

Application for Federal Assistance SF-424

Version 02

* 1. Type of Submission:

- Preapplication
 Application
 Changed/Corrected Application

* 2. Type of Application:

- New
 Continuation
 Revision

* If Revision, select appropriate letter(s):

* Other (Specify)

* 3. Date Received:

08/27/2009

4. Applicant Identifier:

5a. Federal Entity Identifier:

* 5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name:

State of South Dakota, Bureau of Information & Telecommunica

* b. Employer/Taxpayer Identification Number (EIN/TIN):

46-730079K

* c. Organizational DUNS:

837184274

d. Address:

* Street1:

700 Governor's Drive

Street2:

* City:

Pierre

County:

Hughes

* State:

SD: South Dakota

Province:

* Country:

USA: UNITED STATES

* Zip / Postal Code:

57501-2291

e. Organizational Unit:

Department Name:

Bureau of Information & Teleco

Division Name:

Telecommunications

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:

Mr.

* First Name:

Jim

Middle Name:

* Last Name:

Edman

Suffix:

Title:

Deputy Commissioner

Organizational Affiliation:

* Telephone Number:

605-773-4861

Fax Number:

605-773-3741

* Email:

Jim.Edman@state.sd.us

Application for Federal Assistance SF-424

Version 02

9. Type of Applicant 1: Select Applicant Type:

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Department of Commerce

11. Catalog of Federal Domestic Assistance Number:

CFDA Title:

*** 12. Funding Opportunity Number:**

0660-ZA29

* Title:

Recovery Act - State Broadband Data and Development Grant Program

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

South Dakota - Statewide

*** 15. Descriptive Title of Applicant's Project:**

Mapping South Dakota Broadband Technologies and Service Area

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424

Version 02

16. Congressional Districts Of:

* a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:

* a. Start Date: * b. End Date:

18. Estimated Funding (\$):

| | |
|---------------------|---|
| * a. Federal | <input type="text" value="3,756,188.00"/> |
| * b. Applicant | <input type="text" value="0.00"/> |
| * c. State | <input type="text" value="884,531.00"/> |
| * d. Local | <input type="text" value="0.00"/> |
| * e. Other | <input type="text" value="0.00"/> |
| * f. Program Income | <input type="text" value="0.00"/> |
| * g. TOTAL | <input type="text" value="4,640,719.00"/> |

* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?

 a. This application was made available to the State under the Executive Order 12372 Process for review on b. Program is subject to E.O. 12372 but has not been selected by the State for review. c. Program is not covered by E.O. 12372.

* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)

 Yes NoExplanation

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

 ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name: Middle Name: * Last Name: Suffix: * Title: * Telephone Number: Fax Number: * Email: * Signature of Authorized Representative: * Date Signed:

Application for Federal Assistance SF-424

Version 02

*** Applicant Federal Debt Delinquency Explanation**

The following field should contain an explanation if the Applicant organization is delinquent on any Federal Debt. Maximum number of characters that can be entered is 4,000. Try and avoid extra spaces and carriage returns to maximize the availability of space.

[Empty text input area for Applicant Federal Debt Delinquency Explanation]

Broadband Mapping Project Abstract

The State of South Dakota is entering into a public/private partnership with a broadband mapping company to determine and track the deployment of broadband communication services across South Dakota for the next five years. The resulting sustainable processes will be used to measure the broadband service technologies deployed, coverage areas, and speeds, displayed in easy-to-understand, statewide Geographic Information System (GIS) maps.

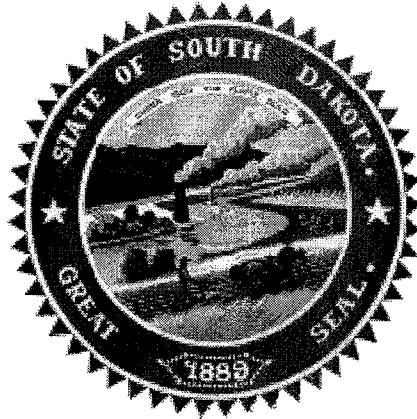
These publicly available maps will show broadband services available for residents to the census block level along with South Dakota's Community Anchor Institutions – schools, libraries, medical and healthcare providers, public safety entities, colleges and universities, and other community support organizations. These datasets will be sent to the US Department of Commerce's National Telecommunications and Information Administration (NTIA) for inclusion in their national broadband map - to be made public by February 17, 2011.

Working with South Dakota's telecommunications providers, data will be collected about a provider's service area twice yearly on broadband service availability (both wireline and wireless); broadband service infrastructure; and community anchor institutions' broadband service options. These data points will be translated into map coordinates for display on GIS maps available via the State's web presence.

As part of this mapping project, the State will develop, execute and maintain a sustainable broadband adoption strategy and plan for innovative projects that promote broadband demand. Initiatives will focus on providing broadband education, awareness, training, access, equipment and support, particularly among vulnerable population groups where broadband technology has traditionally been underutilized.

The State intends for citizens and their businesses to be able to determine where broadband services exist and to what level these services are provided at their home, business, or community institutions. These maps will be kept up to date to show the expected evolution of broadband services across South Dakota in the coming years.





Federal Broadband Mapping Grant Proposal

0660-ZA29

State of South Dakota

Bureau of Information and Telecommunications

Pierre, SD

August 27, 2009

Introduction

The State of South Dakota Bureau of Information and Telecommunications (BIT) is entering into a public - private partnership with a broadband mapping company to determine and track the deployment of broadband communication services across South Dakota for the next five years. The resulting sustainable processes will be used to provide the NTIA the necessary data for a national map and display the broadband service technologies deployed, coverage areas, and speeds in easy-to-understand Geographic Information System (GIS) maps.

These publicly available maps will show broadband services available for residents to the census block level along with South Dakota's Community Anchor Institutions – schools, libraries, medical and healthcare providers, public safety entities, colleges and universities, and other community support organizations. These datasets will be sent to the US Department of Commerce's National Telecommunications and Information Administration (NTIA) for inclusion in their national broadband map - to be made public by February 17, 2011.

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The State intends for citizens and their businesses to be able to determine where broadband services exist and to what level these services are provided at their home, business, or community institutions. These maps will be kept up to date to show the expected evolution of broadband services across South Dakota in the coming years.

The State is requesting \$3,237,500 to accomplish the Broadband Mapping objectives. The state's projected In-Kind Contributions is \$884,531.

In addition to this mapping project, the State will also develop, execute and maintain a sustainable broadband adoption strategy and plan for innovative projects that promote broadband demand. Initiatives will focus on providing broadband education, awareness, training, access, equipment and support, particularly among vulnerable population groups where broadband technology has traditionally been underutilized.

The State is requesting \$500,000 grant specific to broadband strategic planning and execution. The total grant request is \$3,756,188.

Unserved & Underserved areas of South Dakota

The 2000 Census Bureau report identified South Dakota with a population of 754,844 including 290,245 households. 391,427 citizens are classified “Urban” yet half of this number is in “urban clusters”, all with populations less than 25,000 and most with less than 10,000. Sioux Falls is the only city in the state with a population greater than 100,000.

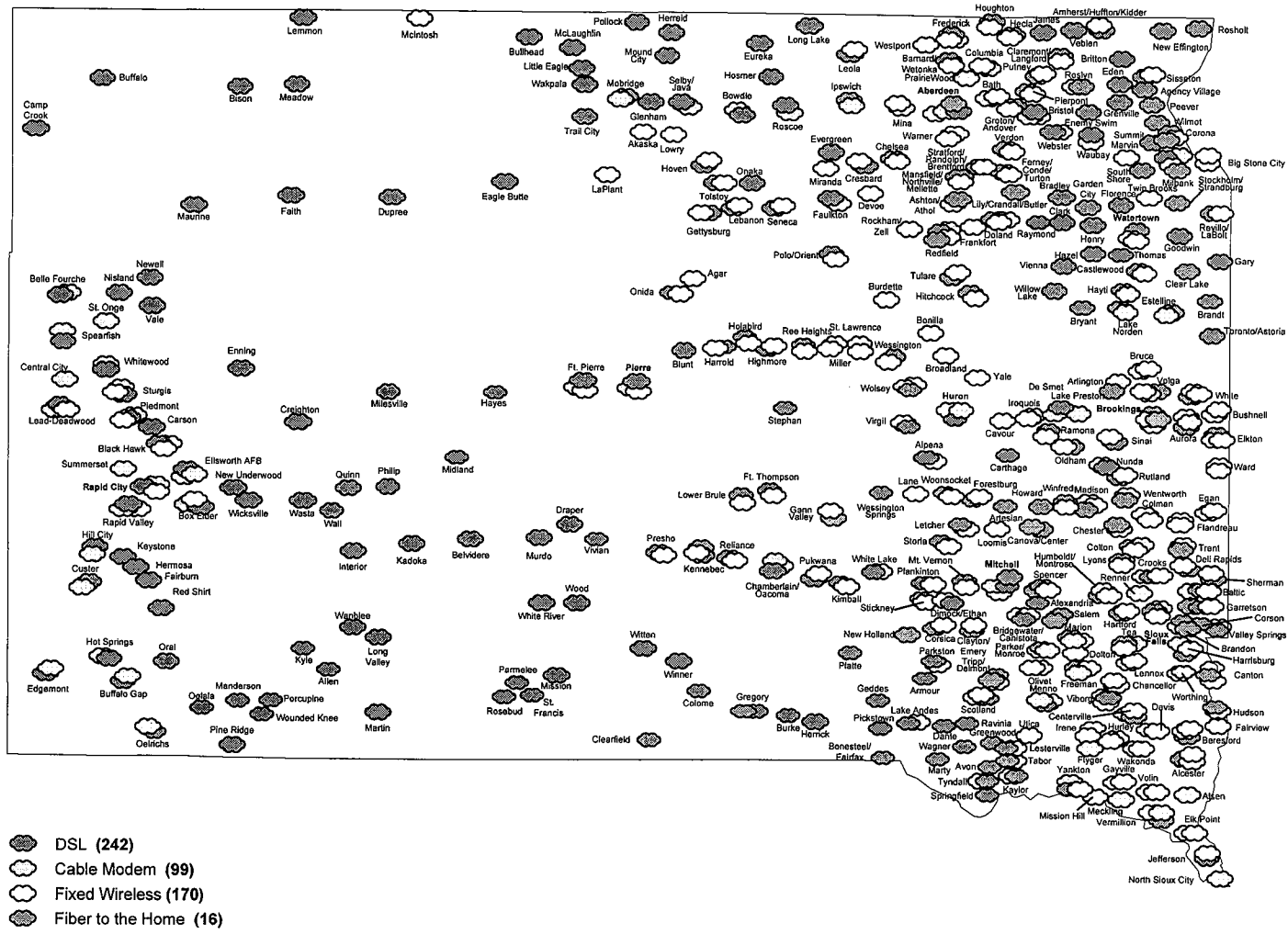
| | South Dakota |
|------------------------|---------------------|
| Total: | 754,844 |
| Urban: | 391,427 |
| Inside urbanized areas | 194,584 |
| Inside urban clusters | 196,843 |
| Rural | 363,417 |
| Filler | 0 |

Due to the rural nature of South Dakota outside of the major population centers, it is certain that unserved and underserved areas exist within the state. To date, the State of South Dakota has only collected community-based broadband data by technology, meaning that at a minimum, a single household within the community has access to a specific broadband technology type meeting the minimum download and upload speeds set by the Federal Communications Commission (See the Consumer Broadband Access – South Dakota map on Page 5). As this is the only current formal collection of data regarding availability of broadband in South Dakota that the State has been made aware of, the Bureau of Information and Telecommunications is unable to utilize any maps or datasets highlighting unserved and underserved broadband areas of South Dakota, and therefore cannot judge potential grant applications against this criteria with respect to prioritization for the allocation of broadband grant funds in South Dakota. BIT has not gathered information about broadband in relation to the recently defined terms of “unserved” and “underserved”.

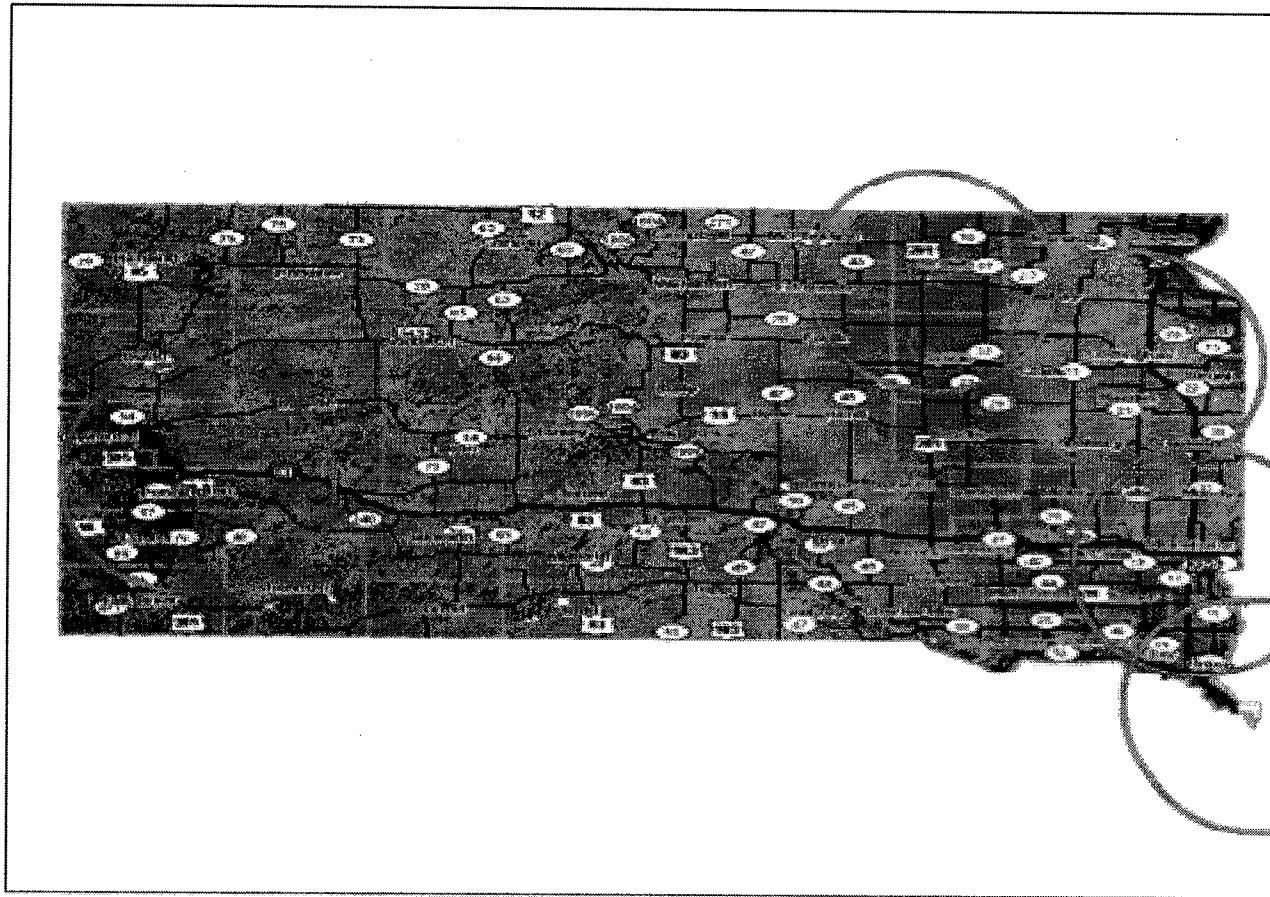
The following map shows the availability of broadband by technology category present in South Dakota by community. This map has been an annual project of the BIT since 2001. There is broadband availability in approximately 250 communities across South Dakota from 30 – 40 active providers. It is important to note that this information is “community based”. Meaning that at a minimum, a single household within the community has access to broadband DSL, cable modem, fixed wireless or fiber to the home.

Consumer Broadband Access – South Dakota

July 2009



The following map draws a 50 mile radius around the larger cities of South Dakota. The remainder of the state is classified as a "Remote Area" according to the BTOP. The estimated population of those population centers within the red circles is 372,866 or 49.4% (2000 Census number). Almost 50% of the state's population is centered in a very narrow geographic area.



The most recent Federal Communications Commission High Speed Services for Internet Access report was published in July 2009. This report covers up to June 30, 2008. Specific to South Dakota, it reports the following.

Providers of High Speed Lines

| ADSL | SDSL | Traditional Wireline | Cable Modem | Fiber | Satellite | Fixed Wireless | Mobile Wireless | Power Line & Other | Total |
|------|------|----------------------|-------------|-------|-----------|----------------|-----------------|--------------------|-------|
| 24 | 9 | 10 | 7 | 11 | N/A | 11 | N/A | 0 | 44 |

High Speed Lines by Technology

| ADSL | SDSL | Traditional Wireline | Cable Modem | Fiber | Satellite | Fixed Wireless | Mobile Wireless | Power Line & Other | Total |
|--------|-------|----------------------|-------------|-------|-----------|----------------|-----------------|--------------------|---------|
| 53,343 | 3,993 | 261 | 115,048 | 7,332 | N/A | 6,199 | N/A | 0 | 362,263 |

High Speed lines per Year

| 6/2003 | 6/2004 | 6/2005 | 12/2005 | 6/2006 | 12/2006 | 6/2007 | 12/2007 | 6/2008 |
|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| 22,016 | 34,026 | 112,506 | 124,243 | 138,621 | 154,738 | 164,627 | 185,058 | 362,263 |

The expansion of mobile wireless is the significant contributor to the 2007 to 2008 increase.

Percentage of Residential End User premises with Access to High-Speed Services

| xDSL Availability Where ILECs Offer Local Telephone Services | Cable Modem Availability Where Cable Systems Offer Cable TV Service |
|--|---|
| 80% | 81% |

Both of these numbers fall below the National Average of 83% for DSL and 96% for cable modem.

Section I

Data

To gather the data necessary to fulfill the requirements under the Technical Appendix, the State of South Dakota plans to engage a third party vendor in a multi-stage collaborative effort with the broadband providers of South Dakota. The State is currently engaged in an RFP seeking to contract with a qualified partner to identify all broadband providers operating in South Dakota, solicit their participation in providing the information needed to meet the objectives of the NOFA, establish non-disclosure agreements with the providers as necessary, and perform all necessary data acquisitions, processes, updates, submissions to NTIA, and public presentations of the data.

Data Gathering

- i. The first step to collecting the required broadband data is to begin the establishment of or reaffirm an existing relationship with all broadband providers in the state. It will be the responsibility of BIT and our partner to work with the telecommunications industry (or their representatives) to generate a master contact list for all broadband service providers in South Dakota.
- ii. With the list available, the contractor will solicit active participation from the providers and educate them on the requirements of the Notice of Funds Available (NOFA), what data is required, how the data will be used, and how their confidential data will be protected. To ensure protection of the collected data and confidential information of the provider, the contractor will develop, execute, and administer non-disclosure agreements (NDA's) with South Dakota broadband providers in order to institute the confidentiality rules and guidelines outlined in the NOFA. Once firm, trusting relationships through NDA's are in place, data acquisition efforts will begin.

Through a combination of existing datasets, a layered approach will be utilized to gather the most accurate address layer data. The state is proposing utilizing the E9-1-1 dataset, Department of Revenue tax-based dataset, local county datasets and as a final layer – one or more of the national datasets that has been gathered.

- iii. A comprehensive data transfer methodology between the broadband providers and the State and its partners is paramount to the success of this project. South Dakota broadband providers' undoubtedly have a wide variety of information systems, data storage practices, and technical capacities. Therefore the State and its contractor will openly collaborate with each provider to better understand their infrastructure, technologies, challenges, and the manner in which information about these elements is stored within their information systems. The contractor will encourage providers to submit the most granular data within their technical capabilities, with the most preferable collection

including address-specific records explicitly representing the provider's ability to serve customers in the area.

The contractor shall have a strategy to address problematic situations. Such situations include non-participation of providers, unavailability of data in specified formats, and incomplete data. Part of this strategy will include assistance offerings. Through the knowledge gained in our open collaboration, the contractor will be better suited to assist a provider with their ability to mine their databases and information systems for the required data, and generate datasets containing the information about their available service offerings in the required format as per the Technical Appendix.

The goal of providing this assistance is to generate an overall approximation of the service territory of the assisted provider. For those who lack the processes and technology to provide GIS-ready datasets on their service offerings, the State and its contractor will provide assistance to the provider to ensure that their offerings on the statewide and national maps are as accurate of a presentation of their territory as possible. Such assistance processes can include in-field testing of services, converting existing customer databases into suitable datasets, and range estimations based on location of central offices and network infrastructure. Based on the needs of the individual provider, the most relevant and feasible methods of assistance will be provided.

The contractor will collect the data as specified in the Technical Appendix of the NOFA dated July 8, 2009 with all applicable revisions, updates, and clarifications taken into account. Data will be delivered to the NTIA in an agreed upon format to be agreed upon following a schedule that the Bureau and partner have agreed to in advance.

Accuracy and Verification

- i. To ensure accuracy of the initial data collection, upon completion of the initial gathering and processing of provider data, the contractor will be required to collaborate with each provider to share draft copies of maps generated from their supplied datasets. The provider will be given a period of time deemed sufficient to review the map and communicate any necessary modifications to the contractor. Once a provider's map has been deemed accurate, or corrected sufficiently to be so, the dataset for that provider can be added to the statewide datasets and maps.

- ii. Regarding continuing efforts to ensure accuracy, BIT is evaluating the accuracy and verification proposals as part of the Mapping RFP. A combination of secondary verifications methods by a 3rd party will be executed to compare the view of the provider's data against the reality of the communities. These methods may include comparisons of technological capabilities against reported availability, statistically-based telephone surveys, in-field testing, crowd-sourced public review via a Web portal, and suggested corrections/additions made via Web-based forms. Providers will also be asked to agree that, in cases where verification or mapping analysis efforts cast doubt on the

validity of the submitted data, further information, such as end-user addresses and details on technical infrastructure, will be provided to substantiate the data collected, and to provide a point of contact to resolve these issues as they arise.

- iii. To insure the most accurate address layer possible, BIT is recommending the integration of “local” address resources. Meaning it is our recommendation that we take advantage of E9-1-1 address data, Department of Revenue data and county developed datasets.

Accessibility

All data gathered as part of South Dakota’s broadband mapping efforts will be normalized and presented to the public via a Web portal. The portal is the central access point for interactive broadband maps, static maps, public-facing suggestion and feedback forms, and other related services. All data published via the portal will be subject to and in full compliance of the Confidentiality Requirements of the NOFA and the provider-signed NDA’s. Included on the portal page will be a descriptive FAQ section designed to answer the public’s questions on broadband topics, our mapping processes, continuing broadband efforts, and any other desirable broadband-related content.

South Dakota’s statewide map will be designed with the goal of offering the most valuable, relevant, and interpretable information to the public. Data layers to be included on the statewide map may include, but are not necessarily limited to: unserved and underserved areas by census block, remote areas, rural areas, locations of community anchor institutions, service offerings by technology (to include all transmission codes included in the Technical Appendix of the NOFA), upload and download speed information (in tiered format based on tier codes in the Technical Appendix of the NOFA), wireless service availability based on GIS shape files, and other information (population/household density, political boundary markers, roads, census block locations, etc). Specific information on wireless spectrum may or may not be included on the primary statewide map, as the value of this data to the public consumer may not be present.

Security and Confidentiality

To guarantee security and confidentiality of collected provider data, the contractor will utilize and expand upon a foundation of service policies, agreements, and forms used by the Bureau of Information and Telecommunications while remaining within the provisions of the NOFA. The Bureau of Information and Telecommunications, through the responsibilities of managing the State’s financial, business, healthcare, and other sensitive data, has significant experience in the securing, processing, and treatment of confidential data. Providers will be notified of all data to be publicly disclosed by the State or its partners from the outset of the project. The non-disclosure agreement executed with each provider will also define how the confidential information will be used and protected, along with the description of an established methodology for the transfer of confidential data. Lastly, the latest IT industry best security practices, technologies, and processes will be implemented for all data storage and processing components.

Section 1-27 of South Dakota codified law defines our open records process.

1-27-1. Public records open to inspection and copying. Except as otherwise expressly provided by statute, all citizens of this state, and all other persons interested in the examination of the public records, as defined in § 1-27-1.1, are hereby fully empowered and authorized to examine such public record, and make memoranda and abstracts there from during the hours the respective offices are open for the ordinary transaction of business and, unless federal copyright law otherwise provides, obtain copies of public records in accordance with this chapter.

Portions of the law that will insure the confidentiality of the information provided includes:

1-27-1.5. Certain records not open to inspection and copying. The following records are not subject to §§ 1-27-1, 1-27-1.1, and 1-27-1.3:

(3) Trade secrets, the specific details of bona fide research, applied research, or scholarly or creative artistic projects being conducted at a school, postsecondary institution or laboratory funded in whole or in part by the state, and other proprietary or commercial information which if released would infringe intellectual property rights, give advantage to business competitors, or serve no material public purpose;

(20) Any document declared closed or confidential by court order, contract, or stipulation of the parties to any civil or criminal action or proceeding;

Additionally, BIT has an internal policy specific to employees.

BIT Confidentiality Policy #I-99-10

Bureau of Information and Telecommunications (BIT) employees have varying levels of access to a variety of confidential information. Due to the fact that confidentiality is an essential element of the effective functioning of the BIT, it is necessary that all BIT employees comply with this policy. Confidential information includes, but is not limited to, Protected Health Information.

Section II

Project Feasibility

Applicant Capabilities

A. Budget Narrative

BIT will use a combination of state resources and private contractors to accomplish the project. Those resources will be used in different manners over the near-term and long-term.

1. Broadband Data Acquisition, Verification & Updating (\$1,970,000)

The state has released a request for proposal for the broadband mapping project. This RFP has not been awarded but will be awarded upon confirmation of grant receipt. The scope of the mapping project includes planning the project, building and managing service provider relationships, executing non-disclosure agreements, gathering the data, verifying the accuracy of the data by a 3rd party and timely and regular delivery of the data to the NTIA. The data gathered will be to the requirements of the NOFA and all subsequent addendums.

Verification of the data and speeds available will be accomplished by using secondary in-state resources using a variety of methods. The methods include telephone surveys and on-site testing. BIT has relationships throughout the state with K12 and university technology coordinators to assist in the testing.

| | |
|--|------------------|
| Data Acquisition, Verification & Updating Year 1: | \$550,000 |
| Data Acquisition, Verification & Updating Years 2 – 5: | <u>\$100,000</u> |
| Total: | \$650,000 |

There is a lack of high-quality commercially applicable GIS address datasets available for South Dakota. Though the GIS industry feels that accurate commercial datasets are available and in place, we do not share that opinion specific to South Dakota. BIT presently has two GIS address datasets, both with known limitations. Therefore, with a lack of accurate address-level datasets from either the commercial market or the State, BIT is proposing to compile the best available GIS address dataset available of the state.

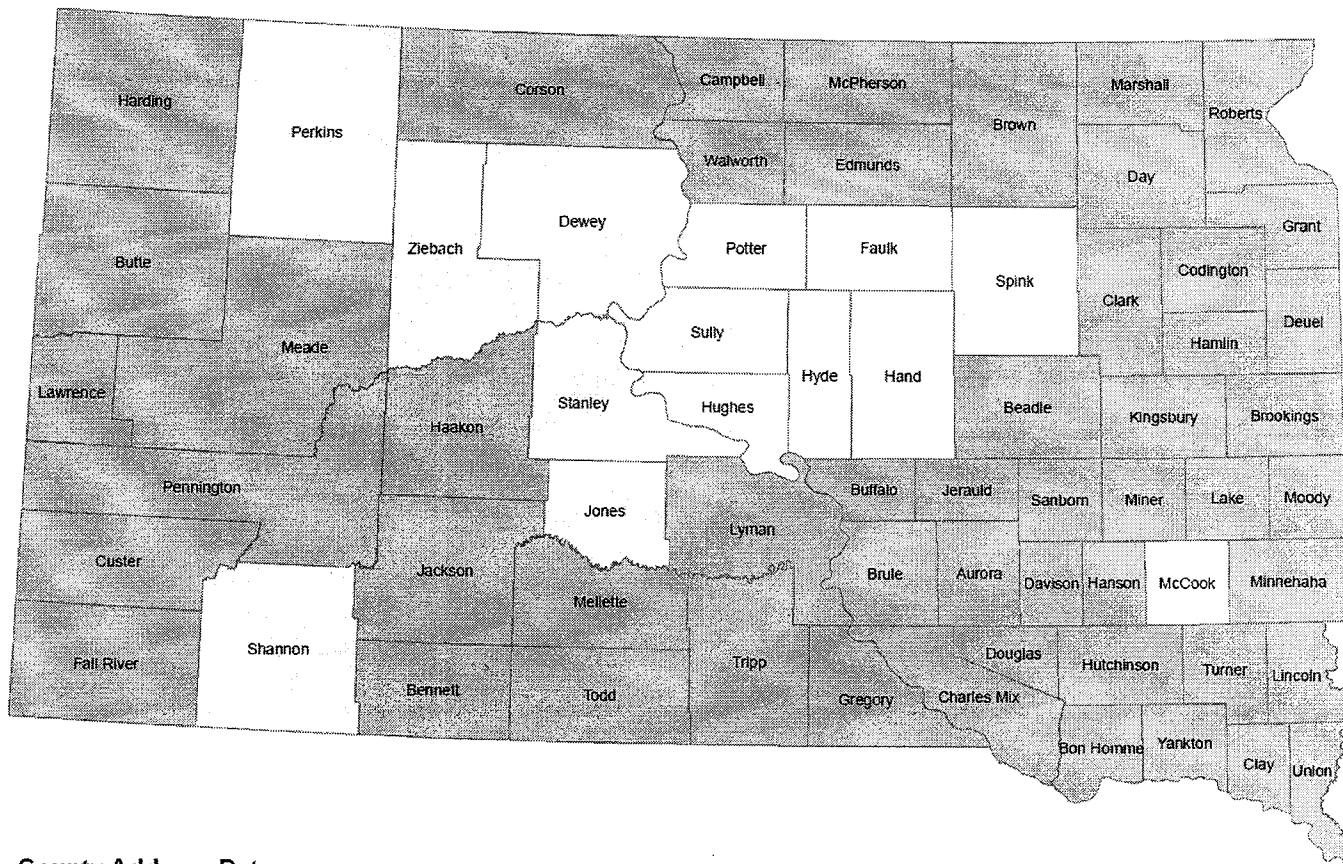
To create the most accurate dataset, the State proposes to use all available address sources. We plan to obtain the most complete and accurate address datasets which have been collected by local governments. If gaps remain, state, federal and commercially available address datasets will be sought to provide the remaining address data. By implementing this method to collect the address datasets, the need for commercial data will be eliminated at the end of the 5 year project. This approach is also the most sustainable approach. Building a process where data will be collected internal to the state will assure that long term sustainability for mapping will be achieved and ensure the most accurate and complete dataset for South Dakota.

In order to accomplish this task, the State is proposing to pay each county to submit a standardized GIS address dataset to the state on a yearly basis for the next 5 years. 52 SD counties have an existing dataset and 14 will need to have one created. The proposal is to pay each county \$4,000 each year for five years to help offset maintenance or creation cost, and for submittal of their address layer data. This will create the most accurate

address dataset possible. Estimated costs are \$4,000 per year * 5 years * 66 counties = \$1,320,000.

| | |
|------------------------------|--------------------|
| County datasets Year 1: | \$264,000 |
| County datasets Years 2 – 5: | <u>\$1,056,000</u> |
| | \$1,320,000 |

The following map depicts the status of the County Address data being available across South Dakota.



County Address Data

- Local Data Created
- No Local Data

2. Development (\$475,000)

A statewide electronic inventory of data meeting the NOFA requirements will be built. The information will be gathered from the telecommunications industry within South Dakota. The industry includes incumbent and competitive local exchange carriers, cable systems, wireless providers, middle-mile and last-mile carriers and any other telecommunication companies.

The system will include a process for the automatic initial loading of data and a repeatable process for updating new data. A file transfer process will be established to meet the NTIA requirements for transferring the data. Standard and ad-hoc reporting on information such as underserved areas, unserved areas, technology types, coverage areas, and speeds will be generated.

| | |
|--------------------------|-----------------|
| Development Year 1: | \$400,000 |
| Development Years 2 – 5: | <u>\$75,000</u> |
| Total: | \$475,000 |

3. Portal (\$330,000)

A web-accessible portal will be built to provide open access to public broadband information. The website will be built to allow current, standard browsers to view the information in an easy-to-understand format. Specific functions available will include reports of unserved areas, underserved areas, census block views, background information on broadband, educational information, and information, programs, and media to promote adoption. Flexible ad-hoc reporting will be necessary to meet changing requirements.

The costs for the portal include the Development of the web site and all required hardware and software licensing.

| | |
|---------------------------------------|------------------|
| Broadband Mapping Portal Year 1: | \$210,000 |
| Broadband Mapping Portal Years 2 – 5: | <u>\$120,000</u> |
| | \$330,000 |

4. Project Management (\$462,500)

The state will work with our contractor to provide project management, reporting, analysis and technical expertise. The state's project management rate is \$61 per hour and the staff hourly rate is \$43 per hour which includes salary and benefits. An estimate of 1,500 hours of state employee time is estimated for the first year. Additional years are estimated at 500 hours for project management and staff participation.

| | |
|---------------------------------|------------------|
| Project Management Year 1: | \$298,500 |
| Project Management Years 2 – 5: | <u>\$164,000</u> |
| Total | \$462,500 |

5. ARRA Reporting (\$18,688)

BIT has estimated ARRA reporting costs of 0.5%. This is to cover the ARRA grant conditions, auditing and reporting requirements.

Reporting Year 1: \$9,188

Reporting Years 2 -5: \$9,500

Total: \$18,688

6. In-Kind Contributions (\$884,531)

a. Broadband Data Acquisition, Verification & Updating (\$22,500)

The State expects and its' mapping partner will contribute in-kind contributions as part of the acquisition, verification and updating phases. This includes the areas of web hosting, development,

Data Acquisition, Verification & Updating Year 1: \$125,000

Data Acquisition, Verification & Updating Years 2 – 5: \$100,000

Total: \$225,000

b. State & County GIS Address Datasets (\$659,531)

The State will provide an in-kind address dataset created to assess city sales tax by the Department of Revenue and Regulations. The creation cost of this dataset was \$102,026.5 with annual maintenance costs of \$14,301.33.

The state will also provide an in-kind address dataset developed by SD One Call for the purpose of locating underground utilities. The in-kind match for this dataset is \$486,000.

GIS datasets Year 1: \$602,327

GIS datasets Years 2 – 5: \$ 57,204

\$659,531

| MAPPING | Year 1 | | Year 2 | | Year 3 | |
|---|-------------|---------------|-----------|---------------|-----------|---------------|
| | Federal | In Kind Match | Federal | In Kind Match | Federal | In Kind Match |
| Broadband Data Acquisition, Verification & Updating | \$550,000 | \$125,000 | \$25,000 | \$25,000 | \$25,000 | \$25,000 |
| State & County GIS Databases | \$264,000 | \$602,327 | \$264,000 | \$14,301 | \$264,000 | \$14,301 |
| Development | \$400,000 | \$0 | \$18,750 | \$0 | \$18,750 | \$0 |
| Broadband Mapping Portal Project | \$210,000 | | \$30,000 | | \$30,000 | |
| Management | \$298,500 | | \$41,000 | | \$41,000 | |
| Mapping Total | \$1,722,500 | \$727,327 | \$378,750 | \$39,301 | \$378,750 | \$39,301 |

| MAPPING | Year 4 | | Year 5 | | Total | |
|---|-----------|---------------|-----------|---------------|-------------|---------------|
| | Federal | In Kind Match | Federal | In Kind Match | Federal | In Kind Match |
| Broadband Data Acquisition, Verification & Updating | \$25,000 | \$25,000 | \$25,000 | \$25,000 | \$650,000 | \$225,000 |
| State & County GIS Databases | \$264,000 | \$14,301 | \$264,000 | \$14,301 | \$1,320,000 | \$659,531 |
| Development | \$18,750 | \$0 | \$18,750 | \$0 | \$475,000 | \$0 |
| Broadband Mapping Portal Project | \$30,000 | | \$30,000 | | \$330,000 | \$0 |
| Management | \$41,000 | | \$41,000 | | \$462,500 | \$0 |
| Mapping Total | \$378,750 | \$39,301 | \$378,750 | \$39,301 | \$3,237,500 | \$884,531 |

| Accounting & Reporting Total | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|------------------------------|--------|---------|---------|---------|---------|---------|
| | | \$9,188 | \$2,569 | \$2,319 | \$2,319 | \$2,294 |

Applicant Capacity, Knowledge, and Experience

The State of South Dakota is in the process of evaluating responses from a Broadband Mapping and Planning RFP. The State has received five (5) responses to the RFP and will engage with a strategic partner with experience in broadband mapping projects. The partner will be required to have previously operated in the broadband mapping space and will be required to verify that they have completed a number of broadband mapping projects in the nation to date.

Our partner will establish or reaffirm relationships with the broadband providers in South Dakota. Existing relationships may include those from prior mapping projects and their related non-disclosure agreements. In the case of previous relationships not in place, BIT will work with the mapping vendor and the company in question to assist in establishing those relationships. South Dakota's broadband providers are a tight-knit family, bonded together by years of cooperation and collaboration through joint associations and community projects. By the State, mapping vendor and telecommunications industry building on or establishing relationships, the greatest possibility of successful data collection can be assured.

The personnel working on the project from state government have the greatest amount of experience in public-sector broadband in South Dakota, and a significant amount of experience in private-sector broadband issues. The State of South Dakota offers an executive task force on broadband whose members include the State Chief Information Officer, the Deputy Chief Information Officer, Director of Telecommunications, the state's lead GIS analyst and other personnel previously involved in the tracking, mapping, and expansion of South Dakota broadband.

These personnel are also those responsible for the design and implementation of South Dakota's Next Generation Broadband Network, the Research, Education and Economic Development (REED) Network, a multi-wave 10 Gigabit statewide optical network connecting the largest public-sector broadband stakeholders in South Dakota, as well as the Digital Dakota Network, providing broadband connectivity and many related IT services to the K-12 education community of South Dakota.

In addition to the Broadband Mapping team, other expertise may be called upon from the Bureau of Information and Telecommunications. BIT is the central information technology organization for the State of South Dakota. BIT's service portfolio includes a wide range of technology expertise, including telecommunications, desktop support, public safety communications, platform architecture, video conferencing, directory management, application development, Geographic Information Systems application development, and information technology business analysis. With a diverse clientele of the Executive, Judicial, and Legislative branches of government, the Constitutional Offices of South Dakota, city and county governments, K-12 schools, and higher education institutions, no one is better suited to understand the public sector technology situation than BIT. The breadth of this clientele has provided the foundation for a dependable and reliable service-provider relationship with these organizations.

BIT's Network Technologies group is responsible for all public-sector wide area networking services across South Dakota. This group manages over 1,100 circuits for a clientele that

includes the Executive, Legislative, Judicial branches of state government, K12 community, public higher education along with local and municipal governments. This size of network requires collaboration and partnering with a wide variety of individuals on service activities. These individuals include clients, providers and other technical staff.

BIT currently maintains a centralized enterprise GIS environment for any state agency to use. BIT provides five encompassing GIS services to all state agencies.

1. The first service provided by BIT is GIS data storage. Three terabytes of GIS data is currently managed. Two storage methods are utilized. The first is file based storage on BIT storage area network facilities. The second is database storage from the SQL SDE server. These two storage facilities provide a warehouse of all GIS data within state government. Numerous federal, county, and city datasets are available for clients use. A searchable list of most of data can be found and viewed at <http://arctgis.sd.gov/ims/sdgis/Data.aspx>
2. BIT provides GIS programming for client-server and web mapping applications. These are custom tailored applications to meet an agency's specific needs. A sample of web applications can be viewed at <http://arctgis.sd.gov/ims/sdgis/Data.aspx>. Third party applications are hosted on the infrastructure such as with the Game Fish and Parks WILMA application developed by Timmons group seen at http://arctgis.sd.gov/Wilma/mapping/mapping_public.aspx
3. BIT provides software licensing. A centralized license server for all state GIS software needs is maintained. Remote locations utilize a Citrix client to promote network speed to large centrally located GIS datasets.
4. Training of clients is provided by BIT's GIS staff. Three South Dakota specific GIS training classes have been created. <http://arctgis.sd.gov/ims/sdgis/Training.aspx> On an as needed basis outside trainers are contracted to teach client and agency staff.
5. Outreach is also performed by BIT staff members. BIT holds and attends monthly Technical Advisory Group (TAG) meetings, bi-weekly standards meetings, and is a member of the Black Hills Digital Mapping Association (BHDMA). We are also co-hosting a SD GIS conference on September 1st and 2nd. The purpose of holding and attending these meetings is to promote data sharing and collaboration between various levels of government.

South Dakota's partner will have to provide best-of-breed personnel to the project as well. The Program Director, Program Manager, GIS engineering staff, and other personnel will have to show they have completed a number of successful broadband mapping initiatives and strategic planning efforts toward broadband in the nation.

Section III

Expedient Data Delivery

With an ambitious timeline set forth in the NOFA, timeliness on all actions taken is critical. The State of South Dakota has formulated a tentative work plan and schedule for our mapping efforts, with exact scheduling being dependent on specific details to include the costs included in the proposals in response to our RFP being within the proposed budget in the grant application, the broadband providers willingness to agree to NDA's and provide the requested data, and the ability of the providers to submit the requested data in the requested format.

July 24 – Release Request for Proposal for Mapping and Planning Activities

August 7 - Received 5 responses to the RFP

August 7 & August 11 - Requested extension to Mapping Application Grant deadline

August 14 - Received waiver extension.

Week of September 13 – Notice of Award

Week of September 27 – Contracted services with partners begin, continue identifying providers in state if necessary, begin administration and execution of non-disclosure agreements with providers, establish data transfer methodology, begin receiving, processing, and converting provider data, begin assisting providers unable to deliver required information, finalize gathering of additional required resources

Weeks of October 4, 11, 18, 25 – Continue NDA administration and execution, processing and converting received provider data, increase assistance to providers unable to deliver required datasets.

November 1, 2009 – Strive to deliver to NTIA a substantially complete set of availability data. Completeness of data to be dependent on percentage of providers that require assistance in generating required datasets.

November 1, 2009 to February 1, 2010 – If necessary, continue to process and update provider data, engage in rigorous assistance activities on remaining providers

February 1, 2010 – If not completed by November 1, 2009, deliver substantially complete set of data to NTIA

February 28, 2010 – Deliver complete mapping dataset to NTIA

Semi-annual updates to NTIA will be delivered as per the schedule in the NOFA.

Members of the executive task force on broadband are currently reviewing the responses to our RFP, and will award the project to a qualified contractor in the most expeditious manner possible once the grant award process is complete. Until the grant award process is completed, the State

of South Dakota is unable to retain the assistance of any contractor(s) associated with this project.

Thanks to the compact nature of the telecommunications industry in South Dakota and the existing relationships with the broadband service providers in South Dakota, we feel that a substantially complete dataset will be available no later than February 1, 2010. The goal of all parties involved, however, is to deliver a substantially complete dataset to NTIA by the preferred date of November 1, 2009. Due to the size and sparseness of population in the state and the varied technical abilities of the data management systems found in our providers, we cannot make a firm estimate as to the ability of our providers to deliver a ready-to-use dataset to the State or its partners without significant assistance in its production.

Section IV

Repeated Data Collection Processes

The updating and repeated data collection processes for South Dakota will continue to build on the relationships formed during the initial collection and take advantage of the lessons learned, processes perfected, and technologies installed as part of those efforts to insure accuracy and timeliness. The data will be gathered twice a year with information current as of June 30 for the September 1 due date and December 31 to meet the March 1 delivery date. Through distribution of an easily understood form, all providers will receive detailed information on all of the data that must be reviewed and updated, including new territory expansions and discovered discrepancies, laid out in a format consistent with and in support of the NOFA data requirements.

All communications with the providers regarding updating of their datasets will be timely and contain the deadlines for submission, being sure to leave sufficient time for the provider to produce the required dataset and updates. Our partner will do the data collection updates and be responsible for the relevant processing and handling of the data, and for producing and submitting the semi-annual updates to NTIA.

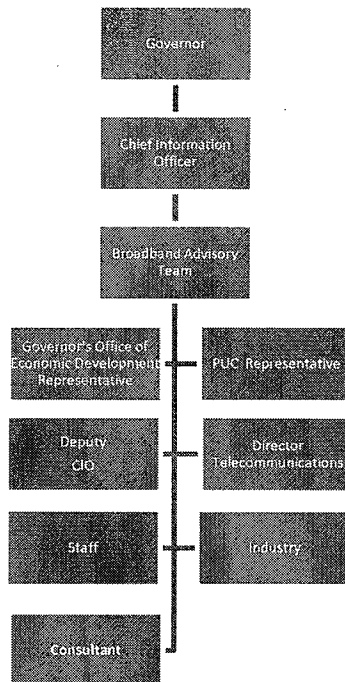
Section V

Planning and Collaboration

Planning

Success of the planning aspect requires the effective participation of stakeholders from the public and private sectors. The State of South Dakota's Broadband Advisory Team will be responsible for insuring its' effectiveness. Collaborative efforts will require participation from state government agencies, vendors, non-profits and other interested parties. State governments would not be successful without the ability to collaborate with a broad set of stakeholders and this is simply another opportunity for that.

The Broadband Advisory Team will consist of the Chief Information Officer (CIO) for BIT, the Deputy CIO for BIT, Director of Telecommunications, representative from the Public Utilities Commission, representative from the Governor’s Office of Economic Development, industry representatives, and other staff representation. The team for this project will also be assisted by an outside consultant in their efforts to guide, evaluate, and resolve the issues of broadband strategic planning.



South Dakota has a plan to increase broadband consumption. The plan includes these steps:

1. Broadband Advisory Team (\$50,000)

The establishment of the statewide Broadband Advisory Team will involve players from government and the industry along with an outsourced management team. Additionally, it is anticipated that local planning groups or consultants will be able to assist in operational objectives. It is anticipated that many unserved or under-served areas will be fall on tribal lands within South Dakota. With that in mind, the advisory team may be able to enlist cooperation from the Governor’s Office of Tribal Relations to participate on the Team. The budget for this objective will cover travel and meeting expenses for the coordinator and participants.

2. Analysis (\$50,000)

Significant efforts are underway to identify the presence of broadband services across the country. That data will need to be analyzed by state and industry personnel to identify unserved, under-served and other perspectives of the data. Additionally, it is important to

build a background of the current broadband environment, identify issues with service availability and barriers to adoption. This step will accomplish that analysis by studying and reviewing the data gathered to generate effective reports. Those reports will assist in establishing service priorities.

3. Education (\$175,000)

Technology and computers can be quite intimidating. In contrast to the youth of today who are immersed in technology on an hourly / daily basis, South Dakota's members of the Baby Boomer Generation and even some of the Generation X community can be intimidated by technology. The intention of our efforts is to develop programs to explain how technology can be valuable on a day to day basis for consumers and business and help businesses and consumers alike identify the benefits of broadband in their lives.

Broadband today is not your "mother's broadband." The days of slow, patience-testing dial-up technology along with other pre-broadband technologies are behind us. Full motion video, up-to-the-minute weather information, worldwide shopping, telemedicine, distance education, etc. are all capabilities of broadband. It is important to help the public understand why broadband is valuable in today's society.

BIT intends to utilize its' relationship with South Dakota Public Broadcasting (SDPB) to develop a television production to accomplish this. SDPB has 3 television channels with almost ubiquitous coverage across South Dakota to deliver the program to households. Video copies of this program can be distributed to local groups, community centers, and other interested parties statewide. Public viewing sessions at local fairs and events are also an option.

Furthermore, BIT has other opportunities to tap resources from our education community for distributing knowledge on broadband. BIT has effective relationships with the university community, with some of those institutions already providing technology training to our K12 technology administrators. BIT also maintains a large-scale distance learning and two-way video conferencing system statewide to over 250 K-12, Higher Education and other locations. BIT can leverage those relationships to establish effective training programs. Those training programs can be delivered using in-person, on-line, distance learning, one-way broadcasts and other effective means.

4. Increase Computers & Internet Access (\$225,000)

Many economic factors contribute to the challenges of household broadband adoption. The purpose of this objective is to build "Internet clusters" in areas of need. By leveraging community anchor institutions, we will provide computers and Internet access to these community anchor institutions. Suggested target areas for installation of an "Internet cluster" will include regions typically seen as small farm and ranch communities and other areas where broadband adoption and knowledge is found to be below average. Wired and wireless technologies will be utilized depending on the best fit

for specific institution. The costs for this objective include hardware, software, broadband and installation of the clusters. Opportunities will be presented to the unserved and lower-than-average penetration areas identified in Objective 1 to apply for the “Internet clusters”.

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|-------------------------|-----------|-----------|----------|----------|----------|-----------|
| PLANNING | | | | | | |
| Establish Planning Team | \$15,000 | \$10,000 | \$10,000 | \$10,000 | \$5,000 | \$50,000 |
| Analysis | \$25,000 | \$25,000 | | | | \$50,000 |
| Education | \$50,000 | \$50,000 | \$25,000 | \$25,000 | \$25,000 | \$175,000 |
| Computers & Access | \$25,000 | \$50,000 | \$50,000 | \$50,000 | \$50,000 | \$225,000 |
| Planning Total | \$115,000 | \$135,000 | \$85,000 | \$85,000 | \$80,000 | \$500,000 |

If the intention of the BDIA is to increase broadband consumption, the above plan specifically accomplishes just that. The first step is the establishment of an Advisory team to guide the project. Next, analyze information gathered from the mapping portion of the project in addition to other information sources identified. Building education and training programs to educate the public will follow. Finally, enabling areas of need with the tools needed to take advantage of broadband services. It’s a complete solution.

Collaboration

With respect to collaboration by the State and the broadband stakeholders of South Dakota, the Bureau of Information and Telecommunications has an extensive set of roles and responsibilities to the public and private sectors statewide. Section II provides a brief description of BIT and the responsibilities assigned to them as part of their duties to state government. The baseline credibility, camaraderie, relationships, and skill sets provided to our diverse clientele form a key component to the Collaboration aspect. BIT is a recognized technology leader and anchor tenant in South Dakota.

The telecommunications industry in South Dakota is rather compact. The incumbent telecommunication companies are Qwest Communications and local cooperative-types that are represented by the South Dakota Telecommunications Association. Additionally, companies such as Midcontinent Communications, Knology, Inc., SDN Communications, Alltel Communications, and Verizon Wireless all have significant presence throughout the state. BIT is a large consumer of telecommunications services from these companies, and has formed a positive working relationship with all of them as a customer of these companies.

The combination of the broad service provider experience and clientele with the successful history to partner with the telecommunications industry has built a successful ability to collaborate with diverse communities of interest.

As part of its duties to state government, BIT works daily with the state agencies, constitutional offices, legislative bodies, county government officials, and public education providers with a stake in South Dakota's broadband future.

BIT is currently responsible for the statewide Public Safety Communications System. This system provides law enforcement services to over 15,000 subscribers across the state. It is the primary communications system for law enforcement in South Dakota. Included as part of this user group are the tribal reservations within South Dakota. The tribal entities maintain a seat on the Public Safety Governance Group to represent their interests. The usage from the tribal / federal category is approximately 5% of our overall use. The value of this information is that it demonstrates a success of BIT in working with tribal entities within South Dakota.

BIT has held "Recovery Act" discussions with many of the above groups. These meetings have all held a common theme throughout them – the willingness to cooperate despite a significant set of unknown requirements and expectations towards the Act. Whether it is a side-effect of the scarcity of South Dakota, the relatively small population or just the right mix of personalities involved, the willingness of the parties involved to plan and collaborate is not a concern within this project.

Playing an equally important role in the planning and collaboration efforts in South Dakota will be our partner who will be required to have experience in building public-private sector partnerships at the state, county, and local level. These partners define common goals, share resources, jointly define strategies to meet the goals, and seek the counsel and input from other public and private stakeholders in South Dakota broadband, such as the Governor's office, health care representatives, education officials, library associations, and economic development staff. In addition, local authorities, businesses, and interested parties will be invited to share input as public hearings, by phone, and through the South Dakota broadband portal. All parties will strive to develop and implement strategies at the state and local level to complete the assigned mapping and planning tasks.

With the solid foothold provided by BIT and our partner along with a strong, compact telecommunications industry, South Dakota is well positioned to deliver on the required planning and collaboration aspects of the program. Example communications from our public stakeholders demonstrating their willingness and excitement to work with BIT in the shared broadband planning and collaboration efforts are inserted below.



Dustin Johnson, Chair
 Steve Kolbeck, Vice Chair
 Gary Hanson, Commissioner

**SOUTH DAKOTA
 PUBLIC UTILITIES COMMISSION**

500 East Capitol Avenue
 Pierre, South Dakota 57501-5070
 www.puc.sd.gov

Capitol Office
 (605) 773-3201
 1-866-757-6031 fax

Warehouse
 (605) 773-5280
 (605) 773-3225 fax

Consumer Hotline
 1-800-332-1782

Aug. 6, 2009

Otto Doll, Commissioner
 South Dakota Bureau of Information and Telecommunications
 700 Governors Drive
 Pierre, SD 57501
 INTEROFFICE

Dear Commissioner Doll:

The South Dakota Public Utilities Commission is looking forward to working with the South Dakota Bureau of Information and Telecommunications on the broadband mapping project for our state. As the state agency that annually reviews and approves more than \$80 million in investment in building out and maintaining rural telecommunications networks, the PUC is well-suited to collaborate with BIT to develop the broadband map. The information collected will be a valuable tool for the commission as we work with the private sector to encourage investment in broadband deployment throughout un- and under-served areas of South Dakota.

As we are all well aware, broadband access is a critical component of economic development and enhanced learning opportunities, especially in rural South Dakota. The availability of broadband can have a significant impact on our state's residents, allowing for greater opportunities in healthcare, educational, commercial and social endeavors.

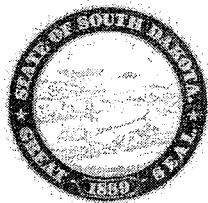
We at the PUC are eager to fulfill our role in the broadband mapping project.

Sincerely,

Dusty Johnson
 Chairman

Steve Kolbeck
 Vice Chairman

Gary Hanson
 Commissioner



STATE OF SOUTH DAKOTA
M. MICHAEL ROUNDS, GOVERNOR

August 4, 2009

Lawrence E. Strickling, Assistant Secretary for Communications and Information
National Telecommunications and Information Administration
U.S. Department of Commerce
Herbert C. Hoover Building (HCHB)
1401 Constitution Avenue, N.W.
Washington, DC 20230

Re: Letter of State Designation / NTIA Broadband Mapping Program

Dear Lawrence,

On behalf of the citizens of South Dakota, I would like to make our designation as the eligible entity for this program. As requested under Docket No. 0660-ZA29, I am authorizing the Bureau of Information and Telecommunications as our official designee for the State Broadband Data and Development Grant Program. Commissioner Otto Doll will be our representative to the program.

Please contact my office if you have any further questions.

Sincerely,



M. Michael Rounds

MMR:ls

Applicants should also review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, 'New Restrictions on Lobbying.' The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of Commerce determines to award the covered transaction, grant, or cooperative agreement.

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over \$100,000 or a loan or loan guarantee over \$150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying,' in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

In any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying,' in accordance with its instructions.

Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

*** NAME OF APPLICANT**

State of South Dakota, Bureau of Information & Telecommunica

*** AWARD NUMBER**

*** PROJECT NAME**

State Broadband Data and Development Grant Program

Prefix:

Mr.

*** First Name:**

Jim

Middle Name:

*** Last Name:**

Edman

Suffix:

*** Title:**

Deputy Commissioner

*** SIGNATURE:**

Jim Edman

*** DATE:**

08/27/2009

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

| | |
|---|---|
| <p>* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL</p> <p>Jim Edman</p> | <p>* TITLE</p> <p>Deputy Commissioner</p> |
| <p>* APPLICANT ORGANIZATION</p> <p>State of South Dakota, Bureau of Information & Telecommunica</p> | <p>* DATE SUBMITTED</p> <p>08/27/2009</p> |

Standard Form 424B (Rev. 7-97) Back

Addendum : One Economy & BroadMap Personnel Resumes

TONY HOOK, PMP

502-220-9007

tony.hook@broadmap.cor

- Proven leadership in Project Management Office development and improvement including tools, processes and people.
- Led the development and implementation of an internal Project Management certification program within an Information Technology (IT) organization. Improved the overall project management maturity and increased the number of Project Management Professional (PMP) Certifications from 4 to 21.
- Led a Process Improvement/PMO group responsible for developing, implementing and maintaining desktop applications in support of airline finance and accounting functions.
- Oversee enterprise project management application, develop and implement project management methodology, guides, best practices and metrics.
- Certified Project Management Professional with additional training in IT Infrastructure Library (ITIL) best practices and Prosci Change Management Methodology.
- A Master of Science Degree in Applied Information Technology from Bellarmine University and Bachelor of Science Degree in Business Administration majoring in Finance from the University of Louisville.
- Leveraged root cause analysis techniques to determine causes of business process problems and develop solutions targeted at resolving those problems.

PROFESSIONAL EXPERIENCE

BroadMap

Senior Director – Program Management Center of Excellence

- Oversee enterprise project management application, develop and implement project management methodology, guides, best practices and metrics.
- Coach and mentor team of project managers and business analysts to support organizations project management objectives, programs, and functional analysis needs.
- Coordinate the development of project initiation documentation, charter, contracts and stakeholder identification with clients and project team members.
- Coordinate the development of project schedules, work plans, budgets, and project management plans.
- Coordinate management of multiple related projects which are directed toward a common objective. Work with Project Managers to monitor cost, schedule, and technical performance of component projects and operations, while working to ensure the ultimate success of the program. Generally responsible for determining and coordinating the sharing of resources among their constituent projects to the overall benefit of the program. Responsible for internal and external stakeholder management.

- Lead and coordinate the functional side of a product development team. Manage and define the functional specifications; define how the product will work; prioritize, plan and drive features to completion.
- Lead the writing of functional specifications to ensure the team has a clear direction and understanding of the requirements.
- Monitor and control project schedule, budget, scope and quality commitments are adhered to. Interact with technical staff to understand the project status. Interact with various internal and external teams to review the progress towards meeting stated objectives.
- Coordinate the closeout of completed projects ensuring that all activities are formally closed, resources are released, contracts are settled, open items are resolved, and final reporting and acceptance are completed.

Brown-Forman Corporation

Lead Project Management Analyst

- Led upgrade of enterprise project portfolio management application, Planview, from version 7.3.2 to 9.0. Primarily focused on user pilot, user testing, delta training, and go-live support. Application was successfully upgraded with no major issues.
- Led initiative to improve Project Office processes. Primary objectives were to improve and formalize project governance processes and the project management methodology – processes, templates, techniques, and best practices. Led planning, executing, monitoring and controlling phases. Developed and delivered training in support of new processes. Governance, initiation, charter, change management and status reporting processes were successfully implemented and integrated with Planview.
- Led Project Management Training and Certification Program. Primary objectives were to improve overall project management maturity of IT organization and increase the number of certified Project Management Professionals. Worked with contracted training vendor to develop basic and intermediate project management training content. Coordinated all training sessions. Monitored targeted participants' progress. Of those targeted, 95% attained basic project management certification and 92% attained intermediate project management certification. Increased number of certified Project Management Professionals over 500% from 4 to 21.
- Responsible for Project Administration Metrics. Primary objectives of Project Administration Metrics were to improve relationships with business units by improving time required to commit to project estimates and deadlines, accuracy of estimates and resource allocations. Exceeded goals for all metrics by monitoring performance monthly and implementing corrective actions as needed.

United Parcel Service - Air Group

Business System Analyst

- Coordinated internal process improvement efforts for business analysis, quality assurance, and release management groups focusing on improving processes, skills, and tools utilizing enterprise solutions.
- Developed requirements, use case documentation and time and attendance pay rules with end users and technical staff to facilitate design of new applications.
- Developed and executed test plan for system and user acceptance testing.
- Trained end users on new time and attendance system.
- Coordinated software quality assurance efforts to ensure project documentation conformed to CMM Level 2 & 3 standards.
- Performed root cause analysis to determine causes of payroll errors within legacy environment.

Supervisor/Analyst – Process Improvement / Payroll / Aircraft Costing

- Supervised Finance and Accounting Process Improvement/PMO department and payroll department.
- Coached Process Improvement Analysts on developing and implementing new processes and desktop applications utilizing structured analysis methodologies and project management best practices to identify opportunities for improvement and solutions to problems.
- Supervised the support of applications developed by the Process Improvement Group.
- Supervised 8 Payroll Administrators and 2 Financial Analysts responsible for weekly and monthly payroll for approximately 6,000 airline employees.
- Performed payroll cost analysis in support of various business functions.
- Managed projects to migrate critical department applications from non-Y2K compliant applications.
- Led cross-functional team update of aircraft costing procedure and maintained aircraft costing procedures.
- Developed and implemented new aircraft costing methodology/application and application to track passenger project start-up costs.

Capital Budgeting Coordinator / Cost, Budget & Financial Analyst

- Coordinated quarterly reporting of airline capital expenditures and airline Board of Directors report.
- Developed and implemented line maintenance gateway cost application including gateway cost statements, expense detail reports, and expense tracking procedures.
- Prepared the following line maintenance reports: Budget Variance Analysis, Indirect Mechanic Hours, Payroll Summary, and Outside Repairs Summary.

EDUCATION: **MS in Applied Information Technology** – Bellarmine University
 BS in Business Administration/Finance – University of Louisville

QUAN VU

408-373-9173

Quan Vu@broadmap.cor

Chief Technology Officer

- Forward thinking in business and product innovator with over 20 years of global business experience in content and software development in business to business sector and business to consumer sector.
- I have direct experience in product development, product management, product marketing, global sales and business development, team building, partner management, and contract negotiation.
- I have in dept knowledge of GIS mapping, technologies, applications and services related to content and digital maps. With that perspective, I'm capable of guiding both large and small enterprise organizations into new, dynamic and uncharted markets.
- My operational and development experience, presence and communication style inspire confidence and respect from peers and senior leaders.
- Through mutual trust and respect, I lead from the front in motivating and stretching my employees to innovate and develop breakthrough products, lower costs and improved profitability.
- My hands-on style of management and balanced approach to problem solving allow me to perform at the highest levels and the results are reflected in a proven track record of achieving positive results in diverse environments and challenging markets.

PROFESSIONAL EXPERIENCE

BroadMap

Chief Technology Officer

- Responsible for high level strategy setting regarding technology, engineering development, mapping and support development, and GIS mapping web services
- Managed a team of Senior Directors responsible for all local and remote infrastructure development, mapping, broadband mapping, sourcing, quality assurance, product development, web hosting services, and technical support.
-
- Manage a team of engineers responsible for the tools development of GIS database production / analysis.
- Responsible for the creation, design, load, and maintenance of the production and product RDBMS.
- Responsible for the creation of database data models, functional data specifications for all production level databases.
- Responsible for all geocoding aspects of all input sources.
- Responsible for the process and procedural design and management of the customer / technical support team.
- Responsible for RDBMS database administration (DBA) of all BroadMap's database assets.

Tele Atlas

Global Vice President – Business Development

- Responsible for the development and execution of global and area business development strategies, revenue goals, and forming strategic alliances to meet overall company objectives.
- Managed a global team of VPs and Senior Directors responsible for the execution of business development in their geographic area (EMEA, AM, APAC).
- Coordinated with Sales to provide overarching account strategies focused on large global accounts that are “Must Win” for the company.

Vice President Sales – North American Consumer PND Market

- Responsible for annual revenue goal setting, revenue generation, strategic and tactical objectives
- Developed and executed annual Sales strategies to meet and exceed revenue goals.

Etak, Inc.

Senior Director Product Marketing – GIS, Tools, and Consumer Products

- Responsible for product ideas, feasibility analysis, marketing requirements document (MRD), marketing plans, and product launch programs for 5 product families which resulted in 11 commercial product lines, 2 on-line product services, 2 consumer product lines, and 2 SDK / Internet Map Server products. These products and services generated 2/3 of the company's revenue.
- Managed a group of Senior Product Marketing Managers and Sales Engineer responsible for “cradle to grave” product marketing activities consisted of MRDs, product pricing, product positioning, product launch and distribution, and on-going market analysis.
- Developed routine SWOTs to support existing products and to provide inputs on requirements for new products.
- Functioned as a liaison between Marketing and Engineering to coordinate and support sales force in pre-sales and post-sales activities.
- Responsible for the creation and execution of marketing campaign to support product launches. Activities consist of working with Marketing Communication to create advertisement programs for various media, creative art, product brochures, collateral, press release, sales demo, on-line web content, and sales training.
- Responsible for trade show lead generation and providing qualified leads to sales force for revenue opportunities.
- Developed and implemented a tiered Business Partner Program to support and maximize company's business model.

EDUCATION: BA in Computer Science Engineering - San Jose State University

MICHAEL G. EVERS

703-819-3535

michael.evers@broadmap.com

GLOBAL SALES, MARKETING & BUSINESS DEVELOPMENT STRATEGY EXECUTIVE

Converging Business Development, Multi-Channel Strategic Partnering, Marketing & Product/Service Launches to Drive Revenue, Profit & Growth for Next Generation Technology Products & Services

- Demonstrated exceptional ability to move across technology manufacturers, service providers and distributors/retail sectors, quickly and effectively launching new lines of business that have resulted in significant revenue and profits.
- Communicated a vision and value of new initiatives to senior management, sales and partners, earning full commitment/support.
- Built top-flight product development, marketing and sales teams through both direct and matrix-based leadership and applied proven strategic/tactical skills to launch first to market product lines and newly formed market segments.
- Leveraged competitive analysis, market research and performance measurements to ensure appropriate allocation of personnel and capital to generate optimal sales and profit outcomes.
- Created multi-faceted, ROI-based marketing strategies and multimedia programs that differentiate companies and brands from competitors, influence buying behaviors and drive strong market position across diverse worldwide business and consumer channels.
- Forged "C-level" relationships and captured multi-million dollar contracts based on innate ability to understand real and perceived needs, balancing the interest of the business and the customer, and structuring "win win" agreements.

PROFESSIONAL EXPERIENCE

BroadMap

President and COO

- Manage daily operations with all functional areas reporting directly including finance, legal, product management, marketing and human resources.
- One of three company founders responsible for all internal operations and management of investment partners.
- Responsible for the recruiting of all executive positions including CTO, CMO, CFO
- Oversight of company's strategic direction and business strategies
- Senior contact for all partnership

TELE ATLAS

Geographic database and digital map marketing/distribution division formed in 2004 following the \$100M acquisition of Geographic Data Technology by the European market leader and parent company Tele Atlas, NV. Following the 2008 \$4.2 billion acquisition Tele Atlas became part of TomTom NV.

Vice President Global Marketing & Business Development,

Named the top marketing executive for the America's and charged with building a global marketing organization and integrated go-to-market strategies and partner relationships. Built and currently leads a 30-person team through 5 VP/Director level reports overseeing 5 business segments, global communications, the retail channels and business development. Administer a \$20M annual budget and \$5M in agency/3rd party services contracts. Serve as a member of a 6-person executive leadership team reporting to the President and global CEO.

Marketing & Business Leadership

- Established a sophisticated strategic marketing and best practices organization. Defined team building, business interaction and talent management structures. Recruited, trained and developed multi-disciplined talent.
- Spearheaded the formation and start-up of a global business development team to develop long-range revenue opportunities and forge strategic relationships with multinational clients, including Dell, Jentro, Qualcomm, Yahoo, Wal-Mart, Best Buy, Circuit City, and others.
- Defined and executed a holistic, integrated marketing strategy with common branding and messaging, yet customized product positioning and promotions to reflect the unique nature of target customers and industry/market demands.
- Instilled a stronger, consumer-focused corporate image and strategic positioning statement with broader touch points to reach a larger, more diversified business and consumer audience. Served as a corporate spokesperson at major industry trade shows and conferences.

Market Segment Development & Strategic Partnerships

- Outlined channel strategies for consumer, wireless, enterprise, state/local government and automotive. Forged partnerships and demonstrated how each segment could monetize assets as a turnkey solution and/or value-added component.
- Developed and executed an aggressive market strategic business plan, and delineated go-to-market initiatives, product/solution offerings, pricing/positioning tactics and integrated marketing campaigns. Organized and led international conferences, events and analyst calls.
- Managed international relationships with BMW, TomTom, MITAC, Best Buy and others, and structured one-of-a-kind partnerships and distribution agreements with automotive, hand-held device manufacturers, Internet/wireless content/service providers and retailers.
- Leveraged Tele Atlas' innate understanding of market trends and next-generation technology advances as a key differentiator in helping partners build customized "sell-thru"/turnkey marketing programs that resonate with a wide range of audiences.
- Opened the door or managed C-level relationships with Best Buy, BMW, Cingular, Circuit City, The Source, CompUSA, DASH, Motorola, MITAC, Pioneer Target, Tom-Tom, Walmart, Yahoo and others.

Business Development & Channel Management

- Shared insights on matters where technology, content and markets intersect, enabling the business to capitalize on rampant growth in the personal navigation and wireless Internet sectors by forging market-leading partnerships to dominate a burgeoning consumer marketplace.
- Took consumer market share from ~3% to 28-32% and working aggressively to take over dominant US position. Launched targeted, market-specific initiatives that drove 7% market share / true share gain over 3 years for a category representing 38%+ of total business mix.
- Managed direct and matrix teams in North America, Europe and Asia to further channel and partner relationships, as well as development of South American channel strategy.

- Devised channel and market-specific strategies to capitalize on new opportunities in enterprise and government sectors, laying a foundation for significant growth within the business intelligence, fleet services and other niche segments offering significant growth potential.

COMPUSA

\$5B privately held consumer electronics and PC products retailer with 300+ locations operated as CompUSA and GoodGuys

Consumer Services Director

In a new position, oversaw a \$250-\$350M services portfolio – the most significant growth area and key element of a corporate initiative to become a consumer electronics/services enterprise. Evaluated products/services, store marketing/merchandising and partner relationships, and outlined strategic plans to accelerate performance. Led a staff of 3, managed \$3M budget, and reported to the Vice President and DMM.

- Devised a new direction/focus to leverage consumer services as a competitive differentiator. Changed advertising, merchandising, pricing and promotions to achieve better alignment and positioned consumer services to generate 15-20% of total 2005 corporate profit.
- Initiated transformation of master agreements with service aggregators to direct contracts with major Broadband providers including cable MSOs (Comcast, Time Warner, Cable Vision, Cox, Adelphia), ISPs (Earthlink, AOL) and telecoms (SBC, Bell South).
- Engaged Satellite TV/Radio, DVD/Music and Wireless market leaders, and established new relationships with DirecTV, XM and Sirius in 60 days. Leveraged prior AOL affiliation to strengthen rapport for CompUSA's single largest partnership and highest contributor to ISP sales.
- Positioned CompUSA to secure exclusive test marketing and first to launch programs based on ability to generate the same volume of broadband service activations as leading competitors with nearly 3X more stores/points of sale.

MOTOROLA: BROADBAND COMMUNICATIONS SECTOR / CONSUMER SOLUTIONS

\$26B leading manufacturer of technology equipment for the wireless, networking, automotive and consumer products industries

National Sales & New Business Development Manager

Successfully transitioned into a world-leading manufacturer concurrent with their creation of a new consumer-direct business. Provided strategic and tactical leadership to drive retail channel business development, product roadmaps, and communications/promotions.

- Conceived and launched Motorola's first consumer direct retail program, a channel projected to become a \$750M business in 3-5 years. Personally drove 33% of division's growth in 2002/03.
- Created a value-based business development/partnering model to build industry-leading alliances, and captured the first of such relationships with Wal-Mart, Radio Shack, and numerous others, demonstrating Motorola's commitment as a retail supplier/partner.
- Outlined a comprehensive product marketing template for Networking, Home Automation and Video/Digital product introductions.
- Served as a "go-between" business/operational functions and field personnel/partners to forge better collaboration, and gain insight into retail and consumer market trends. Designed/led training for Motorola employees, a major MSO and 2 partner groups.

AMERICA ONLINE, INC.

\$9B world's largest Internet access provider with more than 30M subscribers

Senior Account Manager / Partner Marketing

- Developed major retail relationships (Wal-Mart, Office Depot, Target, Best Buy, Circuit City). Negotiated deals to capture 15% growth in registrations 8 months, and position the retail segment to represent 48% of all new business.
- Turned around adversarial Wal-Mart relationship and drove forward stalled contract renewal, resulting in 33% registration increase.
- Brought together product development, marketing, and sales and devise a "go to market" strategy. Co-created the 1st uniform Broadband promotion strategy and product roadmap, achieving universal corporate/partner sponsorship.
- Developed the first-ever multimedia "how to" guide, enabling retail sales associates to accelerate sales and competitive positioning.

CIRCUIT CITY STORES INC.

\$10B national consumer electronics and entertainment products retailer with 630 locations

Buyer Internet / Broadband Services & Hardware, / National Pricing Manager,

Product Manager – Express Division, / Store Manager – Express Division

- Forged/expanded Fortune 100 company alliances, and promoted a "win win" proposition to secure 15+ first time partnerships, and lucrative Modem, Software, Satellite, Digital Imaging supplier contracts for what became the \$4.2B Technology Division.
- Helped form and manage the first retail Internet services alliance with AOL, driving an immediate \$1B increase in Circuit City's market cap.
- Drove design and launch of the 1st electronic kiosks/web stations, which grew Broadband to \$100M with 55% margins in 1 year.
- Crafted and led training for 1.7K associates from 325 locations during a 2-month national rollout of Internet products/services.
- Collaborated with 6 cross-functional groups to accelerate sales cycle 50%, reduce activation costs 120% and increase sales 40%.
- Facilitated compensation redesign and 10% spending decrease while category sales representing 40% of total revenue increased.
- Contributed to sales growth at margins \$21M higher than prior years by aligning pricing/promotional strategies to market conditions.
- Exceeded sales goals as much as 30% while leading the #2 volume and #1 profit generating store in the \$100M Express division.

EARLY CAREER – Advanced on the fast track through management development programs with two major retail chains and as a trainer for a government contractor. Gained hands-on experience in team building, people development, sales and marketing.

EDUCATION: **BS in Management – Northeastern University**

BRIAN SCAFFIDI

603-219-3954

brian.scaffidi@broadmap.com

Senior Director, Quality Assurance & Sourcing

- An accomplished technical and management professional with heavy focus on sound Quality principles.
- Strong technical background in GIS, navigation and related products with proven success in the development, design, and production phases of product lifecycle management.
- Natural ability to recognize and offer technical, creative solutions both internally and with customer base.
- A hands-on manager capable of providing long term vision and leadership

PROFESSIONAL EXPERIENCE

BroadMap

Senior Director, Quality Assurance and Sourcing

- Manage a team of quality assurance and sourcing specialist.
- Responsible for the overall design of quality metrics which includes measurement criteria, definition of quality requirements, development of quality tools, and quality & certification processes.
- Responsible for conducting and executing quality control / assurance programs to ensure that all input data sources and generated map data meet quality control specifications and requirements.
- Responsible for implementing source code control programs and procedures.
- Responsible for the source acquisition of broadband data sources ranging from private to government entities.
- Responsible for ISO certification program for BroadMap should the company chooses to implement such program.
- Responsible for implementation of quality assurance programs and methodologies across all functional teams, from business to technology development to ensure consistent and reliable through put.

Tele Atlas

Director, Global Quality

- Responsible for defining and deploying Global Quality division focused on internal improvement programs and a professional external quality interface
- Managed a diversified team of Quality Professionals with presence in North America, Europe and Asia with emphasis on technical GIS capabilities
- Quality liaison for high profile Global Customer base rooted in Automotive, Internet-Wireless, Personal Navigation, and traditional GIS markets
- Responsible for all Quality-related activities for Tele Atlas North America
- Implemented and maintained QMS development and deployment to sustain registration to ISO 9001 certification

- Introduced innovative quality techniques enabling company to achieve new targets with delivery respect rates, first time right, and customer satisfaction
- Responsible for all aspects of day-to-day operations for Quality Department including resource management, department objectives, budget responsibilities, and employee development

Tele Atlas

Senior Manager, Data Sourcing

- Developed Tele Atlas' Field Testing program and Testing Laboratory in Lebanon, NH facility

EDUCATION: BA in Geography - State University of New York, College at Geneseo

MARK NEWCOMB

408-375-7211

mark.newcombi@broadmap.cor

Senior Director, Engineering and Design

- Advance knowledge of GIS applications, tools, and programming languages unique to GIS environments such as, ESRI and MapInfo.
- Advance knowledge of web based enable development tools and environment such as Java, XML, and other web based tools and scripts.
- Advance knowledge with Google and Bing APIs to enable the publishing of products and services via ASP delivery or using local browser to access products.
- Advance knowledge of PostgreSQL RDBMS and its query languages.

PROFESSIONAL EXPERIENCE

BroadMap

Senior Director, Engineering and Design

- Manage a team of engineers responsible for the tools development to create / generate GIS products and web based ASP services.
- Responsible for the creation and development of all product technical specifications.
- Responsible for the publishing of GIS products using either Google and or Microsoft Bing APIs to deliver products as live ASP services.
- Responsible for product development and creation of all GIS products published in either an ESRI format and or MapInfo format.
- Responsible for product development and creation of all printed medium products ranging from standard paper map product to customized paper map products.
- Responsible for the management of the RDBMS product server.

Tele Atlas

Senior Product Manager/Technical Product Manager

- Worked with key accounts/customers to develop market requirements and product requirements for GIS, Wireless, Internet, and Personal Navigation markets.
- Interpreted product requirements to guide the development of product specifications and database updates/changes.
- Created and maintained product specifications.
- Managed or assisted in the management of Multi-Net product creation from internal database updates to product release.
- Created product components and database inputs for database updates.
- Prioritized issues and helped coordinate issue resolution (database and product extract).
- Primary and backup support on technical development for key accounts/customers.
- Developed product launch plans.

Etak, Inc

GIS Project Manager/Sales Engineer & Tele LBS Project Manager/Sales Engineer

- Led development of global shapefile specification.
- Developed prototypes of ArcView extensions.
- Supported pre-sales calls to key customers.
- Developed demonstration applications for use at trade shows.
- Led engineering project to create map service on ESRI's Geography Network
- Assisted with responses to RFPs.
- Assisted with creation of Marketing collateral.
- Assisted with development and QA of shapefile products.
- Primary technical contact in developing projects and products with ESRI. These include Geography Network services, SDC data development, and ArcLogistics Route data development.

Etak, Inc

GIS Engineering Manager

- Managed GIS Engineer, GIS Specialists, and Process Coordinator.
- Assisted with builder development, product build, testing, packaging, and documentation of the Etak Shapefile 2.0 product.
- Developed specifications, developed product build tools, ran product build, wrote QA test plans, assisted with QA, developed ArcView extensions, and wrote documentation for the Etak Shapefile 3.0 product.
- Generated statistics using ARC/INFO spatial analysis to support planning.
- Managed and continued to develop Informix relational databases.
- Maintained and developed ARC/INFO AML tools for plot production.
- Produced ARC/INFO plots for planning, marketing, and presentations

EDUCATION: BA in Geography - University California at Santa Barbara

JESSE SHERIDAN

603-369-8774

Jesse.sheridani@broadmap.com

Senior Director, GIS Mapping and Support

- Demonstrated ability to trouble shoot and resolve GIS spatial and analysis challenges.
- Advanced knowledge of GIS applications, tools, and programming languages unique to GIS environments such as, ESRI and MapInfo.
- Advanced knowledge of geocoding methodologies, postal and geo-political architectures.
- Advanced knowledge of PostgreSQL RDBMS and its query languages

PROFESSIONAL EXPERIENCE

BroadMap

Senior Director, GIS Mapping and Support

- Manage a team of engineers responsible for the tools development of GIS database production / analysis.
- Responsible for the creation, design, load, and maintenance of the production and product RDBMS.
- Responsible for the creation of database data models, functional data specifications for all production level databases.
- Responsible for all geocoding aspects of all input sources.
- Responsible for the process and procedural design and management of the customer / technical support team.
- Responsible for RDBMS database administration (DBA) of all BroadMap's database assets.

Tele Atlas

Director of Strategic Research & Director of Global Specifications

- Coordinated global product, database, and quality design teams
- Managed team of 20+ professionals in 4 countries
- Ensured design alignment with strategic customers/partners
- Exploring new technologies
- Developing prototypes for cutting edge designs
- Interfacing closely with strategic technology partners across the globe

Tele Atlas

Director of Database Development

- Defined and oversaw documentation of database design
- Researched and presented to executive management and strategic clients

- Spearheaded all internal transportation product-related efforts
- Trained and managed GIS specialists throughout the company

EDUCATION: BA in Geography and Pure Mathematics - Dartmouth College

CLARA HOOK

502-384-2872

clara.hook@broadmap.cor

PROFESSIONAL EXPERIENCE

BroadMap

Resource Specialist

- Research and acquire spatial data sets as it relates to broadband availability, types of Broadband access, Broadband quality, and demographic related information.
- Research and acquire contextual spatial data as it relates to national, local state and regional level infrastructure.
- Analyze and evaluate sample spatial data sets to determine if that data needs to be acquired for the data repository.
- Develop relationships with national, state and local agencies as well as commercial entities in order to understand the depth and breadth of the available Broadband and other related spatial data.
- Maintain accurate records for potential and existing spatial data providers.
- Develop new and innovative sourcing techniques regarding web-scraping and community input programs to compliment standard resourcing approaches.
- Manage daily operations with all functional areas reporting directly including finance, legal, product management, marketing and human resources.
- One of three company founders responsible for all internal operations and management of investment partners.
- Responsible for the recruiting of all executive positions including CTO, CMO, CFO
- Oversight of company's strategic direction and business strategies
- Senior contact for all partnership

Humana, Inc.

Project Manager Application Development, Corporate Systems

- Managed the implementation of a new reconciliation tool called TRecs Enterprise for Financial Systems
- Analyzed the existing hardware needs and coordinated with the Vendor to ensure adequate hardware was obtained
- Responsible for writing the Statement of Work and ensuring all aspects of the contract was adhered to
- Coordinated efforts to ensure all known errors were defined and captured in the new testing utility to ensure speedy resolutions
- Prepared and presented weekly status and technical reports to the project team
- Prepared and presented monthly status to Executive Steering Committee

Project Manager Application Development, Corporate Systems

- Managed the implementation of Oracle Infrastructure updates, which included migrating to SLES 10, upgrading database to 11g and implementing all mandatory financial and HR patches
- Worked with multiple technical and business teams to ensure all requirements were documented and tested

- Responsible for ensuring the project updates had no system degradation
- Prepared and presented weekly status report to the Project Team and Project Sponsor

Project Manager Application Development, Corporate Systems

- Managed Implementation of a new Oracle Chart of Accounts structure within the Financial System. Oversaw multiple teams' (on, Enterprise Security, Enterprise Architecture, HR, Finance, Corporate Systems Development.) development efforts to ensure an accurate and timely implementation was achieved
- Coordinated the effort to ensure all known errors were defined and captured in a usable format to ensure speedy resolutions were implemented
- Prepared and presented status and technical reports to senior IT management

Program/Project Manager Medicare Sales & Marketing

- Managed Program Management of IT Medicare initiatives for new development and enhancements of existing applications.
- Captured and paid compensable events for all Medicare Sales Agents
- Oversaw new development for reporting of both delegated and captive agents' commissionable history to ensure all regulator/legislative requirements were met
- Worked with vendors, consultants and business personnel to ensure an enterprise solution was documented and achieved
- Ensured all Business Support personnel accurately documented and tested all applications utilizing the defined methodology
- Responsible for ensuring all regulatory and audit requirements
- Responsible for ensuring the project updates had no system degradation
- Managed a staff of 12 members and support of a user base of 1000+ users

Kindred Healthcare, Inc./Previously Vencor, Inc. Louisville, KY

Manager Financial Systems Customer Support/Sr.Project Manager

- Managed a 24 x 7 Financial Systems Customer Support Group of 12 employees in a team environment that consistently achieved customer satisfaction ratings of 85% or higher
- User base supported included 250 + nursing centers, 60 hospitals, 25 Pharmacies, 500 Rehab Contracts and Corporate Users
- Supported over 100 financial applications including SAP, Meditech, HPAS, Kronos Work Force Central, and Kronos TKC
- Analyzed problem management tickets for trends and root causes and implemented needed corrective actions
- Coordinated and communicated support activities with end users and other IT unit managers (e.g., database, telecommunications, operations, NT, UNIX, and hardware support.)
- Prepared and presented status and technical reports to senior IT management. Ensured compliance with Sarbanes-Oxley requirements
- Coordinated testing of monthly Microsoft patch releases to minimize impact to financial systems

Manager Financial Systems Customer Support/Sr.Project Manager

- Managed the HP Open View Service Desk implementation project which utilized the ITIL framework for Service Desk, Incident, Problem, Configuration and Service Level Management for 450+ users
- Worked with all levels of the IT organization to define and catalog services to ensure issues could be resolved quickly

- Coordinated the effort to ensure all known errors were defined and captured in a usable format to ensure speedy resolutions by Customer Support
- Coordinated the continuity planning efforts for Financial System Development to be utilized in case of disaster
- Managed all project within Financial Systems Development through the full systems development lifecycle
- Presented all phases of the projects to Executive Management

Manager Financial Systems Development – HSD AR, Internet/Intranet Development, Business Support

- Managed HSD Patient Accounting, Internet/Intranet Development and Business Support Groups
- Managed diverse group of 45 employees, including programmers, business analysts, and project managers. Customer base included 250 + nursing centers, 60 hospitals, 25 Pharmacies, Accounts Receivable, Treasury, Tax, Reimbursement, Payroll, Accounts Payable, Finance, Corporate Communications, Legal, Corporate Accounting and all budget contributors
- Prepared and supervised project budgets, estimates, and timelines in excess of \$6M
- Prepared organizational budgets, reviewed financial reports, and managed cost control
- Consulted with senior business management to develop IT solutions to meet strategic business objectives and comply with regulatory requirements
- Consulted with senior business management on the development of the SDLC methodology utilized by the company
- Ensured all Business Support personnel accurately documented and tested all applications utilizing the defined SDLC methodology
- Prepared and presented status and technical reports to senior IT management

Project Manager

- Managed the Maine Medicaid Billing upgrade and implementation of ProComm and Hi-Tech software
- Planned and managed software upgrades for 5 sites and 30 corporate users
- Evaluated technology infrastructure and streamlined billing process to receive Medicaid payments more timely

Programmer Analyst

- Designed and wrote a Reimbursement Utility for State Medicare/Medicaid reporting in Visual Basic 6.0
- Designed and created databases for financial services in SQL Server 6.5 and 7.0
- Imported and exported data loads to and from SAP

Vencor, Inc.

Financial System Support Analyst

- Developed and tested business process procedures for SAP FI/CO modules for 2000+ users in the Healthcare industry
- Developed training documentation for both corporate and field users
- Trained corporate and field users on FI/CO and MM modules. Configured FI/CO modules
- Served as Team Lead for Go-Live Customer Support hotline
- Designed and implemented process flow and procedures for hotline operations

EDUCATION: MS in Applied Information Technology - Bellarmine University

VINCENT ULFIG

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vincent.ulfig@broadmap.com

- GIS software, application & data product design, development, implementation and marketing
- GIS Website and Web Service design, development, implementation and administration
- Spatial database design, development, loading and administration
- 3D Terrain Data Processing and Visualization Systems for US Military simulation systems

PROFESSIONAL EXPERIENCE

BroadMap

Sr. Web Applications Engineer

- Responsible for creating and maintaining all web based product technical specifications.
- Responsible for the publishing of GIS products using Google, Microsoft Bing Maps, or similar large-scale web mapping APIs to deliver products as live ASP services.
- Assist with the product design and development of all GIS products published in either an ESRI format and or MapInfo format.
- Assist with the product design and development of all printed medium products ranging from standard paper map product to customized paper map products.
- Responsible for the design, development, and management of the RDBMS on the product server.
- Participate as needed in development meetings with key partners & customers
- Responsible for setting up and maintaining product server.

Total Immersion Software

GIS Team Lead

- Research, analyze, document, choose, develop, customize and integrate open source, GOTS and COTS technologies to create a system that prepares spatial data for use in 3D simulations.
- Develop terrain data generation pipeline with many spatial data technologies including ESRI ArcGIS, Terrex Terra Vista, MultiGen Creator, FME, GRASS, MapWindow GIS, Proj4, GDAL, RUGUD, U2MG, OpenSceneGraph, Blender, 3DS Max, Remo3D, Okino NuGraf, Python, JavaScript, VBA, Google Earth, Google Maps, Sketchup, Collada, Openflight and Gamebryo.
- Research, analyze and document military simulation use cases and data to create terrain system functional requirements, prototypes and solutions for a DARPA project named RealWorld.

San Francisco Enterprise GIS (SFGIS), City of San Francisco, CA

Senior GIS Developer

- Design, develop, implement, administer and support GIS web applications with ArcIMS, ArcGIS, ArcSDE, ASP, Cold Fusion, JavaScript, DHTML, Python, VBScript, C#, and .Net.
- Design, specify, implement, analyze, improve & administer GIS hardware, software and apps.
- Interview City department employees, analyze GIS / IS requirements, design, propose, develop and implement systems and applications, and design, create and publish maps.
- Design, develop, sell and implement SFGIS online services and apps to City departments.

Tele Atlas North America

GIS Software Coordinator

- Plan, coordinate and track GIS product engineering and QA team resources and activities.
- Recruit, interview and hire GIS product engineer candidates.
- Create GIS product engineering team job descriptions and conduct performance reviews.
- Design and write GIS product specifications and documentation.
- Design and write procedural and functional requirements for GIS product production software.
- Task, motivate and coordinate product engineering team members.
- Perform the work described in the GIS Product Engineer position below

GIS Product Engineer

- Conceive, propose, architect, develop, purchase, implement and administer website, content, applications, software, hardware, network, and security on a website that demonstrates and disseminates Tele Atlas' spatial data products and web services.
- Coordinate and collaborate with ESRI: Tele Atlas' most important partner.
- Coordinate the purchase, admin and use of all ESRI software for Tele Atlas North America.
- Design, develop, build, document and demonstrate new spatial data product formats.
- Conceive, design, develop and implement quality control systems and applications.
- Design, develop, build, document and demonstrate real-time traffic applications.
- Configure spatial data, RDBMS, ArcSDE and ArcIMS software and hardware for performance.

Washington Suburban Sanitation Commission

GIS Application Developer and Consultant

- Design, develop and implement GIS applications using ArcGIS, ArcSDE, ArcInfo & ArcView.
- Founded GIS consulting corporation for direct & efficient business relationships with clients

State of Nevada Department of Transportation (NDOT)

GIS Application Developer and Consultant

- Design Oracle 8i linear referencing system database for pavement management.

- Convert and load legacy GIS data into Y2K-compliant linear referencing system database.
- Design, develop, and implement pavement management applications with Visual Basic 6 GUI, Oracle PL/SQL, Oracle and Access databases, and VB, Access and Crystal reports.
- Design and implement IS department strategy for moving from Novell to NT network application development and deployment structure and procedure.

Environmental Systems Research Institute (ESRI) World Headquarters, Application Division

GIS Applications Developer / Release Manager

- Design, develop & implement an efficient, robust and generic spatial data editing application for NGA (National Geospatial Intelligence Agency) database production system, named PLTS.
- Integrate data editing application and several existing disparate NGA database development applications into a cohesive product named PLTS.
- Create and implement PLTS application development and release structure & procedure.
- Develop UNIX shell and Windows WISE application installation programs for PLTS.
- Write online and hardcopy application software user documentation for PLTS.

GIS Project Engineer

- Design, develop and install all GIS applications for the City of Philadelphia Department of Records land info system at four customer and data production sites in the US and India.
- Design, develop, and implement ArcView public land parcel lookup application.
- Document application functionality, and teach subcontractors and clients application use.
- Write and review specifications, proposals and contracts associated with this project.

GIS Project Engineer

- Conceptualize, design, and code tests to ensure quality in Database Services products.
- Propose, develop, and implement departmental QA and QC software and procedures.

Environmental Systems Research Institute (ESRI)

GIS Software Sales & Marketing Engineer

- Design, develop, and demonstrate prototype GIS applications for sales and marketing of ESRI products and services to current & potential US Federal Government clients.
- Design, develop, and demonstrate prototype applications and benchmark tests in Applications Prototype group, (Benchmarks), for procurement of Federal Govt. contracts.

Wisconsin Department of Transportation GIS Unit

GIS Data Broker

- Implement and promote spatial data sharing procedures, between eight DOT regional GIS offices, other DOT departments and other State and local GIS agencies.
- Design, disseminate, and implement data quality standards for State and local GIS agencies.
- Develop and implement ArcInfo AML data quality tests on state government spatial data.
- Document and report state spatial data quality and metadata to data providers & users.

Dane County Land Information Office

GIS Application Developer

- Design, and develop land records database creation & maintenance application with AML.
- Implement local county coordinate system for seamless integration with land surveys.
- Integrate parcel maintenance application with customized ArcTools COGO tools.

EDUCATION: BS in GIS and Computer Cartography – University of Wisconsin - Madison

PROFESSIONAL EXPERIENCE

BroadMap

GIS Tools Engineer

- Develop and document accurate, efficient, and flexible conflation tools.
- Develop and document automated, semi-automated, and manual editing tools and associated processes
- Build tools and processes in conjunction with other engineering and product teams for the on-time, quality release of data products, services, and applications.
- Gain and maintain modern best practice coding skills
- Evaluate and recommend different platforms as they become available, both commercial and open-source
- Proactively adhere to the quality policies set forth by the Quality team
- Participate as needed in development meetings with key partners & customers

Abalta Technologies

Consultant, Test and Field Services

- Created and executed competitive analysis bench and field test plans for GPS devices for vehicle/pedestrian navigation (PND, OEM, after-market, hand-held), as well as recreational navigation (golf, hiking, etc.).
- Designed and created a relational database and user interface to serve as Abalta's proprietary test case management system for the Lighthouse™ test platform. Application supported route/scenario entry and query, test plan generation, entry of test results, and report generation. Application allowed for offline data entry via replicas of the master database, the ability to synchronize changes back to the master database, and the capability to resolve any database conflicts. Developed tools to import existing test route/scenarios from legacy test plans, saving data entry time and avoiding possible typographical errors during entry.
- Developed and documented Perl script to automate and standardize the GDF to SDL database compilation process.
- Developed and documented Linux shell scripts to utilize Amazon Cloud Computing (EC2 and S3 technology) to shorten GDF to SDL compile process from 3 days to 20 hours.
- Conducted analysis of NAVTEQ Technical Notification Memorandums to determine impact on customer database compilers.
- Provided analysis and technical support to the Abalta team to expedite root cause analysis of data issues and process failures.
- Provided mentoring and leadership to the junior members of the Test and Field Services team.

Tele Atlas North America

Programmer/Analyst

- Worked with functional teams to design, analyze, and implement data enhancement processes.
- Tested and debugged software programs and systems in order to ensure that alpha testing is compatible with project and process requirements.
- Worked closely with software developers to resolve conflicts between code and specifications, system processes, and the editing environment.
- Developed tools and workflows to streamline and automate workflows, while insuring data quality and consistency.
- Created tools and processes to test and validate incoming data prior to integration into the core database, preventing potential degradation.
- Responsible for resolution of cross-functional implementation issues prior to system releases.
- Analyzed data integrity issues that effected data quality. The analysis process often included root cause analysis, implementation of corrective measures, and application of preventative measures to assure the problems did not arise again.

Geographic Data Technology

Spatial Data Analyst – Coordinator

- Coordinated the evaluation, qualification, and conversion of available spatial data sets for use in the improvement of GDT's core database, primarily vector and attribute conflation activities.
- Developed and implemented analytical procedures and spatial data format conversion tools and procedures, to support the Geometry Enhancement Program.
- Managed GDT's imagery efforts. Including evaluations, loading, archiving, and delivery of images to outsource vendors and internal staff. Evaluated and qualified digital imagery. Troubleshoot and resolved imagery issues.
- Worked with Product Development to prototype new products and processes.
- Developed workflows, documentation, and training in support of departmental activities.
- Tracked, reported, and provided statistics that show group productivity levels, realignment efforts, and positional accuracy of GDT's core database.

Geographic Data Technology

Spatial Data Analyst

- Evaluated, qualified, and converted available spatial data sets for use in GDT's Geometry Enhancement Program, primarily vector conflation activities.
- Developed and implemented analytical procedures and spatial data format conversion tools and procedures, to support the Geometry Enhancement Program.

- Worked with Product Development to prototype new products and processes.
- Evaluated and qualified digital imagery.
- Developed workflows, documentation, and training in support of departmental activities.

Geographic Data Technology

Customer Support Representative

- Performed customer support activities for GDT's geographical data products. This included both pre and post-sales technical support.
- Maintained a strong working knowledge of hardware, operating systems, and software as needed to provide technical support to potential and current customers. Stayed abreast of GIS industry trends.
- Disseminated customer feedback to support GDT's marketing and sales efforts.
- Performed quality assurance functions from a customer perspective; provided input into the product development process based on the use of the various products.
- Assisted in the training of personnel (both internal and external) in the use of GDT data in the supported formats.

Intergraph Corporation

Senior Applications Engineer

- Provided technical support for Intergraph's MGE and GeoMedia product family. This included both phone, and on-site support.
- Pre-Sales and post-sales support including product demonstrations, technical sales calls, trade show support, benchmarks, existing customer support, and technical content creation such as demos, workshops, presentations, and AVIs.
- Provided training tailored to customer's needs and workflows.
- Replied to Requests for Proposals.
- Provided consulting to customers to include needs assessment, workflow design/setup, customization, implementation, software installation/setup, and workflow automation.

Rand McNally & Company

Technical Development Specialist

- Analyzed short and long-term software and hardware needs for production staff in an effort to reduce costs and increase production.
- Provided training to production staff in UNIX, Windows NT, MicroStation, Geographics, SQL, and EdG.

- Maintained contact for daily support of a 60 member production staff.
- Acted as the backup System Manager in his absence. Support revolved around network maintenance, archiving, backups, software installation, and file maintenance.
- Analyzed, developed, and documented workflows for use in both a technical, and production environment.
- Tested, evaluated, and recommend 3rd party software for possible utilization in the department.
- Developed UNIX and PC based applications to increase productivity for both production and technical staff.

Rand McNally & Company

Digital Cartographer

- Performed interactive graphics/database manipulations to create and maintain cartographic databases and products.
- Participated in editorial and map composition tasks.
- Executed, monitored, and verified computer processes to ensure data integrity.
- Supported project communication and documentation efforts; maintained logs and other tracking mechanisms.
- Assisted in the training of new employees in proprietary cartographic tools.
- Assisted in the development, testing, debugging and documentation of workflows.
- Performed Quality Control checks to assure product is of highest possible quality.

EDUCATION: MA in Geography-Physical Environmental Systems – Binghamton University

BS in Geography – State University of New York, College at Cortland

CHRISTOPHER R. MABEY

802-356-2761

chris.mabey@broadmap.cor

PROFESSIONAL EXPERIENCE

BroadMap

Mapping & Support Technician

- Edit detailed broadband data in tabular and spatial forms using standard and customized GIS tools
- Interfacing with state and federal government partners and customers both proactively and reactively to support BroadMap products and services
- Provide detailed feedback to peers on data trends and specific situations
- Keep a detailed log of work on all issues, including involved parties, datasets, dates, etc.
- Proactively adhere to the quality policies set forth by the Quality team
- Participate as needed in development meetings with key partners & customers

Tele Atlas North America, Inc.

Manager, Mapping Service

- Oversaw the operations of a Geographic Information Systems (GIS) department. Duties included hire/fire and reviews of over 20 staff members, budget, forecasting, quoting, intra-departmental interactions, business development, and community outreach projects.
- Utilized MS OFFICE extensively, including WORD, EXCEL, Outlook, PowerPoint, Project, and ACCESS.

Supervisor, Mapping Services

- Led over 25 technicians in creating maps utilizing high end software.
- Distributed work, monitored quality kept inventory, and shipped product.

Manager, Customer Support

- Directed a staff of 3 to provide technical support for GDT's product and services for customers and sales.

EarthRight Institute

Administrative Manager

- Duties include the daily management of a non-profit organization's office. From updating databases to preparation for Board meetings, this position kept me in constant contact with the public, government agencies, and a whole network of environmental organizations.
- Coordinated a fund raising auction, for EarthRight, from 9/94 to 10/94.
- Served on ERI Board from 1/95 to 1/96.

Denali National Park and Preserve

Supervisor Park Ranger

- Supervised a staff of park rangers for the Visitor Services Division of Denali N.P. and Pre.
- Oversaw the operating procedures of a large visitor center, including emergency services, training, data input, and actual visitor center layout design.

Saint-Gaudens National Historical Site

Acting Supervisor Park Range

- Duties involved directing staff to interpret an American sculptor's work, compiling data for visitor impact reports and emergency plans, scheduling, security, and numerous other daily tasks. Position started as Park Ranger, but was promoted to Lead Park Ranger, then Acting Supervisor.

Tele Atlas North America, Inc.

Customer Support Technician

- Provided technical support for GDT's product and services. Including understanding product specifications and layout in multiple formats. Phone, computer, and in-person support. Example GIS software supported included ESRI's ArcMap, ArcInfo, ArcViewGIS, and MapInfo.

Database Improvement Coordinator

Digital Mapping Technician (DMT)

- Duties involved proprietary Geographic Database construction, work flow distribution, and digital cartography. Bulk of duties resided on an UNIX platform, but other OS included DOS and Windows.

Merriam-Graves Corporation

Driver Technician

- Set-up and maintained home medical equipment. Gained great experience, communicating with elderly individuals, as well as, with mechanical devices.
- Possessed a CDL which included HAZMAT transportation authorization.

Denali National Park and Preserve,

Park Ranger

- Communicated with the public on every aspect about Denali N.P. and Pre. From general information on campgrounds and shuttle buses, to maintaining a wilderness check station that reduced visitor impact on the environment. Fought in the 1989 forest fires in Idaho and Montana, and was the only medic for an entire crew.

Lost River Reservation

Guide

- Gave guided tours of glacial caves and caverns. Assisted with general maintenance and repair of facilities, and responded to any emergency situation.

Orange-Windsor Supervisory Union

Substitute Teacher

- Substitute elementary and middle classrooms, as well as, for special education aids.
- Participating in the Chelsea public school and Newton Elementary school.

Great Smoky Mountains National Park

Resource Manager Assistant

- Received hands-on experience with natural resource management. Including vegetation restoration, exotic species control, soil erosion prevention, and fire management. This job was through an internship from The Student Conservation Assoc. in which I received honors.

Suicide Six Ski Area

Maintenance

- Supervised snow-making crews, maintained ski lift areas, while keeping in constant communication with the public.

EDUCATION: BA in Environmental Studies – Johnson State College

SUDHA MAHESHWARI, PH.D.

OPERATIONS MANAGER

Dr. Maheshwari has more than 12 years of experience in the GIS and mapping industry which includes managing a diverse range of projects in the public sector, private sector and research. She has both academic training and extensive experience in the use of GIS for urban planning and disaster management. Ms. Maheshwari has more than four years of experience managing parts of a large enterprise GIS for Oakland County, MI, the largest county in Michigan with over a million population. At Oakland County, Ms. Maheshwari led several projects including data migration, data collection for critical infrastructure, acquisition of orthoimagery for the county, and development of applications related to water resources, planning, emergency management, tax assessment and equalization. Customer relationship management is her forte and she has managed relationship with 61 Oakland County local units of government and their GIS needs including liaison with FEMA and these agencies for new county-wide flood insurance rate maps production. At Sanborn, she has been involved in developing semi-automated land use and land cover products for large areas and has managed these projects. She also has experience developing proposals and managing projects over a range of

geospatial technologies. She has worked nationwide. Ms.

Maheshwari has also co-chaired the Annual IMAGIN conference for two years and is well-known in the GIS community in Southeast Michigan. Ms. Maheshwari teaches a 3-credit graduate level class introducing GIS to Urban Planning graduate students at University of Michigan, Ann Arbor.

Education

- ◆ Ph.D., Urban Planning and Policy Development, Rutgers University, New Brunswick, NJ, Thesis Title: "Disaster Damage Assessment Models: Data Needs vs. Ground Reality", 2007
- ◆ MRP (Master of Regional Planning), University of Massachusetts, Amherst, MA, 1996
- ◆ B. Arch (Bachelor of Architecture), Jadavpur University, Calcutta, India, 1993

Affiliations and Certifications

- ◆ Urban and Regional Information Systems Association (URISA), 1996
- ◆ Improving Michigan's Access to Geographic Information Networks, IMAGIN Annual Conference, 2001.
- ◆ Conference Co-chair, IMAGIN Annual Conference, 2005 & 2006

PROJECT EXPERIENCE

- ◆ **State of Michigan.** Ms. Maheshwari undertook detailed needs assessment based on existing systems and processes for the migration of the Michigan Geographic Framework data to an Oracle Spatial format for Center for Shared Solutions, Michigan Dept of Information Tech.
- ◆ **Commonwealth of Massachusetts.** Ms. Maheshwari is managing the creation of a land use map using an innovative semi-automated process that combines GIS and remote sensing to cut the production time by half and cost by two thirds over manual delineation.
- ◆ **State of Rhode Island.** Ms. Maheshwari is managing the creation of a land use map and statewide impervious that pioneered the semi-automated process.
- ◆ **Commonwealth of Kentucky.** Ms. Maheshwari is managing a NASA-funded project to develop tools for user communities ranging from local governments to forestry

organizations. The tools involve stand alone GIS applications and OGC compliant web services.

- ◆ **USGS GAP Program.** Ms. Maheshwari managed a GAP project encompassing 11 states to map ownership of all federal and state lands in the 11 state region.

- ◆ "OGC-Compliant Web Mapping and Change Detection Portal for KY." Paper presented at the KY GIS Conference, Louisville, KY, July 30-August 1, 2007
- ◆ "Floodplain Redelineation for Oakland County, MI: Process and Impacts" 2005. Paper presented at the ESRI User Conference, San Diego, July 24-29, 2005.
- ◆ "Bringing it all together", ASPRS, November 2006.
- ◆ "GIS-Based Damage Assessment Models: Using Data from Local Sources, Case of Seattle, WA." Paper presented at the Annual Conference of American Collegiate Schools of Planning, Baltimore, MD, November 21-24, 2002.
- ◆ "The State of GIS Implementation in Large Cities for Disaster Management: A Survey of 20 Cities." Paper presented at the Annual URISA Conference, Chicago, IL, October 26-30, 2002.
- ◆ "ArcGIS Migration in Steps: Strategy for Large Enterprise System Migration in Oakland County, MI." Paper presented jointly with Scott Oppmann at the URISA, Chicago, IL, October 26-30, 2002.

Recent Publications

- ◆ "Diversification of Defense Based Industries in India." In A. Markusen and S. DiGiovanna eds. From Defense to Development: International Perspectives on Realizing the Peace Dividend. Routledge. New York, 2003.
- ◆ "Simulating Earthquake Damage to the Electric-Power

WORK HISTORY

Operations Manager, Sanborn, Ann Arbor, MI, July 2006–Present. Responsible for all projects run in the Ann Arbor office and key client relations. Responsible for developing new concepts and products to solve client needs using imagery and GIS and bringing new clients and jobs. Responsible for supervising staff to ensure on time and on budget deliveries.

Supervisor, Land Management, Department of Information Technology, Oakland County, Pontiac, MI, Jan 2005–July 2006. Supervised a team of about 10-12 staff including 3-4 project managers and other customer support specialists and contractors in implementing land management technologies (both spatial and non-spatial) in various departments in Oakland County and local municipalities in Oakland County.

Project Manager, GIS Utility, Department of Information Technology, Oakland County, Pontiac, MI, Dec 2001–Jan 2005. Worked with the GIS Utility Supervisor to manage the GIS program with 12-14 staff. Responsible for overall program management, particularly for implementation of GIS across County Departments and 61 local Cities, Villages and Townships (CVTs), and appropriate technology deployment.

Project Manager, Urban Data Solutions, Manhattan, NY May 2000–April 2001. Managed a team of about 10 GIS and CAD professionals in creating 3D digital models of major cities in the US (e.g. Chicago, Los Angeles, and Manhattan). Responsible for meeting project deadlines, coordinating with other teams for process optimization and improvement, business development and offshore contracting.

Graduate Research Assistant, Los Alamos National Laboratory, Los Alamos, NM, September 1998–August 1999. Assisted in GIS-based computer modeling of the possible impacts of a large earthquake on the urban system of Los Angeles, CA. Particular emphasis on electrical infrastructure system and on integrating decision-makers in the modeling process.

BECCA HEARTWELL

GIS Analyst

Years of Experience – 5 years
Years with the Company – 3.5 years

Ms. Heartwell's current responsibilities as an Associate GIS Analyst with Sanborn include providing assistance to the project manager for the Midwest Stewardship Mapping project. For this, Ms. Heartwell primarily used ArcGIS to assist in managing and editing stewardship data, using a geodatabase format, from multiple state and federal agencies. Ms. Heartwell is also the onsite IT manager for the Portland Office, dealing with ongoing system management needs. Ms. Heartwell also has valuable cartography skills that would be valuable for this project.

Education

- ◆ M.S., Geography, Portland State University, Portland, OR, 2007
- ◆ B.S., Geography, Portland State University, Portland, OR, 2003
- ◆ B.S., Chemistry, Oregon State University, Corvallis, OR, 1985

Project Experience

- ◆ **Midwest Stewardship Mapping Project, USGS – GAP program, From September 2007 to November 2008.** Ms. Heartwell is collecting and managing state and federal data within a geodatabase to create an 11-state stewardship map – Arkansas, Illinois, Indiana, Iowa, Louisiana, Michigan, Minnesota, Missouri, North Dakota, South Dakota, and Wisconsin. She is also gathering documents and information from each agency describing management policy which is used to classify lands into preservation/conservation status categories.
- ◆ **Southeast Land Cover Change Mapping, NOAA, Zones 55 and 58, From July 2006 to September 2007.** Ms. Heartwell used ERDAS Imagine, Definiens (e-Cognition), and ArcGIS to assist in modeling and editing land cover classifications in Florida, Georgia, South Carolina and North Carolina.
- ◆ **Western States Expansion Hazard Layer Development, Insurance Services Office, Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, and Washington, From December 2006 to September 2007.** Ms. Heartwell assisted the project manager on this project to generate output layers for various hazard attributes, using ArcMap and ArcInfo Workstation, for the eight western states.
- ◆ **Southeast Land Cover Change Mapping, NOAA, Zones 55 and 58, From July 2006 to September 2007.** Ms. Heartwell used ERDAS Imagine, Definiens (e-Cognition), and ArcGIS to assist in modeling and editing land cover classifications in Florida, Georgia, South Carolina and North Carolina.
- ◆ **Southern Wildfire Risk Assessment, Southern Group of State Foresters, 13 Southern States and Federal Agencies, From January 2006 to November 2006.** Ms. Heartwell worked as a GIS technician downloading datasets, running

and monitoring AML process models using ArcGIS. She also created large format maps of final outputs.

- ◆ **USGS Landfire Impervious and Tree Canopy, various US locations, From September 2004 to June 2006.** Ms. Heartwell was a Technician on this project. Her responsibilities include image and classification preparation, geocorrection, digitizing, editing, and quality control using ArcGIS and ERDAS Imagine.

Work History

Associate GIS Analyst, Sanborn, Portland, OR, November 2007 to present.

GIS Technician, Sanborn, Portland, OR, March 2005 to November 2007.

GIS Technician, Space Imaging, LLC, Portland, OR, September 2004 to February 2005.

Cartographic Technician, Natural Resources Conservation Service, USDA, Portland, OR, From November 2003 to November 2004. Ms. Heartwell used USDA mapping software to digitize, edit, and label soil maps. To prepare for the generation of digital soil maps, she was involved in the conversion of mylar field maps into digital templates. Ms. Heartwell was also involved in the creation of procedure documentation to be used as training materials. She helped in the process of uploading approved digital soil maps to the SSURGO website as well as migrating the SSURGO data to the Soil Data Mart website.

GIS Intern, Space Imaging, LLC, Portland OR, From April 2002 to November 2002. Ms. Heartwell worked on two projects: first, the Airport Mapping Database – digitizing airport features for 83 international airports and second, the APFO CLU, project for the USDA, mapping agricultural fields, property and farm boundaries, using ArcVIEW 3.x. She also assisted in quality control on the final maps.

JANET HOYT

PROJECT MANAGER

Ms. Hoyt has over seventeen years experience in the GIS/Mapping industry utilizing remote sensing and GIS technology to deliver innovative and quality land cover classifications and data analysis to clients. During the past seventeen years, Ms. Hoyt has worked with Sanborn, Inc., GeoSpatial Resources, Inc. and Space Imaging (formerly Pacific Meridian Resources) providing state-of-the-art applications of remote sensing and GIS to real world issues. Ms. Hoyt is currently Acting Operations Manager for Sanborn's Portland office. She is responsible for handling day to day activities and ensuring that all projects are meeting their goals. Ms. Hoyt is also a Senior Analyst for Sanborn and manages several large scale projects for the company. While at Space Imaging/Pacific Meridian Resources, Ms. Hoyt served as a Remote Sensing Analyst, GIS Analyst, Project Coordinator, Project Manager, and for two years was GIS Manager of the Portland, Oregon office. Ms. Hoyt also worked as an independent consultant for GeoSpatial Resources, Inc providing geospatial services to both private and government organizations.

Education

- ◆ Post Graduate Studies, Department of Forestry, Virginia Polytechnic Institute and State University, Blacksburg, VA, 1990-1992
- ◆ B.S., Geological Engineering, Michigan Technological University, Houghton, MI, 1989

PROJECT EXPERIENCE

- ◆ **United States Geological Survey – LANDFIRE Program, September 2008–Present).** Ms. Hoyt is Project Manager on the Alaska–Hawaii LANDFIRE project to develop fuel variables for the States of Alaska and Hawaii.
- ◆ **State of Florida, FRACIP Project, January 2008–Present).** Ms. Hoyt is Project Manger for the project to map canopy fuels for Florida.
- ◆ **Forestry Business Improvement Initiative – Business Process Modeling Assessment, Oregon Department of Forestry, May 2008–March 2009.** Ms. Hoyt was the project manager for this high level assessment of current business processes in the ODF. Ms. Hoyt was responsible for day to day management of the Sanborn team on this project.
- ◆ **Southeast Land Cover Change Mapping, NOAA, Zones 55 and 58 July 2006– September 2007).** Ms. Hoyt was the project manager and analyst for mapping close to 100 million acres in the southeast states of Florida, Georgia, South Carolina and North Carolina. The project methodology incorporated multiple date imagery for classifying 23 land cover types. A 5-year change detection was also part of the project.
- ◆ **Land Cover and Fuels Change Analysis of Post Hurricane Gulf Coast, American Forests, Gulf Coast, July 2006–August 2007).** Ms. Hoyt was the project manager and lead analyst for mapping over 30,000 square miles of the Hurricane Katrina and Hurricane Ivan impact areas along the Gulf Coast.
- ◆ **Impervious Surface Mapping, City of Longview, Longview, WA, September 2005–March 2006.** As a private consultant with GeoSpatial Resources, Inc., Ms. Hoyt teamed with Spatial Solutions, Inc., to complete a pervious/impervious surface map for the city of Longview, Washington.
- ◆ **Change Detection Analysis and Mapping Project, The Nature Conservancy, Minnesota, September 2005–March 2006.** As a private consultant with GeoSpatial Resources, Inc., Ms. Hoyt teamed

with Spatial Solutions, Inc., to complete the mapping of aspen loss/reduction and encroachment for The Nature Conservancy in Minnesota. This was a two phase project.

- ◆ **Accuracy Assessment Field Data Collection, National Forest Service, Ochoco National Forest, February 2005–September 2005).** As a private consultant with GeoSpatial Resources, Inc., Ms. Hoyt teamed with Spatial Solutions, Inc. to collect accuracy assessment field data for the Ochoco National Forest. Ms. Hoyt was responsible for navigating to and collecting field data in all areas of the Ochoco National Forest.
- ◆ **Surface Fuels Mapping for Crook County, OR, Spatial Solutions, Inc., Crook County Oregon, April 2003–September 2004.** As a private consultant with GeoSpatial Resources, Inc., Ms. Hoyt classified surface fuels for portions of Crook County Oregon using Landsat TM imagery.
- ◆ **Surface Fuels Mapping for Clackamas County, OR, Spatial Solutions, Inc., Clackamas County, Oregon, June 2002–February 2003.** As a private consultant with GeoSpatial Resources, Inc., Ms. Hoyt classified surface fuels for over 1800 square miles in Clackamas County using Landsat TM imagery.
- ◆ **Automated Image Classification Methods Development, USGS, September 2000–June 2001.** Ms. Hoyt was in charge of managing this project, which developed improved methods for incorporating segmentation and shape information into image classification. eCognition was utilized to develop and refine segments for this analysis.

WORK HISTORY

Acting Operations Manager/Senior Remote Sensing Analyst, Sanborn, Portland, OR, July 2006–Present. As Operations Manager: responsible for monitoring all projects in the Portland Office to ensure that they are meeting goals and standards; responsible for running day to day operations in the Portland Office. As Senior Remote Sensing Analyst: responsible for managing individual projects and providing remote sensing analysis and expertise to various projects; responsible for assisting on proposal development.

President/Remote Sensing Specialist, GeoSpatial Resources, Lake Oswego, OR, June 1992–July 2006. Responsible for all aspects of business operations from marketing and proposal development to financing and payroll. Responsible for the timely and successful completion of multiple projects. Responsible for all aspects of a project to include technical design, scheduling, field data collection, remote sensing analysis, and final documentation and reporting.

Remote Sensing Analyst, Space Imaging (formerly Pacific Meridian Resources), Portland OR, February 1992–May 2002. Responsible for the timely and successful completion of multiple projects. Responsible for all aspects of a project to include technical design, scheduling, field data collection, remote sensing analysis, accuracy assessment, and final documentation and reporting.

DARIAN KRIETER

GIS ANALYST

Ms. Krieter is primarily responsible for compiling fire behavior and fire history data to support wildfire risk modeling. She works directly with fire behavior specialists as well as with federal, state, and local government personnel to develop datasets related to wildfire and wildfire risk. In addition, Ms. Krieter has experience working on forestry, hydrology, transportation, and land cover/land use related GIS projects. Ms. Krieter has worked in the GIS/Mapping industry for more than 10 years and is proficient in Arc/Info Workstation including AML and GRID. She is experienced with Desktop Arc/Info including Python.

Education

- ◆ M.S., Natural Resources, 2002, Humboldt State University, Arcata, CA
- ◆ B.S., Biological Sciences, 1993, California State University Sacramento, Sacramento, CA

Affiliations and Certifications

- ◆ Geoprocessing and Scripting in ArcGIS, ESRI Training, Salem, OR
- ◆ Women in GIS, Portland, OR Chapter member 2002–2005

PROJECT EXPERIENCE

- ◆ **Texas Fire Occurrence Areas.** Ms. Krieter is currently updating the fire occurrence areas data layer for the state of Texas. This data layer is an integral input layer for developing the Wildfire Susceptibility Index in the Southern Fire Risk Assessment System (SFRAS). Ms. Krieter is responsible for integrating historical fire location data from both State and Federal agencies and using that to calculate fire ignition rates across the landscape.
- ◆ **CA Wildfire Risk Assessment.** Ms. Krieter assisted with mapping wildfire threat, hazard, and susceptibility for the state of California. Her responsibilities involved developing a historical fire database, mapping fire ignition rates, and compiling surface fuel models and canopy cover data layers.
- ◆ **Southern Wildfire Risk Assessment.** Ms. Krieter assisted with the development of a wildfire risk assessment for the Southern Group of State Foresters in cooperation with the Texas Forest Service. She was involved in various aspects of this project including the development of an initial dispatch locations database, fire ignition rate model, and surface fuels model and canopy cover data layers. Development of these layers involved the compilation and integration of multiple spatial data layers including historical fire locations, vegetation and canopy cover, census housing information, and topographic data.
- ◆ **Comparison of Historical and Current Timber Volume Estimates.** Ms. Krieter is working with Oregon Forests Industry Council to map current timber volume in western Oregon and compare it to historical mapped timber volume.
- ◆ **Oregon's Forestland GeoBook.** Ms. Krieter developed a Visual Basic application for the Oregon Forests Resources Institute in cooperation with Oregon Forests Industry Council. The application was part of a public outreach project to provide accurate information about forestland protection.
- ◆ **Vegetation and Canopy Change Detection for NE Georgia Resource Development Center.** Ms. Krieter was involved with developing a Landsat-derived classification of vegetation and forest canopy for the NE Georgia RDC as well as a canopy change detection analysis. This process involved advanced image segmentation techniques with complex modeling routines.

- ◆ **Development of High Resolution National Hydrography Dataset, US Geological Survey.** Ms. Krieter conflated 1:100,000 scale NHD data to 1:24,000 scale NHD data. She attended a 5-day training course for this with the USGS. Ms. Krieter managed the NHD conversion project along with providing training and technical support to other analysts in the development high resolution NHD data.
- ◆ **Update Tool for Washington Department of Natural Resources.** Ms. Krieter designed a customized application to allow the Washington DNR to perform automated updates of their transportation databases. The application was developed using AML to access the DNR's SDE/ORACLE database.
- ◆ **Dynamic Segmentation Models for Washington Department of Natural Resources.** Ms. Krieter managed a data conversion project for the WA Department of Natural Resources. The transportation vector datasets were converted to routed networks and data attributes were converted to event tables.
- ◆ **Accuracy Assessment for the Natural Imaging and Mapping Agency.** Ms. Krieter assisted with the land use/land cover accuracy assessment project for NIMA. Her responsibilities included reviewing error matrixes for quality control, assurance and generating final accuracy assessment reports.
- ◆ **Land Use/Land Cover Mapping for the U.S. Geological Survey.** Ms. Krieter assisted with mapping land use and land cover in Northern California and Nevada using Landsat Thematic Mapper satellite imagery and spatial modeling techniques. This project involved field data collection, GIS database management, spatial analysis and map editing.
- ◆ **Forest Land Cover Mapping for the U.S. Forest Service Region 5.** Ms. Krieter assisted in the development of a forest land cover classification of the Stanislaus National Forest. The classification was developed using modeling techniques that incorporated Landsat Thematic Mapper satellite imagery and terrain variables.
- ◆ **Accuracy Assessment of a Landsat Derived Vegetation Classification.** Ms. Krieter completed her master's thesis project, using fuzzy subset logic to perform an accuracy assessment of a Landsat-derived vegetation classification.

WORK HISTORY

GIS Analyst, Portland Office Sanborn Solutions (Pacific Meridian Resources, Space Imaging), 1999–Present.

GIS Technician, Geographic Resource Solutions, Arcata, CA, 1998–1999

GIS/Remote Sensing Technician, Pacific Meridian Resources, Sacramento, CA, 1997–1998.

Graduate Student/GIS/Remote Sensing Technician, CA Department of Fish and Game, Humboldt State University, Arcata, CA, 1995–1997.

Student Aide/GIS Technician, CA Department of Fish and Game, Sacramento, CA, 1993–1995.