

APPENDIX 1: Workshop Materials and Summary

- Invitation to the Information Gathering Sessions
- Information Gathering Sessions Slideshow Handouts
- Information Gathering Session #1 – Meeting Notes
- Information Gathering Session #2 – Meeting Notes

New Hampshire is Preparing a Statewide GIS Strategic Plan

As a valued GIS stakeholder, please participate in this process

MARK YOUR CALENDARS...

The New Hampshire GIS Advisory Committee invites you to take part in the shaping of a new **Strategic Plan for New Hampshire's Geographic Information Systems**. The intent of this plan is to evaluate New Hampshire's statewide GIS environment and establish strategies that will eliminate gaps, enhance services, and improve consistency with federal guidelines. As a decision-maker or practitioner, your insights are valuable, and your thoughts on the future direction of New Hampshire GIS are of great interest to us.

Please come to one of two **stakeholder information-gathering sessions** in September to learn about the process and to share your ideas for advancing the state's GIS program. In short, help us understand what is working, and what could be done better. Each session will last for three hours. The sessions will be facilitated by Applied Geographics of Boston, with assistance from members of the New Hampshire GIS Advisory Committee.

Choose from:

1. **Monday, September 11, 2006**, in the auditorium of the Department of Environmental Services, 29 Hazen Drive, **Concord, NH**, from 1:00 to 4:00. Click [here](#) for directions to DES.
2. **Wednesday, September 20, 2006**, in the Multi-Purpose Room of the Hartman Union Building (HUB), Plymouth State University, **Plymouth, NH**, from 1:00 to 4:00. Click [here](#) for a parking map of the Plymouth State Campus. *(It is recommended that you park in Commuter/Visitor Parking near the PE Center. Free shuttle service is available to the campus.)*

Planning Session Agenda:

1. Overview and background
 - a. Description of the current planning project
 - b. Overview of GIS in New Hampshire today
 - c. Federal opportunities and support for statewide strategic and business planning
 - d. Discussion of GIS program "gaps" in New Hampshire
- (break)
2. Interactive discussion and/or breakout sessions by industry/government sector
 - a. Identification of greatest needs
 - b. Prioritization among identified needs

Questions for Discussion:

- ❖ What are the strengths and weaknesses of the existing statewide GIS efforts in New Hampshire?
- ❖ Are you able to get everything you need from New Hampshire's state GIS, including GRANIT?
- ❖ Are there any particularly important data sets that are missing?
- ❖ Are there any applications that the state could/should provide that would make your job easier?
- ❖ What would be the most important suggestion you would make for "improving GIS coordination" in New Hampshire?
- ❖ Would you be willing to contribute *your* data into a statewide GIS repository (e.g. a municipality contributing parcels)?
- ❖ Is it important for New Hampshire to participate in federal initiatives such as NSDI?
- ❖ Are there any constraints (technological or otherwise) that prevent you from coordinating with New Hampshire's GIS?

For more information, please contact Ken Gallager (ken.gallager@nh.gov; 603-271-2155) at the NH Office of Energy and Planning. If you are unable to attend either session but wish to participate in this process, please send your comments or suggestions to Mr. Gallager.



NH Strategic & Business Plan Development

Stakeholder Meetings & Information Gathering Sessions

September 20, 2006
Plymouth, NH



Introductions

- Strategic Plan Steering Committee
 - Ken Gallager, OEP
 - Dennis Fowler, DOT
 - Janet Horne, DHHS
 - Fay Rubin, GRANIT
 - Lynn Bjorklund, USGS
 - Rebecca Bolton, OIT
 - Rick Chormann, DES
 - John Vogl, Town of Londonderry
 - Tara Bamford, Upper Valley-Lake Sunapee Regional Planning Commission

Introductions



- Richard Grady, President
- Peter Bujwid, Project Director

Sept. 20, 2006

3

In the Audience

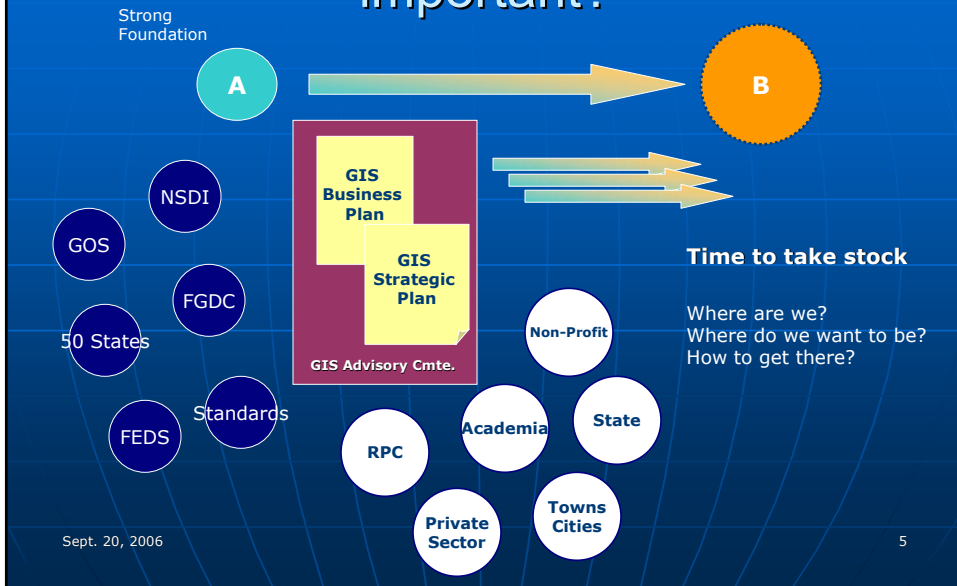
Based on RSVPs as of 9/18

- **NH Legislature**
 - NH House of Representatives
- **State Agencies**
 - Dept. of Transportation
 - Dept. of Safety
 - NH State Police
- **County**
 - Grafton County Sheriff's Office
- **Academia**
 - UNH Complex Systems Research Center
- **Cities and Towns**
 - City of Lebanon
- **Special Interest**
 - The Jordan Institute
- **Private Sector**
 - Cartographic Assoc.
 - PeopleGIS

Sept. 20, 2006

4

What's this all about and why is it important?



Strategic Planning Context

- There are many GIS success stories in New Hampshire
- We're planning in order to consolidate gains, extend capabilities and address some known challenges
- And, to align New Hampshire with relevant Federal initiatives
 - E.g., 50 States Initiative, NSDI, GOS

Agenda

■ Part 1 – (1 pm to 2:00 pm)

- Introductions
- Project Overview
- The Status of GIS in New Hampshire
- Overview of Federal initiatives that are driving and supporting statewide strategic & business planning
- The FGDC 50 States Initiative's "nine criteria for an effective statewide GIS program

-- BREAK --

■ Part 2 - (2:00 pm to 4:00 approx.)

- Interactive Discussion
- Participant input and/or suggestions
- Discussion around a series of specific questions
 - Identification of greatest needs
 - Prioritization across identified needs

Project Overview

■ Goal:

- To produce a strategic plan and related business plan that will align New Hampshire with the strategic goals and nine criteria indicated in the 50 States Initiative

■ Process:

- Inclusive of all stakeholders who are willing to contribute
- Information gathering sessions
- In-depth interviews

■ Products:

- Will align with the NSGIC/FGDC developed templates

■ Coordination and Oversight

- GIS Steering Committee
- AppGeo

■ Funding:

- Cooperative Assistance Program (CAP) grant from FGDC designed to support the implementation of the 50 States Initiative
- 11 Awards made including **State of New Hampshire**

Project Timeline

1. Kickoff →
2. Steering Committee Coordination & Visioning →
3. Information gathering →
 - Stakeholder meetings →
 - Interviews →
4. Authoring
 - Final report posted on state web-sites including OEP and GRANIT sites

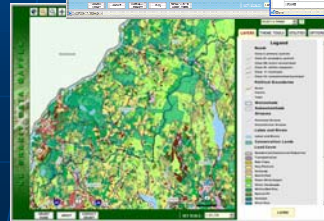
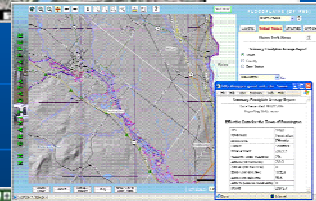
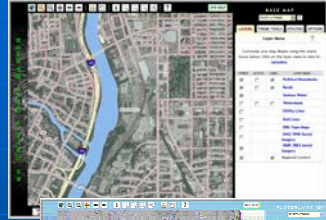
Please provide your input/feedback during the information gathering phase

Overview of GIS status in NH

- NH has many GIS success stories
 - Establishment of GRANIT in 1985
 - Develop standards, distribute data, provide technical support, data analysis, application development
 - Diverse and large group served:
 - State government
 - Regional offices of federal agencies
 - Regional planning agencies
 - Municipalities, Private sector
 - Non-profit organizations
 - Academic community
 - NH GIS Advisory Committee in 1987

NH GIS Success Stories

- Development of GRANIT Data Mapper
- High Resolution Orthophotography – cooperative project between DOT and several federal agencies
- Numerous natural-resource and infrastructure-based statewide data layers undergoing regular update, including: conservation lands, floodplains, soils, etc.



Sept. 20, 2006

Where is NH Now?

- NH's GIS, like many New England states, has opportunities to mature and provide useful services more efficiently and cost effectively
- This project is about "what comes next"
 - Potential improvements in:
 - Data layers
 - Governance (e.g. Statewide GIS Coordinator)
 - Data management/web-services infrastructure

Sept. 20, 2006

12

Relevant Federal Initiatives

- National Spatial Data Infrastructure (NSDI)
- USGS The National Map
- Geospatial One Stop
- 50 States Initiative

Why are these programs relevant?

- It's the "right thing to do" for the state
 - Data sharing and data availability are not theoretical concepts – there's value in having in a high-quality national database
 - For instance, in a disaster such as Katrina it is important that federal planners and responders have access to the best spatial data for a multi-state region
 - The same is true for a state responding to a multi-community emergency
- Federal government is providing grant funding to achieve some of these goals
- Prioritization of additional federal funding may be linked to participation in these programs and adherence to guidelines and standards
 - E.g., we're more likely to give money to a state that has a NSGIC Template compliant Strategic Plan

National Spatial Data Infrastructure (NSDI)

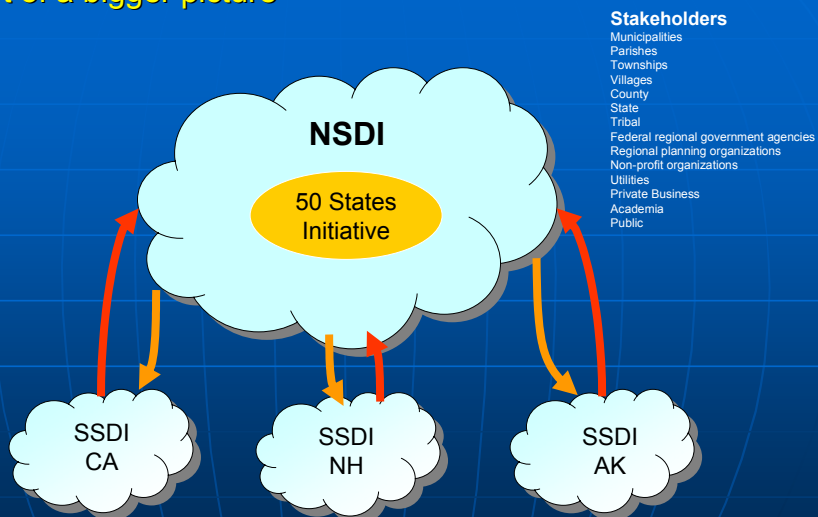
- Executive Order 12906: Coordinating Geographic Data Acquisition and Access: The NSDI signed April 11, 1994 by President Clinton
 - Amended by Bush in 2003 to explicitly include outreach to state and local stakeholders
 - Technologies, policies, and people necessary to **promote** sharing of geospatial data
- Will support a consistent **means** of sharing geographic data thus producing significant savings in data collection and use.
- Establishes structure of practices and relationships among data producers and users
- Federal Geographic Data Committee (FGDC) is responsible to prepare and maintain a strategic plan for the development and implementation of NSDI.
- See www.fgdc.gov



Sept. 20, 2006

15

NSDI and Statewide Spatial Data Infrastructures Part of a bigger picture



Sept. 20, 2006

16

USGS The National Map (TNM)

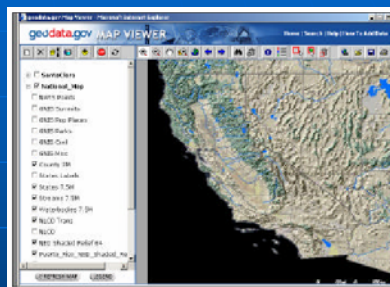
- Product of a consortium of Federal, State and Local partners who provide data to the USGS
- Compilation and integration of the nation's best data (framework layers) as determined by USGS and partners.
 - Framework will comprise a base plus 7 primary layers
 - Base plus: 1. Geodetic Control, 2. Cadastral, 3. Political Boundaries, 4. Hydrography, 5. Imagery, 6. Elevation, 7. Transportation (Air, Roads, Inland Waterways, Rail, Transit)
- Framework Data Content Standard (in process to becoming an ANSI American National Standard). See <http://nationalmap.gov>

Sept. 20, 2006

17

Geospatial One Stop (GOS)

- The Federal geospatial portal is a web-based portal for discovering and accessing maps and geographic data.
- Simplifies the ability of all levels of government and citizens to find geospatial data
 - At its core, it's a meta data storehouse
 - Map Viewer shows data from multiple agencies knitted from a number of web map servers
- Governed by intergovernmental board of directors composed of state, local, tribal and federal representatives



- See www.geodata.gov
- GIS for the Nation
 - Project Bluebook

Sept. 20, 2006

18

50 States Initiative

- In June 2004, FGDC issued a report, "NSDI Future Directions Initiative: Toward a National Geospatial Strategy and Implementation Plan."
- "Partnerships with Purpose" team was chaired by NSGIC
 - Main goal: 50 state GIS coordinating councils in place to help govern NSDI
 - Action plan became the Fifty State Initiative (approved by FGDC and NSGIC and funded by FGDC)
 - Developed 9 criteria of a successful statewide GIS program
- March 2006 NSGIC produced templates for Strategic and Business Planning to support statewide spatial data infrastructures (SSDI)
- 11 States received Cooperative Assistance Program (CAP) grants from FGDC to develop plans.
- http://www.geoplace.com/Uploads/FeatureArticle/0609_FIFTYSTATES.asp



Sept. 20, 2006

19

FGDC 50 States Initiative's 9 criteria of a successful statewide GIS program

1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans - **Leadership**
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production - **Coordination**
3. The statewide coordination office has a formal relationship with the state's Chief Information Office (CIO) - **CIO**
4. A champion (politician, or executive decision-maker) is aware and involved in the process of geospatial coordination - **Champion**
5. Responsibilities for developing the National Spatial Data Infrastructure and a State Clearinghouse are assigned - **Responsibility**
6. The ability exists to work and coordinate with local governments, academia, and the private sector – **Broad representation**
7. Sustainable funding sources exist to meet project needs - **Funding**
8. GIS Coordinators have the authority to enter into contracts and become capable of receiving and expending funds - **Authority**
9. The Federal government works through the statewide coordinating authority – **Federal Point of Contact**

Sept. 20, 2006

20

How is NH doing?

Criterion	Status	Improvements
1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans	No full-time statewide coordinator Several departmental level coordinators + GRANIT No specific multi-agency authority	Creating such a position would be feasible, but requires administrative support and funding Many GIS-user departments agree that there would be benefits to having such a position
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production	NH has a GIS Advisory Committee that meets on a regular basis <u>NH Strategic Technology Plan – GIS, 2002</u> : "...the Advisory Committee has functioned more as a GIS users' group than a policy Committee."	Advisory Committee does not have clearly defined powers and relies on agency cooperation to be effective Increase participation from other stakeholders such as Homeland Security and Public Safety Improved marketing and education
3. The statewide coordination office has a formal relationship with the state's Chief Information Office (CIO)	There is no statewide coordination office This was identified as a priority objective in the 2002 NH Strategic Technology Plan for GIS	OIT sits on Strategic Plan Steering Committee Active outreach to CIO on GIS initiatives

Sept. 20, 2006

21

How is NH doing?

Criterion	Status	Improvements
4. A champion (politician, or executive decision-maker) is aware and involved in the process of geospatial coordination	There is no political or executive level champion at this time	A Champion needs to be identified and utilized - Candidates? Volunteers?
5. Responsibilities for developing the National Spatial Data Infrastructure and a State Clearinghouse are assigned	Development of the NSDI and a State GIS data clearinghouse are being met by GRANIT which is a collaborative effort between the University of NH State Agencies	GRANIT can be further marketed and promoted as a tightly integrated component of the State's overall portal development Expansions of GIS data sharing infrastructure (e.g. web services) Active participation in Federal data sharing programs (i.e. NSDI)
6. The ability exists to work and coordinate with local governments, academia, and the private sector	GIS Advisory Committee meetings provide an existing mechanism for coordination of these activities with these entities	Improved marketing and the development of a focused agenda for improving the state's GIS infrastructure Move beyond "coalition of the willing" take on more "active coordination" for: - Interagency state government coordination - State-to-municipal government coordination - State-to-federal government coordination

How is NH doing?

Criterion	Status	Improvements
7. Sustainable funding sources exist to meet project needs	Sustainable funding exists for departmental programs No sustainable funding exists for a coordinated state GIS program Successful in winning grants and other per-project based funding	Advocate to realize a sustainable funding source for a statewide GIS office and person
8. GIS Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.	Coordinator position does not exist. Individual departments have managed contracts and received/dispersed funds (e.g. this CAP grant)	Creating a GIS Coordinator position is feasible. This position would need to be appropriately defined so as to allow the coordinator to manage contracts and receive and expend funds What happens if Federal guidelines require having a "coordinating agency" to be eligible for funds?
9. The Federal government works through the statewide coordinating authority	USGS and US Forest Service often attend the Advisory Committee meetings GRANIT has been a FEMA Cooperating Technical Partner for several years. GRANIT has received FGDC funding for several clearinghouse-related activities	A statewide GIS office would provide a central point of contact The statewide GIS office can help to further strengthen the role of the GIS Advisory Committee Federal government may in the future use these 9 criteria to prioritize grant recipients

Questions for Discussion

1. What are the strengths and weaknesses of the existing statewide GIS efforts in NH?
2. Do you get everything you need from NH's state GIS and GRANIT?
3. Is the state providing sufficient access to empower non-GIS users to view/use data?
4. How can the state GIS support more fully the public safety agencies, police, fire, HLS?
5. Are there any particularly important data sets that are missing from GRANIT?
6. Would you be willing to contribute *your data* into a statewide GIS repository (e.g. a municipality contributing parcels)?
 - what specific concerns do you have regarding providing this data?
7. Are there any applications that the state could/should provide that would make your job easier?
 - should the state invest in the development of web services that can be integrated into your applications?
8. Are there any constraints that you face (e.g. technological) that prevent you from coordinating with NH's state GIS?
9. What would be the most important suggestion you'd make for "improving GIS coordination" in NH?
10. What other questions should we be asking?
11. Who else should we be talking with?

BREAK

1. What are the strengths and weaknesses of the existing statewide GIS efforts in NH? 16 folks

- Strengths
 - GRANIT is a NH GIS strength
 - Data availability and data quality
 - Data distribution
 - Data metadata and documentation
 - Data repository and archive
 - Staff and technical skill set
- Weaknesses
 - Limited web services
 - Data gaps, e.g., parcels, address x,y. ...

2. Do you get everything you need from NH's state GIS and GRANIT?

3. Is the state providing sufficient access to empower non-GIS users to view/use data?

4. How can the state GIS support more fully the public safety agencies, police, fire, HLS?

5. Are there any particularly important data sets that are missing from GRANIT?

6. Would you be willing to contribute *your data* into a statewide GIS repository (e.g. a municipality contributing parcels)?

- what specific concerns do you have regarding providing this data?

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- should the state invest in the development of web services that can be integrated into your applications?

8. Are there any constraints that you face (e.g. technological) that prevent you from coordinating with NH's state GIS?

9. What would be the most important suggestion you'd make for "improving GIS coordination" in NH?

10. What other questions should we be asking?

Sept. 20, 2006

35

11. Who else should we be talking with?

Sept. 20, 2006

36

Additional input...



Reminder:

If you didn't provide your contact information on the handout sheet please do so before you leave.



CONTACT:

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NH Office of Energy and Planning
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ken.gallager@nh.gov

NH Strategic & Business Plan Development Stakeholder Meetings & Information Gathering Session

September 11, 2006, Concord, NH

The first of two stakeholder and information gathering sessions was held in Concord, NH on September 11, 2006. There were an estimated 45 attendees of which the vast majority were GIS practitioners (with few policy makers or non-GIS users).

1. What are the strengths and weaknesses of the existing statewide GIS efforts in NH?

- Strengths
 - Data availability and accessibility – Easy and seamless access
 - Metadata is very good
 - An estimated 30 of 45 attendees access the GRANIT website to download data five or more times per month
 - Of the 31 attendees you regularly access the GRANIT website an estimated 10 could not perform their day to day job activities if that access and data were not available.
 - State has contracted certain software purchase rates with ESRI that any city or town can take advantage of. The City or Town interested in purchasing software licenses should contact ESRI-Boston directly.
- Weaknesses
 - Better coordination for data harvesting and data storage with local communities
 - Availability of ‘large’ scale data sets for download and integration into locally maintained data.
 - The state needs a full-time GIS coordinator who should be in place and actively involved in the near term GIS planning and implementation efforts.
 - There is a need for additional education and training opportunities through-out the state that supports a wide range of GIS aptitudes from beginner to expert. Training could also be thematically based rather than specifically technical, e.g., use of GIS for ‘Planning’ purposes.
 - UNH Cooperative Extension offers a number of GIS and GPS training classes.
 - Education and training are important aspects of effective and productive use of GIS. It was noted that one GIS practitioner was taking small scale data available from the state and integrating it with local larger scale datasets for analysis purposes. It is



important that all NH GIS users understand the limitations of data use and factor this into any results that GIS analysis may generate.

- How current is the data that is being assembled? What is the data currency/frequency of updates.
- In many smaller communities there are significant resource limitations e.g., technology/infrastructure/equipment/Internet access. There is a need to offer alternative mechanism for distributing data – such as a CD request form.

2. What would be the most important suggestion you'd make for “improving GIS coordination” in NH?

- Establish a GIO position similar to New York, Massachusetts, Pennsylvania, Virginia and Wisconsin. Funding for this position could be accomplished through a land use change tax (see Wisconsin example) or some similar creative approach.
 - How have other states established a GIO position?
- Develop Guidance for local policy makers regarding the advantages of sharing data. There is a reluctance to provide data for free as well as concerns with how data would be used if it were provided for free. These concerns should be addressed. Examples from other states showing a clear advantage to making more data available should be highlighted. Nashua Regional Planning Commission is one local example of an organization making maps available for download for free.
- The state could help encourage local communities to grow their GIS use through establishing a small funding program
- The state could provide grant incentives for standards compliant data development
- Define standards that can be adopted by communities, e.g., datum's/projections, digital plan submission standards, parcel standards.
- Establish and develop relationships with service vendors
- Many communities do not have a budget for hardware, software, Internet connection and expert technical GIS staff. Some community projects have very specific GIS needs that are only required for a short period of time. These communities may rely on volunteers who get training but then take that training and knowledge away once a project is completed. There is a need to establish a continuity of trained users or a pool of trained personnel that a community can engage for the duration of a project. This pool could comprise Regional/local/RPC staff as well as hired consultants.
- Catalog/warehouse incidental data – project based. How can this data not only be available but discoverable? Will metadata be captured for these data? What is realistic?



- Develop a shareable knowledge base of what GIS activities are occurring in what communities. This would offer opportunities to cost-share, e.g., aerial surveys. See RAMONA (<http://in.gisinventory.net/>)

3. Are there any constraints that you face (e.g. technological) that prevent you from coordinating with NH's state GIS?

- Limited or non-existent broadband access
- Resource availability – money, technical performers
- Much useful data may not be available as digital data, e.g., 1927 tax maps, recreational opportunities – trail maps, snow-mobiles. Conversion of existing paper plans requires money and equipment – cost prohibitive.

4. Is it important for NH to participate in federal initiatives such as NSDI?

- Compliance with Federal Initiatives offers possible opportunities for winning grants/funding
- The ability to knit data together across communities and regions is important. What happens if you have a major incident that impacts multiple communities and there is a need to combine data derived from different sources. How could the NH GIS community respond to a Katrina like event with high quality, comprehensive data compiled from multiple sources? What are the channels for GIS coordination and communication that can be leveraged?
- Data sharing and the free-flow of data is important to the geospatial fabric of the state.
- Geospatial data should be considered primary infrastructure which the Government has a responsibility to make available.
- NH has a responsibility to align itself as best as it can with Federal initiatives for data coordination and sharing opportunities.
- Federal Government – FEA/IT architecture. Public Health Information Initiative – Federal initiative to make sure data is being captured in the same way using the same set of standards.
- National Grid System – 4 of the remaining 40 attendees had heard of the USNG USNG would be extremely useful in locating critical infrastructure. The Grid Reference System is well understood by the military and needs to be better understood by all those in the GIS community that are supporting first responders on the military in times of crisis.. NH State Plane Coordinate system being used by everyone.

5. Do you get everything you need from NH's state GIS and GRANIT?

- Training/education



- There are identified issues with the perceived accuracy vs. the real accuracy of GIS data products such as much comprised of both small scale and large scale data renderings.
- There are 200 plus Towns and Cities in NH. State should expend energy on education of community decision makers, such as selectmen.
- The state should offer written guidance for specifying, collecting, and checking GIS data submitted by vendors.

6. Are there any applications that the state could/should provide that would make your job easier?

- There is an opportunity for the state to provide additional GIS web applications that could support specific user needs. For example, provide tools for online build-out analysis or to overlay uploaded CAD plans onto state GIS data layers in order to visualize the impact of proposed land development. Applications should be simple business-process focused applications rather than general GIS toolboxes thus supporting a larger group of non GIS-savvy users.
- Application for parcel data maintenance. The state could a web-based application that communities with limited or no GIS capacity could utilize to maintain their parcel data? (A web application would need suitable Internet connectivity that many of the potential user communities may not have.)
- Provide tools for marking up maps online as a mechanism of flagging data update requirements.

7. Are there any particularly important data sets that are missing?

- The state needs to densify geodetic and survey control to support the overall improvement in the accuracy of GIS data. This is particularly important in the area of land parcel information maintenance where many existing community maps are of dubious accuracy. came up in the context of poor land parcel maintenance practices
- Threatened and endangered species. Habitat data, wildlife corridor locations. (This data maybe available from Fish and Game)
- FEMA digital flood mapping data
- Street centerline with address ranges
- Emergency response – address point locations (SITUS)
- Enhance the natural resource inventory available through data mapper.

8. Is the state providing sufficient access to empower non-GIS users to view/use data?

- Access is good but there is a need to promote the availability of both data and the Mapper application through an advertising or marketing campaign.



- There is a need for simple mapping similar to the mapping services provided by Google. However, there is also a need to provide more advanced capabilities (geocoding services?) too.
- The state should be providing more guidance to communities for implementing GIS. Guidance should also be aimed specifically at those communities that may only have a limited budget for implementing or using GIS technology.

9. Would you be willing to contribute *your data* into a statewide GIS repository (e.g. a municipality contributing parcels)?

- There is a reluctance to share data because of both privacy and security concerns. Communities would like an Opt-out option for some data details, e.g., ownership name.
- Data varies in its sensitivity and needs to be appropriately handled:
 - What data should be protected?
 - What data is sensitive/confidential, e.g., sensitive populations
- Could data be licensed to private companies, such as TeleAtlas, to provide a revolving fund used for data upkeep? Alternatively could data be licensed from vendors at a discount with the understanding that the state would provide regular data updates?
- Data standards, e.g., develop data standards – this may not include owner name info – various levels of compliance with state standards – MassGIS
- Inter-municipal agreements on data ownership

10. What other questions should we be asking?

- What are the other state models that NH can leverage?
- Who else needs to be convinced that maturing NH GIS is of value to the entire state?



NH Strategic & Business Plan Development Stakeholder Meetings & Information Gathering Session

September 20, 2006, Plymouth, NH

The second of two stakeholder and information gathering sessions was held in Plymouth, NH on September 20, 2006. There were sixteen (16) attendees representing a diverse set of stakeholders including towns, State Police Department and private industry vendors.

1. What are the strengths and weaknesses of the existing statewide GIS efforts in NH?

- **Strengths**
 - GRANIT itself is considered a NH GIS strength
- **Weaknesses**
 - Sustainability of funding. Need to provide for sustainable funding
 - Education, marketing and outreach should be improved.
 - i. Clearly state the value proposition of GIS to Local Government as well as citizens. The state should promote what is already available and this will help in potentially winning additional funding. Likewise there is a need to educate leaders and policy makers of the unique capabilities of GIS.
 - ii. Raise awareness of what can be done with low end or inexpensive GIS software/technology. Educate community that GIS implementation need not be very expensive.
 - iii. The state should provide training on freely available GIS solutions including ArcExplorer, and GeoBook as well as other tools that may be available online.
 - iv. The advantages of data standards and data sharing should be clearly articulated in order to overcome existing concerns with sharing data. Some communities charge for digital data provision and may therefore be reticent in providing the data to the state. These dollars go to an enterprise fund which is then used for data update and systems maintenance.
 - v. There is a need to enforce the importance of metadata so more data can be made available by the state. (Currently some datasets provided by communities do not meet the minimal metadata requirements and so cannot be placed in the clearinghouse.)
 - Enhance communication between GIS practitioners across the state so that the GIS community can more readily determine who is doing what.



- Avoid duplication of data processing and analysis efforts through more effective communication. How can the state share information on what data may be available?
- Data update frequency
 - Orthophotos are of good quality and useable but are old (new version in process)

2. Do you get everything you need from NH's state GIS and GRANIT?

- Education
 - Enhance education and training opportunities (see question 1 on weaknesses.)
 - Establish an 'ESRI'-like forum for more effective communication across the NH GIS community. The forum should support the posting of questions, provide tools for searching content, as well function as a central resource informing the community of what data is available where. (This exists in part through the NHGIS mailing list but there is a need to raise awareness of this resource.)
 - What is the total cost of ownership of digital data, i.e., what is the total investment required in the technology and technical training, etc.
- State Data hosting services
 - Should the state host data for those communities that don't have the capability? Specifically parcels data is recognized as a critical base data layer but many communities are not able to manage this in a digital environment. The state is currently piloting a project for web-based parcel data maintenance for multiple communities.
- Promotion of standards through grants – 'seed and feed'. The state should not only provide seed money to jump start GIS activities at the community level but should also provide a level of support for ongoing data maintenance. How can communities be incentivised to perform ongoing digital maintenance?
 - The state should develop and provide standards on digital data submissions similar to Massachusetts. This effort could be led by members of the professional surveyors in the state.
- The state could develop template language for MOU's on data sharing/provision.

3. Is the state providing sufficient access to empower non-GIS users to view/use data?

- The GRANIT data Mapper application is relatively easy to use but the technology can be involved. The state could provide more training opportunities for the non-GIS user who does not use the technology day to day but still needs to make use of it at times.



- Educate community on the UNH Cooperative Extension offerings. Training for the non-GIS user.
 - Online training – simple PowerPoint presentations would be helpful.
 - Online tutorials. (Community developed training resources could be provided to GRANIT for possible inclusion on the website).
 - Colorado, MA are examples of those that have gone before. NH should analyze these use cases and benefit from lessons learned.
- GRANIT could provide links to all towns and cities that host GIS web application.
- Data accuracy/positional accuracy. Need for survey control network for those surveyors with no GPS equipment.

4. How can the state GIS support more fully the public safety agencies, police, fire, HLS?

- Given the high level of interest in matters of public safety, the NH Public Safety community has a heightened possibility of winning funding for geospatial initiatives. What is the potential symbiotic relationship that could be nurtured between the NH Public Safety community and the NH GIS community?
 - The GIS Advisory Group, together with the Public Safety community, should jointly pursue FEMA/other grants to develop spatial data – Automate comprehensive emergency management plans – where is all the critical infrastructure? Where are the sensitive populations? Which Police Department. holds what kinds of police/fire/EMS response resources, e.g., equipments, teams? Establish project to geo-locate assets and resources. Purchase GPS equipment. Be better prepared to plan for, respond and recover to significant hazards. Having a comprehensive geospatial data fabric can better position the state to pursue additional funding. In the case of Katrina, those towns with parcel data were able to be responded to more quickly.
- Local police have the necessary spatial knowledge of their own communities. However it is important that this understanding be readily shared with other first responders should they be required to participate in a community's response or recovery activities.
- What are the critical geospatial datasets that need to be compiled at the community level but aggregated to the state-level to make them useful to response/recovery operations? What data standards exist that can be utilized for this purpose?
- There is a need a single group for compiling and maintaining public safety related datasets. Rather than multiple state agencies each pursuing similar data development and use objectives, how can this activity be centrally



coordinated and managed with products being rolled out to those agencies that need them?

- State Police does not currently have the resources to perform the level of GIS usage as they would like. The department recognizes the value of GIS but reality is there are resource limitations preventing broader utilization.
- The State of Vermont is effectively maintaining their E911 data using one FTE. This data is more manageable than parcels data and can be effectively managed and updated.
- Accident locations data. How can E911 data be used to inform various business process in various agencies such as the DOT, and Police.
- In 2006 DOT purchased ArcView software/laptop/training for each community in the State of NH. Some of those trained have now left those positions resulting in lost technical capabilities. What processes or procedures can be put in play to ensure that valuable knowledge and skills are not lost?
 - Many towns are small with varying numbers of resources available to keep GIS type systems operational. How could private contractors support multiple communities?
- What are the opportunities for integrating AVL with GIS?
- Development of standards on Software MapInfo/ESRI. Equipment standards – CAD, etc. to simplify integration.
 - What role for the US National Grid system. This system is well understood by the military and should now be more widely adopted by the GIS and public safety communities. GPS can present USNG coordinates.

5. Are there any particularly important data sets that are missing?

- Digital parcels data
- Flood plain delineation
- Land-use change in support of land-use planning and forestry applications
- Land Cover
- Wetlands should be developed from compiled local large scale data rather than extracted from national datasets as is currently being done.
- Two foot contours (refreshed annually)
- E911 dataset. This has been compiled but has not been released because communities have not yet signed off on content. In fact the State Police cannot directly access the E911 data.
- Water supply data including hydrant locations. This data is being collected using GPS by RCND as part of the Rural Fire Protection Initiative.
- Where data cannot be updated on a regular cycle significant update areas should be targeted, e.g., coastal areas or smaller urban areas.
- USDA fly leaf on color, USGS fly leaf off.



- There is a question on who owns the data? Public data vs. non-public data.

6. Would you be willing to contribute *your data* into a statewide GIS repository (e.g. a municipality contributing parcels)?

- What are the liability implications of releasing spatial data? This could be a prime reason for why data is not shared. Concerns with how GIS data will be used, specially by the non-professional
- Bad data possibly hurts the state. How to overcome fear of making digital data available
- There is a fear of data sharing including with the Federal Government. What data sets should be shared and on what basis?
- Converting parcel maps to digital data may be unproductive in some communities because the source documents are of such poor quality. Communities should understand enough about the technology to make informed decisions.

7. Are there any applications that the state could/should provide that would make your job easier?

- Public Safety Critical data viewer. Need the data to support this.
- Fire related applications
 - Forest response application. Where are the back roads?
 - Forest fire modeling application
- Land use change detection application
- Data drill down – integration of population data.
- GIS user/non-GIS data viewer needs are different
- Develop Web services and make available to outside developed applications as well as by applications developed by the state too.
 - What kind of services?

8. Are there any constraints that you face (e.g. technological) that prevent you from coordinating with NH's state GIS?

9. What would be the most important suggestion you'd make for "improving GIS coordination" in NH?

- State should fund fulltime GIS coordinator
- GIO should perform a full and complete inventory of GIS data through out state government.
- There needs to be a concerted effort to consolidate data development activities and GIS technical resources and to reduce duplication of effort. (GIS Office)
- Increase the demand for GIS by making some key datasets such as statewide parcels, available.



- Provide additional opportunities for various GIS users/others to meet and discover opportunities for coordination

10. What other questions should we be asking?

11. Who else should we be talking with?