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OMB Number: 4040-0004
Expiration Date: 01/31/2009

Application for Federal Assistance SF-424 — Version 02

*** 1. Type of Submission:**
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

*** 2. Type of Application:**
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received: 08/14/2009

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: Maryland Broadband Cooperative, Inc.

* b. Employer/Taxpayer Identification Number (EIN/TIN): 020783564

* c. Organizational DUNS: 788705437

d. Address:

* Street1:	212 West Main Street
Street2:	Suite 304
* City:	Salisbury
County:	Wicomico
* State:	MD: Maryland
Province:	
* Country:	USA: UNITED STATES
* Zip / Postal Code:	21801

e. Organizational Unit:

Department Name:

Division Name:

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

Prefix:	Mr.
* First Name:	W.
Middle Name:	Patrick
* Last Name:	Mitchell
Suffix:	
Title:	President and CEO

Organizational Affiliation:

Maryland Broadband Cooperative, Inc.

* Telephone Number: 410-341-6322

Fax Number: 410-341-6327

* Email: pmitchell@mdbc.us

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Version 02

9. Type of Applicant 1: Select Applicant Type:

N: Nonprofit without 501C3 IRS Status (Other than Institution of Higher Education)

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.):

State of Maryland

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

The State of Maryland???s Proposal for The State Broadband Data and Development Grant Program Mapping and Planning Component

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

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Version 02

16. Congressional Districts Of:

* a. Applicant: MD1 * b. Program/Project: MD

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

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 09/15/2009 * b. End Date: 09/14/2014

18. Estimated Funding ($):

* a. Federal	3,543,258.25
* b. Applicant	0.00
* c. State	797,586.25
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	4,340,844.50

*** 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 ☒ No Explanation

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: Mr. * First Name: W.

Middle Name: Patrick

* Last Name: Mitchell

Suffix:

* Title: CEO

* Telephone Number: 410-341-6322 Fax Number: 410-341-6327

* Email: pmitchell@mdbc.us

* Signature of Authorized Representative: Patrick Mitchell * Date Signed: 08/14/2009

Authorized for Local Reproduction

Standard Form 424 (Revised 10/2005)
Prescribed by OMB Circular A-102

OMB Number: 4040-0004
Expiration Date: 01/31/2009

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.

The State of Maryland's Proposal for
The State Broadband Data and Development Grant Program
Mapping and Planning Component

Abstract

The Broadband Data Improvement Act (BDIA) intends to fund individual State Broadband Data and Development Programs charged with developing and implementing statewide initiatives to identify and track the adoption and availability of broadband services within each state. The State of Maryland, through its agent, the Maryland Broadband Cooperative, Inc. (MdBC), requests a federal grant from the Program through the National Telecommunications and Information Administration (NTIA) to complete data collection and mapping of Maryland's unserved and underserved areas. The proposed 5-year project will fulfill BDIA's requirement for a broadband mapping component for Maryland and will contribute significantly to the national effort to collect and visualize broadband data for the Nation's unserved and underserved areas.

MdBC is a 501(c)(12) organization comprising a public/private partnership whose objective is to promote economic development through the deployment of technology supporting infrastructures and open access to broadband services via a fiber optic network that serves rural Maryland. Fifteen of Maryland's counties are considered rural or underserved; these regions are represented on MdBC's Board of Directors by the Tri-County Councils for Worcester, Somerset, Wicomico, Dorchester, Caroline, Talbot, Kent, Queen Anne's, Cecil, Saint Mary's, Calvert, Charles, Garret, Allegany and Washington Counties. The Tri-County Councils operate as cooperative regional planning and development units for rural Counties in Maryland in order to foster physical, economic, and social development. The management, data, and mapping team sanctioned by Maryland's Governor Martin O'Malley comprises seven partners from state government, the University System of Maryland, and private industry, whose combined capabilities and depth of experience form a solid foundation for success.

The multi-phase project comprises data collection and processing to conform to NTIA's requirements and deadlines; development of an online interactive map and quarterly update process; and a determination of barriers to adoption of broadband technology and the means to overcome them. The project' outcomes include the following.

1. Initial, preliminary data for the NTIA delivered very quickly.
2. Comprehensive, verified, accurate, detailed data for the NTIA within 6 months.
3. A statewide database of broadband service areas that can be used for infrastructure planning, economic development, increasing public awareness, and broadband service marketing.
4. A public-facing interactive web map application that enables address search, area visualization, and symbolization at multiple scales.
5. An in-depth market research analysis of broadband demand in different areas of the state.
6. A set of planning documents that outline the impediments to broadband adoption in the underserved/unserved areas of the state by region, a set of recommendations to overcome those barriers, and a review of the success of short-term recommendation implementation, all from the perspective of the key broadband constituent groups.

The State of Maryland's Proposal for
The State Broadband Data and Development Grant Program
Mapping and Planning Component

Contents

The State of Maryland's Proposal for
The State Broadband Data and Development Grant Program
Mapping and Planning Component

Introduction and Executive Summary

The Broadband Data Improvement Act (BDIA) intends to fund individual State Broadband Data and Development Programs charged with developing and implementing statewide initiatives to identify and track the adoption and availability of broadband services within each state. The act lists 10 eligible uses of grant funding (*BDIA § 106(e), 122 Stat. at 4100-4101*). Through its agent, the Maryland Broadband Cooperative, Inc. (MdBC), the State of Maryland seeks to accomplish all but #7 ("To establish computer ownership and Internet access programs in unserved and areas with lower than average penetration on a national basis"). MdBC is a 501(c)(12) organization comprising a public/private partnership whose objective is to promote economic development through the deployment of technology supporting infrastructures and open access to broadband services via a fiber optic network that serves rural Maryland. MdBC and the State of Maryland request *$3,543,258.25* in federal grant funding through the National Telecommunications and Information Administration (NTIA) to complete data collection and mapping of unserved and underserved areas of Maryland and thus fulfill the mapping component of the State Broadband Data and Development Grant Program. Funding of $500,000 for the planning component is also requested. The proposed project team offers $797,586.25 in matching/in-kind funding for a total project amount of *$4,340,844.50.*

The management, data, and mapping team sanctioned by Maryland's Governor Martin O'Malley comprises seven partners whose combined capabilities and depth of experience form a solid foundation for success. MdBC will coordinate data collection and provide overall administration. The Maryland Department of Business and Economic Development will facilitate the process, and assist with coordinating resources and conducting research. Salisbury University's Eastern Shore Regional GIS Cooperative will process data. Towson University's Center for GIS will assist with data gathering, manage data accessibility and updates, and install and host the web application on the MD iMap infrastructure. Towson University's RESI-Applied Economic and Human Resources group will verify certain attributes of the data by survey. ESRI will develop the web application. Salisbury University's Business, Economic, and Community Outreach Network will research and analyze broadband demand in different areas of Maryland as part of the planning component.

The multi-phase project comprises data collection and processing to conform to the requirements in the Technical Appendix of the Notice of Funds Available (Federal Register, Vol. 74, No. 129) and meet the November 1, 2009 and March 1, 2010 deadlines; development of an online interactive map and quarterly update process; and a determination of barriers to adoption of broadband technology and the means to overcome them.

This effort will yield the following desirable outcomes:

1. Initial, preliminary data for the NTIA delivered very quickly.
2. Comprehensive, verified, accurate, detailed data for the NTIA within 6 months.

3. A statewide database of broadband service areas that can be used for infrastructure planning, economic development, increasing public awareness, and broadband service marketing.
4. A public-facing interactive web map application that enables address search, area visualization, and symbolization at multiple scales.
5. An in-depth market research analysis of broadband demand in different areas of the state.
6. A set of planning documents that outline the impediments to broadband adoption in the underserved/unserved areas of the state by region, a set of recommendations to overcome those barriers, and a review of the success of short-term recommendation implementation, all from the perspective of the key broadband constituent groups.

Maryland's Unserved and Underserved Areas

In April 2002 the Technology Development Corporation of Maryland (TEDCO) released their assessment of technology infrastructure for the State. The report verified the fact that Maryland's Eastern Shore, Southern Maryland, and Western Maryland do not have a regional broadband backbone and are drastically underserved when compared to other parts of the State. Fifteen of the counties in Maryland are considered rural or underserved; these regions are represented on the Maryland Broadband Cooperative's (MdBC) Board of Directors by the Tri-County Councils. These include Worcester, Somerset, Wicomico, Dorchester, Caroline, Talbot, Kent, Queen Anne's, Cecil, Saint Mary's, Calvert, Charles, Garret, Allegany and Washington Counties. The Tri-County Councils operate as cooperative regional planning and development units for rural Counties in Maryland in order to foster physical, economic, and social development.

Six of these counties are considered Priority Funding areas qualifying for One Maryland tax credits. Certain businesses that establish or expand a business facility in a priority funding area or as part of a project approved by the Board of Public Works, and that are located in a "distressed" Maryland county, may be entitled to a tax credit for costs related to the new or expanded facility. A "distressed" county has, for the most recent 24-month period, an average rate of unemployment that is 150 percent higher than the statewide average or an average per-capita personal income that is equal to or less than 67 percent of the statewide average. These Counties include Allegany, Dorchester, Garrett, Caroline, Somerset and Worcester. It is important to note that this project will also be connecting to the seventh priority funding area, Baltimore City. According to the U.S. Census (2005-2007), the fifteen counties represented by the MdBC have a total population of approximately 968,897 people (accounting for nearly 17% of the State's population), with average per capita incomes estimated at about $27,300.

Overall Project Plan

The proposed project partners and team include the following.

- The Maryland Broadband Cooperative (MdBC)
- Salisbury University's Eastern Shore Regional GIS Cooperative (ESRGC)
- Salisbury University's Business, Economic, and Community Outreach Network (BEACON)
- Towson University's Center for GIS (CGIS)

- Towson University's Regional Economic Studies Institute (RESI)--Applied Economic and Human Resources group (AEHS)
- Maryland's Department of Business and Economic Development (DBED)
- ESRI

The project will be completed in four initiatives.

1. Statewide Broadband Service Assessment (Initial Phase)

   MdBC, ESRGC, and CGIS will process two sets of broadband service area data: those datasets currently on-hand at the MdBC or that will be purchased from vendors (to be delivered by November 1, 2009), and those datasets initially delivered to the MdBC by the broadband service providers. The second set of data will be verified for accuracy and completeness and will conform to the feature and attribute requirements of the Technical Appendix of the NoFA. These data will be loaded into the secure geodata server and processed for delivery to the NTIA by March 1, 2010.

2. Statewide Broadband Service Assessment (Subsequent Phases)

   In the subsequent phase of the Statewide Broadband Service Assessment, the broadband service area data will be processed with two additional goals in mind: the establishment of automated or semi-automated processes to receive the datafiles from broadband service provides and load it into the secure geodata server, and the manipulation of data to meet the needs of the interactive state broadband map phase. During this second initiative, the nature and extent of broadband demand in the state will also be studied and reported.

3. Interactive Public Map of Broadband Service In Maryland

   ESRI will support the project by assisting with configuration and deployment of an interactive, publicly accessible ArcGIS Server software application on top of the existing MD iMap infrastructure, providing decision makers with both a common operating picture and sophisticated geospatial analysis. This interactive web based application is based on ArcGIS Server and the ArcGIS API for Flex.

4. Development of Broadband Service Expansion Plan

   In the final initiative, this project seeks to explore the barriers or impediments to the adoption of broadband technology in those underserved or unserved areas of the State of Maryland. Working through DBED and the regional councils, a series of broadband summits will be conducted, each with a particular user focus (general public, technology businesses, governments/non-profits, etc.). Through the facilitation and summarization of the results of these broadband summits, a plan to overcome the barriers to adoption will be formulated and short-term solutions will be explored.

Body of Narrative: Review Criteria

1. Data

(a) Data Gathering

Section (a) describes data gathering primarily in terms of the individual roles of the project team's members.

Project Role **Maryland Broadband Cooperative**

MdBC's management role includes finalizing data sharing agreements, maintaining security of confidential and sensitive information, complying with American Recovery and Reinvestment Act (ARRA) reporting requirements, and performing accounting functions in compliance with federal guidelines for this grant funding. ARRA reports are due to the National Telecommunications and Information Administration (NTIA) "within ten (10) calendar days of after the quarter in which the award was issued ends, and, unless otherwise noted, each quarter thereafter until a final report is made at the end of five (5) years" (Federal Register, Vol. 74, No. 129, p. 32556).

Project Role **Eastern Shore Regional GIS Cooperative**

The role of the ESRGC will include broadband service area processing, ensuring adherence to the attribute specifications contained within the Technical Appendix of the NoFA for this project, geocoding of broadband service areas to individual address points/polygons, export and delivery of required broadband service information to NTIA, and general GIS support needed by the Maryland Broadband Cooperative to support this effort.

Data Development

In the first delivery phase (due November 1, 2009), the ESRGC is responsible for obtaining both the Maryland Broadband Cooperative's existing wireline service area datasets, as well as the wireless services areas that will be acquired, and process them for transfer and consumption by the NTIA. This will be accomplished by first capturing as much of the attribute information as defined in the Technical Appendix of the Notice of Funds Available (NoFA), including the advertised maximum upstream and downstream speeds, and transmission codes. Second, ESRGC will assign to the broadband service area information to each address in the state as taken from the address points provided by the Maryland Department of Planning and the Maryland State Department of Taxation and Assessment. ESRGC will then format that data into the specified text formats and deliver the results to NTIA.

For the second delivery phase (due March 1, 2010), ESRGC's primary function, with assistance from CGIS, will be to process the multitude of data files and formats as they come from the broadband service providers. Each file from each provider must be checked for logical inconsistencies, mapped onto the specified attribute definitions, and loaded into the enterprise geodatabase. Great care will be taken with those portions of the data that have been designated sensitive or confidential. These portions will likely be removed from the primary working database and set aside into an access-limited geodatabase for reference at a later time. These data

will again be checked against the Technical Appendix of the NoFA for compliance with NTIA requirements for attributes and formatting. If the data is received as individual customer records, those customer addresses will be linked to their spatial location using the MDP/SDAT address points. If the service area information is received as polygons, ESRGC will again assign the polygon information to the addresses that fall within that polygon.

Data Updates
The ongoing role for ESRGC will be to provide the technical GIS support to the Maryland Broadband Cooperative to enable the regular update of the broadband service area information. The update schedule will be once per quarter or twice as often as sought by the NTIA. The update process will be documented carefully for each broadband service provider for the purposes of automating as much of the process as possible. As the project moves beyond the initial data collection and delivery phase, the team proposes to link the broadband service information to a tax parcel polygon rather than an address point, wherever possible. While the NTIA would still receive its data as text files noting each address, the tax parcel polygons will be the preferred method of display and analysis within the State.

Project Role **Center for GIS at Towson University**

The role of CGIS in the broadband mapping project includes data gathering, content accessibility via configuration, deployment, and hosting of the publicly accessible web application, and collaboration aspects of the project.

Data Development
CGIS will support ESRGC as needed in the collection, normalization, formatting, and representation of the data received from the broadband service providers. CGIS will be responsible for development of the community anchor dataset, including public schools, colleges and universities, libraries, medical and healthcare providers, public safety entities and other community support organizations and entities. Locations of these features will be derived from the Maryland Property View dataset, which leverages the State Department of Assessment and Taxation database. Community anchor institution data will be delivered as per the instructions provided in the State Broadband Data and Development Grant Program Technical Appendix.

Data Loading
As per best practices, CGIS will maintain a three-tier geodatabase, including GIS repository, staging, and production database environments. The broadband and related GIS data will be loaded and maintained within this database structure and served to the MD iMap framework for public accessibility to the publicly accessible Web application.

Data Updates
CGIS will coordinate with State project partners, research and implement the data update process deemed best suited for the members of the Maryland Broadband Mapping team. This process will encompass collecting updated broadband service data from the service providers, data quality control and normalization, reformatting as needed, transfer and upload into the geodatabase and web application. Options include ArcGIS Server Geodatabase Replication, and

manual processing and transfer of data. Factors that will affect the decision include how the data is collected and updated and if the data is updated in an ArcSDE database.

ArcGIS Server Map Services
CGIS will create ArcGIS map documents (MXDs) of the appropriate broadband and related data, which includes symbolizing and labeling for ease of interpretation and use by the public. ArcGIS Server services will be created and published. These services will be configured for optimal performance, including caching services as necessary to improve data display rates and application performance. Services will be maintained on the MD iMap framework.

Installation of Security Setup and Configuration of Web Application
The publicly accessible web application will be installed and configured in the pre-release, staging, and production environments and integrated into the existing MD iMap security framework.

Broadband Data Availability, System Maintenance and Upgrades
Maryland's broadband web-based mapping application will be "stood up" on the MD iMap infrastructure, making the broadband data and related application functionality available to the public. Quarterly data updates will be integrated into the MD iMap geodatabases and ArcGIS Server services and made available to the web application. System Maintenance Contribution and application updates will be applied quarterly. Additional hardware will be installed to increase the system data storage capacity and maintain system performance.

Description of MD iMap http://mdimap.towson.edu/StateStat
MD iMap is a flexible system that provides a diverse variety of products and services to Maryland' citizens and government employees. These products and services assist in capturing, storing, analyzing, managing, and presenting data linked to a location. MD iMap is a portal or framework that provides a single point of access to Maryland's GIS related information, products, and services. It is an authoritative source of geospatial data and services that assures users they are getting the "best available" information via a set of base maps (geodetic control, transportation, cadastral, hydrology, administrative units, elevation, and imagery) to support daily activities in government. It is a shared protocol that provides consistent, clear methods to share and consume geospatial data and services. MD iMap comprises server, data storage, and software infrastructure that serves the data and applications to the user community; a set of end-user tools that allow data sharing and discovery, data viewing, map production, and business process specific applications; a catalog of information on data, applications, projects, services and people; a variety of on-line services with specific map views, process models, geocoding, querying, reporting, and data extraction; the interface that can be used by a large, diverse group of users. MD iMap brings together decades of work on spatial database development into a shared architecture that promotes collaboration, coordination, and communication among municipal, county, state and federal government activities. MD iMap improves the return on investment in Maryland's GIS through streamlined coordination, collaboration, and communication efforts related to geodatabase and application development. The system helps citizens spatially relate government programs and services, helps government agencies share information, helps government executives view resource allocations and situational awareness, and provides computing services and capabilities that have previously not been available.

(b) Accuracy and Verification

Section (b) describes accuracy and verification of the attributes of data received from Internet Service Providers and MdBC.

Project Role **Towson University's Regional Economic Studies Institute Applied Economics and Human Services**

The RESI-AEHS role in the broadband mapping project will be to verify the accuracy of data received from internet service providers (ISPs) and the Maryland Broadband Cooperative. The Regional Economic Studies Institute (RESI) of Towson University will develop and oversee a survey instrument. The survey instrument will be used to confirm underserved regions as identified by the Maryland Broadband Cooperative. This survey will be administered to households within these identified regions on a regular basis over an estimated five-year period as part of an ongoing data verification process. Acquisition of contact information for these households will be dependent upon the level of detail necessary for data verification.

The survey instrument will be developed by RESI's Applied Economics and Human Services (RESI-AEHS) division with input and approval from CGIS. Due to the scope of this data verification, surveys will most likely be administered primarily through telephone conversations. RESI will prepare reports summarizing and detailing the findings of these surveys. After developing a process for reoccurring data verification, RESI will also train MDBC staff to support and maintain the process.

(c) Accessibility

Section (c) describes development, configuration, and deployment of a publicly accessible web application on the MD iMap infrastructure and the attributes of the state map.

Project Role **Center for GIS at Towson University**

With assistance from ESRI, CGIS will develop, configure, and "stand up" Maryland's broadband web-based mapping application on the MD iMap infrastructure, making the broadband data and related application functionality available to the public. Quarterly data updates will be integrated into the MD iMap geodatabases and ArcGIS Server services and made available to the web application. System Maintenance Contribution and application updates will be applied quarterly. Additional hardware will be installed to increase the system data storage capacity and maintain system performance.

The ultimate product that will be derived from this significant broadband service area data collection effort is the creation of a fully-interactive statewide map of broadband accessibility in Maryland. The map will be integrated into the current existing, award-winning MD iMap interface so that business owners, elected officials, policy makers and potential broadband consumers can visualize the extent of broadband service across Maryland at the neighborhood

level, search for information about broadband service by address, and examine the change over time as the broadband service expands with the investments made in broadband infrastructure.

(d) Security and Confidentiality

The entire project team recognizes and understands the importance of having a process that is as transparent as possible and yet protects both the confidential and proprietary information received from broadband service providers, and the broadband infrastructure information with obvious security concerns.

Several of the team members have considerable experience with sensitive and/or confidential geospatial information. CGIS has extensive experience with security implementation and the nature of handling, communicating, providing, and serving data securely, as demonstrated on numerous projects. Emergency management and homeland security project examples include the Maryland Emergency Geographic Information Network (MEGIN) and the emergency Management Mapping Application (EMMA). CGIS implements public key infrastructure (PKI) technology and hosts "MDiMapsecure." CGIS also developed MTA GIS to provide secure Web services as well as secure map services for a state agency. ESRGC has had similar experiences developing a facilities management GIS at NASA's Wallops Flight Facility. Even more pertinent, however, are the documents and procedures already in place at MdBC. Existing Cooperative members regularly sign non-disclosure agreements that include clauses denoting the definition of confidential information that matches with the definition provided in the NoFA for this project, the degree of sharing between members of the cooperative, and the responsibilities of all involved to maintain the data confidentiality. The proposed project team fully intends to comply with security and confidentiality best practices.

2. Project Feasibility

(a) Applicant Capabilities

Budget Narrative: The costs associated with each major goal of the NoFA are as follows.

a)	Data Gathering	1,588,245.68
	Market Analysis	143,468.66
b)	Accuracy and Verification	216,355.87
c)	Accessibility	705,878.29
d)	Security and Confidentiality	467,597.74
Process of Repeated Data Updating		275,000.00
Total		*3,396,546.24*

Costs above include $300,000 in management costs, or less than 10%. The data gathering portion of the project represents the largest costs. In this category is included the efforts of CGIS and the ESRGC to process existing wireline service area data, the purchase of the wireless service areas, the negotiation of data sharing and non-disclosure agreements with broadband service providers, the mapping of the broadband service to each address in the state, and the delivery of that information to NTIA. Related to the actual service area mapping is the broadband market analysis.

The accuracy and verification costs represent the effort of the RESI-AEHS to use phone surveys and other geospatial validation methods to ensure that the data received from the broadband service providers is complete and accurate. The accessibility costs primarily represent those of ESRI to assist with providing an interactive, Internet-based map of broadband access in the state. The security and confidentiality cost represents the efforts by MdBC to establish a secure legal framework in which the broadband service providers can share their data, maintain a server to protect the data and to process the data, removing the confidential information that cannot be shared with the public. The funds for repeating the data gathering effort once the processes have already been established will be used by CGIS and the ESRGC.

It is important to note that while the management of the project is not listed in the NoFA as a separate portion, our overall management costs within the other categories equal less than 10% of the overall project.

(b) Applicant Capacity, Knowledge and Experience

Section (b) describes each team partner organization's qualifications, experience, and the credentials and experience of key staff, as well as the credentials of the Maryland State Geographic Information Officer.

Kenneth M. (Kenny) Miller, *Maryland State GIO*

Kenny Miller is a professional natural resources and geographic information systems manager engaged in restoring the Chesapeake Bay and improving decision making at the state and local government level. He is recognized as an expert in the acquisition, management, and distribution of geographic information system data for mapping and use within the Department of Natural Resources (DNR) and in Maryland. He is instrumental in setting policy and providing leadership within DNR's GIS community and within Maryland. He is a policy advisor with over 25 years of natural resources experience in Maryland State government and the private sector. He serves as GIO for Maryland's DNR, Office for a Sustainable Future, and since 2007 has served in the Governor's Office as the State's GIO since 2007. The GIO position was created within the respective offices to improve the coordination and development of spatial data resources and the information technology infrastructure needed within DNR and at the state level. This position is responsible for identifying the spatial data needs, developing solutions, securing the funding and partnerships necessary and recommending actions to the Secretary and Governor for implementation. Included in this effort is the charge to develop a statewide basemap (MD iMap – www.mdimap.com/imap) for use by all state agencies. The data necessary for the map is and will be the product of collaborative and cooperative partnerships between the state and local government agencies in a sustainable manner. The sectors of government include natural resources and the environment, homeland security/emergency response, law enforcement, health, education and housing. The GIO serves a leadership role in the following organizations:

1. MD iMap Interagency Executive Steering Committee.
2. MD iMap Technical Committee.
3. Maryland DNR's GIS Steering Committee and GIS Council.
4. Executive Committee of the Maryland State Geographic Information Committee (MSGIC); Past-Chair of MSGIC.
5. National States Geographic Information Council (NSGIC); Maryland's representative.

Organizational Profile **Maryland Broadband Cooperative**
212 W. Main Street # 304, Salisbury, MD 21801-4838

MdBC is a 501(c)(12) organization established in 2005 with the appointment of a Board of Directors and created from the five Maryland State Tri-County Councils, which operate as regional planning and development units for rural Counties in order to foster physical, economic and social growth. They appointed a Project Manager, who implemented the planning and design of a statewide fiber optic backbone in an effort to promote economic development within and deliver broadband services to unserved and underserved regions. In subsequent years, the Board appointed a President/CEO, who established an organizational structure consisting of a Finance Department liable for billing and records keeping; an Operations Division overseeing design, construction and implementation; a Plant Installation and Maintenance Division; and a Sales and Marketing/Customer Care Division. Collectively, the MdBC team has over 100 years of experience in telecommunications, finance, business development, and broadband installation and construction.

MdBC has established relationships with several fiber optic infrastructure firms; organizations within the State government that provided agreements for right-of-way and permitting; and key telecommunications, broadband technology and equipment companies, all of whom are prepared to collaborate with MdBC to carry out the organization's goals through implementation, provisioning, and network management plans.

MdBC has a proven track record of efficiently reaching its project goals and has managed nearly $12 million in construction of a multi-phase initiative. Phase I included 259 route miles of fiber installation (approximately 37,000 fiber miles); Phase II spans an additional 85 route miles (approximately 12,000 fiber miles). The construction, planning and engineering has been completed for the final phase, which will complete a network to the Southern and Western portions of the State. Upon receipt of sufficient funding, MdBC and its subcontractors will implement its plan.

MdBC has solicited membership to its cooperative model from both private and government sectors. Today the cooperative consists of forty-six members, including major telecommunications and utility companies, state-wide Internet Service Providers, local government, libraries, and the University of Maryland Medical System. The Board of Directors has expanded to thirteen members; in addition to the original members appointed by the State's Tri-County Councils, the remaining members consist of appointments from member companies. The Board oversees operations and ensures that MdBC efficiently and effectively meets its goals and objectives. Officer positions on the Board are elected annually by member companies.

Implemented by the original Tri-County Council members, membership to the MdBC is based upon a class structure that includes five categories: (1) Class A, consisting of the five Tri-County Council Members; (2) Class B, Telecommunications Providers; (3) Class C, Government and Public Sector Agencies; (4) Class D, Commercial and Industrial Users (e.g., Web Hosting, Data Centers); and (5) Class E, Joint Use or Shared Resource (e.g., Utility Companies).

Significant relationships have been established with member companies to expand the cooperative's role in delivering statewide broadband service with emphasis on rural underserved and unserved regions. MdBC has also developed associations with network monitoring organizations to ensure efficient operations and subcontractors to warrant timely construction. MdBC has engaged in several agreements and is currently negotiating with its members to deliver broadband services, expanding its network and the operational capabilities.

Key Staff and their Credentials

William Patrick Mitchell, *Chief Executive Officer*

William Patrick Mitchell is President and CEO of Maryland Broadband Cooperative. He has Ten years of experience in the telecommunications industry, a diverse telecommunications background in operations and management, and has earned a Master Electrical License.

Professional Experience
Maryland Broadband Cooperative, President and CEO (2006 – Present)

- CEO of MdBC creating a fiber optic network to create economic development and deliver broadband services to unserved and underserved regions of Maryland.
- Selected by MdBC Board of Directors to establish the business operations of non-profit cooperative.
- Established over forty members of the cooperative.
- Successfully established the Cooperative's business plan, created the operations and led sales and marketing, mapping and engineering as well as the financial departments.
- Managed $15 million in Fiber optic network construction.
- Under William Mitchell, MdBC has worked closely with private industry and Federal and State Governments to install an approximate thirty thousand fiber mile backbone and has established a plan to create an approximate 150,000 fiber mile network.

Verizon Communications (2000 – 2006)
- Local manager for Enterprise Business Group
- Area manager for Enterprise Dispatch for Maryland Region
- Created Maryland 911 Training Center
- 911 Technician
- Special Circuits Technician
- Specialized training in Special Service Circuits, T1, Digital, DS3, ISDN, 911 Operations, various Verizon management training

David Patrick Robinson, ***Task Manager, Sales & Marketing***

David Patrick Robinson has managed sales and marketing for MdBC since 2008. He has an extensive background in telecommunications operations and management and a diverse background in Local, State and Federal Government organizations. He possesses key leadership skills, including fostering teamwork and establishing goals and objectives, as well as project management skills and service analysis experience. His specialized training in telecommunications includes electrical, POTS, ISDN, DSL, T1, DS3, SONET, DWDM, Fujitsu, and multiplexing. He completed the Criminal Justice curriculum at Chesapeake College and graduated from the Wor-Wic Tech/Eastern Shore Criminal Justice Academy.

Professional Experience
Maryland Broadband Cooperative (2008 – Present)
- Instrumental in creating MdBC's business plan and sales division.
- Successfully negotiating fiber exchange and dark fiber sales.

Strategic Intelligence Group LLC (2004 – Present)
Principal/Owner of Private Investigation Firm

Verizon Communications (1998 – 2005)
- Local manager for Enterprise Business Group
- Local Human Resources Manager for Enterprise Business Group
- Area manager for Enterprise Dispatch Group Virginia Southern Region
- Liaison for Maryland Emergency Management (MEMA)
- Administrator for Verizon's Distance Learning program
- Systems/Special Circuits Technician – Enterprise Business

Charles C. Cawley, CPA, MBA, *CFO/Controller, Task Manager, Finance*

Charles C. Cawley is a Certified Public Accountant, Maryland State Board of Public Accountancy (1977), who has extensive county management experience as County Administrator for Caroline County, Maryland, as well as expertise in operations, fiscal management, budgeting, accounting, personnel management, economic development, and public and governmental affairs. He earned an M.B.A. at Wilmington University and a B.S in Business Administration and Accounting at Old Dominion University. His appointments include Maryland Association of Counties, where he served as Vice-Chair Tax Committee (2006) and Legislative Representative Alternate (2000-2006); President, Maryland Association of County Administrative Officers (2004); Chair, Caroline County Strategic Planning Committee (2005); and Governor's Task Force on Eastern Shore Economic Development (2000). He produced Caroline County Strategic Plan: *Anticipating and Adapting to Growth Pressures: Strategic Thinking for the Future of Caroline County to the Year 2025.*

Professional Experience
***County Administrator,* Caroline County Government,** Denton, MD (1998 – 2008).
Chief Administrative and Financial Officer of Caroline County, Maryland, a position appointed by the County Commissioners. Daily operational oversight for ten departments with over 200 employees. Duties include: Director of Finance, Budget Officer and Presenter, Director of Human Resources, Procurement Officer, Pension Administrator for Caroline County Defined Benefit Pension Plan, liaison to state legislature.

***Accounting /Management Advisory Services/Controller*, Cawley Consulting** (1990 – 1997).
Owned and operated a consulting practice that provided tax, accounting and management advisory services. Consulting work included serving as controller for a manufacturing company. Court appointed accountant for a client in a successful federal bankruptcy case.

Drew Van Dopp, *Task Manager, Business Development*

Drew Van Dopp will be responsible for initiating the data sharing agreements with Maryland's broadband service providers. He will work through their concerns regarding confidential and proprietary information, negotiate the non-disclosure agreements, and be the primary liaison between the providers and the Maryland Broadband Cooperative for the duration of the project. He earned a B.A. in History at The American University, Washington, DC, and also graduated from La Universidad Catolica de Argentina, Buenos Aires, Argentina. He is a Member of Phi Alpha Theta Academic Honors Society.

Professional Experience
Downes Associates, Inc., Maryland (2002 – 2008)
Manager, Power Markets, Reporting, and Compliance Services
- Led team of four industry consultants in the performance of financial analysis projects for twelve municipal and industrial clients representing > $125M in revenue.
- Conducted full life cycle financial analysis including problem identification and definition, business process analysis and requirements definition on a broad range of power supply, operational, system reliability, and regulatory compliance issues.

- Engagement owner for five clients ($37M under management), responsible for maintaining effective partnerships, client satisfaction and profitability goals.
- Coordinated analysis of PJM business rules and state/federal legislative and regulatory initiatives. Expertise in Demand Side Management and Green Energy solutions.

Supervisor, Power and Financial Services Projects

- Managed team of three financial reporting analysts performing one-time and recurring financial reporting projects for four municipal clients ($50M under management).
- Responsible for conducting follow on financial analysis, identifying client-impacting issues and developing corrective programs to remediate issues.
- Ensured integration of all regulatory changes that affect client wholesale and retail billing functions into monthly and annual audit and reporting processes.

Winstar Communications, Virginia (2000 – 2001)

Manager, Corporate Finance, Planning and Analysis

- Led multi-enterprise operational and financial reporting projects for the Chief Financial Officer (CFO) of a national fixed-wireless telecommunications provider.
- Identified reporting gaps needed to satisfy internal managerial accounting and external financial reporting demands. Provided financial modeling and business forecasting to support executive decision-making and performance measurement of field operations.

Organizational Profile **Eastern Shore Regional GIS Cooperative, Salisbury University**
1101 Camden Avenue, Salisbury, Maryland 21801

The Eastern Shore Regional GIS Cooperative (ESRGC) at Salisbury University was established in 2004 to provide GIS products and services to the municipalities and counties of Maryland's Eastern Shore. Located in Salisbury, Maryland, and funded by the MidShore Regional Council, the Tri-County Council of the Lower Eastern Shore of Maryland, and Salisbury University, the ESRGC offers state-of-the-art GIS consulting for less than its true cost, thus making a very advanced technology available to all local and state governments in the Mid-Atlantic Region.

ESRGC is uniquely qualified to assist a statewide assessment of broadband service distribution for Maryland for the following reasons:

1) ESRGC has worked with many members of the proposed broadband mapping team in the past and is currently working on a number of projects in Maryland and can offer a well integrated approach and a wealth of pertinent GIS experience. ESRGC is currently working with the Department of Business and Economic Development on a GIS/dashboard data visualization project and has worked with the Center for GIS at Towson University on a project that assessed land use change in Maryland's Coastal Bays. ESRGC is currently assisting the Maryland Broadband Cooperative with visualization support. ESRGC collaborates regularly with the Business, Economic, and Community Outreach Network (BEACON) at Salisbury University on a wide range of projects. ESRGC is very comfortable partnering with private-sector companies and respecting their constraints with regard to confidential business information. Recent examples of private sector partners are PBS&J, George Miles, & Buhr, LLC, and Vision Planning and Consulting.

2) Under the direction of Dr. Michael Scott, ESRGC has completed statewide mapping assessments, including the first statewide flood vulnerability analysis using HAZUS-MH for Maryland in 2005. This study yielded the report "An Assessment of Maryland's Vulnerability to Flood Damage," which won the Maryland Chapter of the American Planning Association's Award for Education or Research in 2006. The comprehensive study, conducted with the previous (and much less stable) version of HAZUS-MH, became a model for the nation. Other states, such as Pennsylvania and Indiana, sought ESRGC's advice on conducting their own statewide vulnerability assessments.

3) The team has significant experience managing large-scale GIS projects of various types and complexities, delivering them on-time and on-budget. In addition to the Maryland statewide HAZUS study, the ESRGC completed the mapping of 420,000 on-site septic systems for the Maryland Department of the Environment in 2007. ESRGC is currently involved in a major Chesapeake Bay Critical Area remapping project for the Maryland Department of Natural Resources. Both of these projects required significant attention to detail, a comprehensive quality assurance/quality checking set of procedures, and a commitment to precise and accurate cartographic representation of results.

4) The team has worked on a number of projects in the Mid-Atlantic and in other states throughout the country. ESRGC's dedication to customer satisfaction and our desire to deliver the highest-quality GIS product has caused our services to be sought by state agencies in both Maryland and nearby states. ESRGC is currently completing a project to remap the National Wetland Inventory polygons for the 6 coastal counties of Georgia. Partnering with PBS&J, the project required a rigorous Quality Assurance Project Plan to be approved by the Environmental Protection Agency as well as the Georgia Department of Natural Resources.

5) The team considers modeling and visualization a particular expertise. Because ESRGC is an outreach entity of Salisbury University, the intellectual curiosity and desire to understand complex systems of an academic environment exists to support and expand the capabilities regarding scientific modeling. The natural hazard loss estimation software, HAZUS-MH, is but one model that ESRGC has experience executing. ESRGC has also been involved in the manipulation of hydrologic models, micro-simulation models, impervious surface models, and geoprocessing models custom written by ESRGC staff.

6) The team has considerable experience presenting complex subjects, both graphically and in written form. Each of the full-time staff is considered to be an expert cartographer with hundreds of hours of experience with mapping and visualization. Dr. Scott's experience with writing summary reports that are significant and complete, yet accessible to the public, ensures that reports will be well-crafted. ESRGC has recently moved into the realm of on-line mapping and geodashboards, bringing another dimension to the deliverables of the broadband mapping project

Key Staff and their Credentials

Michael S. Scott, Ph.D., GISP, *Director*

Dr. Michael Scott has nearly 20 years of experience in the GIS industry. Since establishing the Eastern Shore Regional GIS Cooperative in 2004, he has directed over 100 successful GIS projects with several being statewide in scope. He will oversee all of ESRGC's activities on the broadband mapping project. He will provide technical advice and direction, employee supervision, and coordination with other project.

Education
Ph. D. 1998 University of South Carolina (Geography/Geographic Information Science)
M. S. 1994 University of South Carolina (Geography/Geographic Information Science)
B. S. 1992 Salisbury State University (Geography)

Professional Certification
2007 – present Certified Geographic Information System Professional

Professional Positions Held
2006 – present Graduate Program Director, Master of Science in GIS and Public Administration
2004 – present Director, Eastern Shore Regional GIS Cooperative
2003 – present Associate Professor of Geography, Salisbury University
1998 – 2003 Assistant Professor of Geography, Salisbury University

Arthur J. Lembo, Ph.D.

Dr. Arthur J. Lembo will fulfill the role of Technical Director on the broadband mapping project. Dr. Lembo has experience in both the private sector and academia working with communication and utility networks. He is considered an expert in the field of massive dataset processing. He will be working with the technical staff on the best methods for data processing, validation, and transfer. He will work closely with CGIS to develop the specifications and troubleshoot the replication process.

Education
PhD. Environmental and Resource Engineering, May 1997. The State University of New York, College of Environmental Science and Forestry. Syracuse, NY.

MA. Geography and Geographic Information Systems, May 1989. The State University of New York at Buffalo. Buffalo, NY.

BS. Geography and Geographic Information Systems, May 1987. The State University of New York, College at Oneonta. Oneonta, NY.

Teaching Experience
Salisbury University, Salisbury, Maryland
2007 – Present. Assistant Professor, Department of Geography and Geoscience.

Cornell University, Ithaca, New York
2000 – 2007. Senior Research Associate and Senior Lecturer, Department of Crop and Soil Science

Other Professional Experience
Senior GIS Analyst (1993 - 2001), Bowne Management Systems, Inc.
Involved in all phases of GIS implementation for clients throughout the United States, from conception to physical implementation. This position included oversight of all GIS technology solutions and the development of programs and applications within different GIS software environments. Also included a major emphasis on business development, marketing, and overall staff management.

Lauren D. McDermott, *Project Coordinator*

Lauren D. McDermott has been with the ESRGC since its inception and will function as the day-to-day project manager for the ESRGC team. Her responsibilities on the broadband mapping project range from assigning specific tasks to the GIS analysts to facilitating the discussions between the ESRGC staff and the rest of the project team to financial analysis and reporting.

Education
Pursuing M.S. in Geographic Information Systems and Public Administration at Salisbury University
B.S. (2001) Geography and Geosciences Salisbury University, Salisbury, MD

Professional Experience
Project Coordinator, Eastern Shore Regional GIS Cooperative 01/2004 - Present
Supervise all aspects of GIS projects undertaken by the ESRGC including directing staff and undergraduate student interns, project planning, setting the technical direction, and communicating with clients. Complete and track all University paperwork related to contract initiation, billing and completion, as well as payroll documentation. Provide GIS analyst support through data processing, database development, cartographic production, data management and analysis, and representation at meetings.

GIS Consultant, Self Employed 8/2002 – 12/2003
Provided solutions and products using GIS capabilities and cartographic principles. Participated in the comprehensive planning effort for Vienna, Maryland and Laurel, Delaware by creating parcel, land-use, zoning, water, sewer, and soil GIS data layers. Continue to provide support to Salisbury University, Shore Transit and other local organizations through independent contract. Develop and maintain web sites for various clients.

Research Associate, Mapping Science Group 08/2001 – 08/2002
Provided support to the group through data processing, database development, cartographic production, data management and analysis, and representation at meetings. Participated in initiative to create a regional transportation system on Maryland's lower Eastern Shore. Geocoded roads collected through GPS to create the most up-to-date coverage of the three

counties of the lower shore. Created cartographic products for clients, on demand, using GIS and cartographic tools. Assisted undergraduate students and interns.

GIS Technician, Mapping Science Group 05/2000 – 08/2001
Provided support as a technician through data collection, in-field surveying, database development and management. Collected data through a recreational survey for the Chesapeake Bay Program and created the database that housed its findings. Collected GPS data for all roads in the three counties of the lower Eastern Shore. Developed a destination database to aid the Welfare to Work program. Served as liaison between student employees and overseeing faculty members.

Organizational Profile **Maryland Department of Business and Economic Development**
401 E. Pratt Street, Baltimore, MD 21202

The mission of the Maryland Department of Business and Economic Development (DBED) is to create, attract, and retain jobs while promoting the State's vibrant cultural economies. DBED acknowledges the critical role that broadband access plays in economic development. In 2006 the State established the Rural Broadband Assistance Fund (RBAF) within DBED. The division was formed solely to provide assistance to fund broadband communications planning, construction, and maintenance in rural and underserved areas. The fund acts as a conduit for funding from both federal and state sources. DBED's role in the broadband mapping project is to facilitate the process by bringing parties together where needed and providing information, support, and resources where required.

Key Staff and their Credentials

Elaine McCubbin

Elaine McCubbin has extensive financial and training experience. She currently serves as Acting American Recovery & Reinvestment Act (ARRA) Program Manager. In this role, she develops and presents ARRA related workshops and panel discussions. She researches and identifies ARRA opportunities for Maryland businesses and provides outreach presentations and communications. Previously she served as a Finance Specialist for DBED. Her duties included analyzing, facilitating, and recommending economic development projects for the State, and she tracked and reported on Special Assets. She earned a B.S. in Business Administration with a Concentration in Accounting and a Minor in Economics (*Cum Laude*) at Towson University. She also earned a Certificate in Teaching from the College of Notre Dame in Secondary Social Studies.

Kassie Lewis

Kassie Lewis has extensive marketing, and business and economic development experience. She serves as the State's broadband coordinator. She also serves on the American Recovery & Reinvestment Act (ARRA) Team within DBED. In this role, she is charged with identifying opportunities for effective usage of stimulus funds and directing non-stimulus funded economic development opportunities. She provides training and consultation for DBED staff to leverage

federal opportunities. She assesses and resolves impediments to business operations and expansion by coordinating with appropriate entities. She maintains current knowledge of ARRA and business assistance programs to assure prompt response to business issues, and she represents the State of Maryland at public speaking events. She manages DBED's ARRA email account to ensure professional attention; establishes relationships with federal and state agencies to maximize opportunities for businesses; and prepares correspondence on behalf of the Secretary and the Governor's office. Her education includes the following.

- Graduate, Economic Development Institute, University of Oklahoma, 1986
- Graduate, Basic Economic Development Course, University of North Carolina, 1983
- Certified Economic Developer (CED) 1987
- Master's Degree, University of Maryland, 1977
- Bachelor of Arts, Towson University, 1975
- Miscellaneous courses: National Development Council Economic Development Financing, Accounting I and II, Principles of Real Estate, SIOR Industrial Real Estate I

Julia M. Lukens, GIS Coordinator

Julia M. Lukens has extensive GIS experience. Her responsibilities at DBED include preparing detailed maps and geographic analyses, managing spatial databases and thematic data, conducting verification and editing, and providing GIS training and technical support to DBED staff utilizing the GIS software. Her project management experience includes preparing budgets and proposals, directing office and field staff, and performing quality assurance/quality control and verification of staff efforts. She earned a B.S. in Geography and Environmental Systems at University of Maryland, Baltimore County, as well as a Certificate in Cartography.

Organizational Profile

Center for GIS at Towson University
7801 York Road, Suite 260; Towson, MD 21252

The Center for GIS (CGIS) at Towson University (TU) is a self-supporting professional organization within the University's Division of Economic and Community Outreach. Since the early 1990s CGIS has been applying GIS technology to strategic opportunities and tactical challenges in government, business, and non-profit organizations. CGIS makes GIS technology accessible relevant, and useful. CGIS works with proven, industry standard products, including a full suite of ESRI GIS software (ArcGIS, ArcGIS Server, ArcIMS, ArcSDE), as well as other relevant technologies. The CGIS team comprises degreed professionals who consistently deliver their best work to clients and are committed to empowering clients to use GIS technology to its full potential. The following description of CGIS capabilities and activities is arranged in order of relevance to the broadband mapping project.

Statewide GIS Coordination

CGIS is a proactive participant in statewide coordination of GIS resources. CGIS serves as the technical GIS resource to the Maryland State Geographic Information Committee and is the steward for the Maryland Mapping Resource Guide at www.MarylandGIS.net. In partnership with MSGIC, CGIS completed several National Spatial Data Infrastructure cooperative

agreement grant projects intended to coordinate state GIS resources for the Nation's benefit, enhance the quality of Maryland's geospatial data, and enable jurisdictions to share data to *The National Map*. CGIS architected and hosts the infrastructure for ***MD iMap***, Maryland's vision for shared, accessible data and mapping tools; managed a project to create the state's first statewide coordinated base map; and serves on the Maryland Street Centerline Working Group.

GIS Database Development and Data Analysis

CGIS helps organizations gather, consolidate, and analyze data then share the results with others via maps—not only location maps, but also thematic maps that use color-coding or other visual means to depict quantitative or qualitative data from spreadsheets. CGIS data services include converting clients' in-house data to digital format; collating data, data formats, and coordinate systems available from local, state, and federal government sources; standardizing the data for uniformity; and building comprehensive, reliable, useable databases.

Selected recent projects

- Worked with the Maryland Emergency Management Agency to update the *Maryland Hazard Analysis*, a document that provides local level emergency planners with a comprehensive vulnerability assessment of natural and technological hazards. Created and subsequently updated Maryland's *Multi-Hazard Risk Assessment*, a more detailed analysis for risk mitigation of critical state-owned and/or state-operated facilities located within hazard areas at risk for floods, coastal storms, earthquakes, tornados, landslides, and wildfires.
- Developed an agricultural Cropland Data Layer for the National Agricultural Statistics Service division of the US Department of Agriculture that covers the Mid-Atlantic region and the extent of the Chesapeake Bay Watershed for crop year 2002.
- Completed data work for *Maryland Shorelines Online,* a coastal management Internet portal CGIS developed for the Maryland Department of Natural Resources.
- Analyzed and mapped potential new stops for Towson University's shuttle service.

Geospatial Web Development and Hosting

CGIS combines GIS and Internet technologies to create powerful information tools that improve business processes with secure, interactive access to geospatial data through a Web browser. CGIS conceived and developed the Emergency Management Mapping Application (EMMA©), a secure, Web-based mapping application that facilitates information sharing by allowing Emergency Operations Center (EOC) staff to visualize critical information and share a common operating picture. CGIS developed and hosts *Mapping the Maryland Sex Offender Registry* for the Department of Public Safety and Correctional Services. The mapper is an online, interactive tool citizens can use to determine if registered sex offenders live in close proximity to their home, shopping, school, or work communities. CGIS developed and hosts an application for government to facilitate government-owned real property sales to citizens. CGIS developed and hosts *Maryland Shorelines Online,* a publicly accessible interactive portal for the Coastal Zone Management division of Maryland Department of Natural Resources.

Enterprise GIS Solutions

CGIS works extensively with the Maryland Emergency Management Agency and the Maryland Department of Transportation to integrate data, systems, and applications that enable efficient, comprehensive use of GIS technology and geospatial data across the enterprise. Currently, CGIS

is involved in enterprise GIS projects for Maryland Aviation Administration, Maryland Transit Administration, and Maryland Transportation Authority.

Desktop GIS Customization and Development
CGIS develops GIS applications that provide tools for uniform organization and storage of geographic data, along with display and analysis tools that help connect the "where" with the "what" of data.

CGIS also provides **Custom Cartography, Client Site Support, and ESRI Authorized GIS Training.**

Key Staff and their Credentials

Ardys Danelle Russakis, *GIS Operations Officer*

Ms. Russakis will direct CGIS's role in the broadband mapping project. She serves as GIS Operations Officer and currently also serves as interim director. She oversees an annual operating budget of approximately $3 million. She guides business development activities to grow existing client relationships and explore new opportunities; reinforces the organization's well-founded reputation for competence among clients, vendors, partners, and official entities, and leads critical GIS initiatives through initial conceptualization to successful, satisfactory outcomes. Ms. Russakis earned a B.S. in Geography at Towson University (*magna cum laude)* and is pursuing a M.S. in Organization Development and Strategic Human Resources at Johns Hopkins University (August 2009).

Michael J. Bentivegna, *Associate Director, Information Technology Services*

Mr. Bentivegna is Associate Director, Information Technology Services and will direct the IT components of the broadband mapping project. He oversees the daily operation of the Application Development, Database Development, and IT divisions. He directs and participates in GIS/IT development activities and assists with setting technology and business goals and objectives. He earned an M.A. in Geography and Environmental Planning at Towson University, and a B.A. in Environmental Science at SUNY Plattsburgh.

David A. Sides, P.M.P., *Project Manager*

Mr. Sides is a certified Project Management Professional and will direct the data components of the broadband mapping project. He organizes and directs the work of professional and technical teams, and manages technical resources, to ensure that projects are on schedule, within budget, and conform to appropriate quality standards. He is currently responsible for the GIS and data components of three ongoing major projects for Maryland Department of Transportation. He earned an M.A. and a B.S. in Geography at Towson University, as well as a B.S. in Business Administration.

Ashley Lesh Buzzeo, *GIS Specialist IV*

Ms. Buzzeo is a GIS Specialist IV with project management responsibilities. She performs technical and analytic work at the expert level. She has excellent command of ESRI ArcGIS Server replication technology. She earned a B.A. in Geography and Environmental Planning at Towson University *(Cum Laude)* and is pursuing an M.S. in Geography and Environmental Planning at Towson University.

Steven William Fabijanski, *GIS Application Programmer IV*

Mr. Fabijanski will direct the programming component of the broadband mapping project. He performs a full range of application development activities for major projects, ensuring that the applications meet technical, functional, and regulatory requirements and are consistent with current and planned infrastructure and data environments. He earned an M.S. in Magazine Journalism Syracuse University–Newhouse, a B.A. in Journalism at Loyola College in Baltimore, Maryland (*Cum Laude*), and is pursuing an M.S. in Geography and Environmental Planning at Towson University (12/2009).

David Geeraerts, *Systems Engineer*

Mr. Geeraerts will lead the IT component of the broadband mapping project. He ensures the integrity, security, maintenance, and growth of CGIS's IT infrastructure, currently comprising 40 servers, 20 blade servers, 5 LTO2/SDLT/DLT tape backup devices for office and data center backup 40 workstations, 10 laptops, 9 office printers, 2 HP DesignJet large format printers, and 1 large format scanner. He supervises IT staff and provides technical guidance and develop standards for systems operations and procedures. He earned a B.A. in Anthropology and Archeology at the University of New York and an A.A.S., in Computer User Support at Lane Community College.

Jeremy Monn, *GIS Specialist III*

Mr. Monn will perform specific data work for the broadband mapping project. He is a GIS Specialist III and specializes in spatial database development and analysis, cartographic tasks, application creation and support tasks at an advanced level. He earned an M.A. in Geography and Environmental Planning at Towson University and a B.S. in Geo-Environmental Studies at Shippensburg University.

Organizational Profile

Regional Economic Studies Institute (RESI)
Applied Economics and Human Services (AEHS)
Towson University, 8000 York Road, Towson, MD 21252

The AEHS group works on an array of projects ranging from traditional economic impact analyses to workforce analyses and various survey analyses. AEHS provides the State of Maryland Comptroller with a quarterly economic forecast and also provides the Maryland Department of Human Resources and the Maryland State Department of Education with regular research, analyses and reporting. Below is a brief list of AEHS services.

- Economic analyses and forecasting examine some factor(s) of the overall economy or particular sector(s). These reports incorporate predictions and estimates of anticipated future behavior in economic activity and can serve as a starting point for economic planning. An example of relevant work previously conducted by the AEHS group is the regularly released Regional Economic Studies Institute (RESI) Maryland Economic Forecast, which provides an overall economic outlook and a sectoral overview of selected industries as well as forecasts within those industries.

- Economic impact studies analyze a proposed business decision in regard to its net effect on the greater economy, generally at the local and/or state level and may also analyze a business decision that has already been made in order to review its level of success and/or provide recommendations or modifications. An example of relevant work previously conducted by AEHS is an economic analysis of the proposed Columbia Gateway Business Park conducted on behalf of the Howard County Economic Development Authority (HCEDA).

- Fiscal impact analyses estimate the net financial impact on government (generally state or local) in terms of associated costs and tax revenue. An example of work previously conducted by the AEHS group is a fiscal impact analysis of the proposed Susquehanna Overlook Residential Development conducted on behalf of Susquehanna Overlook LLC.

- Cost of services analyses examine the annual operation costs of a proposed business decision or development that must be assumed for each new household that results from the operations phase. An example of relevant work previously conducted by AEHS is a cost of services analysis of the proposed Susquehanna Overlook Residential Development conducted on behalf of Susquehanna Overlook LLC.

- Statistical analyses provide and examine econometric models which explore the statistical relationship between economic variables or principles in relation to economic behavior.

- Workforce and commuter analyses report statistics illustrate the overall employment profile history and current industry trends of a selected region, and provide applicable recommendations. Examples of work previously conducted by AEHS are the State of the Workforce Report conducted for the Governor's Workforce Investment Board, and the Western Maryland Laborshed Study conducted for Tri-County Council of Western Maryland.

- Survey analyses report and examine the detailed statistical findings from administered surveys. The reports can provide a more in-depth and informative analysis of economic objectives or queries as respondents are typically directly or indirectly involved or affected by, or have expertise in the relevant subject. An example of work previously conducted by AEHS is the Maritime Industrial Zoning Overlay District Study conducted in conjunction with Hentschel Real Estate Services on behalf of the Abell Foundation.

- BRAC analyses and recommendations examine the estimated economic and fiscal impacts of the 2005 Base Realignment and Closure (BRAC) decisions on the state economy or

particular economic sector(s). The reports provide clients with recommendations in regard to areas in need of expansion or improvement to meet and benefit from the evolving needs relating to the BRAC decisions. An example of relevant work conducted by AEHS is the BRAC Small and Minority Business Opportunity Study conducted for the Governor's Office of Minority Affairs.

Key Staff and their Credentials

Daraius Irani, Ph.D.

Dr. Daraius Irani will coordinate the data verification component of the broadband mapping project. He is the Associate Vice President of the Division of Economic and Community Outreach at Towson University and Director of RESI's Applied Economics and Human Services group, as well as the Director of the EDA University Center at Towson University. Dr. Irani serves as project manager on numerous projects at RESI. He has been the principal investigator for numerous economic and fiscal impact studies for developers, corporations and government agencies in Maryland. In these studies he examined the direct, indirect and induced economic and fiscal impacts of the proposed development or project. For many of these projects, a cost/benefit analysis was undertaken. Prior to joining RESI in 1997, Dr. Irani was the senior economist at the Santa Barbara Economic Forecasting project where he developed county-level economic forecasts for Santa Barbara County, San Luis Obispo County and Ventura County. In addition, he co-authored several reports including an analysis of the oil and gas industry and the tourism sector in the Central Coast of California. Dr. Irani received his B.A. from the University of California, San Diego and received his Ph.D. and M.A. from the University of California at Santa Barbara. He earned a Ph.D. in Economics and an M.A. in Business Economics at the University of California, Santa Barbara, and a B.A. in Economics at the University of California, San Diego.

Erin Nueslein, Associate Director of AEHS

Erin Nueslein is the Associate Director of the Applied Economics and Human Services group at RESI of Towson University. She will serve as project manager for the data verification component of the broadband mapping. She will coordinate the work of research assistants, participate in survey design, survey area, and analysis of results. Her extensive experience includes serving as program manager for RESI's Maryland Department of Human Resources– Family Investment Administration contract. She was project lead for a variety of research and analytical projects that include fiscal and economic impact, policy, cost of services, and survey analyses. She was the principle investigator for the labor shed analysis for Western Maryland conducted by Towson University's EDA University Center. She has served as a primary researcher on the *Educational Needs Assessment: Supply and Demand of Educational Programs Likely to Support the DoD BRAC Movements into Maryland* study conducted for the Maryland Department of Business and Economic Development and also served as the project lead on the *BRAC Small and Minority Business Opportunity Study* conducted on behalf of the Governor's Office of Minority Affairs. Ms. Nueslein has served as the principal analyst on projects for Michael Companies, Manekin, LLC, Constellation Energy, BP, and many other local and state

agencies. She earned a B.S. in Economics with a Minor in Business Administration at Towson University.

Raquel Huezo, Economist

As an Economist for RESI's Applied Economics division, Raquel Huezo contributes to the production of economic forecasts and indices for the State of Maryland as well as the Maryland Economic Outlook Forecast published quarterly for the Maryland State Comptroller's Office. She will serve as a research assistant for the broadband data verification project. She worked on the Maryland State of the Workforce Report for the Governor's Workforce Iniative Board and co-authors the monthly *Maryland Indicators* published by the Maryland Daily Record. Prior to working at RESI, Ms. Huezo worked for the Maryland Department of Housing and Community Development (DHCD) as a Project Manager for a project portfolio totaling 1.6 million dollars that included projects ranging from housing rehabilitation to feasibility studies. She also participated in the process for funds distribution and the evaluation of local grantee performance. Her primary responsibility was the effective collection of data, and analyzing, designing, and reviewing statistical reports. She earned an M.A. in Economics at Georgia State University, and a B.S. in Economics at Florida State University.

Organizational Profile **ESRI**
Corporate Office: 380 New York Street, Redlands, CA 92373

ESRI was founded in 1969 with the belief that GIS technology can help both citizens and governments better manage and invest in society. Through thousands of projects around the world, ESRI have shown how GIS can make a difference in society's ability to measure, understand, and plan for change. ESRI is committed to providing support for better government. Governments at all levels—from the 200 largest cities in the United States to more than 24,000 state and local governments worldwide—use ESRI software to better analyze data, plan activities, and make decisions. ESRI technology benefits departments as diverse as public works, elections, emergency management, law enforcement, assessment, inspections, and other departments throughout local, state, and national governments. ESRI also provides support at a global level through disaster response and support, conservation programs, and grant and sustainable development programs. ESRI consistently receives rewards and recognition for efforts to promote effective government and responsible social and environmental investment. In addition, ESRI is a leading provider of GIS-based solutions to telecom, cable, and utility companies. These companies have found that ArcGIS software provides a comprehensive IT platform that enables support for market/competitive analysis, network planning, engineering and construction, sales and service delivery, and customer care applications. ESRI focuses on building scalable and interoperable enterprise systems for mission-critical tasks. ESRI believes that contributing its expertise and technology to government, telecom, and other organizations in over 20 other industries will help invest in the future and improve society.

Organizational Profile **The Business, Economic, and Community Outreach Network at Salisbury University**
1015 Camden Avenue, Salisbury, MD 21801-6860

The Business, Economic, and Community Outreach Network (BEACON) of the Franklin P. Perdue School of Business at Salisbury University offers business, economic, workforce, and community development consulting and assistance services to a variety of organizations, including businesses, government agencies, and non-profit community-based organizations. BEACON has a dual mission to providing Perdue School students with a wide variety of experiential learning opportunities; and to provide the region's public and private sector decision-makers with the business and economic development data, information, skills and know-how they need through targeted outreach programs, applied research, trend and scenario analyses, demand forecasting, strategic planning, feasibility studies, and modeling for resource allocation, process improvement, and economic impact studies.

Key Staff and Credentials

Memo Diriker, Ph.D., *Director*

Dr. Memo Diriker is the Founding Director of the Business, Economic, and Community Outreach Network (BEACON). BEACON is the premier business and economic research and consulting unit of the Franklin P. Perdue School of Business at Salisbury University. BEACON is home to the award winning Community Visioning, ShoreTrends, GraySHORE, and Bienvenidos Delmarva initiatives. BEACON also partners with the GeoDASH and ShoreENERGY initiatives.

Dr. Diriker specializes in the use of "Scenario Planning and Analysis," and in "Demographic, Business, and Economic Trend Forecasting." As the Director of BEACON, Dr. Diriker advises a large number of private, public, and nonprofit sector organizations. Some of his current and former clients include U.S. Steel; Allied-Signal; Dow Chemical; Mass Mutual; Federal Express; Chesapeake Utilities; K&L Microwave; MaTech; Midway and Courtesy Chevrolet; The Daily Times of Salisbury; Perdue Farms; Peninsula Regional Medical Center, and the Maryland Baseball Partnership.

Dr. Diriker's current research focuses on the "Three Es: Effectiveness, Efficiency, and Evidence." He is especially interested in exploring the successful deployment of the "Three Es" concept in Government Agencies, Nonprofit Organizations, and Small to Medium-Sized Enterprises.

As the director of BEACON, Dr. Diriker has served as the principal investigator on numerous grants and sponsored research projects, totaling over $6 Million in awards.

In addition to a book, Dr. Diriker has authored many articles in academic and practitioner publications, and is a sought-after public speaker.

Dr. Diriker is the recipient of many honors and awards, including a University System of Maryland Board of Regents Award for Outstanding Public Service.

3. Expedient Data Delivery

Per the timeline submitted as a separate attachment in Excel format, the project team intends to meet all required deadlines.

4. Process for Repeated Data Updating

Data Updates

CGIS will coordinate with State project partners, research and implement the data update process deemed best suited for the members of the Maryland Broadband Mapping team. This process will encompass collecting updated broadband service data from the service providers, data quality control and normalization, reformatting as needed, and transfer and upload into the geodatabase and web application. Options include ArcGIS Server Geodatabase Replication, and manual processing and transfer of data. Factors that will affect the decision include how the data is collected and updated and if the data is updated in an ArcSDE database.

Quarterly data updates will be integrated into the MD iMap geodatabases and ArcGIS Server services and made available to the web application. System Maintenance Contribution and application updates will be applied quarterly. Additional hardware will be installed to increase the system data storage capacity and maintain system performance.

5. Planning and Collaboration

Collaboration

The management, data, and mapping team sanctioned by Maryland's Governor Martin O'Malley comprises seven partners from state government, the University System of Maryland, private industry. Their combined capabilities and depth of experience form a solid foundation for success. MdBC will coordinate data collection and provide overall administration. The Maryland Department of Business and Economic Development will facilitate the process, and assist with coordinating resources and conducting research. Salisbury University's Eastern Shore Regional GIS Cooperative will process data. Towson University's Center for GIS will assist with data gathering, manage data accessibility and updates, and install and host the web application on the MD iMap infrastructure. Towson University's RESI-Applied Economic and Human Resources group will verify certain attributes of the data by survey. ESRI will assist with configuring and deploying the web application. Salisbury University's Business, Economic, and Community Outreach Network will research and analyze broadband demand in different areas of Maryland, and assume the lead role in the planning component.

Planning Component

Project Role **The Business, Economic, and Community Outreach Network at Salisbury University**

The role of BEACON in the Broadband Mapping project will be to collect and analyze detailed market data concerning use and demand for broadband service. BEACON will conduct a minimum of 28 exploratory focus groups (1 residential user and 1 non-residential user per jurisdiction or tri-county council region) will be conducted. Online survey instruments will be designed based on the findings from the focus groups. One near census online survey will be administered for non-residential users (online addresses will be compiled using private and public sector lists from each jurisdiction) and one randomly-sampled online survey will be administered for residential users (online addresses will be rented from commercial list brokers). The survey results will be analyzed and a minimum of 28 confirmatory focus groups (1 residential user and 1 non-residential user per jurisdiction or tri-county council region) will be conducted. Finally, the survey findings will be interpreted and reported using confirmatory information from the focus groups.

The preliminary map of broadband service areas and those areas that are underserved or unserved demonstrates a noticeable geographic pattern. Those areas in the Eastern Shore, Southern Maryland, and Western Maryland have a disproportionate amount of area that is underserved or unserved by broadband service. Even in the Metro Core of Maryland, it is expected that high-quality, low-cost broadband service is not ubiquitous and is less accessible to some areas than others.

In order to identify barriers to the adoption of broadband service and information technology services as well as strategies to remove or overcome those barriers, the project team proposes to create a statewide broadband planning initiative. This initiative will involve the collaboration of

all interested parties—service providers, enablers, business consumers, government/non-profit consumers, and retail consumers—with the goal of creating a set of reports that will provide the State of Maryland with a set of action items to improve the adoption of broadband service statewide.

To accomplish this goal, local technology planning teams (LTPTs) will be established for each of the following regional planning areas, as well as the metro core.

- Lower Eastern Shore: Somerset, Wicomico, and Worcester Counties
- Middle Eastern Shore: Caroline, Dorchester, and Talbot Counties
- Upper Eastern Shore: Cecil, Kent, and Queen Anne's Counties
- Southern Maryland: Calvert, Charles, St. Mary's Counties
- Western Maryland: Allegany, Garrett, and Washington Counties
- Metro Core: Anne Arundel, Baltimore City, Baltimore County, Carroll, Frederick, Harford, Howard, Montgomery, Prince George's

The LTPTs will consist of 15 to 20 people selected as a representative sample of the key broadband/technology stakeholders listed above. These LTPTs will meet quarterly over the 3-year proposed period. Each team will seek to set the agendas and identify the participants for the Broadband Summits (see below), evaluate the results of those summits in relation to current and future trends in broadband, and craft a set of reports for their region that will be concatenated into a statewide document for steering broadband development.

The organizations that are best suited to facilitate the creation, organization, and leadership of these LTPTs are the five regional councils and the staff of the Maryland Department of Business and Economic Development (DBED). As each council has economic development as a key function, each is already concerned with identifying important business, government, and non-profit contacts in the region. Each council was also instrumental in the launch and continuing operation of the Maryland Broadband Cooperative and therefore has additional insight into the challenges and barriers to the extension of broadband service into underserved and unserved areas. Finally, each council has an executive director and secretarial support that will enable this effort to take place. For each area, the following regional council will be responsible.

- Lower Eastern Shore: Tri-County Council of the Lower Eastern Shore of Maryland
- Middle Eastern Shore: MidShore Regional Council
- Upper Eastern Shore: Upper Shore Regional Council
- Southern Maryland: Tri-County Council of Southern Maryland
- Western Maryland: Tri-County Council of Western Maryland
- Metro Core: Maryland Department of Business and Economic Development

Over the 3 years of the planning project, each LTPT will hold a set of broadband/technology summits, approximately one every several months. The focus of these summits will change as the project progresses. In Year 1, each summit will have the goal of identifying the barriers to broadband adoption, creating a list of possible solutions to overcome those barriers, and categorizing those solutions into those that can be enacted immediately with very little upfront costs and those that will take more strategy and perhaps a funding source. At the end of Year 1,

a summary report of the identified barriers and the potential solutions will be completed and sent to DBED for compilation and distribution. In Year 2, each summit will evaluate the progress made on those solutions that were implemented in the past year and will focus on the creation of strategy for those more complex solutions. A final report will be complied by each region and statewide. In Year 3, the summits will evaluate the efforts to-date and make their final recommendations regarding the removal of barriers for broadband/technology adoption.

In order to adequately address the concerns of the different primary constituent groups, we propose that the broadband/technology summits be segregated. Two summits, one early in the year and one late in the year, will specifically invite the general public as well as non-technology businesses to give their concerns about broadband access and seek solutions. In the middle of the year, one summit will specifically invite and address the concerns of information technology companies and economic development agencies that seek to attract high-technology businesses and one summit will focus on the needs of government and non-profit users such as hospitals, schools, etc.

Budget Narrative for Planning

The planning portion of this proposal response seeks to accomplish the following tasks as outlined in the NoFA:

3) To identify barriers to the adoption of broadband service and information technology services;
5) To create and facilitate by county or designated region in a state, local technology planning teams;
6) To collaborate with broadband service providers and information technology companies to encourage deployment and use; and
9) To facilitate information exchange regarding use and demand for broadband services between public and private sector users.

In order to accomplish these tasks, Maryland's team will work through the regional councils in Maryland and the Department of Business and Economic Development to conduct broadband summits, collect information, and compile reports. The total amount of this planning effort is $496,712.01. The vast majority of this funding is to pay for the time of the DBED and regional council staff. Labor costs equal $332,886.17 and 33% fringe benefits on that labor equals $109,845.84. Because there will need to be a significant amount of materials to produce and hand out, supplies are budgeted for $3,000 per year per organization for a total of $54,000.

The State of Maryland appreciates the opportunity to submit this application for broadband mapping and planning to ultimately bring broadband access to unserved and underserved areas of Maryland.

OMB Approval No. 4040-0006
Expiration Date 07/30/2010

BUDGET INFORMATION - Non-Construction Programs

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Recovery Act -- State Broadband Data and Development Grant	11.558	$	$	$ 3,543,258.25	$ 797,586.25	$ 4,340,844.50
2.						
3.						
4.						
5. Totals		$	$	$ 3,543,258.25	$ 797,586.25	$ 4,340,844.50

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SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
	Recovery Act -- State Broadband Data and Development Grant				
a. Personnel	$ 90,255.31	$	$	$	$ 90,255.31
b. Fringe Benefits	36,102.12				36,102.12
c. Travel	37,943.20				37,943.20
d. Equipment	25,000.00				25,000.00
e. Supplies	54,000.00				54,000.00
f. Contractual	2,862,717.31				2,862,717.31
g. Construction	0.00				
h. Other	437,240.31				437,240.31
i. Total Direct Charges (sum of 6a-6h)	3,543,258.25				$ 3,543,258.25
j. Indirect Charges	0.00				$
k. TOTALS (sum of 6i and 6j)	$ 3,543,258.25	$	$	$	$ 3,543,258.25
7. Program Income	$ 0.00	$	$	$	$

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SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8. Recovery Act -- State Broadband Data and Development Grant	$	$ 797,586.25	$ 0.00	$ 797,586.25
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	$	$ 797,586.25	$	$ 797,586.25

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 1,663,980.64	$ 434,737.66	$ 409,747.66	$ 409,747.66	$ 409,747.66
14. Non-Federal	$ 292,586.25	145,451.25	49,045.00	49,045.00	49,045.00
15. TOTAL (sum of lines 13 and 14)	$ 1,956,566.89	$ 580,188.91	$ 458,792.66	$ 458,792.66	$ 458,792.66

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS) (b)First	(c) Second	(d) Third	(e) Fourth
16. Recovery Act -- State Broadband Data and Development Grant	$ 773,468.79	$ 507,797.04	$ 297,442.00	$ 300,569.78
17.				
18.				
19.				
20. TOTAL (sum of lines 16 - 19)	$ 773,468.79	$ 507,797.04	$ 297,442.00	$ 300,569.78

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:

22. Indirect Charges:

23. Remarks: No indirect costs requested. Subawardees have requested indirects, as part of their subaward costs, at their negotiated rates.

Maryland Broadband Mapping Component Proposal Budget Summary

Cost Detail Cost Worksheet	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Total
Labor	**FY09 Cost**	**FY10 Cost**	**FY11 Cost**	**FY12 Cost**	**FY13 Cost**	**Federal Funding**	**Matching Funds**
CGIS/AEHS							
Labor	640,329.02	349,871.78	72,396.93	49,719.14	48,146.68		
Travel	3,960.00	3,960.00	3,960.00	3,960.00	3,960.00		
Equipment	25,000.00						
Hosting		24,000.00	24,000.00	24,000.00	24,000.00	1,301,263.57	
ESRGC							
Labor	294,033.20	120,200.07	123,806.08	127,520.26	131,345.87		
Travel	1,628.64	1,628.64	1,628.64	1,628.64	1,628.64	805,048.67	
BEACON							
Labor	78,807.74	16,914.26	16,914.26				
Travel	5,000.00	2,500.00	2,500.00				
						122,636.26	
MDBC							
Labor	23,800.00	24,514.00	25,249.42	26,006.90	26,787.11		
Supplies/Other	82,990.00	64,426.40	64,515.39	64,607.05	64,701.47		
Data	150,000.00					617,597.74	
Consultant							
ESRI	200,000.00					200,000.00	
Planning							
Labor	140,432.04	147,453.64	154,826.32				
Travel	18,000.00	18,000.00	18,000.00			496,712.01	
State of Maryland							
Labor	56,250.00	56,250.00	56,250.00	56,250.00	56,250.00		
Equipment	96,406.25						
Data	139,930.00	70,000.00	70,000.00	70,000.00	70,000.00		797,586.25
Total						***3,543,258.25***	***797,586.25***

STATE OF MARYLAND
OFFICE OF THE GOVERNOR

MARTIN O'MALLEY
GOVERNOR

STATE HOUSE
100 STATE CIRCLE
ANNAPOLIS, MARYLAND 21401-1925
410-974-3901
TOLL FREE: 1-800-811-8336

TTY USERS CALL VIA MD RELAY

August 13, 2009

Lawrence E. Strickling
Assistant Secretary for Communications and Information
U.S. Department of Commerce National Telecommunications and Information
Administration HCHB US Department of Commerce/NTIA
1401 Constitution Avenue
Washington, D.C. 20230

Dear Assistant Secretary Strickling:

This letter serves as notification that Maryland Broadband Cooperative is Maryland's designated eligible entity under the State Broadband Data and Development Grants Program.

Thank you for your consideration of this most important broadband mapping application.

Sincerely,

Governor