vision. These agencies shared in the investment, purchased the software, and took steps to make it possible for all state entities to use. There are a number of benefits that have been realized from this collaboration, such as eliminating the purchase of individual licenses to access the GIS data, and simplifying the access to data for use in decision support systems. In addition, there are benefits through this agreement that include reduced training and consulting costs for the state. All agencies and departments can take advantage of this centrally administered solution.

Objectives, Implementation Strategies and Benefits

Management, Coordination and Planning

1. **Objective:** Configure the EGT into an ongoing consortium to guide the Enterprise GIS initiative and for the purposes outlined in this strategic plan.

Implementation Strategies:

- a. Establish and maintain an Enterprise GIS charter for this new group, the Enterprise GIS Consortium (EGC).
 - b. The EGC will establish an external liaison role for entities outside of state government in order to enhance the range of communication of GIS goals throughout the state.
 - c. Formalize the Enterprise GIS Consortium by having state agencies and the Vermont Center for Geographic Information sign a Memorandum of Understanding (MOU) that includes agreements regarding GIS standards, access to non-monetary resources, and other items necessary to achieve the purposes of this plan.
 - d. The EGC will report to the Chief Information Officer (CIO) and the State Technology Collaborative (STC). All standards and recommendations accepted by the EGC will be submitted to the CIO and the STC prior to implementation.
2. **Objective:** Maintain and continue to develop the state Enterprise GIS Strategic Plan and companion Business Plan(s).

Implementation Strategies:

- a. The Strategic Plan will look forward for five (5) years and will be updated annually by the EGC.
 - b. The EGC will draft and maintain business plans that implement the objectives defined in this Plan.
 - c. Each December the EGC will send the Chief Information Officer (CIO) an updated strategic plan for inclusion in the annual publication of the state's IT Strategic Plan.
3. **Objective:** Review and assess implementation of this Strategic Plan and companion Business Plan(s).

Implementation Strategies:

- a. EGC members will report annually to the EGC on their progress, obstacles and new initiatives.
- b. VCGI will compile an annual status report using the information provided by EGC members.

Management, Coordination and Planning Benefits

A primary benefit of the Enterprise GIS Consortium is increased coordination among state organizations. Once the EGC is established, the consortium will oversee the future implementation and updating of this strategic plan, ensuring that it is a dynamic document.

Coordinating Resource Use, Outreach and Marketing

4. **Objective:** Encourage and pursue opportunities for shared GIS projects and contracts between VT state agencies.

Implementation Strategies:

- a. EGC members will alert each other of project initiatives to see if others want to coordinate. This will be a standing item on the EGC's agenda.
- b. The EGC will work through Buildings & General Services (BGS) to negotiate a state enterprise software license and/or Master Purchase Agreement with ESRI (see Objective 13) and other vendors as warranted.
- c. The EGC will work through BGS to negotiate shared training contracts (see Objective 14).
- d. The EGC will work through BGS to establish retainer contracts for GIS services.
- e. The EGC will create MOUs as needed to support shared projects.
- f. The EGC will explore the possibility of a retainer contract with VCGI for all state agencies.
- g. The EGC will support collaborative project opportunities for GIS initiatives for VT state agencies.
- h. The EGC will evaluate purchasing, training, and contracting to substantiate the effectiveness of Enterprise GIS initiatives through the use of business case assessment methodologies.

5. **Objective:** Provide and exchange information with internal and external stakeholders regarding the availability of GIS resources and services.

Implementation Strategies:

- a. The EGC will leverage current infrastructure and tools (such as public meetings with subject matter experts and the VCGI newsletter) and expand upon these (such as the website proposed in Objective 18).
- b. The EGC will create a PR/communications strategy to reach stakeholders.

6. **Objective:** Promote the benefits and uses of state GIS products and services.

Implementation Strategies:

- a. The EGC will pursue GIS decision-making training opportunities for managers, and others, especially when decisions cross agency boundaries. (This strategy also applies to Objective 14.)
- b. The EGC will participate in annual legislative outreach efforts.
- c. The strategies outlined in objective 5 also support this objective.
- d. The EGC will direct the creation of materials that describe the mission and objectives of the Enterprise GIS Consortium.

7. **Objective:** Document the strategic advantages of increasing GIS capabilities through Enterprise GIS activities.

Implementation Strategies:

- a. The EGC should research, collect and distribute documentation from GIS industry publications in order to establish an understanding of the potential return on investment of Enterprise GIS activities in other states.
- b. The EGC should research, collect and distribute the best business case examples that relate to Vermont state government Enterprise GIS activities.

Coordinating Resource Use, Outreach and Marketing Benefits

Shared projects and contracts can ultimately streamline the contracting process and save funds. Shared contracts can also foster greater consistency across organizations. Shared projects and contracts can improve the chances of project funding being continuous and consistent. The outreach efforts identified above can further help state agencies fulfill their missions by reaching new stakeholders and potential users and increasing communication with existing stakeholders and users. Increased communication can add to the enhancement and improvement of the Enterprise GIS for all stakeholders and users over time.

Data Management and Sharing

8. **Objective:** Catalog geospatial datasets developed by VT state agencies.

Implementation Strategies:

- a. Each state organization represented on the EGC prepares the relevant catalog entries for its datasets and forwards this information to VCGI. VCGI, in consultation with the EGC, will specify the metadata elements to be included in the catalog.
- b. Catalog includes all geospatial data, not just data that will be public, in accordance with VT statute.
- c. VCGI will house the central catalog and make it available to all relevant organizations.
- d. Catalog entries are updated annually or sooner if needed by state organizations and forwarded to VCGI.
- e. VCGI will continue to serve a coordination role for data catalog.

9. **Objective:** Improve the management of geospatial datasets maintained by VT state organizations.

Implementation Strategies:

- a. Data cataloging will help organizations identify their own internal data duplication.
- b. Data cataloging will help organizations identify duplicate, repetitive datasets in other state and federal datasets as they compare their holdings with those from other government data sources.
- c. EGC members will discuss how to assist organizations to reduce or eliminate data duplication.
- d. The EGC will provide assistance to state organizations to identify and reduce data duplication through the implementation of Objectives 8, 10, and 12.
- e. The EGC will coordinate with VCGI's efforts to maintain Vermont's Spatial Data Infrastructure (VSDI).

10. **Objective:** Coordinate the distribution of data for VT state agencies.

Implementation Strategies:

- a. The EGC, with assistance from VCGI, will develop methods of data distribution for different types of data.
- b. The EGC, in collaboration with VCGI, will coordinate data distribution for VT state organizations.

11. **Objective:** Develop and maintain GIS policies, standards, and guidelines for VT state agencies.

Implementation Strategies:

- a. The EGC will compile all state government Enterprise GIS policies, standards, and guidelines into the VGIS Handbook under its own section.
- b. The EGC will receive recommendations for policies, standards, and guidelines and determine if they are relevant to VT State agencies.
- c. The EGC will decide whether they or VCGI's Technical Advisory Committee (TAC) will develop policies, standards, or guidelines on a case-by-case basis.
- d. VCGI's Technical Advisory Committee will conduct ongoing research and draft new or revised GIS policies, standards, and guidelines and report this information to the EGC.
- e. The EGC will develop security and confidentiality solutions to protect data.
- f. The EGC will approve all policies, standards, and guidelines.
- g. Policies, standards, and guidelines will be recognized and adhered to by EGC members.

12. **Objective:** Reduce barriers for data sharing among VT state agencies.

Implementation Strategies:

- a. The EGC will create a standard MOU template for data sharing that will include specific agreements regarding data use, distribution and classification.
- b. VCGI may assist, when requested by a state organization, with packaging and documentation of data (supports Objective 8 and 10).
- c. The EGC will make all core VGIS data available to all GovNet users. The EGC will decide upon requirements and explore hosting options.
- d. The EGC will designate and publish a list of data managers and subject matter experts at each state organization.

Data Management and Sharing Benefits

EGT members have made significant efforts to share data previously. The objectives above can take the existing systems to the next level by increasing the level of quality, organization and consistency of the data, addressing specific barriers for the use and sharing of data, providing needed assistance, and reaching a broader audience. Combined, these objectives make it possible for additional organizations to become involved in sharing data and in accessing shared data effectively and efficiently.

Hardware and Software Management and Sharing

13. **Objective:** Foster sharing of GIT hardware and enable centralized purchasing of GIS software licensing for VT state agencies.

Implementation Strategies:

- a. Each organization will create GIS hardware and software inventories.
- b. EGC participants will notify each other regarding future purchases to explore sharing possibilities.
- c. The EGC will work through BGS to negotiate a state enterprise software license and/or Master Purchase Agreement with ESRI (see Objective 4) and other vendors as warranted.

Hardware and Software Management and Sharing Benefits

Sharing of hardware and software creates the ability for state organizations to use state resources wisely and cost-effectively by reaching across existing organizational boundaries.

Human Capacity

14. **Objective:** Coordinate GIS training and education for state government GIS technicians, users and managers.

Implementation Strategies:

- a. EGC participants will survey training and education needs.
- b. The EGC will explore coordination opportunities with the state training and development office at the Summit: Center for State Employee Development.
- c. The EGC will work through BGS to include coordination of training between GIS vendors and the EGC in state enterprise licensing contracts and/or Master Purchase Agreement with ESRI and other relevant vendors.
- d. The EGC will consider utilizing DII, the Summit: Center for State Employee Development and other state trainers and training facilities to conduct GIS related training.
- e. The EGC will support the creation and implementation of GIS training plans.

15. **Objective:** Develop model state government GIS job specifications and career ladders.

Implementation Strategies:

- a. The EGC will make a proposal to the Vermont Department of Human Resources, agency human resource departments and the Summit Center to create a GIS career ladder and expand the current GIS-specific positions in the state classification system.
- b. The EGC, in coordination with the Summit Center, will wrap professional development around these job classifications.

16. **Objective:** Develop guidelines for core competencies for non-GIS state agency staff that require some GIS skills for their positions.

Implementation Strategy:

- a. The EGC will prepare guidelines and distribute them to state agencies and state human resource office for reference.

17. **Objective:** Foster the capability of GIS for state government organizations not currently using GIS.

Implementation Strategies:

- a. The combination of the implementation strategies articulated in Objectives 5, 12, 14 and 18 all serve to meet this Objective.

18. **Objective:** Foster sharing of expertise and informal consulting among VT state agencies

Implementation Strategies:

- a. Address the sharing of staff resources in the EGC MOU.
- b. Consider a GIS collaboration website, such as Share Point.
- c. The EGC will invite power users to meet across organizations.
- d. The EGC will address the sharing of expertise for the procurement of GIS services (ex: RFP templates).

Human Capacity Benefits

By collaborating on training, the state organizations involved may be able to experience a reduction of training costs due to an increased number of participants and thus a lower cost per participant from separate training activities. A specified career ladder for GIS staff and the development of core competencies for non-GIS staff will help create consistency across state organizations for hiring and increased clarity for potential employees. One of the primary goals of this plan is to improve decision making in state government by fostering GIS literacy and by reducing barriers to GIS utilization particularly in agencies that are not currently reaping the full benefits of GIS. A key strategy to achieving this goal is encouraging and supporting existing agency GIS users and experts to share their knowledge with other state employees so that Vermont's Enterprise GIS may grow and flourish.

APPENDIX - A

Strategic Planning Process and EGT Participants

VCGI initiated this planning process by inviting thirty GIS staff from VT state organizations to participate in the formation of the Enterprise GIS Taskforce (EGT). On April 12, 2006, a group of approximately ten (10) stakeholders convened in Waterbury, VT to create the EGT. VCGI secured a 50 States Initiative grant from the U.S. Geological Survey (USGS) and then used a portion of the funds to hire professional facilitators (Glen Gross and Lisa Bedinger) to facilitate the strategic planning process, which occurred via monthly workshops from October, 2007 – June, 2008.

The content of this plan reflects a consensus of the EGT participants combined with feedback from a broad group of stakeholders. Participants volunteered their time and resources to help make this effort successful. This strategic plan will be followed by a business planning process to flesh out the implementation details needed to ensure the plan's success and vitality in the upcoming years.

EGT Participants

Below is the contact information for the EGT participants who received updates on the strategic planning process and oversaw the plan's development. EGT participants who contributed to the writing of the strategic plan are denoted with an asterisk (*).

FIRST	LAST	ORGANIZATION	CONTRIBUTORS
Laurence	Becker	VT Geological Survey	
Louis	Borie	VT Natural Resources Board	*
Robert	Bowie	VT Agency of Human Services	*
David	Brotzman	VT Center for Geographic Information	*
Chris	Campbell	VT Dept. of Public Service	
Margaret	Ciechanowicz	VT Agency of Human Services	
Andy	Condon	VT Dept. of Labor	*
Dana	Dean	VT Agency of Commerce & Community Development	*
Erik	Engstrom	VT Agency of Natural Resources	*
Cathleen	Gent	VT Agency of Human Services	
Margaret	Gibson	VT Dept. of Health – Epidemiology	*
John	Hanning	VT Dept. of Ag, Food & Markets	*
Jennifer	Kachajian	VT Dept. of Health	*
Jared	Lamere	VT Enhanced 9-1-1 Board	*
Angela	Leclerc	VT Dept. of Buildings and General Services	
Sandy	Lundquist	VT Dept. of Public Safety	
John	Mangion	VT Dept. of Public Safety	
Alex	McHenry	VT Dept. of Education	
Jeremy	McMullen	VT Enhanced 9-1-1 Board	*
Patricia	Moulton-Powden	VT Dept. of Labor	*
Shawn	Nailor	VT Agency of Transportation	*
Lin	Neifert	US Geological Survey	*
Ryan	Ochs	VT Military Dept.	
Melissa	Prindiville	VT Agency of Commerce and Community Development	*
Jason	Roberts	VT Dept. of Health - Div. Health Surveillance	*
Harry	Roush	VT Mapping Program	*
Max	Schlueter	VT Dept. of Public Safety	
Rick	Scott	VT Agency of Transportation	*
Steve	Sharp	VT Center for Geographic Information	*
Peter	Telep	VT Agency of Natural Resources	*
Darwin	Thompson	VT Dept. of Information and Innovation	*
John	Wood	VT Dept. of Public Safety	
Peter	Young	VT Dept. of Health	*

APPENDIX – B

Comparison of Vermont's Enterprise GIS Initiative with the Fifty States Initiative's Goals and Criteria

Background: The Fifty States Initiatives Strategic Goal and Nine Coordination Criteria

The Fifty States Initiative is a partnership between the National States Geographic Information Council (NSGIC) and the Federal Geographic Data Committee (FGDC), which is aimed at enhancing the coordinated development of the Nation's Spatial Data Infrastructure (NSDI). The Fifty States Initiative encourages each state to examine and improve coordination in order to enhance each State's Spatial Data Infrastructure (SSDI). To encourage this, the FGDC has provided grant funding to states for GIS strategic planning and business planning efforts. Development of Vermont's Enterprise GIS Strategic Plan was funded in part by a grant from the FGDC.

The Fifty States Initiative seeks to meld state initiatives with the federal government's effort to build a National Spatial Data Infrastructure (NSDI). The overarching strategic goal is for each state:

“To implement a statewide spatial data infrastructure consistent with appropriate national standards.”

The Fifty States Initiative identifies nine “coordination criteria” that NSGIC and FGDC believe provide benchmarks for successful state programs.

The following table discusses how this strategic plan supports these nine criteria

Fifty States Initiative Criterion	Vermont's Enterprise GIS Initiative	Explanation
<p>1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans.</p>	<p>Exceeds the Fifty States Initiative's recommended criterion.</p>	<p>Vermont's Enterprise GIS Initiative will be managed by a consortium of state organizations (Enterprise GIS Consortium or EGC). This strategic plan anticipates that much of the staff support for the consortium's work will be provided by the Vermont Center for Geographic Information (VCGI). VCGI is a quasi-public instrumentality of the state established by the Vermont legislature (10 V.S.A. Chapter 8) to support the development and implementation of a comprehensive plan for Vermont's Geographic Information System (VGIS). It is also anticipated that members of the EGC will be actively involved in the ongoing implementation of Vermont's strategic plan.</p>
<p>Brief explanation: Having a full-time paid individual is advantageous and a significant portion of their energy is channeled into on-going statewide coordination council activities.</p>		
<p>2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production.</p>	<p>Meets the Fifty States Initiative's criterion.</p>	<p>As previously noted, VCGI is charged by statute to oversee the development and implementation of the VGIS, including the development and implementation of a comprehensive plan. This strategy complements VCGI statewide planning effort by strengthening coordination of geospatial information technologies and data production among state organizations. The Enterprise GIS Consortium's authority derives from the Memorandum of Understanding to be entered into by all the participating state organizations including VCGI.</p>
<p>Brief explanation: A responsible individual or group has been designated in many states through executive orders, budget authorizations, or legislation. These individuals, or groups, are usually better able to deal with difficult coordination issues since they are empowered to perform this function.</p>		

Fifty States Initiative Criterion	Vermont's Enterprise GIS Initiative	Explanation
<p>3. The statewide coordination office has a formal relationship with the state's Chief Information Officer (or similar office).</p> <p>Brief explanation: Geospatial technologies are clearly a component of any state's information technology architecture, but they are not always viewed as such by "old school" IT leaders. A close relationship with the state CIO is essential to move major geospatial technology initiatives forward.</p>	<p>Meets the Fifty States Initiative's criterion.</p>	<p>Vermont's CIO is the commissioner of the Department of Information & Innovation (DII) within the Agency of Administration. The CIO serves as chair of the VCGI Board of Directors. The Director of DII's Enterprise Project Management Office (EPMO) co-chaired this strategic planning initiative.</p>
<p>4. A champion (politician or executive decision maker) is aware and involved in the process of coordination.</p> <p>Brief explanation: A visionary political champion who understands geospatial technologies is a valuable ally that can help obtain recognition and funding to support new initiatives. Without a strong political champion, new initiatives often fail.</p>	<p>Meets the Fifty States Initiative's criterion.</p>	<p>As previously noted, development of the strategic plan was done in cooperation with the state CIO and DII's Enterprise Project Management Office (EPMO). The CIO and participating state organizations are accountable to the Governor and the Secretary of Administration. With respect to communication with the legislature, the Governor's office, state organizations, and VCGI routinely keep the legislature informed on GIS issues. Two legislators, one appointed by the Speaker of the House and the other appointed by the Senate committee on committees serve on the VCGI Board of Directors. It is also anticipated that representatives from the CIO's and EPMO's office will be active members of the EGC.</p>
<p>5. Responsibilities for developing the National Spatial Data Infrastructure and a State Clearinghouse are assigned.</p> <p>Brief explanation: The responsibility for the component pieces of the NSDI should be assigned to appropriate staff and agencies to ensure that stewards are identified, and to prevent duplication of effort. Assignment of responsibilities should happen in advance of actual need, to ensure that the appropriate activities are planned for and incorporated into the state's business plan.</p>	<p>Meets the Fifty States Initiative's criterion.</p>	<p>As previously noted, VCGI is charged by statute to assist in the development and implementation of the VGIS; a comprehensive strategy to encourage and coordinate GIS usage throughout the state. VCGI has established the VGIS Data Warehouse, which acts as the State's Geospatial Data Clearinghouse. VCGI also monitors the development and maintenance of Vermont's Spatial Data Infrastructure (VSDI). The State's Enterprise GIS Plan identifies the roles and responsibilities of the Enterprise GIS Consortium (EGC), VCGI, and the state organizations in coordinated maintenance and distribution of geospatial datasets (including those supporting the VSDI).</p>

Fifty States Initiative Criterion	Vermont's Enterprise GIS Initiative	Explanation
<p>6. The ability exists to work and coordinate with local governments, academia, and the private sector.</p> <p>Brief explanation: Each state must have the capability to routinely meet and coordinate with all other sectors.</p>	<p>Meets the Fifty States Initiative's criterion.</p>	<p>VCGI maintains regular contact with local governments, academia and the private sector via conversation, consultation and newsletters. In addition to the two legislators who sit on the VCGI Board, the Governor appoints ten additional members including: one nominated by and representing Regional Planning Commissions; one nominated by and representing municipalities; three representatives from higher education; and one representing the private sector.</p>
<p>7. Sustainable funding sources exist to meet projected needs.</p> <p>Brief explanation: Sustainable funding is the foundation of effective partnerships. Data production tends to be the highest component cost for implementation of geospatial technologies and most users have requirements for continuous updating of data layers that need reliable fund sources. Effective consortia can only be established when each of the players brings something to the partnership. Non-lapsing funds also help to stabilize partnerships.</p>	<p>Meets the Fifty States Initiative's criterion.</p>	<p>VCGI is supported in part by ten percent (10%) of the revenue generated by the state's property transfer tax (24 V.S.A. § 4306). All of the other state organizations receive annual appropriations for their activities that include GIS activities. Because this strategic plan is built upon a collaborative model, the routine cost of consortium participation and management will be covered by each organization's operating budget. It is anticipated that state revenue requests for implementation of special projects will be met either out of organizational budgets or by a special request to the legislature on behalf of all the participating organizations.</p>

Fifty States Initiative Criterion	Vermont's Enterprise GIS Initiative	Explanation
<p>8. Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.</p> <p>Brief explanation: To be effective, individual state GIS coordinators or the agencies identified as the stewards for the component pieces of the NSDI must be able to readily contract for software, systems integration, training, and data production costs. Often partnerships can be “brokered” to capture end-of- year funds when contracting mechanisms are already in place.</p>	<p>Meets the Fifty States Initiative’s criterion.</p>	<p>VCGI and state agencies are authorized to enter into contracts and to receive and expend funds. One of the aims of this strategic plan is to promote efficiency in the use of this authority by all organizations through improved coordination among the organizations involved in contracting for GIS services.</p>
<p>9. The Federal government works through the statewide coordinating authority.</p> <p>Brief explanation: It is essential that Federal agencies use statewide GIS Coordination offices and councils as a type of “clearing-house” to make sure that grant opportunities are being used wisely to implement the business plans of the states. Going through the coordination offices and councils will also help to minimize duplications of effort.</p>	<p>Remains to be seen.</p>	<p>The Enterprise GIS Taskforce agrees that Federal agencies should coordinate their support of GIS through a single statewide coordinating authority. Traditionally Federal agencies have dealt primarily with individual state agencies thus contributing to the balkanization of GIS services within state government. Objective 4 of this strategic plan encourages state organizations to explore opportunities for shared contracts and to pursue shared funding opportunities including those involving Federal agencies. This would be done via the Enterprise GIS Consortium (EGC). This objective would be greatly aided by a corresponding attempt by the Federal agencies to coordinate their actions and funding related to GIS with the EGC.</p>

APPENDIX – C

VGIS / EGC Organizational Relationship Diagram



APPENDIX - D

Glossary

BGS = Vermont Department of Buildings & General Services. BGS manages the acquisition of material, equipment, supplies, fuel and printing for all state agencies. BGS oversees the bidding and contracting process to ensure compliance with Bulletin 3.5 and relevant State statutes and Executive Orders.

CIO = State of Vermont's Chief Information Officer. Acting Commissioner of the Vermont Department of Information and Innovation.

DII = Department of Information and Innovation. DII assists state agencies and departments with the design, implementation, and management of information technology solutions.

EGC = Enterprise GIS Consortium. Consists of VT state government organizations that sign the Enterprise GIS Consortium MOU and enter into formal agreements with each other about how the state's Enterprise GIS will function.

EGT = Enterprise GIS Taskforce, the collaborative group of state organization employees who comprised the working group to draft this strategic plan.

EPMO = DII's Enterprise Project Management Office. The EPMO helps agencies and departments manage their IT projects.

GIS = Geographic Information System. A geographic information system (GIS) is any system for capturing, storing, analyzing and managing data and associated attributes which are spatially referenced to Earth. It includes any information system capable of integrating, storing, editing, analyzing, sharing, and displaying geographically referenced information.

GIT = Geographic Information Technology. Consists of hardware and software necessary to support a geographic information system (GIS).

IT = Information technology.

MOU = Memorandum of Understanding, a written formal agreement among organizations.

Organization = Any VT state agency, department, or division whose GIS functions independently in making GIS decisions.

STC = State Information Technology Committee. The Secretary of Administration by way of a memorandum to selected secretaries and commissioners established the State Information Technology Committee, or STC, on July 6, 2004, as the group responsible for reorganizing information technology (IT) management in Vermont State government.³

TAC = VCGI's Technical Advisory Committee. VTAC is charged with the development, review, and approval of technical standards and guidelines in support of VGIS and VCGI Board objectives.

VCGI = Vermont Center for Geographic Information. VCGI was created by the VT Legislature in order to support a comprehensive strategy for the development and use of Vermont's Geographic Information System (VGIS), and "to ensure that all data gathered by state agencies that is relevant to the VGIS be in a form that is compatible with, useful to, and shared with that geographic information system". VCGI is a "body corporate and politic and a public instrumentality of the state".⁴

VGIS = Vermont Geographic Information System. Vermont Statute defines VGIS as "the Vermont geographic information system developed pursuant to the comprehensive strategy developed by the center (VCGI) as required by section 122 of this title."⁵

VSDI = Vermont's Spatial Data Infrastructure, which includes the following themes: 1) imagery, 2) transportation, 3) land use / land cover, 4) wetlands, 5) parcels, 6) elevation, 7) soils, 8) hydrography, 9) political units, and 10) geodetic control.

³ http://dii.vermont.gov/sites/dii/files/pdfs/DII-STC_Charter.pdf

⁴ Vermont Statute (Title 10 VSA - Chapter 8 § 122)

⁵ Vermont Statute (Title 10 VSA - Chapter 8 § 121)



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