
State Broadband Data and Development Grant Program

NTIA Grant = RIN 0660-ZA29

DEPARTMENT OF COMMERCE

National Telecommunications and Information Administration

Grantee : The State of Connecticut

Department of Public Utility Control

Amended and Supplemental Application

Being a single plan to the NTIA Program Office that incorporates a proposal for up to an additional three years of broadband data collection, integration, validation and display and up to four additional years to support programs that implement Other Program Purposes

July 1, 2010

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Project Abstract:

Description Of Each Project For Which The Awardee Is Requesting Amended Or Supplemental Funding

- **Data Collection, Integration, Verification and Display.**

The purpose of this project is to continue the collection, integration, verification and display of broadband data within the State of Connecticut for years 3 through 5 of the program, to enhance the program by improving data in census blocks greater than 2 square miles, to implement a number of leading practices into the program and to support other related activities through current and accurate data.

- **Other SBDD Program Purposes**

The best use of the already-funded planning project (Strategic Plan) and consultants is to identify and research methods for implementing the public policy goals already identified by the state of Connecticut and the NTIA, and including the FCC's National Broadband Plan.

- **State Broadband Capacity Building** = The creation of a position dedicated to the ARRA broadband grant program: "Broadband Policy and Programs Coordinator, State ARRA Broadband Stimulus Office"

Budget Narrative

**(Budget – summary, request (fed), budget (match), contracts budget-
= attached as a separate Excel spreadsheet)**

- **1) Data Collection, Integration, Verification and Display.**

The cost for the data collection, integration, verification and display for years 3 to 5 is \$1,578,597.

The table below displays the calculation for the cost that should be carried under Other SBDD programs for Leading Practice Implementation:

Item Description	Project Cost
Repeated Data Updating Costs	\$1,578,597
Total Mapping Costs	<u>\$1,578,597</u>

- **2) Other SBDD Program Purposes**

Item Description	Project Cost
State Broadband Capacity Building	\$ 370,572
Total Other SBDD Program Purposes Costs	\$1,949,169

Project Narrative:

- **Amount of funding already awarded, amount requested, sum of both.**

Current Funding already obligated by NTIA = \$1,833,769

Amount of Funding requested in this proposal = \$4,532,928

The sum of these two amounts = **\$1,949,169**

- **Description Of The Activities Already Approved And The Amount Of Funding Already Awarded:**

Current Funding: \$1,833,769 total grant

The NTIA Grant currently supports two approved activities in this grant to a state agency Designated Entity, both planned and executed under direct state supervision :

1) \$1,333,969 data gathering and mapping:

The gathering of broadband-related data at the state level and the development of statewide broadband maps, including speed and type of technology, at a census block level, and for census blocks greater than two square miles, at a road segment level.

2) \$499,800 Strategic Plan:

The development of a Strategic Plan for statewide initiatives to collect and analyze detailed market data concerning use and demand for broadband service in order to identify implementation methods to remove barriers to the adoption of broadband service and information technology services, particularly by the creation of local technology planning teams by designated regions within the state in collaboration with broadband service providers and information technology companies.

- **Summary Description Of Each Project For Which The Awardee Is Requesting Amended Or Supplemental Funding =**
 - **Data Collection And Mapping** = The gathering of broadband-related data at the state level and the development of statewide broadband maps.
 - **State Broadband Capacity Building** = The creation of a position dedicated to the ARRA broadband grant program: “Broadband Policy and Programs Coordinator, State ARRA Broadband Stimulus Office”

- **Detailed Description Of Each Proposed Project**

First Proposal – Data Collection and Related Activities

[Name] Data Collection, Integration, Verification and Display

The purpose of this project is to continue the collection, integration, verification and display of broadband data within the State of Connecticut for years 3 through 5 of the program, to enhance the program by improving data in census blocks greater than 2 square miles, to implement a number of leading practices into the program and to support other related activities through current and accurate data.

[Funds Awarded] – Connecticut has received \$1,333,969 data gathering and mapping for years 1 and 2.

[Funds Requested] – Amount of funding requested for this program = \$ 3,757,431 for years 3-5

[Total Amount of #2 and #3] \$5,091,400.

[Describe Currently Funded Activities]

Connecticut has retained a third party mapping Vendor to perform the broadband mapping components of Connecticut’s program which include:

- Identifying and communicating with the broadband providers and tracking all communications
- Establishing an NDA as required
- Collecting raw service availability and/or customer data, and infrastructure data from each broadband provider
- Integrating the provider data into a standardized format consistent with NTIA’s NOFA and the NSGIC data model
- Validating the data against other public and commercial data sources
- Collecting and mapping ancillary data including socio-economic and demographic data, parcel data and
- Building an information portal, a speed test application, a community anchor institution application, an interactive portal for basic provider feedback, and an interactive mapping portal to allow the data to be displayed and used by end users.

Data for the first year of the program has been collected at various levels of granularity and formats, transformed into a project standard and delivered to NTIA at the census block and street segment level in an ESRI File Geodatabase format using Census 2009 geography. This process has been funded at the same level to establish the processes and perform the collection on a biannual basis, for a two-year period.

[Describe Any Proposed Changes to Previously Approved Application]

Data Gathering Methodology

Vendor has identified, categorized, and/or collected data from XX providers serving the state (including subsidiaries, affiliates, etc) and executed data sharing agreements with most of these companies. Vendor has also collected socio-economic and demographic data from various sources and existing parcel data.

Vendor will continue this process of data collection and collect data from providers that have come into business since the first data submission, and also concentrate on collecting data from those that are known to exist, but are not yet participating, in order to provide a complete picture of broadband deployment in the State of Connecticut.

The Vendor will also continue to collect the data from those providers that are participating and work with these providers to improve the quality of the data being submitted to NTIA by educating them on the use of the Provider Portal application that has been built for a provider to perform accuracy checks after data has been standardized into NTIA formats.

Vendor will move all data to the 2010 census geography once the new census geography datasets are published.

Vendor will collect socio-economic and demographic data based on the 2010 census data collection when such data are published.

Vendor will also adopt leading practices related to data collection described in more details in the section on Leading Practices – this will include Address level data collection, speed geography in the census block/address format, data from resellers, and mapping of public WiFi locations.

Data Integration

So far, the process that has been employed for data integration has included many different techniques depending on the format and quality of the data received from the provider. The primary mechanism that has been developed is to build Extract, Transform and Load (ETL) routines to integrate the data into a production data model, and resolve the data provided to a spatial feature such as a census block or street segment. Given that the project was originally reduced from 5 years to 2 years, the Vendor reduced the budget in this area of creating ETL processes with the rationale that the cost of ETL processes did not justify the efficiencies gained for 2 years only. However, since the project is now being extended to 5 years, there is a need to complete out ETL processes that have not yet been built.

Vendor will set up ETL processes for all providers to achieve efficiencies in the long run.

The ETL processes will also need to be modified as necessary as provider submissions change, and new routines will be built as new providers emerge and are brought into the program.

After all the data are standardized into a production data model, ETL processes are also used to export the data into the format required for the NTIA submissions and to serve the data on the various portals, maps, and analysis.

Since the NTIA/NSGIC model is still evolving it is also anticipated that some changes may need to be made to the export ETL process to deliver NTIA the final format they are looking for.

Integration of data for Years 3 to 5 will also include transformation of data from the Census 2009 geography to Census 2010 geography including the processing of ancillary data related to Census 2010.

Vendor has already delivered data in the geodatabase format but will need to make changes to the format and data based on new geodatabase format provided by NTIA. Therefore, this leading practice will need to be enhanced in subsequent years. The geodatabase format requires more detailed metadata requirements from those specified in the original NOFA. More detailed metadata will be generated by the Vendor for better use of the data by the public.

Vendor will also create a format for delivery of non-confidential data.

Verification Methodology

Once standardized into the production data model each provider's data set is subject to a number of verification tests including comparing the data to commercially available data sources, publicly available datasets, and performing other spatial analysis on the data to look for spatial outliers or discrepancies.

So far, Vendor has performed validation of all non-wireless data using commercial datasets and public data such as Exchange Boundary data and cable franchise boundaries. Vendor has also done spatial analysis to improve the data. Vendor has also provided processed data back to the providers for review and QC and incorporated all changes identified by the providers. This is done through a provider portal application. Vendor will continue to do these activities for every deliverable.

In the existing years and in subsequent years, Vendor would like to do additional verification with wireless data and providers as limited verification was planned for this in the original budget. This includes commercial data such as American Roamer data and also involves driving through the state with equipment to capture wireless signals, strengths and providers. Vendor will work with a mobile mapping company to do this twice in the three years. This was not budgeted in the original proposal.

Vendor will also do additional verification using FCC speedtest data that has been made available and will continue to be received on a monthly basis. This will need to start in Year 2 of the program and was not in the original budget as the data got released at a later date.

Vendor will provide GIS and mapping support for the Other State Broadband Programs and Planning activities and use outcomes of such events for the purposes of verifying data.

Vendor will enhance the Provider Portal in Year 2 to incorporate the Leading Practices discussed by NTIA as the Provider/public feedback loop. In the current budget, Vendor's scope was to build a basic provider portal to allow providers to verify their processed data before delivery to NTIA. The Vendor will work with a focus group of the broadband providers in Connecticut to develop a provider/public feedback loop whereby the public can provide feedback to the provider in the information portal and interactive mapping application and the provider will be able to track and correspond with the public through the use of the provider portal and social networking technologies.

Vendor will also implement in the second year of the program the leading practice on Data Confidence Scale. Vendor proposes to do this at the beginning of Year 2 when there is some stability and critical mass of provider data as well as verification data points (such as speed tests, completed data collection on community anchor institutions, public feedback, etc.)

Display

The State of Connecticut is implementing the Connecticut State Broadband Mapping web site as part of its base two-year contract. The site includes an information portal, speed test application, community anchor institution application, and an interactive mapping application.

This portal and the applications will be improved, maintained, and enhanced on an annual basis by of Vendor through the additional 3 years of the program. Some of the enhancements that have already been envisioned include:

- Provide sorting options of provider data presented after an address search is performed
- Provide public, private, state feedback loops within application environment
- Provide enhanced data layer mapping, queries, and reporting
- Incorporate address data into application search and reporting
- Create executive dashboard for summary statistics
- Other enhancements as identified by end user feedback

Vendor will make the public Interactive Portal compliant with the Safari browser for Mac Users as a growing number of users in the state use Apple Products.

Detailed Description Of Each Proposed Project

Second Proposal = State Broadband Capacity Building

NAME: Project name and description.

- State Broadband Capacity Building :
 - The creation of a position and office dedicated to the ARRA broadband grant program:
“Broadband Policy and Programs Coordinator, State ARRA Broadband Stimulus Office”

Responsibilities and Anticipated Outcomes

- Identify and support opportunities for increased collaboration amongst various state agencies and statewide councils as it relates to the creation and promotion of broadband policies.
- Outcome:
 - Improving relationships amongst these various entities will allow them to better align similar policy interests related to broadband deployment and adoption; enhancing communication and advocacy interests. This will also leverage existing their individual partnerships and resources leading to more effective promotion of sound broadband policies and programs throughout the state.
 - Facilitate the creation of public, private, and non-profit partnerships that can lead to programs which will increase adoption of broadband.
- Outcome:
 - The Broadband Coordinator will establish a network of agencies, businesses, and organizations that can work cooperatively to create programs intended to accelerate broadband adoption. These programs will increase computer ownership and digital literacy.
 - Facilitate the creation of regional broadband and technology planning teams. Such teams would identify additional opportunities for inter-municipal cooperation that can foster adoption of broadband technology and coordinate on issues affecting infrastructure deployment.
- Outcome:
 - Regional planning teams would result in increased collaboration amongst entities accelerating broadband adoption and deployment at the local level. For example, these entities could coordinate road construction projects with potential broadband infrastructure deployment projects.
 - Serve as an information clearinghouse for broadband and technology related programs.
- Outcome:
 - A “One- Stop” for information on broadband related programs will not only raise awareness of the various programs but will make them more

accessible thus increasing their utilization. This in turn should create competition to participate in these programs and result in innovative approaches.

- Monitor and promote the advancement in the development and deployment of applications, programs and services including, but not limited to: e-commerce, telemedicine, telecommuting, and e-learning that will support the usage of and demand for broadband level telecommunications.
- Outcome:
 - Increased public awareness coupled with advancements in these areas should stimulate demand for and use of broadband.
 - Work with State agencies to identify opportunities to expand and promote e-Government services.
- Outcome:
 - Expanded e-Government services will stimulate demand for and use of broadband.
 - Continued oversight and coordination of broadband related grants to the State under the American Recovery and Reinvestment Act of 2009.

FUNDS AWARDED: Amount that has already been awarded by the Program Office for this project, or for activities that are part of this project.

- There has been no funding of a single point of contact nor an office representing Connecticut, however a number of state employees are engaged in the 1st Grant mapping/planning activities, two of them essentially working fulltime on these projects. All state employees so engaged continue to be fully funded by the state or by public utility ratepayers through the regulatory process.

FUNDS REQUESTED: Level of funding requested from the SBDD Grant Program for this project

- Total grant funding (yrs. 3-5)= \$ 370,572. (Salary = \$208,866; Fringe Benefits = \$121,142; Travel = \$20,000; Other = \$20,564)
- This will fund an existing fulltime state employee for one quarter of the existing salary for 4 years, allowing for matching by the use of public utility ratepayer funds, while establishing the position as an identifiable point of contact.

PROBLEM: The problem the project is addressing.

- The principal attorney of the Office of Consumer Counsel has been performing the duties outlined in this role and his salary and benefits (funded by public utility ratepayers) form a large part of the matching contribution for the mapping and planning projects. It has become important for the state to expressly authorize a single-point of contact for internal and external parties to access information regarding the state's broadband expansion activities.
- As broadband services are largely the product of the convergence of telephone and cable services into a new telecommunications service, utilizing the experience and position of a consumer advocate with many years of experience in the

regulation of both telephone and cable services provides the state with as experienced a person in this role as is possible to find. Additionally, as a part of the public utility regulatory arena in Connecticut, this employee enjoys established relationships with the Department of Public Utility Control (the NTIA grantee), as well as many other related state agencies, and with the regulatory employees of all telecommunications operators providing service in Connecticut.

- The grant of authority to represent the state's interests in initiating and implementing public policy positions will enhance communications with industry providers, non-profits, or municipal local groups as being the single entity to contact or interact with to accomplish the state's public policy goals and implement these funded activities.
- The state's economic condition requires federal grant funding for further expenses (e.g., travel, materials, supplies, equipment, or indirect costs) for these activities. The NTIA grant will resolve that financial issue.

SOLUTION: The proposed solution (e.g., a clear description of the project activities and proposed timeline). Awardees should note if the solution described here is part of a larger project funded through other public or private entities.

- This solution to the lack of a dedicated state representative is to be resolved through the grant of authority by the state for this duty to be managed by of an established state employee, funded via a state statutory funding mechanism imposed on regulated public utility companies operating in the state.
- By granting authority for a single-point of contact and fulltime position, the state will be assured that entities seeking advice or counsel regarding the state's activities in implementing expansion of broadband access will have easy access to such a person. The integration of the planning activities with the eventual implementation of those public policy goals will be far more efficient with a dedicated manager for the purpose.
- The state's Broadband Policy and Programs Coordinator will be the program manager of the initial planning operations already funded by the NTIA, for which a consulting contract (SOW) has been executed.

OUTCOMES AND BENEFITS: The anticipated outcomes and benefits of the project.

- Thus, the Broadband Policy and Programs Coordinator will be in a position to focus the state's effort in assuring continuity between the planning phase of the 1st Grant and the implementation phase of the 2nd Grant.
- Broadband Policy and Programs Coordinator is a voting member of the state broadband task forces (the Broadband Internet Coordinating Council). The Broadband Policy and Programs Coordinator has already begun efforts through the BICC to work with the private sector to create public-private partnerships to access infrastructure, technical expertise, training and program funding, and compete for grants required to further support improved broadband access and adoption across a state or region.
- Broadband Policy and Programs Coordinator is already managing the development of the state's strategic plans to support broadband and IT growth and adoption. This includes the completion of strategic planning based on gap analysis

of availability, adoption and the existing capacity of local support organizations. It also includes gathering state and local benchmark data to determine program success over time.

- As part of compiling the research for the state's plan, the Broadband Policy and Programs Coordinator and his consultant will convene statewide or regional events intended to disseminate technical information about broadband availability data collection and the results of research conducted, and to further improve understanding of and opportunities to enhance broadband within a state.
- The Broadband Policy and Programs Coordinator strongly believes that a sharp focus for this state is for inter-agency coordinating activities at the state level, supporting intra-governmental activities across the state, including development of streamlined permitting processes, coordination of local government officials leading broadband access and adoption efforts, and support of sector-specific (education, health, etc.) coordination efforts.

COST: The cost of the proposal in light of the previous factors (e.g., a justification of the reasonableness and cost-efficiency of the project)

- The state's plan to utilize the services of an established state employee, currently functioning as a statutorily-authorized public utility consumer advocate and funded via a state statutory funding mechanism imposed on regulated public utility companies operating in the state, will provide great cost-efficiency of the project.
- The activities of the state's Broadband Policy and Programs Coordinator will also serve to help meet the state's matching obligations to the NTIA since a high percentage of this state employee's time will be devoted to this service. The NTIA grant funding will aid the Broadband Policy and Programs Coordinator to meet expenses that are presently lacking funding, including travel to participate in national organizational panel opportunities, as well as materials, supplies, equipment, or indirect costs not otherwise covered by state funds.

SBDD PURPOSE: The SBDD-related purpose that the project addresses and an explanation of how the project relates to that purpose

- Since the Broadband Policy and Programs Coordinator will be involved in both the mapping and planning projects funded by the NTIA grants, to varying degrees the Coordinator will help the state of Connecticut achieve success in all aspects of these vital public policy goals, but of course particularly in the development of state plans to support broadband and IT growth and adoption-gathering of data to benchmark success over time, and to convene statewide or regional events to disseminate technical information
- The introduction of a single point of contact for internal and external entities participating in the NTIA grant mapping and planning projects will enhance the state's ability to develop and provide baseline assessment of broadband deployment in Connecticut.
- Further, though coordinating the mapping and planning functions, the state will be better able to identify and track the areas with low levels of deployment, the rate at which residential and business users adopt broadband service and other related

information technology services, and possible suppliers of such services in order to establish and enhance computer ownership and Internet across the state.

- The activities of the Coordinator as a representative of the state will certainly help in the creation and facilitation of local technology planning teams, and in the development of collaborative efforts with broadband service providers and information technology companies to encourage deployment and use of computers and broadband services.

Description of how the proposed projects fit into state's comprehensive approach toward leadership in a digital economy

The proposals made to the NTIA for grant funding in this 2nd Application each represents the most logical next step to best benefit and enhance the state's comprehensive approach toward leadership in a digital economy. While the state will eventually complete all aspects of the State's Plan, the funding opportunity offered by the federal government through the NTIA grants will jumpstart many aspects of the state's public policy goals regarding broadband usage by its residents and businesses.

The State believes and, through the actual allocation of resources, has demonstrated its commitment to broadband expansion, that what was once "good enough" eventually becomes substandard, and what was once a "luxury" becomes the new standard. This pattern is not to be feared or suppressed, but in fact forms the core belief in the State's Plan. Citizens in colonial Connecticut probably did not give much thought to the source of their drinking water or how they disposed of wastes, but now these details of daily life are taken for granted, as they assuredly must be. When the telephone was first invented, it was seen by many as a toy or extravagance, but by the 1930s it became public policy to extend voice service to all Americans. Connecticut remains proud of its heritage in the history of the telephone, being the site of the first switch and the first phone number directory. Likewise, in the 1960s, computers were used only by governments, university researchers and very large companies, while today personal computers are a vital center of learning, conducting business, and communicating in millions of households and businesses.

Similarly, the State's Plan regards broadband as now being a basic utility, indispensable to each citizen and business in Connecticut. The State thus believes that it must focus a wide variety of its resources on ways to encourage or require the owners and providers of broadband, public and private, to extend service in an economically feasible manner to everyone in both rural and inner city areas to ensure that no citizen is left behind. To this end, the State intends to focus on both the last- and middle-mile infrastructure, through public safety, education, and health service provisioning, just to name a few, to most efficiently eliminate bottlenecks in both unserved and underserved areas. Whatever the difficulties that might be encountered in extending the reach of broadband to all areas of the country, such obstacle must not be allowed to diminish the State's Plan in placing this goal as paramount to the needs of its citizens.

The State's Plan expressly takes into account the positive externalities associated with increased broadband subscribership, and will not tolerate any excuse for delay in bringing the benefits of broadband to all citizens, particularly those who are hardest to reach and who are least able to avail themselves of broadband.

All of the agencies and their affiliates involved in this application process, along with the Governor's office and other state agencies, have a long history of cooperating among themselves to develop synergies in order to prioritize resources to more efficiently and effectively utilize market, business, and technical assets to the benefit of the public and the State itself. The process that has been developed in Connecticut favoring collaboration with a broad range of

other state or federal development programs that leverage outside resources in order to maximize the impact of the proposed project reflects a state policy of addressing more than one statutory purpose and project category.

It is with this policy in mind that the State can readily attest to the fact that this application and applicant have the organizational capability necessary to promptly start these projects and assure the grantors that each will be completed in an appropriate timeframe for the size and scope of the project, pursuant to well-articulated time and budget milestones. This ability to undertake and complete the projects of course includes the State's pledge regarding the long-term sustainability of each. It should be apparent that linkages to unaffiliated organizations in the project area, including public, nonprofit, and private entities, as well as community anchor institutions and public safety organizations, will continue to be an ongoing and integral part of the project planning and operation, to be fully sustained beyond the funding period.

Further, for example, there is a compelling need for state action to jumpstart the "demand-side focus" of the State's Plan, including steps to increase computer penetration and computer literacy. It will also be imperative to include municipalities as key players in the effort to more fully deploy broadband service throughout the State.

The identification of communities that unduly suffer from barriers to the adoption of broadband service and information technology services, which further use of State agencies in collaboration with private entities, such as broadband service providers and information technology companies, can successfully encourage deployment and use by the public. Through the use of academic and other State resources, including collaboration with private providers operating in the field, the State proposes to collect and analyze data derived from examination of market conditions concerning the use and demand for broadband service on a variety of levels throughout the State's regions and populations. Use of this data will provide the foundation for resolving this problem.

For instance, with regarding to broadband mapping, the State Plan develops a workable and sustainable framework for repeated updating of data across the next five years, a challenge that squarely meets with the State's own public policy goals for sustainability and continued meeting of the demands for broadband that its citizens have voiced. The State has excellent groups of employees involved in developing cutting-edge maps for a wide variety of purposes for a broad base of agencies and public policy goals, and the Recovery Act opportunity provides a moment to create a mapping database and presentation resource that is truly helpful in planning and implementing the State's future broadband initiatives. While the State has the capacity to create vital and comprehensive maps with the funding infusion proposed under the Recovery Act, the value of a concerted mapping effort will lie in the details of the data—and in the ability to relate the underlying data to the policy and program issues described in the State's broadband plan .

Appendices (attached as separate digital files):

**1. (Budget Spreadsheet – summary, request (fed), budget (match), contracts budget-
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2. Budget Narrative Spreadsheet = attached as a separate Excel spreadsheet)

3. Standard Form 424

i. See attached form.

4. Standard Form 424A

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5. Standard Form 424B

i. See attached form.

**6. Evidence of support –documents from state, local communities and other
beneficiaries of NTIA grant funding**

i. See attached letters.