

**“Impacts of the NSDI Competitive Cooperative  
Agreements Program”**

**A Federal Geographic Data Committee Report**

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## Impacts of the NSDI Competitive Cooperative Agreements Program

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### Executive Summary

Successful implementation of the NSDI depends on the collaboration of Federal, state and local government agencies as well as both non-profit and proprietary providers of services.

The NSDI Competitive Cooperative Agreements Program is a competitive, merit-based funding assistance program that provides seed money to encourage resource sharing projects, between and among the public and private sector through the use of technology, networking, and enhanced interagency coordination efforts. This report is focused on assessing the impact that this Program is having on the non-Federal geospatial data user community. As such, this report looks at program impact from three standpoints: *Program Output* — Were project objectives achieved?; *Intermediate Outcome* -- Are project efforts being continued beyond the funding period?; and, *Long-term Impact* -- Are the tenets of the NSDI being adopted into non-Federal organizations programs?

Since its inception in 1994, the Competitive Cooperative Agreements Program has provided funding for 62 projects (9 in FY '94, 22 in FY '95, and 31 in FY '96) in 40 States, and the U.S. Virgin Islands. This report concludes that this Program is meeting its intended goal and is serving important needs in the geospatial community. By seeding NSDI projects across the country, the Program is:

- adding structure and discipline to the process of building a national information resource,
- helping state governments, libraries, universities, local government organizations, and private sector entities to become anchor tenants on the NSDI and thereby attracting others to use and become a part of the infrastructure,
- helping to form data sharing partnerships that are still continuing, that might otherwise not have happened,
- increasing the level of collaboration across agencies and bringing attention to organizations that has led to new collaborative activities,
- showing the non-Federal community the importance of documenting data to standards that will make the data useful in multiple applications,
- raising the level of information technology skills in the geospatial data user community as project collaborators train people in their local communities who in turn become trainers of others,
- building the accumulation of experience/knowledge that others can use to reduce the uncertainties associated with investing in new ideas and technologies and, ultimately, lower their costs,
- showing the non-federal sector the feasibility of some applications that they might otherwise have passed over,
- changing in some cases, agencies who've been historically information repositories to being customer-driven service providers,
- extending access to the NSDI to new constituencies and to organizations and communities that typically aren't on the geospatial information highway, and
- clearly demonstrating that as completed projects have time to mature and grow, organizations are realizing more benefits than originally anticipated.

# Impacts of the NSDI Competitive Cooperative Agreements Program

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## I. Background

Executive Order 12906 mandates that Federal agencies comply with the provisions of the Order to develop and implement the National Spatial Data Infrastructure (NSDI) in cooperation with State, local, private and academic entities. However, *involvement of these non-Federal entities is voluntary*. Successful implementation of the NSDI will depend on the collaboration of Federal, state and local government agencies as well as both non-profit and proprietary providers of services. The NSDI Competitive Cooperative Agreements Program was established by the Federal Geographic Data Committee (FGDC) as one mechanism to facilitate that collaboration.

The NSDI Competitive Cooperative Agreements Program is a competitive, merit-based funding assistance program that provides seed money to encourage resource sharing projects between and among the public and private sector through the use of technology, networking, and enhanced interagency coordination efforts. All of the project efforts are aimed at furthering the implementation of the NSDI vision. Since its inception in 1994, the Competitive Cooperative Agreements Program has provided funding for 62 projects (9 in FY '94, 22 in FY '95, and 31 in FY '96) in 40 States, and the U.S. Virgin Islands. Approximately \$1.9 million in Federal funds have been matched by more than \$2.3 million in non-Federal funds and in-kind contributions.

Recent inquiries by the FGDC about the success of the program has lead to the preparation of this report. This report is NOT a lessons learned analysis of project efforts and therefore will not be reporting on participants experiences of implementing technology/software tools during a time of rapid technological change, the challenges of understanding/documenting data using the Metadata Standard, and the complexities accompanying collaboration between new partners. That information is contained in the project final reports available from the participants Web sites. This report IS focused on assessing the impact that this program is having on the non-Federal geospatial data user community. As such, this report attempts to answer questions like, *Is the Program achieving its objectives? Is it having an impact, making a difference? Are project efforts being continued beyond the funding period? Are the tenets of the NSDI being adopted into non-Federal organizations programs?* Information presented in this report has been gathered from responses to a questionnaire sent to the program participants, and from information provided in their final project reports.

## II. Introduction

As originally conceived, the goal of the Competitive Cooperative Agreements Program was to *“facilitate the formation of partnerships with and within the non-federal sector to improve geospatial data development and use.”* Within this context, the program’s two initial objectives were 1) to assist the development and implementation of the National Geospatial Data Clearinghouse to increase awareness and use of geospatial data, and 2) to develop and further the implementation of FGDC-endorsed standards in data collection, documentation, transfer, and search and query. The program has grown in a short time to include two additional objectives, *“to develop and further the creation of a National Digital Geospatial Data Framework,”* and *“to develop and implement educational outreach programs to increase awareness and understanding of the vision and concepts of the NSDI.”*

### III. Measuring Impact

Measuring the success and impact of the program means recognizing that success or failure of a particular project is not necessarily the immediate observable product at the close of the agreement period, but the success/impact is also the lasting influence the effort has on the participants (mission/program) involved in the project. The table below presents a summary of general performance measures that were used to frame a series of questions used to assess the impact of the Competitive Cooperative Agreements Program.

FGDC CCAP Program Input	GENERAL PERFORMANCE METRICS for Cooperative Agreement Partners		
	<i>Program Output</i> (1 year)	<i>Intermediate Outcome</i> (2 years)	<i>Long-term Impact</i> (3 years)
Seed funds Guidelines Dialogue Training	The tangible product of the proposed project, i.e., did they do what they said they would? were milestones, key decision points and deliverables on schedule?	The continuance of the project's objectives to other efforts, i.e., has there been a demonstrated commitment to continue to partner and participate in the NSDI?	The extent to which changes among the target audiences have occurred, i.e., has the effort been institutionalized within the organizations involved? has access to data been improved? has a collegial organization adopted the same changes?

As defined by the original agreement periods, 50% of the funded projects are still underway (FY 1996 initiated efforts). Even though half of the projects are still being worked on, a number of positive long-term impacts are emerging. While some measure of success of the '96 projects is evident from their 6-month status reports and questionnaire responses, the majority of the comments and impact statements provided in Section IV below have been taken from the '94 and '95 participants responses.

### IV. Participants Perspectives -- Questionnaire

In addition to information gathered from final project reports, each awardee was asked to fill out a questionnaire to help the FGDC gain a better understanding of this Cooperative Agreements Program's success. Questions were grouped to identify the impacts of the individual project efforts, to examine issues affecting the sustainability of project efforts, and to look at the impacts of the Competitive Cooperative Agreements Program itself. For this section of the report, the individual '94-'96 awardee responses have been summarized collectively under three headings: Individual Project Impacts, Sustaining the Project, and Competitive Cooperative Agreements Program Impacts. A copy of the questionnaire with a more detailed record of responses by year is provided in Appendix A. [For 1994 projects, 7 of 9 project leaders responded to the questionnaire; for 1995 projects, 17 of 22 responded; and for 1996 projects, 27 of 31 project leaders responded.]

## Individual Project Impacts

- Almost uniformly, all ('94-'96) participants believed they achieved most if not all of their project goals. [Final project reports, functional Web sites, and discussion with project leaders substantiates this.]
- 52% of all participants stated that their project efforts have been "of very great importance" to their overall program. Several responses are provided to give a sense of this value:
  - *"exposed many county, state, and Federal cooperators to metadata and the NSDI"*
  - *"greater awareness of NSDI, metadata and its value to ourselves as well as a variety of institutions"*
  - *"allowed us to firmly place metadata creation and maintenance firmly on our organization's radar and elevate its importance"*
  - *"established a formal metadata program for the state clearinghouse"*
  - *"brought us significant recognition.....and helped us achieve goals for development of a data clearinghouse"*
  - *"laid the groundwork for the clearinghouse as it is currently evolving"*
  - *"helped build cooperation among multiple levels of GIS producers/users"*
  - *"allowed building more bridges with local government and opened their eyes to metadata"*
  - *"connecting the local geospatial information community among themselves, and including it with the nationwide effort"*
  - *"helped bring Internet to the region.....we've gone from 0 to 15 public servers"*
  - *"greatly improved library understanding of geospatial data, NSDI concepts, and GIS tools which is necessary in order to incorporate them effectively into the existing library services and technical infrastructure"*
- While it is not clear whether project efforts have made geospatial data more affordable, participants overwhelmingly (74%) believe that their efforts resulted in making metadata and data more accessible. Several responses are provided to give a sense of the change that has occurred in data services:
  - *"definitely more accessible; more affordable is difficult to determine. It provides a centralized location for the exchange of government produced public domain data and thereby reducing duplication of effort and funds"*
  - *"definitely more accessible....by downloading directly, users will save the costs of finding and acquiring the data otherwise"*
  - *"has expanded the visibility of geospatial data resources in state.....clearinghouse receives dozens of hits a day thereby increasing the number of users"*
  - *"more than 1000 visitors a month...we have increased users, but have decreased staff needed to process data requests; more questions now about data content"*
  - *"increased use is bound to open up new opportunities for collaboration, data development, and data sharing"*

- *"probably 50% growth"*
  - *"data was previously unavailable"*
- Not only the organizations directly involved in the individual projects, but also the targeted end users have benefitted from the project efforts. Several responses are provided to give a sense of the benefits that have been realized by the end user:
    - *"users are having a higher level of confidence in data because of metadata records"*
    - *"improved their ability to determine if data suits their needs; reduced call-in questions regarding data"*
    - *"made more sources available, especially in rural areas"*
    - *"our constituents have a clear idea about what information is available and can be produced as well as a greater appreciation of the benefits of forming data sharing agreements"*
    - *"raised awareness about data exchange issues and the need for standardization and data documentation"*
    - *"easier and less expensive for them to get data"*
  - 100% of the *lead* agencies/organizations on each project have said that they will continue to implement the NSDI. Several responses are provided to give a sense of these continued implementation activities:
    - *"dedicated to using the metadata standard for all data produced in agency"*
    - *"have institutionalized metadata collection into project requirements"*
    - *"have created in-house protocols that utilize NSDI data format and definition/terminology"*
    - *"will eventually link the real data to the metadata"*
    - *"expand the functionality and number of contributing agencies to the clearinghouse"*
    - *"will facilitate the development of other nodes in the state"*
    - *"continue building new partnerships with local governments and Federal field offices in state"*
  - The degree of institutionalizing the tenets of the NSDI within the *collaborating* partners varies from: 14% continuing "only very little," 16% to "some" degree, 30% "moderately," 28% "considerably," and 12% "substantially."
  - Participants project efforts have brought them varying degrees of attention/inquiries from other organizations. 45% of the project leaders are contacted "occasionally," 27% "often", and 16% "frequently."
  - 60% of the project leaders are aware of other organizations that have initiated similar efforts as a result of their project work.
  - As the '96 projects are still underway, project leaders almost unanimous perception of realized benefits at this point in time is "pretty much as expected." The '94 and '95

participants, however, expressed a greater realization of benefits, with 43% of the '94 projects experiencing benefits that are "more than expected," and with 14% experiencing "much more than expected;" and, 29% of the '95 participants stated they've experienced benefits that are "much more than expected." Participants were also asked to identify observable, measurable benefits of their projects. Several responses are provided to give a sense of these benefits:

- *"established requirements within organization for adhering to the metadata standard, and making sure all data are documented properly"*
- *"institutionalization of metadata program in our agency through the clearinghouse"*
- *"support for a full-time metadata coordinator for the state"*
- *"improved understanding of data complexity and it's issues"*
- *"increased awareness among land information professionals and other state, local, federal and private entities of importance of metadata"*
- *"outside interest in the NSDI/Metadata program from other organizations"*
- *"widespread access to large quantities of metadata and data"*
- *"increase recognition in Region as a leader....and central facility for data distribution"*
- *"first grant to help Western Maryland develop Internet connection.....helped secure additional grant money to develop the network for Western Maryland"*
- *"strengthened communication ties between agencies in region and our office"*
- *"opened lines of communication with other users and developers....have been requested to serve others data"*

- 94% of the '95 and '96 participants said that the results and experiences from the other Competitive Cooperative Agreements Program projects contributed towards their project effort.

### **Sustaining the Project**

- Participants were asked to describe the sustainable results of their projects. Several responses are provided to give a sense of these results:
  - *"awareness of need for metadata by GIS users in the state who contribute data to the clearinghouse"*
  - *"metadata collection will be a normal way to keep track of data"*
  - *"continued promotion of metadata creation by other agencies"*
  - *"state standards moved forward"*
  - *"creation and continued maintenance of a clearinghouse"*
  - *"multiple clearinghouse nodes in State all linked"*
  - *"technical infrastructure of the library has been expanded to support GIS teaching and research needs"*
  - *"establishment of good working relationships with the various parties involved"*
  - *"expanded contacts made with GIS users at all levels across the state"*

- Participants were asked how the objectives of their project were likely to be sustained. Several responses are provided to give a sense of how participants are planning to sustain their efforts:
  - *"value of the clearinghouse is apparent....support from state funds is not too difficult"*
  - *"combination of external solicited funding and re-apportion of existing state funds"*
  - *"State agencies and private entity will provide dollars"*
  - *"now included in base budget"*
  - *"operational aspects of the project have been institutionalized in our agency"*
  - *"continue as part of normal business operation"*
  - *"sustained via new data management procedures and protocols"*
  - *"it is part of our core mission....will advocate funding for it"*
  - *"the goals have been built into the existing technical and service programs of the library"*
  
- Participants were asked to provide recommendations regarding sustainability for other groups embarking on similar efforts. Several responses are provided to give a sense of these recommendations:
  - *"metadata is a hurdle that most need to be helped over the first time"*
  - *"develop a core cadre that is quite knowledgeable about metadata and that will provide technical support to others"*
  - *"make effort become part of core mission"*
  - *"be proactive to encourage participation in clearinghouse"*
  - *"get local Federal agencies, county officials, and the legislature involved"*
  - *"implement project in a way that proves to be truly beneficial to the GIS community"*
  - *"institutionalize support among managers and administrators"*
  - *"plan sustainability for a few years ahead"*
  - *"get local/state governments to change their mentality and adopt data dissemination policies that encourage public use of data"*
  - *"use project as a jump-off point to gather interest....show success by marketing the effort thereby garnering more interest"*
  
- Participants used various ways to inform the public and potential users about their projects. Among them are the following:
  - *"integrate your effort with an ongoing project to demonstrate effectiveness and functionality"*
  - speak at professional meetings, write articles for professional journals, and solicit trade magazine articles about the project
  - issue press releases to news media about project goals, accomplishments, future plans, and success stories
  - demonstrate the project at community workshops, regional conferences, and other local events
  - develop and distribute brochures and newsletters that describe the project effort



- publicize effort on local and national Internet list servers
  - establish Internet linkages to other related Home Pages
- Asked if the partnerships that were established for the original project will continue beyond the agreement period, 52% of the participants responded that they'd "definitely" continue the collaboration; 28% said they'd continue "with most of the partners," and 18% said "yes, with some of the partners."
  - Participants were asked to predict what would be the long-range most important observable, measurable contributions of their projects. Several responses are provided to give a sense of these contributions:
    - *"recognition of FGDC metadata standard"*
    - *"raised awareness about data documentation and distribution issues among user community"*
    - *"institutionalizing metadata compliance in agency"*
    - *"continued maintenance of a clearinghouse with a progressive increase in data content"*
    - *"better understanding by the users of the quality of data that they access"*
    - *"data sets will be of better quality because they will be used more"*
    - *"raising awareness of the national standardization efforts, and the benefits of sharing spatial data resources"*
    - *"project opened the door to discuss all aspects of the NSDI initiatives which were previously closed"*
    - *"more awareness of importance of working together....not duplicating effort"*
    - *"creation of a long lasting cooperative, data sharing relationship between agencies"*
    - *"better data sharing and GIS data management with State agencies"*
    - *"integration of the use of GIS data and tools into standard library functions"*
    - *"project functions as a marketing tool for the public information and will enhance the public awareness of the NSDI program"*

### **Competitive Cooperative Agreements Program Impacts**

- Asked if they were aware of the NSDI before participating in this Cooperative Agreement Program, 3% of the participants responded "no, definitely not," 16% were "only very little aware," 16% were "somewhat" aware, 22% were "moderately" aware, and 43% were "very much so" aware.
- Asked if this Program was instrumental in making them more fully aware of the NSDI, all participants responded yes.
- Asked if this Program helped further their program efforts, 35% of the participants responded that it furthered their efforts "considerably," and 62% said it "substantially" furthered theirs. Several responses are provided to give a sense of this help:
  - *"provided impetus to formalize activities that were just getting started at the*

time”

- “creation of a tool for teaching even though this was not the original intent”
- “provided dollars and more importantly, it validated that metadata and cataloging needed to occur”
- “helped formalize involvement especially with local Federal agencies”
- “able to conduct a pilot which is being used as an example for forming other coop agreements with other counties and cities”
- “improved organization of, access to, and documentation of our data, and facilitated access to data of others”
- “we would not have had the time, funding nor conceptual or technical support to undertake such a project”
- “allows us to see our specific position within the bigger picture”
- “allowed agency to accelerate its efforts to make metadata discoverable and accessible via the clearinghouse....efforts would’ve been much lower priority”

- Asked if they would’ve undertaken their projects without the FGDC’s investment, 30% of the participants responded “No;” 12% said “Yes, doing so already;” 22% said “Yes, but 1 year later;” 26% said “Yes, but 2 years later;” and 10% said “Yes, but much (>2 years) later.”
- Asked if this Program helped them to promote the NSDI tenets to managers/peers and others, all participants responded favorably, with responses varying from 17% stating it helped a “moderate amount,” up to 62% stating it helped “very much so.”

A synopsis of a few efforts which illustrate the aforementioned impacts is provided in Appendix B.

Two additional questions were asked to find out what else the FGDC should examine when evaluating the Program and what could be done to help participants efforts be more successful. These recommendations are summarized and grouped under two headings: those relative to the Cooperative Agreements Program itself, and those relative to the FGDC’s leadership and implementation of initiatives in general.

#### Competitive Cooperative Agreements Program

- “look at the long-term effect, not just the immediate result”
- “provide multi-year project funding commitment, then management won’t know how they ever survived without up-to-date metadata!”
- increase dollar cap and duration of project funding
- “try to measure what has been produced of value”

#### FGDC’s leadership and implementation of initiatives

- provide more leadership/outreach/information to local Federal agencies on NSDI issues

- *continue to promote and expand the operation and benefits of the national clearinghouse, with emphasis on operation and not just the potential*
- *stabilize the tools available*
- *adopt a standard metadata file format*
- *examine specific technical and organizational difficulties encountered*
- *assess the timing, readiness and adoption capacity of spatial data users and producers at the local level*
- *consider other ways to further stimulate state/local NSDI efforts*

## V. Conclusions

As stated earlier, successful implementation of the NSDI depends on the voluntary collaboration of Federal, state and local government agencies as well as both non-profit and proprietary providers of services. As mentioned in Section III, to adequately assess the impact of the Competitive Cooperative Agreements Program to facilitate that collaboration, it is important to look beyond the immediate *Program Output* measure, and to focus on the *Intermediate Outcome*, and *Long-term Impact* of the funded projects. *Program Output* is important as it has resulted in building resource-sharing partnerships, furthering the awareness of NSDI, and successfully putting into place some of the building blocks (metadata, clearinghouse nodes) of the NSDI. But what is more important, is that many of the non-federal partnerships are continuing to participate in the NSDI, and they are institutionalizing the tenets of the NSDI within their respective organizations!

While only 35% (the '95 projects) and 15% (the '94 projects) of all projects funded to date have respectively reached the *Intermediate Outcome* and *Long-term Impact* points, responses to the questionnaire and final report information indicate that the Competitive Cooperative Agreements Program is meeting its intended goal and is serving important needs in the geospatial community. By seeding NSDI projects across the county, the Program is:

- adding structure and discipline to the process of building a national information resource,
- helping state governments, libraries, universities, local government organizations, and private sector entities to become anchor tenants on the NSDI and thereby attracting others to use and become a part of the infrastructure,
- helping to form data sharing partnerships that are still continuing, that might otherwise not have happened,
- increasing the level of collaboration across agencies and bringing attention to organizations that has led to new collaborative activities,
- showing the non-Federal community the importance of documenting data to standards that will make the data useful in multiple applications,
- raising the level of information technology skills in the geospatial data user community as project collaborators train people in their local communities who in turn become trainers of others,
- building the accumulation of experience/knowledge that others can use to reduce the uncertainties associated with investing in new ideas and technologies and, ultimately, lower their costs,

- showing the non-federal sector the feasibility of some applications that they might otherwise have passed over,
- changing in some cases, agencies who've been historically information repositories to being customer-driven service providers,
- extending access to the NSDI to new constituencies and to organizations and communities that typically aren't on the geospatial information highway, and
- clearly demonstrating that as completed projects have time to mature and grow, organizations are realizing more benefits than originally anticipated.

The NSDI Competitive Cooperative Agreements Program is building resource-sharing partnerships that are helping people work more productively, minimizing redundancy in the creation of geospatial data and facilitating means of access to these data. In this way, this Program is a catalyst for improving geospatial data development and use as it is putting firmly into place the technologies, policies, data, and standards, which are the fundamental tenets of the NSDI.

## Questionnaire

Questions are grouped to identify the impacts of the individual project efforts, to examine issues affecting the sustainability of project efforts, and to look at the impacts of the Cooperative Agreements Program itself. Responses to the questionnaire have been summarized according to the fiscal year the project was started. Nine projects were funded in FY 1994, twenty-two in FY 1995, and thirty-one in FY 1996. Most questions asked participants to mark a "level" of response; this has been computed into a percentage based on the total number of responses. [For 1994 projects, 7 of 9 project leaders responded to the questionnaire; for 1995 projects, 17 of 22 responded; and for 1996 projects, 27 of 31 project leaders responded.] In cases where participants were asked to further describe a response level, their written responses have been quoted, in some cases paraphrased, and then summarized and organized by subject inference.

## A. Individual Project Impacts

## 1. Do you believe you achieved your project goals?

'FY Program Participants	No, definitely not	Minimally	Achieved some of the goals	Achieved most of the goals	Yes, definitely
'94			14% (1 project)	29% (2 projects)	57% (4 projects)
'95			6% (1)	47% (8)	47% (8)
'96* (proj. still in work)			15% (3)	45% (9)	40% (8)

\* many '96 project leaders stated that it was too soon in the project to determine this completely.

## 2. Of what value has your particular project effort been to you?

"FY Program Participants	Of little or no importance	Below average importance	Of moderate importance	Above average importance	Of very great importance
'94			14% (1)	29% (2)	57% (4)
'95			6% (1)	41% (7)	53% (9)
'96			4% (1)	46% (12)	50% (13)
Overall %			6%	42%	52%

## 2.a. Please describe the projects importance:

### Metadata

- *"allowed us to place metadata creation and maintenance firmly on our organization's radar and elevate its importance"*
- *"emphasized the value, importance and effort of establishing data collection and metadata documentation standards"*
- *"has provided good insight into implementation issues for metadata"*
- *"provided forum for large state agencies and local jurisdictions to work together and understand respective metadata requirements"*
- *"substantially improved documentation of our data"*
- *"has reinforced the importance of metadata and provided a catalyst for organizing data"*
- *"encouraged us to make metadata available via the Internet"*
- *"created expertise in Content Standards for Digital Geospatial Metadata in our agency"*
- *"created infrastructure for metadata collection and delivery"*
- *"tool serves as a strategic foundation for documenting and sharing spatial data"*
- *"improves the utility of our data"*
- *"important conversion for our production environment"*

### Clearinghouse

- *"established a formal metadata program for the state clearinghouse"*
- *"helped consolidate GIS/Metadata efforts into a single Web accessible server"*
- *"learned to provide advanced data services via the Web"*
- *"lead to the development of new data management practices and increasing the availability of existing data"*
- *"educated us on importance of making metadata and data accessible through searchable means"*
- *"able to build a foundation for geospatial data documentation and distribution"*
- *"brought us significant recognition.....and helped us achieve goals for development of a data clearinghouse"*
- *"provided a mechanism to develop a centralized clearinghouse for the State"*
- *"laid the groundwork for the clearinghouse as it is currently evolving"*
- *"hope that our project provides methods which will help facilitate the creation of other nodes developed by small data producers such as colleges and non-profits"*
- *"expanded use of corporate database"*
- *"helped transform an expensive classroom into a college resource accessible by all students, faculty, staff, and any outside party with Net access"*

### Cooperation

- *"formed and organized coalition which supports local governments in GIS implementation, metadata training, and computer technology"*
- *"gave us contacts to help us along"*
- *"helped create new and better relations among participants"*
- *"partnerships proved valuable for training staff and enhancing effort"*
- *"laid the foundation for many collaborative projects with government and industry"*
- *"helped build cooperation among multiple levels of GIS producers/users"*
- *"allowed building more bridges with local government and opened their eyes to metadata"*
- *"serves as an example in promoting the formation of cooperative working and sharing relationships among local governments and various organizations in our region"*
- *"connecting the local geospatial info community among themselves, and including it with the nationwide effort"*
- *"helped develop and implement initiatives set by State's coordination council"*
- *"coordination role of State GIS Steering Committee enhanced"*

### Awareness

- *"provided a means to educate the user community"*
- *"able to involve agency/state within a national effort"*
- *"gave us resources to dedicate to this effort and bumped it up in priority for the Center"*
- *"brought us significant recognition"*
- *"initiated important dialogue with State counterparts about future networked data availability"*
- *"spurred organization to create a Web presence earlier than expected"*
- *"launched participants first major use of the Net"*
- *"helped bring Internet to the region.....we've gone from 0 to 15 public servers"*
- *"exposed many county, state, and Federal cooperators to metadata and the NSDI"*

- "greater awareness of NSDI, metadata and its value to ourselves as well as a variety of institutions"
- "greatly improved library understanding of geospatial data, NSDI concepts, and GIS tools which is necessary in order to incorporate them effectively into the existing library services and technical infrastructure"
- "funded our initial research on usage of geospatial data by casual end users within public libraries, which is now one of our primary research focuses....that is now funded by the Department of Education"
- "end users will have the ability to better understand the quality of orthophoto-related data within NSDI"
- helped us further our research and make it applicable to the NSDI community
- "provided valuable insights about the level of interest in GIS/spatial data, and how uninformed many locals are about the NSDI"

3. Has this project made geospatial data more affordable or accessible than before?

FY Program Participants	No, definitely not		Difficult to tell		Yes, definitely
'94			14% (1)	57% (4)	29% (2)
'95			25% (4)	37% (6)	38% (6)
'96*			30% (7)	21% (5)	49% (11)
Overall %			26%	33%	41%

\*too soon to tell for many project participants.

3.a. If possible, quantify (or describe) this change, ex. increase in # of users or % increase in sales, etc.:

- "definitely more accessible; more affordable is difficult to determine"
- "definitely more accessible....by downloading directly, users will save the costs of finding and acquiring the data otherwise"
- "has expanded the visibility of geospatial data resources in state.....clearinghouse receives dozens of hits a day thereby increasing the number of users"
- "more than 1000 visitors a month...we have increased users, but have decreased staff needed to process data requests; more questions now about data content"
- "increased use is bound to open up new opportunities for collaboration, data development, and data sharing"
- "probably 50% growth"
- "data was previously unavailable"
- "more than 30 State agencies will use tool to document data"
- "promoted sharing common version among agencies"
- "it enriches the content of data bases for the NSDI user"
- "there was nothing in the State before and now there is"
- "we increased our users from 0 to 85 subscribers and several thousand hits"
- "helped form agency relationships leading to current implementation of the clearinghouse"
- "has inspired several of our clients to open up their data to the GIS user community"
- "membership in Consortium increased by approximately 80% as a result of this project"

4. How has this project affected the targeted end users for whom you developed your data service? (i.e., What difference did it make for them?)

Awareness

- "we started from scratch; now 3 out of 8 counties have started a GIS department and are using our data"
- "our constituents have a clear idea about what information is available and can be produced as well as a greater appreciation of the benefits of forming data sharing agreements"
- "definitely broadened accessibility for spatial data"
- "raised awareness about data exchange issues and the need for standardization and data documentation"

- "made librarians more aware of geospatial data, metadata, and the NSDI"
- "it has served as a demonstration model to encourage contributions of additional data and metadata to the clearinghouse"
- "enhanced student awareness of available data and individuals that attended the workshops were much more at ease with the concepts and burden of metadata"
- "study of local/state officials knowledge about NSDI led to follow-on effort to develop an educational CD-ROM"

#### Suitability/Understanding

- "users are having a higher level of confidence in data because of metadata records"
- "engenders more interaction on data content"
- "improved their ability to determine if data suits their needs; reduced call-in questions regarding data"
- "end user will have the ability to better understand the quality of data within NSDI"
- "local cooperators will turn to GIS on a day-to-day basis for planning and decision making, whereas currently they use hard copy maps to work from"
- "some workshop participants immediately made GIS purchases as a result of the workshop"
- "it will allow users to customize available data to better suit their particular needs"
- "there are now local resources to help others understand how to create compliant metadata and make it available on the Internet"
- local government coalition provides continual support

#### Access

- "a consistent, region-wide 'base map' is available for users"
- "easier and less expensive for them to get data"
- "tool use will eliminate thousands of hard copy paper documents"
- "made more sources available, especially in rural areas"
- "created available metadata, an on-line reserve to search for data, and developed an interface which other organizations can use to serve data and metadata"
- "clear benefit to be able to use someone else's data"
- users are now able to obtain needed data through one central location, instead of going through different agencies
- "generated big interest in data base holdings"
- "unavailable data became available for scientific study"
- "data is now available through local public library"
- "the direct availability of detailed orthophoto imagery led some municipal agencies to begin reconsidering their own data access and licensing policies"

### 5. Will you continue to implement the NSDI? 100% Yes

#### 5.a. Describe, in general terms, the essence of these continued activities:

##### Metadata/Clearinghouse

- "dedicated to using the metadata standard for all data produced in agency"
- "have institutionalized metadata collection into project requirements throughout organization"
- "have created in-house protocols that utilize NSDI data format and definition/terminology"
- "continued adherence to metadata standards and dissemination of data"
- "will eventually link the real data to the metadata"
- "will continue to operate NSDI clearinghouse node with expansion to include other resources to geospatial data and its use"
- "expand the functionality and number of contributing agencies to the clearinghouse"
- "will facilitate the development of other nodes in the state"

##### Cooperation

- "updating State Council standards/guidelines to more fully promote and encourage operational use of NSDI standards and methods"
- "continue building new partnerships with local governments and Federal field offices in state"
- "exploring opportunities for joint production of Framework data layers"
- "work with regional and local government to incorporate more detailed data"
- "will expand the network to more potential collaborators"



Education/Outreach

- "will continue spreading the (NSDI) word to the region through workshops"
- "continued education on the value of metadata"
- "continued maintaining the node and advocating its use by the local spatial data users and producers, and connecting to relevant developments locally, statewide, and nationally"
- "continue to develop Internet presence"
- "will continue to incorporate NSDI's conceptual and practical issues in graduate coursework"
- "continue outreach activities to disseminate NSDI information through other library associations"

5.b. Has the project effort and/or tenets of the NSDI been institutionalized within the other organizations involved in the project?

'FY Program Participants	Only very little	Some	Moderate	Considerable	Substantial
'94	14% (1)		29% (2)	57% (4)	
'95	18% (3)	11% (2)	18% (3)	35% (6)	18% (3)
'96	12% (3)	23% (6)	38% (10)	15% (4)	12% (3)
Overall %	14%	16%	30%	28%	12%

6. Have you had inquiries from other organizations about your project?

'FY Program Participants	Very seldom or never	Seldom	Occasionally	Often	Frequently
'94		14% (1)	43% (3)	29% (2)	14% (1)
'95			50% (8)	31% (5)	19% (3)
'96	8% (2)	12% (3)	42% (11)	23% (6)	15% (4)
Overall %	4%	8%	45%	27%	16%

6.a. Are you aware of other organizations that have initiated similar efforts as a result of your project work? 60% Yes; 40% No

7. What are three observable, measurable benefits of your project to date (ex., improved data management, improved understanding /interest in metadata creation by state and university community, recognition as a central facility for data distribution)?

Metadata

- "greater understanding by organization's personnel of the need for accurate and complete metadata"
- "consolidation of paper metadata into a shareable automated format"
- "more and better documentation of geographic data"
- "established requirements within organization for adhering to the metadata standard, and making sure all data are documented properly"

- "institutionalization of metadata program in our agency through the clearinghouse"
- "support for a full-time metadata coordinator for the state"
- "very high level interest in metadata issues"
- "organizational recognition of need to create metadata"
- "improved understanding of data complexity and it's issues"
- "increased awareness among land information professionals and other state, local, federal and private entities of importance of metadata"
- "we have respectability within our community for the efforts we've taken in developing excellent metadata"
- broad agency interest in metadata creation and using metadata over the Internet
- "outside interest in the NSDI/Metadata program from other organizations"
- "creation of a tool for locals to use to develop metadata"

#### Clearinghouse/Data Access

- "increased awareness of need for coordinated data documentation and distribution"
- "widespread access to large quantities of metadata and data"
- "put a reliable, high-precision spatial reference in many people's hands, to support a wide variety of uses"
- "developed means to place a very very large data base on-line"
- "improved methods for storing and searching metadata records"
- "improved data transfer methods via the Internet"
- "improved clearinghouse service to customers, and cost savings associated with accessing data"
- "the time and cost savings by using the on-line are significant"
- "emergence of our organization as a data clearinghouse"
- "increase recognition in Region as a leader...and central facility for data distribution and exchange"
- "increased visibility of data resources through the Web"
- "increase agency interest in online advertisement and distribution of data holdings"
- "improved information to potential users of data accessed through clearinghouse"
- "increased use of data in more applications"
- "discussion and progress in developing long-term plans for an expanded clearinghouse"
- "access of GIS software and selected data sets to general public"
- "first grant to help Western Maryland develop Internet connection.....helped secure additional grant money to develop the network for Western Maryland"
- "the design of a local node that is applicable to many local-level nodes"

#### Awareness and Understanding

- "increased use of the Web and video training resources"
- "has led to a better understanding of what digital imagery is (and isn't)"
- "better understanding of how various types of data are interrelated"
- "improved understanding by local users"
- "improved understanding of the necessity of metadata documentation and interest in its creation by various groups in State"
- "growth of GIS users, SMAC member organizations, and attendance at annual State GIS Conference"
- "outside interest is higher than expected"
- "outside interest in the NSDI/Metadata Program from other organizations"
- "have more interests from quasi-government agencies in using GIS for planning and resource management"
- "geospatial community has realized the importance of common standards in data development and exchange"
- "improved understanding/interest in metadata creation by State and University community"
- expansion of training courses at State universities....exposure of students to 'real world' GIS applications/use

#### Cooperation & Communication

- "strengthened communication ties between agencies in region and our office"
- "opened lines of communication with other users and developers....have been requested to serve others data"
- "recognition of role of librarians in GIS community"
- "improved outreach to government agencies"
- "increased participation in cooperative efforts"
- "added a new partnership to the project which has asked us to help them develop a strategy for disseminating hundreds of thousands of metadata records"
- "more local and regional participants"
- "growing commitment of county organizations to complete metadata"
- "increased sharing of techniques and challenges by state organizations"
- "local governments through the coalition have been successful in obtaining a political voice and position in State GIS activities....coalition is recognized by surrounding states and is being used as a model"

7.a. The benefits you've experienced have been:

'FY Program Participants	Much less than expected	Less than expected	Pretty much as expected	More than expected	Much more than expected
'94		14% (1)	29% (2)	43% (3)	14% (1)
'95		6% (1)	53% (9)	12% (2)	29% (5)
'96* (all still ongoing)			76% (16)	24% (5)	
Overall %		15%	60%	22%	13%

\* too soon for many participants to answer.

8. Did the results and experiences from other NSDI Competitive Cooperative Agreements Program projects help your effort?

'FY Program Participants	Did not contribute at all	Contributed a little	Contributed moderately	Contributed considerably	Contributed a great deal
'94	This was the first year for projects, and while there was dialogue between the projects participants, most efforts were conducted in uncharted waters using bleeding edge technologies.				
'95	6% (1)	33% (6)	44% (8)	11% (2)	6% (1)
'96	8% (2)	20% (5)	36% (9)	24% (6)	12% (3)
Overall %	6%	26%	40%	19%	9%

**B. SUSTAINING YOUR PROJECT**

1. What are the sustainable results of your project (ex., creation of an operational C-2 level clearinghouse, development of agency metadata records)?

Metadata

- "awareness of need for metadata by GIS users in the state who contribute data to the clearinghouse"
- "metadata collection will be a normal way to keep track of data"
- "creation of a formal compliant metadata plan"
- "institutionalized metadata collection in participating agencies"
- "procedures for using the methodology statewide are expected"
- "development of a standardized automated tool for collecting metadata"
- "continuing development of statewide spatial data catalog tool"
- "a small but motivated cadre of GIS data administrators who understand the Metadata Standard and are using it"
- "continued promotion of metadata creation by other agencies"
- "continued development of metadata for all projects at agency"
- "metadata from a variety of county, state, and Federal agencies"
- "standardization of metadata"
- "state standards moved forward"

#### Clearinghouse

- *"maintaining on-line metadata through home page"*
- *"creation of hundreds of accessible metadata documents"*
- *"spurred development of clearinghouse"*
- *"creation and continued maintenance of a clearinghouse"*
- *"multiple clearinghouse nodes in State all linked"*

#### Cooperation & Coordination

- *"technical infrastructure of the library has been expanded to support GIS teaching and research needs"*
- *"establishment of good working relationships with the various parties involved"*
- *"visibility....expanded contacts made with GIS users at all levels across the state"*
- *"permanent Internet link between cooperating organizations"*
- *"participation in data listings efforts by other organizations in the State"*
- *"creation of a digital spatial data infrastructure for the region"*
- *"the formation of the State local government GIS coalition"*

#### Education

- *"a resource for teaching students"*
- *"increased awareness in the issues"*
- *"enhanced training sessions using multi-media notebooks"*
- *"updatable and reusable training resources"*

2. How are the objectives of your project likely to be sustained, and where do you expect to find follow-on funding for it?

#### Funding

- *"securing long-term operational funding is an issue"*
- *"value of the clearinghouse is apparent....support from state funds is not too difficult"*
- *"combination of external solicited funding and re-apportionment of existing state funds"*
- *"State agencies and private entity will provide dollars"*
- *"State agency will absorb responsibility and provide continued funds"*
- *"through existing program funding"*
- *"it is part of our core mission....will advocate funding for it"*
- *"now included as line item in base budget"*
- *"through State GIS Council funding"*
- *"State general funding and individual agency contributions"*
- *"possibly sell CD-ROM's of carefully-composed datasets; charge for agency technology workshops"*

#### Program Operations

- *"operational aspects of the project have been institutionalized in our agency"*
- *"continue as part of normal business operation"*
- *"sustained via new data management procedures and protocols"*
- *"project efforts will be brought into the regular GIS development activities"*
- *"the goals have been built into the existing technical and service programs of the library"*
- *"through contracts for developing GIS data, applications, and implementation"*
- *"pursuing inclusion as part of each grant or contract"*
- *"through more active involvement of local data users and producers over time"*
- *"ongoing publicity"*

3. What recommendations regarding sustainability do you have for other groups? (This could be in the context of funding, program development, and/or program operations.)

#### Metadata/Clearinghouse

- *look at examples of implementation strategies and assess the most cost effective approach for the agency*
- *"metadata is a hurdle that most need to be helped over the first time"*
- *"develop a core cadre that is quite knowledgeable about metadata and that will provide technical support and hands-on training to others"*
- *"engage local participants in metadata creation and contribution early on while enthusiasm and energy levels are still high"*

- "make effort become part of core mission"
- "program must be tied into existing programs"
- "be proactive to encourage participation in clearinghouse"
- "invest a significant portion of any effort into actual creation of metadata not tool development"
- "use affordable technology and available software tools as much as possible"
- "most important part of providing value is to put data and metadata on your NSDI node"
- "determine a mechanism for monetary development and continuation at the onset of the project"
- "implement project in a way that proves to be truly beneficial to the GIS community"
- expand service beyond only serving as a clearinghouse, be consultants in local applications of GIS
- "prepare results in a manner that will require minimal support in the future"
- "obtain regular funding through an 'annual maintenance subscription' to a service, rather than selling data on a one-time basis"
- "plan sustainability for a few years ahead"

Cooperation & Awareness

- "get local/state governments to change their mentality and adopt data dissemination policies that encourage public use of data"
- "use project as a jump-off point to gather interest....show success by marketing the effort thereby garnering more interest"
- "spread the costs by engaging in work share and cost share efforts"
- "get local Federal agencies, county officials, and the legislature involved"
- "important that the project collaborating agencies or partners realize the significance of the project benefits and are willing to carry on the efforts"
- "institutionalize support among managers and administrators"
- "get support from highest possible authorities"
- "develop explicit goals, and review previous Competitive Cooperative Agreement Program efforts"

4. Describe how you've disseminated information about your project. What have been the most effective ways of achieving public awareness of your project?

- "integrate your effort with an ongoing project to demonstrate effectiveness and functionality"
- speak at professional meetings, write articles for professional journals, and solicit trade magazine articles about the project
- issue press releases to news media about project goals, accomplishments, future plans, and success stories
- demonstrate the project at community workshops, regional conferences, and other local events
- develop and distribute brochures and newsletters that describe the project effort
- utilizing video-teleconferencing around the State
- publicize effort on local and national Internet list servers
- establish Internet linkages to other related Home Pages
- directing phone inquiries to the Clearinghouse sight on the Net
- use in-house Intranet
- distributing final project report to interested organizations
- make one-on-one contact with existing and potential clients

5. Will the partnerships you've established be continued after the project's completion?

'FY Program Participants	No, definitely not	Probably not	Yes, with some of the partners	Yes, with most of the partners	Yes, definitely
'94			29% (2)	14% (1)	57% (4)
'95			17% (3)	24% (4)	59% (10)
'96		5% (1)	15% (4)	34% (9)	46% (12)
Overall %		2%	18%	28%	52%

6. What do you predict will be the three long-range most important observable, measurable contributions of your project?

Metadata

- "recognition of importance of the FGDC metadata standard"
- "better documentation of key data themes"
- "raised awareness about data documentation and distribution issues among user community"
- "institutionalizing metadata compliance in agency"
- "increased awareness and production of metadata"
- "improved data management through use of the Metadata Standard"
- "continued increase in number of entities adopting the metadata application"
- "adoption of metadata tool by other organizations"

Clearinghouse

- "Web site used as an access tool for data"
- "a dynamic, living catalog of current spatial data accessible through the Internet"
- "much easier access to detailed, documented orthophoto imagery"
- "a fully-functional NSDI clearinghouse for the State"
- "a clear example of an interactive geographic-data service, tailorable to specific requests: this reorients the discussion about data access, use, licensing, ownership, etc. in new directions"
- "examples for other State/local implementors to follow"
- "ease of access to data sets"
- "continued maintenance of a clearinghouse with a progressive increase in data content"
- "better understanding by the users of the quality of data that they access"
- "data sets will be of better quality because they will be used more"
- "greater accessibility and usability of spatial data for casual users at public libraries"
- "increased data availability for end users to suit their specific needs"
- "a better managed GIS data base for the State and more widespread use of the GIS data"

Cooperation

- "improved communication with other agencies"
- "project opened the door to discuss all aspects of the NSDI initiatives which were previously closed"
- "more awareness of importance of working together...not duplicating effort"
- "raising awareness of the national standardization efforts, and the benefits of sharing spatial data resources"
- "creation of a long lasting cooperative, data sharing relationship between agencies"
- "recognition of local government's GIS efforts by Federal and State agencies"
- "better data sharing and GIS data management with State agencies"
- "more useful hydrographic base map for the State"
- "it is expected that more and better data, as well as new applications based upon these data, will be desired and developed for the region"
- "commitment to carrying on with the goals and objectives of NSDI within agency and sharing experience with others"
- "better coordination/cooperation with local governments"
- "more local and regional partnerships"
- "strengthen the State GIS Steering Committee"
- "cooperation with other libraries to share GIS data reserves and expertise"
- "relationships initiated with a broad set of potential research, industry, and government agencies"

Awareness & Understanding

- "serving as a model for others to implement"
- "planting the seed for extending NSDI goals and objectives in the region"
- "improved support and understanding of the role standards play in data access"
- "integration of the use of GIS data and tools into standard library functions"
- "knowledgeable library staff to provide and further develop geospatial data services"
- "project functions as a marketing tool for the public information and will enhance the public awareness of the NSDI program.....project provides an alternative way to outreach and educate the public about NSDI, GIS and Internet technologies"
- "improvement in student knowledge"
- "making the Web more friendly for data access and sharing, data manipulation and understanding"

- "improved access to data is bound to open up new opportunities for collaboration, data development, data sharing and also provide many educational benefits"
- "some local government agencies in our rural area now use GIS for planning and resource management"

### C. COOPERATIVE AGREEMENTS PROGRAM IMPACTS

1. Were you aware of the NSDI before participating in this Cooperative Agreements Program?

'FY Program Participants	No, definitely not	Only very little	Somewhat	Moderately	Very much so
'94		13% (1)	29% (2)	29% (2)	29% (2)
'95		21% (4)	26% (5)	11% (2)	42% (8)
'96	8% (2)	12% (3)	4% (1)	28% (7)	48% (12)
Overall %	3%	16%	16%	22%	43%

1.a. Was the Program instrumental in making you more fully aware of the NSDI? 100% Yes

2. Did the NSDI Cooperative Agreements Program help further your program efforts?

'FY Program Participants	Only very little	Some	Moderate amount	Considerably	Substantially
'94		14% (1)	14% (1)	29% (2)	43% (3)
'95			12% (2)	29% (5)	59% (10)
'96				42% (10)	58% (14)
Overall %		3%	6%	35%	56%

2.a. Please describe how this NSDI Cooperative Program helped further your efforts?

- "the official recognition of our proposal by the FGDC was helpful when selling managers/peers on the value of embracing the Metadata Standard and Clearinghouse approach"
- "provided impetus to formalize activities that were just getting started at the time"
- "provided financial support and legitimacy to our on-going efforts"
- "allowed agency to accelerate its efforts to make metadata discoverable and accessible via the clearinghouse....efforts would've been much lower priority"
- "moved our discussions beyond the talking stage to actual implementation"
- "provided a clear framework within which to initiate interagency partnerships"
- "provided stimulus and resources to upgrade on-going effort"
- "we would not have had the time, funding nor conceptual or technical support to undertake such a project"
- "it served as a stepping stone for us to initiate participation in NSDI, and provided an awareness for metadata standards and protocols that benefit users beyond our own"
- "made it possible to support prototype development and help participating agencies document some data sets"
- "funding was a catalyst in implementing the clearinghouse"

- "creation of a tool for teaching even though this was not the original intent"
- "provided dollars and more importantly, it validated that metadata and cataloging needed to occur"
- "improved organization of, access to, and documentation of our data, and facilitated access to data of others"
- "fostered ideas for expanding the use of the metadata management tool as a gateway into our own corporate GIS system with possible Intranet implications"
- "helped formalize involvement especially with local Federal agencies"
- "able to conduct a pilot which is being used as an example for forming other coop agreements with other counties and cities"
- "we work a great deal with information policy in the State and the Clearinghouse technology is very relevant to those efforts"
- "furthered education and technology transfer"
- "allows us to see our specific position within the bigger picture"
- provided ability to see the larger framework and buy into the vision
- in contacts with others, it validated that this was a National effort and not a situation where the Federal establishment was trying to take over all the data
- "NSDI program provided a common ground and support for people conducting similar projects"
- "the network of knowledgeable people greatly increased our understanding, both technically and intellectually"
- "the efforts of so many people have inspired us to make this project a priority and to make a contribution to the NSDI"

3. Without the FGDC investment would you have undertaken your project?

FY Program Participants	No	Yes, doing so already	Yes, but 1 year later	Yes, but 2 years later	Yes, but much (>2 yrs) later
'94	14% (1)		43% (3)	43% (3)	
'95	31% (5)	13% (2)	18% (3)	25% (4)	13% (2)
'96	33% (9)	7% (2)	19% (5)	22% (6)	19% (5)
Overall %	30%	12%	22%	26%	10%

4. Did this Cooperative Agreements Program help you promote the NSDI tenets to others? Did it strengthen your ability to promote the NSDI to managers/peers?

FY Program Participants	Very little		Moderate amount		Very much so
'94			43% (3)	28% (2)	29% (2)
'95		6% (1)	6% (1)	13% (2)	75% (12)
'96			16% (4)	21% (5)	63% (15)
Overall %		2%	17%	19%	62%



5. What else should we examine when evaluating the Program and what could the FGDC have done to help you be more successful?

Competitive Cooperative Agreements Program

- *"look at the long-term effect, not just the immediate result"*
- *"provide multi-year project funding commitment, then management won't know how they ever survived without up-to-date metadata!"*
- *"you ask a lot for a comparatively low amount of funding" .....increase dollar cap and duration of project funding*
- *"try to measure what has been produced of value"*
- *"examine specific technical and organizational difficulties participants encountered"*
- *"the likelihood of sustained funding should be one of the evaluation criteria for future projects"*

FGDC's leadership and implementation of initiatives

- *provide more leadership/outreach/information to local Federal agencies on NSDI issues*
- *have more interaction between FGDC staff and project leaders*
- *continue to promote and expand the operation and benefits of the national clearinghouse, with emphasis on operation and not just the potential*
- *stabilize the tools available*
- *adopt a standard metadata file format*
- *assess the timing, readiness and adoption capacity of spatial data users and producers at the local level*
- *assess if there's been a change in local/State government thinking about NSDI*
- *consider other ways to further stimulate state/local NSDI efforts, especially entities with no NSDI efforts underway*

### Synopsis of Selected Project Efforts

A few project efforts have been summarized below to illustrate the long-term impacts described in this report:

#### Efforts in New Mexico

In 1994, the Earth Data Analysis Center (EDAC) at the University of New Mexico and the Information Systems Division, State of New Mexico General Services Department were provided funding to modify the New Mexico's Resource Geographic Information System (RGIS) and state agency metadata to be compliant with the Content Standards for Digital Geospatial Metadata, and to make the metadata through the RGIS Clearinghouse. Successful implementation of the Metadata Standard has resulted in these organizations establishing requirements for adhering to the Standard for all data production/documentation efforts, including those contracted to outside firms. Adoption of the Metadata Standard is migrating to other organizations in the State. With the project completed and primary objective accomplished, EDAC began to focus on its next goal which is to provide access to the actual data through the National Geospatial Data Clearinghouse. Efforts are now underway that will result in establishing three NSDI compliant clearinghouse nodes to network geospatial databases in New Mexico. Along with EDAC, McKinley County GIS Center and the City of Santa Fe will establish nodes to make their data available on-line (data is currently available only via magnetic tape). With the long-term goal now being to establish a series of NSDI-compliant clearinghouse nodes to network all geospatial databases in New Mexico and to make these data available on-line.

#### Efforts in North Carolina

In 1994, the North Carolina Center for Geographic Information and Analysis (NCCGIA), on behalf of the North Carolina Geographic Information Coordinating Council, and with collaboration from the North Carolina Division of Water Resources, the City of Charlotte and Mecklenburg County, the Institute for Transportation Research and Education, and the North Carolina Division of Coastal Management, and the Triangle J Council of Governments, began the successful implementation of the North Carolina Geographic Data Clearinghouse, a clearinghouse node of the National Geospatial Data Clearinghouse. In a follow-on effort, the Mountain Area Information Network (MAIN) [is a public network infrastructure which links citizens with state, federal, and global information resources, as well as "home grown" sources of information from within the region], in collaboration with NCCGIA, engaged in an outreach and education project designed to further the awareness and understanding of the NSDI. This effort

is focused on training public librarians, high school and community college teachers, and MAIN technical volunteers, who in turn will provide ongoing public outreach and assistance for local government and citizen access to the North Carolina Geographic Data Clearinghouse. This project will also create a special interactive website and publish a "Citizens Guide to Spatial Data" as models for public education and outreach nationwide. Local government interaction will be further enhanced as Wake County and its incorporated municipalities will develop an NSDI-compliant clearinghouse node, documenting and serving its data base holdings.

#### Efforts in Montana

In 1994 the Montana Natural Resource Information System (NRIS), on behalf of the Montana GIS Interagency Technical Working Group, began a project to facilitate development of several components of the NSDI in Montana. The project resulted in the establishment of an NSDI clearinghouse node, collaboration among 19 organizations for the documentation of their data holdings in compliance with the Metadata Standard, and modification of the State GIS Standards Plan to comply with the Metadata Standard and the Spatial Data Transfer Standard to facilitate data exchange among agencies in Montana. Building upon that effort, four major GIS data producers, the Montana Department of Environmental Quality, University of Montana School of Forestry, the U.S. Forest Service Helena National Forest, and Desktop Assistance, Inc., are now establishing NSDI clearinghouse nodes and documenting their data base holdings in compliance with the FGDC Metadata Standard. Local government participation in the NSDI is being facilitated by the Montana Local Government GIS Coalition. The coalition is working with local governments to develop a metadata plan in compliance with the FGDC Metadata Standard, and building a local government data repository.