State of Connecticut Department of Public Utility Control

State Broadband Data and Development Grant Program

Program Narrative

August 14, 2009

Executive Summary

The State of Connecticut Department of Public Utility Control submits the following grant application requesting **$5,075,734** for consideration under the NTIA State Broadband Data and Development Grant Program, for both the broadband mapping and planning functions. This request is submitted in response to the Notice of Funds Availability published in the Federal Register on July 8, 2009 (the "NOFA"). The Department of Public Utility Control, pursuant to Executive Order 32 of Governor M. Jodi Rell, has been designated as the single state entity eligible to apply for funds under this program and evidence of this designation is included within this application package.

The State has long been committed to regarding broadband delivery and enhanced use as a fundamental and a compelling problem in search of a solution. The State has developed a plan for addressing this statewide public policy concern with effective solutions to that problem, and consistently utilizing resolutions that can be replicated to improve future projects. The State Plan involves developing a planning strategy to marshal the State's resources and stakeholders and establish Connecticut as a leader in broadband usage, in addition to being a leader in "eGovernment" and other broadband-dependent endeavors. The State has assembled an advisory team composed of representatives from a variety of state agencies with expertise in mapping, geospatial information, telecommunications, and broadband.

Currently the State does not possess any data related to broadband service, availability, or infrastructure that can readily support the requirements of the Broadband Data and Development grant program. The Applicant, Department of Public Utility Control, at the request of the Governor, has opened a Docket to initiate a formal dialogue with broadband service providers regarding broadband availability data. The DPUC will formally request all of the NOFA required data from all entities operating a broadband infrastructure network, including state and private network providers such as E911, the Connecticut Education Network (CEN), and municipal networks.

The acquisition of a master address point file is a critical piece for the State to be able to comply with the requirements set forth by the NTIA to obtain availability data by address. Once the service area polygons are constructed and address point file is obtained, the availability of broadband service can be determined for each address based on its location either within or outside of the service area polygon. A consultant retained by the State will perform the bulk of the data collection and analysis.

The State has already issued a Request for Information, through its Department of Public Safety, for a master address point file. The State intends to construct availability area polygons in a geospatial format in order to depict the availability of broadband service, based on the service interval defined in the Notice of Funds Availability.

The State will also attempt to obtain this data from the providers of wireless broadband service, working in concert with municipalities that provide wireless access and the Connecticut Siting Council.

In order to ensure the accuracy of the provider data and address data, the state intends to utilize new, high resolution, digital orthophotography as a mechanism to ensure that address point locations truly exist where structures are physically located. The State intends to make the collected data available through and internet based mapping site.

The Connecticut Freedom of Information Act empowers the State to withhold certain information if requested; thus, any information deemed by a service provider to be either a trade secret or which may pose a significant security threat to the broadband service provider, the State, or the general public, will be handled according to the State's Freedom of Information Act. The State will own all final data sets that are submitted to the NTIA so that they may maintain the data submitted by March 1, 2010 and will handle any confidential data in accordance with the State's freedom of information laws and relevant exemptions from disclosure.

AT&T, the primary LEC in Connecticut, has a unique statewide data set consisting of a combination of building points and polygons and street centerlines. The building point layer was originally created in 1995 and has been updated to near current conditions. These points and polygons will be updated to current conditions with a new flight in spring of 2010 that will also produce a by-product of a new statewide digital orthophotos. Address data points have already been collected at the local level by several Connecticut municipalities through their own internal efforts.

One of the key components of this program is to have the actual address of the physical location where broadband service is or is not provided associated with the point or polygon that is collected or created on the previously described dataset. Since well over 80% of the parcels in the state exist in a digital format the most efficient way to accomplish this would be to collect and standardize all digital parcels in the state into a consistent model and complete the development of a statewide parcel layer for the remaining parcels. The State, through the Regional Performance Incentive Program, has already funded this activity on a regional basis in several parts of the state, thus funding under this project would only be necessary to complete the remaining areas.

The goal of the Office of Statewide Emergency Telecommunications (OSET) is to provide for the development and maintenance of coordinated statewide emergency service telecommunications, including 9-1-1, for public safety organizations and to the residents of the State of Connecticut. In 2008, OSET assisted the U.S. Census Bureau with updating the Connecticut portion of their Master Address File (MAF). These new addresses will help to insure that the 2010 Census population count is as accurate as possible for Connecticut.

The data collected by the State will require updating in a variety of ways. The State will maintain the address data set that is developed to ensure that the data remains current. The State will also maintain the wireline and wireless availability data and the State proposes to develop an on-line GIS application to support this effort.

This Program Narrative Expressly Addressees the Five Review Criteria in the NOFA:

I. Review Criteria No. 1 : Data

(a) Data Gathering:

Currently, the State does not possess any data related to broadband service, availability, or infrastructure that can readily support the requirements of the Broadband Data and Development grant program. As a result, the state has opened a Docket under the authority of the Department of Public Utility Control to initiate a formal dialogue with broadband service providers regarding broadband availability data, as further detailed below. This process will allow the State to gain a better understanding of the data currently possessed by the providers and will also help the state understand what data they may be willing to provide and whether that data is confidential. In addition, the State of Connecticut intends to retain the services of a consulting firm to assist with its data collection and mapping efforts. Finally, the State has assembled an advisory team composed of representatives from a variety of state agencies with expertise in mapping, geospatial information, telecommunications, and broadband. This team will advise and assist the DPUC and the consultant in all aspect of the program.

The validity of the DPUC's expected data gathering process is supported by the requirements and improvements in broadband data gathering mandated by the Broadband Data Improvement Act (BDIA).[1]

Broadband service providers in Connecticut:

Airespring, Inc.	Level 3 Communications, LLC
AT&T Inc.	Level 3 Communications, LLC
Broadcore, Inc.	Metropolitan Telecommunications Holding Company
Broadview Networks Holdings, Inc.	New Edge Holding Company
BullsEye Telecom, Inc.	One Communications Corporation
Cablevision	PaeTec Corporation
Cellco Partnership	Qwest Communications International, Inc.
Charter Communications	RCN Corporation
Comcast Corporation	Sprint Nextel Corporation
Covad Communications Group, Inc.	Telefonica Data Corp SA
Cox Communications, Inc.	Transbeam Inc.
CSC Holdings, Inc.	tw telecom inc.
DataNet Communications Group, Inc.	Verizon Communications Inc.
Deutsche Telekom AG	Verizon Communications Inc.
DSLnet Communications, LLC	Wave2Wave Communications Inc.
Earthlink	WildBlue Communications, Inc.
Fibertech Networks, LLC	WilTel Communications Group, LLC

[1] See the Broadband Data Improvement Act of 2008, Pub. L. No. 110-385, 122 Stat. 4097 (codified at 47 U.S.C. §§ 1301-04).

Global Crossing North America, Inc. XO Holdings, Inc.

Groton Utilities

Harron Communications LP

Hickory Tech Corporation

Hughes Communications, Inc.

Availability by Address: The State of Connecticut, through the Department of Public Utility Control (DPUC,) intends to formally request all of the required data outlined within the Notice of Funds Availability. The DPUC has long-standing relationships with utility companies and providers through its statutory regulatory authority over the last century and while its authority regarding broadband ("information") services is unclear, based on past experience, the State is concerned that many providers may be reluctant to share certain information with the State. The State has utilized the authority of the DPUC to establish a docket to formalize the State's request to the service providers. This process will also provide the State with the opportunity to establish a formal dialogue with the service providers in an effort to fully understand any concerns those providers may have with sharing certain information with the State as well as allow the State to clearly communicate its needs with these providers. The State Plan intends to include all entities operating a broadband infrastructure network, including state and private network providers such as E911, the Connecticut Education Network (CEN), and municipal networks.

Therefore, we intend to construct availability area polygons in a geospatial format in order to depict the availability of broadband service, based on the service interval defined in the Notice of Funds Availability. The availability area polygons are planned to be developed based on the location of physical broadband infrastructure and developed in concert with the service providers. These availability area polygons would contain information regarding the provider of service and the service characteristics referenced in the NOFA technical appendix. We feel that the service providers would be more willing to provide this type of information to the State, while addressing their concerns from a confidentiality perspective. This approach should expedite the State effort to obtain availability information from providers. This set of data will also be useful in the long-term as the State provides a map of broadband service availability.

The State of Connecticut does not currently own or have access to a master address point file for the state and without this information there will be no way to determine which addresses do not have broadband service. Thus, this project will require the State to procure an address file. This address file would be geo-referenced and contain the end user address information outlined in the technical appendix. While many providers may have a database at the address level that indicates the provision of broadband service, without a master address file, the State would be unable to provide information on those addresses that do not subscribe to broadband service. Therefore, by procuring a master address point file for the entire state, we will have a comprehensive listing by which to compare the availability of broadband service on an address-by-address basis. The State

has already issued a Request for Information, through its Department of Public Safety, for a master address point file. Based on the responses received, the State has enough information to proceed with an invitation to bid in order to procure this data. The acquisition of a master address point file is a critical piece for the State to be able to comply with the requirements set forth by the NTIA to obtain availability data by address.

Once the service area polygons are constructed and address point file is obtained, the availability of broadband service can be determined for each address based on its location either within or outside of the service area polygon. A consultant retained by the State will perform the bulk of the data collection and analysis.

Wireless Availability: The State will also attempt to obtain this data from the providers of wireless broadband service. Primarily, the State intends to locate towers or other physical infrastructure used to provide wireless service. The State will also work in concert with municipalities that provide wireless access. In addition, the Connecticut Siting Council oversees the location and placement of wireless telecommunications towers in the state. This office has an inventory of these facilities along with data that can assist the State on whether these facilities are used to transmit data. By coupling these sources of data, the State should be able to create a comprehensive inventory of these facilities. A geo-referenced polygon can then be created, based on the distance that each of these facilities are capable of transmitting data and other technical measurements.

Last Mile Connection Points: The State believes this data is only available through the broadband service providers. If data is not forthcoming from providers, the State will utilize information from local knowledge sources such as the DPUC, other State agencies, and municipalities, The State may engage a consultant for this information or survey end-users to know what level of service is available to them. These alternative discovery routes bring added expense to the data collection process, which expected funding will support.

Middle Mile & Backhaul: The State believes this data is only available through the broadband service providers. The determination of Middle Mile & Backhaul Points will require more industry cooperation as interconnection points between a central office or a headend facility and the Internet may reveal information about more than one provider for each point of data. Again, the State may turn to local knowledge sources and/or outside expertise if this information is not available from the providers.

Community Anchor Institutions: The State will capitalize on previous data collection initiatives to supply the NTIA with Community Anchor Institutions. This data was collected by the State in an effort to plan for homeland security and emergency management. Much of this data already exists within the State's GIS database, and simply needs to be extracted and reformatted into the NTIA specifications. The remaining task would be to obtain information related to broadband service at these

institutions. This can likely be best accomplished by working with the providers and the institutions themselves to determine whether they subscribe to broadband service.

(b) Accuracy and Verification: In order to ensure the accuracy of the provider data and address data, the state intends to utilize new, high resolution, digital orthophotography as a mechanism to ensure that address point locations truly exist where structures are physically located. This process is important as spatial analysis will be used to place address points within broadband service availability polygons. The State will also complete a statewide land parcel dataset (cadastral) as a means to ensure that address points and associated attributes are correctly placed in the appropriate location and contain the correct address information. This process will create an authoritative and accurate master address file for the State of Connecticut and will ensure that the information provided to the NTIA regarding the availability of broadband to a specific address is accurate based on the physical location of the structure and the availability area of each provider.

To verify the availability of broadband service to specific addresses, the State will develop an online survey that will be publicly available. The survey will request users to input their address, verify whether they have broadband access and what the associated characteristics of that service are, including the provider. The state also intends to survey directly certain locations such as libraries, state buildings, municipal buildings, or other locations for which the State has contact information or existing relationships with.

(c) Accessibility: The State intends to make this data available through an internet based mapping site. The map will allow individuals to enter an address, or other locational information to navigate to a specific area in the map. When an address or specific location is identified, the user will be presented with information in an easy to understand tabular format. The results table will indicate, at a minimum, each broadband service provider that is available to that location, and the advertised upstream and downstream speeds.

(d) Confidentiality: The Connecticut Freedom of Information Act is established through Section 1-210 of the Connecticut General Statutes. The following are excerpts from the Connecticut General Statutes that demonstrate the State's ability to withhold certain information if requested under the Freedom of Information Act. Thus, any information deemed by a service provider to be either a trade secret or which may pose a significant security threat to the broadband service provider, the State, or the general public, will be handled according to the State's Freedom of Information Act.

> 5) (A) Trade secrets, which for purposes of the Freedom of Information Act, are defined as information, including formulas, patterns, compilations, programs, devices, methods, techniques, processes, drawings, cost data, customer lists, film or television scripts or detailed production budgets that (i) derive independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain

economic value from their disclosure or use, and (ii) are the subject of efforts that are reasonable under the circumstances to maintain secrecy; and

(19) Records when there are reasonable grounds to believe disclosure may result in a safety risk, including the risk of harm to any person, any government-owned or leased institution or facility or any fixture or appurtenance and equipment attached to, or contained in, such institution or facility, except that such records shall be disclosed to a law enforcement agency upon the request of the law enforcement agency. Such reasonable grounds shall be determined (A) (i) by the Commissioner of Public Works, after consultation with the chief executive officer of an executive branch state agency, with respect to records concerning such agency; and (ii) by the Commissioner of Emergency Management and Homeland Security, after consultation with the chief executive officer of a municipal, district or regional agency, with respect to records concerning such agency; (B) by the Chief Court Administrator with respect to records concerning the Judicial Department; and (C) by the executive director of the Joint Committee on Legislative Management, with respect to records concerning the Legislative Department. As used in this section, "government-owned or leased institution or facility" includes, but is not limited to, an institution or facility owned or leased by a public service company, as defined in section 16-1, a certified telecommunications provider, as defined in section 16-1, a water company, as defined in section 25-32a, or a municipal utility that furnishes electric, gas or water service, but does not include an institution or facility owned or leased by the federal government, and "chief executive officer" includes, but is not limited to, an agency head, department head, executive director or chief executive officer.

The State will ensure that any non-disclosure agreements do not impede the State's ability to collect any required data elements necessary for providing the required data to the NTIA. The State will own all final data sets that are submitted to the NTIA so that they may maintain the data after March 1, 2010 and will handle any confidential data in accordance with the State's freedom of information laws and relevant exemptions from disclosure.

II. Review Criteria No. 2 : Project Feasibility:

(a) Applicant Capabilities: The following budget reflects an estimation of costs associated with the requirements of the NOFA and the State's approach to provide the most accurate and complete set of data to the NTIA. These costs were derived from the results of a request for information that was issued by the State in July of 2009 and estimates of the State.

Mapping Budget Narrative: The following describes the activities that will be carried out under the individual budget task outlined in the budget spreadsheet (figure 1). In general, the State is requesting a total of $ **$4,575,734** in funds from the NTIA to

complete this project. The overall project cost in our estimation is **$6,161,371** and the State will be providing a total of **$1,585,637** in matching funds through a combination of cash and in-kind services. The State is providing in-kind services through both staffing/personnel resources and investments the state has recently made in data that is relevant to this project

Task 1a: Mapping Availability by service address:

The State of Connecticut understands that NTIA is seeking information about the supply of broadband services by various service providers and infrastructure owned and maintained by these service providers for provision of broadband to end users. Specifically, the NTIA is requesting the collection of following information:

1) Broadband Service Availability in Provider's Service Area:
   List of addresses where each provider provides services in a specified format. These are for services provided to specific location.
2) Availability of service is shapefile format where services are not provided to a specific address (e.g wireless, nomadic, terrestrial, mobile wireless, or satellite)

3) Broadband Service Infrastructure in Provider's Service Area
   a) Last-mile connection points – provide a list of locations of the first points of aggregation in the networks
   b) Middle mile and backbone interconnection points
4) Community Anchor Institutions :
   Schools, libraries, medical and healthcare providers, public safety agencies, community colleges, and other institutions of higher education

The first three categories of data will be collected directly from the broadband service providers and the fourth category will be collected from other sources, such as the Homeland Security Infrastructure Program (HSIP) data that was recently provided to the State of Connecticut.

<u>Geospatial Master Address Dataset</u>

The State of Connecticut understands the necessity for mapping the locations of the broadband data. Connecticut proposes to create a statewide geospatial address database to help insure an accurate, comprehensive and sustainable analysis program of Connecticut's broadband availability. The database will contain the following geospatial data:

***Address Points*:**
The current, best option for accurately locating addressable broadband locations is geolocating the availability by the specific address location using address points. An address point is the discrete geographic location that identifies a specific point for a

particular address. Address points have already been collected at local level by several Connecticut municipalities through their own internal efforts. These datasets constitute the most up-to-date, accurate and current address locations. Connecticut proposes to collect this data and integrate it into the statewide data layer, which is modeled on the FGDC addressing standard. To help augment municipal data sources, Connecticut will procure commercial geospatial address datasets, like AT&T's (formerly SBC/SNET) unique statewide data set consisting of a combination of building points and polygons.

Parcel Polygons:

To help create and maintain the address point dataset, Connecticut proposes to create a statewide parcel dataset that is derived from municipal tax parcel data. For Connecticut municipalities that do not have address point data, their tax parcel data is their best source to geographically locate addresses. Since well over 80% of the parcels in the state exist in a digital format the most efficient way to create the address points would be to collect and standardize all digital parcels in the state into a consistent model and complete the development of a statewide parcel layer for the remaining parcels. Once these parcels are automated, they can then be linked to the assessor's database and the physical address of each parcel would be known. The parcel data could then be converted into parcels center address points or intersected to AT&T's building points and polygons for improved accuracy. The State, through the Regional Performance Incentive Program, has already funded the creation of municipal parcel datasets on a regional basis in several parts of the state, thus funding under this project would only be necessary to complete the remaining areas of the state.

Street Centerlines:

Since having an address point dataset that is constantly 100% complete is next to impossible, Connecticut proposes creating a statewide street centerline that will be used as a secondary means of locating addressable broadband locations. (Addressable broadband locations found with this method will then be researched and placed in their definitive location). To create the statewide street centerline suitable for broadband availability, Connecticut plans a blended approach that includes municipal street centerline data, state level street data (for example, the Department of Transportation has undertaken a project to create a statewide layer of Interstate and State routes and on and off ramps) and commercial street data.

Additionally, this street centerline can also be used to map broadband service at a street segment level as another option for this project.

Orthophotography:

The last dataset required to insure a complete address database will be a statewide ortho photography dataset. Orthophotography is geographically referenced digital aerial photography. Connecticut proposes to contract for a flight in the spring of 2010 that will allow for the verification of the spatially accuracy and completeness of the address points, parcels, and street centerlines. This flight will supplement a flight that was recently conducted in the Capitol Region Council of Governments and funded by the

Office of Policy and Management under the Regional Performance Incentive Program. Connecticut currently has access to a 2004 black and white orthophotographic dataset purchased by the state and a 2008 color dataset purchased by the U.S. Department of Agriculture. These two datasets while helpful, are not sufficient for a statewide address database due to age and accuracy issues.

Task 2: Acquisition and Mapping of availability of wireless service:
The State will utilize these funds to retain the services of a consultant to obtain wireless broadband availability data from wireless service providers. This work will also consist of obtaining and digitizing data from the Connecticut Siting Council.

Task 3: Acquisition and mapping of broadband service infrastructure data:
Under this task the state will retain the services of a consultant to obtain Last-mile connection points and Middle mile and backbone interconnection points based on the specifications in the NOFA.

Task 4: Acquisition and mapping of community anchor institutions:
The collection of schools, libraries, medical and healthcare providers, public safety agencies, community colleges, and other institutions of higher education as outlined in the NOFA has already been collected by the state under a previous federal grant program and should result in little to no cost to adapt this data to the standards set forth in the NOFA.

Task 5: Web Applications: This task involves the development of a web based survey to verify the availability of broadband access as discussed in the Accuracy and Verification section of this Narrative, the Web Based broadband mapping discussed in the Accessibility section of this Narrative.

Task 6: Project Oversight/Coordination:
Project oversight and coordination will be conducted by the DPUC and DoIT with support from the State's mapping team. Costs incurred under this task will be assumed by the state in personnel costs and are intended to be applied to the state's matching requirements. Work under this task includes conducting meetings and hearings with the providers to obtain the data under the Docket which has been initiated by the DPUC. Additionally, this will require the review of non-disclosure agreements negotiated between the State's consultant and the providers to ensure that the state is able to meet the requirements set forth in the NOFA.

Task 7: Long Term Data Maintenance: After the initial data collection period, the State will assume responsibility for the long-term maintenance of data acquired under this grant program. This responsibility will be assumed jointly between staff of the Department of Public Safety and Department of Information Technology with some assistance from the Department of Public Utility Control.

Figure 1: Mapping Budget Spreadsheet:

Task Description	Estimated Cost	Requested Federal Funds	State Match
Mapping Components			
Task 1: Mapping Availability by service address			
Acquisition of Service Provider Data	$84,000	$84,000	
Standardization of Service Provider Data	$507,000	$507,000	
Creation of Master Address File			
Data Model Development	$10,800	$10,800	
Spatial Source Data Collection	$76,500	$76,500	
Source Data Standardization	$70,900	$70,900	
Base Map Data Updates			
Digital orthophotography, street centerlines, update building data	$1,737,750	$1,280,750	$457,000
Parcel layer completion	$1,147,800	$573,800	$574,000
Conflation of address attribute data	$474,375	$474,375	
Geocoding to create master point file	$896,827	$896,827	
Prepare data delivery to NTIA	$25,200	$25,200	
Task 1: Subtotal Mapping Availability by service address	$5,031,152	$4,000,152	
Task 2: Acquisition and Mapping of availability of wireless service	$179,491	$179,491	
Availability of service in shapefile format where services are not provided to a specific address (eg. wireless, nomadic, terrestrial mobile wireless or satellite)			
Task 3: Acquisition and mapping of broadband service infrastructure data	$123,891	$123,891	
a) Last-mile connection points – provide a list of locations of the first points of aggregation in the networks b) Middle mile and backbone interconnection points			
Task 4: Acquisition and mapping of community anchor institutions	$0	$0	
Schools, libraries, medical and healthcare providers, public safety agencies, community colleges, and other institutions of higher education			
Task 5: Web Applications			
Web portal to State of Connecticut BB program information	$18,233	$0	$18,233
Interactive Web Mapping Application for accessibility of data	$89,900	$89,900	
Spatial data maintenance application & ETL processes	$182,300	$182,300	
Task 5: Subtotal Web Applications	$290,433	$272,200	
Task 6: Project Oversight/Coordination	$128,280	$0	$128,280

Task 7: Data Maintenance	$408,124	$0	$408,124
TOTAL	**$6,161,371**	**$4,575,734**	**$1,585,637**

State Matching Funds			
Mapping Availability by service address	Amount	Match Type	Description
Digital orthophotography, street centerlines, update building data	$100,000	Cash	Provided by OSET
Digital orthophotography	$357,000	In Kind	Previous data investments by the Office of Policy and Management
Parcel layer	$574,000	In Kind	Previous data investments by the Office of Policy and Management
Web portal to State of Connecticut BB program information	$18,233.25	In Kind	Staff time developing website See IT Analyst
TOTAL	**$1,049,233**		

Breakdown of Staffing/Personnel Costs

Title	Amount*	% of Time	Years	Total in Kind
IT Analyst	$145,866	25.00%	0.5	$18,233.25

Project Oversight/Coordination

Breakdown of Staffing/Personnel Costs

Title	Amount*	% of Time	Years	Total in Kind
Planning Specialist	$152,048	10.00%	0.5	$7,602.38
Lead Rate Specialist	$159,730	100.00%	0.5	$79,864.95
GIS Technician	90316.7	50.00%	0.5	$22,579.18
IT Analyst	$145,866	25.00%	0.5	$18,233.25
			TOTAL	$128,279.75

Web Applications & Data Maintenance

Breakdown of Staffing/Personnel Costs

Title	Amount*	% of Time	Years	
GIS Technician	90316.7	50.00%	5	$225,791.75
IT Analyst	$145,866	25.00%	5	$182,332.48
			TOTAL	$408,124.23

*Amount = Salary plus fringe rate at 58% plus Indirect/Overhead rate at 36%

TOTAL MATCH **$1,585,637.22**

PLANNING BUDGET: $500,000

The Department of Public Utility Control, the Department of Information Technology, and the Office of Consumer Council will coordinate the development of a state broadband plan, identifying and prioritizing broadband opportunities to enhance public

services including efforts to strengthen existing education and public safety networks, further health care initiatives, promote economic and career development opportunities. Connecticut's Broadband Internet Coordinating Council will be consulted in the development of the state's broadband plan. The State may opt to retain the services of a consultant to assist with various aspect of the development of a broadband plan. Details are provided in Figure 2 below.

Figure 2.Planning Budget Spreadsheet

Planning Components	
Strategic Plan Development: Broadband barrier assessment	
Strategy Workshop	$8,000
Statewide Listening Sessions	$30,000
Research & Strategy Development	$32,000
Review meetings	$15,000
Finalize strategy document	$20,000
Updates to strategy	$21,000
Accuracy & Validation	
Web Based Survey/Telephone survey on barriers to uptake	$28,000
Web Research and outreach - other source materials	$35,000
spatial analysis of barriers, un-served, and underserved area	$311,000
Planning Components	$500,000

(b)Applicant Capacity, Knowledge and Experience: In order to build synergies into its broadband Plan, the State of Connecticut has assembled a team comprised of representatives from State Agencies with significant experience in mapping and geospatial technology as well as members with experience working with broadband, telecommunications, and cable service providers. This team consists of representatives from the Governor's Office, Department of Public Utility Control (DPUC, Grantee), Office of Consumer Counsel (OCC), Department of Information Technology (DoIT), Department of Public Safety (DPS), Department of Transportation (DOT), the Connecticut Siting Council (CSC), the Broadband Internet Coordinating Council (BICC), and the Office of Policy and Management (OPM). The Broadband Mapping Team will provide general project oversight and guidance to the project leaders and consultants involved. The project leaders will consist of the Department of Public Utility Control, The Department of Information Technology, and the Department of Public Safety. These three agencies will work cooperatively to complete the data collection and mapping efforts under this grant program, and be directly involved in the day-to-day operations.

Agency Roles and Responsibilities:

Department of Public Utility Control: The DPUC is the designated state entity to oversee the broadband data and mapping grant, as grantee of the federal funding. The DPUC will coordinate requests for data from broadband service providers and initiate

formal procedures necessary to obtain data from these providers. The DPUC will also be responsible for complying with all reporting and compliance requirements under the provision of this program and the American Recovery Act and Reinvestment Act.

Department of Information Technology: DoIT will coordinate and oversee all work performed by the consultant under this grant. DoIT will also support all online mapping and geospatial tools necessary to support both the State's internal abilities to support this project as well as making the mapping publicly available.

Department of Public Safety: The Department of Public Safety will provide technical staff support throughout the data collection, verification, and mapping portions of the project. DPS will also support the longer-term data maintenance efforts associated with the maintenance of the address data.

Detailed Profiles of The State Agency Project Leaders

The Department of Public Utility Control is statutorily charged (Connecticut General Statutes § 16-2) with regulating to varying degrees the rates and services of Connecticut's investor owned, electricity, natural gas, water, and telecommunication companies and is the sole franchising authority for the state's cable television companies and ILEC video services. The DPUC is also the final arbiter of conflicts in and regulations concerning the public rights of way across the state, including all conduits (e.g., utility poles and attachments) and other public utility infrastructure. Such regulatory authority includes oversight of Call Before You Dig, consumer protection assistance, and the regulation of all infrastructure installations in the public rights of way. In the industries that are still wholly regulated, the Department must balance the public's right to safe adequate and reliable utility service at reasonable rates with the provider's right to a reasonable return on its investment. The Department also keeps watch over competitive utility services to promote equity among the competitors while customers reap the price and quality benefits of competition and are protected from unfair business practices. Finally, in several instances the DPUC is responsible for the collection and disbursement of ratepayer and other sourced funds for use by statute for various purposes (e.g., E911 budget, Lifeline, PEGPEDIA public access programming).

The Department of Information Technology (DoIT) provides quality information technology (IT) services and solutions to customers, effectively aligning business and technology objectives through collaboration, in order to provide the most cost-effective solutions that facilitate and improve the conduct of business for our state residents, businesses, visitors and government entities. DoIT chairs the Connecticut Geospatial Information Systems Council and helps to coordinate GIS related activities amongst its membership and other state agencies. DoIT hosts the State's enterprise GIS architecture. DoIT also has extensive experience with federal grant funding and with outside consultants on IT and telecommunications projects, as well as managing a large portfolio of highly technical equipment and infrastructure throughout the state.

The **Department of Public Safety** operates the **Office of Statewide Emergency Telecommunications** (OSET), the goal of which is to provide for the development and maintenance of coordinated statewide emergency service Telecommunications for public safety organizations and to the residents of the State of Connecticut. Successful receipt of grant funding from the Recovery Act will allow the transition of E911 services from circuit-based technology to Internet protocol.

1) OSET GIS for 9-1-1

The goal of the Office of Statewide Emergency Telecommunications (OSET) is to provide for the development and maintenance of coordinated statewide emergency service telecommunications, including 9-1-1, for public safety organizations and to the residents of the State of Connecticut.

Connecticut's Enhanced 9-1-1 system has been active for over twenty years and is comprised of 107 call centers known as Public Safety Answering Points (PSAPS) that answer over two million calls per year. Connecticut's 9-1-1 system has had call mapping capability since 2004, which was initially driven by need to map wireless calls. This mapping is kept up-to-date by OSET's GIS team who receive street and address updates from towns, the PSAPs, and Connecticut State Police. OSET's GIS capabilities are also enhanced by other data sources that include federal and state aerial imagery, Department of Transportation data, and commercial sources of geospatial data. OSET GIS team has a strong commitment to sharing information and participating in statewide geospatial efforts.

2) Census Local Update of Census Addresses (LUCA) Project:

In 2008, the Office of Statewide Emergency Telecommunications, or OSET, assisted the U.S. Census Bureau with updating the Connecticut portion of their Master Address File (MAF). (The MAF is used for mailing out Census population forms to households in order to count population. These population counts are, in turn, used for numerous Federal programs and Congressional redistricting.) OSET collected municipal and utility addressing data and used its GIS capabilities to geocode and determine which of these addresses were not in the MAF. In six short weeks, OSET completed its work on the 101 towns not participating in LUCA and sent the Census Bureau approximately 72,000 new addresses to be reviewed for addition to the MAF. These new addresses will help to insure that the 2010 Census population count is as accurate as possible for Connecticut. For their efforts, the OSET GIS team was recognized with a Governor's Service Award.

III. Review Criteria No. 3 : Expedient Data Delivery:

The State of Connecticut is already in the process of setting the foundation for its data collection and mapping efforts. The State issued a request for information, prior to the release of the Notice of Funds Availability, and received responses to that request on July 31, 2009. The State has also issued a Request for Information for a statewide address point dataset, and has received responses to that request. With these initial hurdles

cleared, the State is well positioned to promptly execute a contract upon securing the grant award funds.

August 14 – October 1, 2009: During this period the State will initiate a formal dialogue with broadband service providers in an effort to secure data. This effort will include establishing a docket through the DPUC that would allow the State to conduct technical discussions with the providers regarding their data.

September 14 – October 1, 2009: The State will secure the services of a qualified consultant to assist in the data collection and mapping efforts.

October 1 – November 1, 2009: By October 1, the State intends to have reached consensus with the broadband service providers regarding the data they are willing to provide the State. During this period, the State's consultant will receive the data and coordinate work with the State's mapping team to aggregate the data into a single database.

November 1, 2009: Since no broadband mapping or data collection has been performed in the State of Connecticut, November 1, 2009 will be too early in the process to supply the NTIA with a substantially complete set of availability data. Further, the state would not have an opportunity to verify the accuracy of that data, or any other data collected under this program.

On this date, the state intends to provide the NTIA with an alternative dataset to that identified in the Notice of Funds Availability. Specifically, the State will provide the NTIA with a georeferenced availability area polygon dataset that depicts areas where broadband service is available and includes the service characteristics for each provider that is identified.

November 1, 2009 – January 1, 2010: During this period, the state intends to complete the data collection and mapping portions of the project. By January 1, 2010, the state will have a complete set of broad availability data as outlined in the Data portion of this narrative. The State will have procured the statewide address data described previously as well. Work during this period will also involve reconciling the Community Anchor Institution data currently owned by the state against the address database and merging the address database with the availability data.

January 1, 2010 –February 1, 2010: During this period, the state will enter the accuracy and verification phase of the project as previously outlined in the corresponding section of this narrative.

February 1, 2010: The State will provide the NTIA with a substantially complete data set.

February 1, 2010 – March 1, 2010: The State will reconcile any discrepancies discovered during the accuracy and verification phase of the project.

March 1, 2010: State of Connecticut launches State Broadband Availability Map.

April 1, 2010: State initiates efforts to further refine data accuracy including acquisition of additional base map data.

March 1, 2010 – September 2014: State to provide data updates to NTIA twice annually (March & August).

IV. Review Criteria No. 4 : Process for Repeated Data Updating

The data collected by the State will require updating in a variety of ways. The State will need to maintain the address data set that is developed to ensure that the data remains current. The State will also need to maintain the wireline and wireless availability data. The Department of Public Safety will be the primary agency responsible for maintenance of this data. This will be an ongoing update, and the State proposes to develop an on-line GIS application to support this effort. This GIS application will be able to update address data, broadband availability data, and street centerline data, which is essential for complete address location. The GIS application will be able to perform at least the following updating tasks:

- add addresses one at a time by geocoding it from a table, manual placement on map (orthophoto backdrop), or uploading GIS data (shapefile, geodatabase, KML, etc.)
- add multiple addresses by geocoding them from a table, manual placement on map (orthophoto backdrop), or uploading GIS data (shapefile, geodatabase, KML, etc.)
- modify an address location or attribute(s).
- delete an address
- add a street
- modify a street
- delete a street
- upload broadband service area
- verify broadband service

Not all of these tools would be available to the general public, but rather only to municipalities, Regional Planning Organizations, broadband providers, or other appropriate entities. The State has experience with this structure having recently deployed a similar application that allow these groups to update Critical Infrastructure data in the state's Geographic Emergency Management System. This existing tool could be modified to meet the needs of the broadband map. The State will work with data providers to ensure that availability data is updated at least twice annually.

Additionally, the state will develop the ability to accept raw data from a number of different providers, that comes in a variety of different formats. This will require the

development of an extract, transform, load (ETL) process to receive and standardize the data. This process will be required for each of the providers in the data.

IV. Review Criteria No. 5 : Planning and Collaboration:

Planning and Collaboration Specific to Data Collection and Mapping: As indicated above the State has assembled a team with significant experience in mapping and geospatial technology as well as members with experience working with broadband, telecommunications, and cable service providers. This team consists of representatives from the Department of Public Utility Control (DPUC), Office of Consumer Counsel (OCC), Department of Information Technology (DoIT), Department of Public Safety (DPS), Department of Transportation (DOT), the Connecticut Siting Council (CSC), the Broadband Internet Coordinating Council (BICC), and the Office of Policy and Management (OPM). In addition, the State has established the Connecticut Broadband Internet Coordinating Council which consists of a broad based membership including broadband service providers, a municipality, business interests, and state agencies. The State also has a Geospatial Information Systems Council that consists of state agencies, municipalities, Regional Planning Organizations, and others. The State's broadband mapping team intends to leverage both of these resources to communicate the goals of this project and solicit input throughout both the data collection and mapping processes.

A .Introduction

The State has long been committed to regarding broadband delivery and enhanced use as a fundamental and a compelling problem in search of a solution. Accordingly, the State has developed a plan for addressing this statewide public policy concern with effective solutions to that problem, and consistently utilizing resolutions that can be replicated to improve future projects. In short, the State Plan involves developing a planning strategy to marshal the State's resources and stakeholders and establish Connecticut as a leader in broadband usage, in addition to being a leader in "eGovernment" and other broadband-dependent endeavors. The State recognizes that its planning process will also likely involve a mix of proactive steps, such as involving a broad base of stakeholders about alternative State initiatives and identifying new sources of sustainability funding support beyond the Recovery Act grants. The State Plan also calls for analytical steps, such as evaluating how broadband initiatives in other states have fared and applying some relevant lessons and best practices from a variety of sources.

Further, the State is well aware of its obligations under the federal guidelines to develop a plan for collaboration with State-level agencies, local authorities, and other constituencies, and many of these processes have already been established and are functioning, with refinements built into the process going forward. Therefore, the State Plan incorporates the rewarding of those projects that promise to create the most jobs and induce the greatest investment in the State, clearly the Recovery Act's primary purpose. The State will focus on innovation, including test bed projects and investments that bridge one aspect of broadband to another, involving as broad a group of participants as possible.

B. Synergies, Teamwork Are Essential Elements of The Recovery Act

With regard to Planning and Collaboration, while the State of Connecticut has designated the Department of Public Utility Control as its single eligible entity for applying for a grant related to compiling broadband mapping data, the State has also reached out to a broad spectrum of State-level agencies and local authorities, as well as businesses and non-profit organizations as further described in this Application.

To accomplish these goals in a prompt and cost-effective way, the process for developing a State Plan has begun to facilitate collaboration with the State government's human, data, and managerial resources in order to best provide the transparency and inclusiveness of the planning process and produce State-level broadband mapping based on the best data collection possible. The State's planning process seeks to identify service availability and gaps, analyze problems and opportunities related to broadband deployment, and determine priorities as well as resolve conflicting priorities. A team including many elements of State government has been assembled specifically since the NTIA/RUS programs have been initiated in order to coordinate the various State elements, together with reaching out to various private entities. This effort has been led by the governor's office and involves dozens of public and private entities working together to meet the deadlines and application obligations imposed upon all grantees.

The broad-based team responsible for developing the State's planning process incorporates both senior government office holders, the State's statutory Broadband Internet Coordinating Council, and representatives of various private entities in preparing a comprehensive and transparent plan to establish Connecticut at the forefront of broadband developments not just in New England, but to lend the State's help in addressing this issue nationally and internationally.

The governor's office has exercised leadership by empowering various executive agencies and non-profit entities to provide multiple functions, serving to disseminate successful local models, identify policy solutions, mobilize support and build public-private partnerships. On this basis, the State is poised to lead the way in state-based initiatives and is well-positioned to identify projects for Recovery Act funding. The governor's office has further prepared itself with experts qualified to review the list of applications under consideration and will promptly respond with a list and prioritization of recommended projects, along with an explanation of why the selected proposals meet the greatest needs of the State.

Connecticut has long believed that it needed to have a plan to expand broadband deployment and adoption, and to that end the State created the **Broadband Internet Coordinating Council** (the "BICC") by statute in 2007. The BICC represents a cross section of the political bodies of the state by its broad list of nominating members of government (e.g., governor, speaker of the house), and it is composed of major stakeholders involved in the broadband issue, including municipalities, government agencies, small entrepreneurs, and cable operators and local exchange carriers.

In 2008, the **Department of Public Utility Control** completed a comprehensive docket entitled DPUC Investigation Into The Deployment Of High Speed Broadband Access Facilities in which, based upon an extensive record of evidence and testimony, the Department articulated reasons and comparative examples as to why Connecticut needs a broadband initiative, best achieved by the adoption of its own pro-active remedies to

make competitive Internet broadband services universally available throughout the state at competitive speeds. Further, the Department offered reasons as to why the state should adopt digital inclusion programs and has documented examples of how those programs are used elsewhere. The State Plan directs that the DPUC utilize its century-long relationship with public service utilities in the state, as well as its authority to convene hearings, receive record evidence, and provide protection for confidential information, to obtain the highest level of data input from the industry providers as possible.

The **Department of Information Technology** (DoIT) provides direct support for the Connecticut Education Network (CEN) program which benefits K-12 and college educational institutions, and DoIT will have a central role in developing the CEN application for grant funding. CEN is the result of a multi-year initiative that began in 1999 by then Lt. Governor M. Jodi Rell to ensure Connecticut schools and libraries had access to the best possible educational technology. DoIT was identified as the lead agency in constructing the network and CEN deployment to cities, towns and school districts, and institutions of higher education was completed in 2005, with CEN deployment to libraries completed in 2006. Since 2006, CEN usage has increased 114 percent, having increased by 49 percent in 2007 usage alone. Through CEN, local and regional boards of education and regional vocational-technical schools have expanded their educational technology capabilities, including, but not limited to, wiring, Internet connectivity and technical support, and opportunities for such boards of education and schools to purchase under statewide contracts. CEN currently has full broadband service for about one-half the state, and successful receipt of grant funding from the Recovery Act will allow this vital project to finally be realized across the entire state.

The **Department of Public Safety** operates the **Office of Statewide Emergency Telecommunications** (OSET), the goal of which is to provide for the development and maintenance of coordinated state-wide emergency service Telecommunications for public safety organizations and to the residents of the State of Connecticut. The successful receipt of grant funding from the Recovery Act will allow for the transition of E911 services from circuit-based technology to Internet protocol.

The State believes that the broadband marketplace is not working efficiently since though virtually all communities in Connecticut, though not all have access to broadband services, and large segments of the population are not utilizing the potential connections available to them. Since the ability of consumers to make sound purchasing decisions depends in part upon understanding pricing plans, as well as the terms and conditions of broadband offerings, it therefore seems obvious that information is key to smart public policy. Overcoming this obstacle to increased use of broadband services remains a key state policy goal.

C. Broadband Has Become A Basic Necessity For Residents And Businesses Alike

It remains possible that there may be some entities that will continue to disagree with the principle that broadband is an essential utility along the lines of electricity, water and voice telephone service. It is clear to this State, however, that broadband has become basic infrastructure, a key component of a well-functioning and economically flourishing society, and the State believes that designing and installing the networks that provide broadband access should be considered similar to designing the historic systems for the

provision of highways, clean water, electricity, public safety, sewage removal and other public goods.

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 the need to overcome delays 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.

D. The State Plan Requires The Financial And Other Assistance Available Through The BTOP Program In Order To Develop A Long-Term Broadband Planning Process

In addition to the synergies among the wide variety of participants the State has mustered in its comprehensive mapping project, the State Plan requires the financial and other assistance available through the BTOP program in order to develop a long-term broadband planning process. This will allow the State to particularly address the establishment of computer ownership and Internet access programs throughout the State, for instance incorporating communities in this process through the creation and facilitation of local technology planning teams.

All of the agencies and their affiliates involved in this application process 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. Municipalities, for instance, with their distinctly local perspective, can possibly contribute:

- by building or sponsoring wireless broadband systems;
- by building or sponsoring wireline or fiber networks;
- by providing subsidized broadband service to low-income groups through the use of municipally-owned or -controlled facilities; and
- by actively facilitating and requiring that dark fiber and empty conduit be used for the provision of this service.

While many municipal experiments have failed, many others have succeeded in bringing and sustaining excellent broadband services to their citizens and town agencies. Such unbundling of broadband services by government agencies, essentially a functional separation model, has not led to the devaluation of existing broadband infrastructure, as many industry providers claim will always result, but to the contrary to increases in revenue for the incumbent and increased market competition among competitive carriers and ISPs.

While the immediate focus of the State Plan's mapping effort is to create a geographic inventory map of broadband service in order to develop and provide a baseline assessment of broadband deployment so as to locate unserved and underserved areas, the State will also focus its broadband planning resources on the identification of barriers to the adoption of broadband service and information technology services. This is of particular concern in a state with a relatively high level of infrastructure availability, but yet possessed of a number of distressed cities and other locations where Internet usage may be unacceptably low.

The State Plan's proposed planning process will also address projects that will undoubtedly require the use of public computing centers and sustainability adoption processes in order to resolve problems in certain communities that experience low levels of deployment and adoption of broadband service, by both residential and business users. The State of Connecticut is well aware that many of its communities may have physical

access to broadband infrastructure, but that due to a variety of reasons, these localities may suffer from low levels of penetration in terms of computer ownership and Internet access programs. The State is committed to promptly and addressing this problem, and appreciates the importance of the funding being provided by the United States through the Recovery Act that will allow the State to address this problem much sooner that its own economic resources would otherwise allow.

E. The State Intends To Use The Data Developed In The Mapping Program To Identify Appropriate Areas For Broadband Investment And Economic Stimulus

The State Plan also has a public policy goal that requires implementation of a process to accumulate data from a wide range of state agencies and private providers in order to develop and maintain a statewide broadband map that will be tailored to suit the needs of this state. The data collected as a result of the funding from the Recovery Act will be used for public purposes and shared by governmental entities, including the NTIA and possibly other federal agencies. The State itself intends to use the data developed in the mapping program to identify appropriate areas for broadband investment and economic stimulus that the State may well use to apply to the NTIA for grant-making decisions under the Broadband Technology Opportunities Program (BTOP). Finally, the State expects the NTIA and other federal agencies to use the data maps developed under the Recover Act, while separate and distinct from the national broadband map, in order to develop a hypertext link to the State's maps for display on a web page on the Department of Commerce website. It is to be hoped that this effort on the part of the State will contribute to a national broadband map that will service a wide variety of federal and state purposes well into the future, particularly in light of the on-going requirement for all states to regularly update the data in their maps.

The State Plan assigns the leadership role in making certain that data, mapping, and other infrastructure information reside not only with any public-private partnerships that are formed, but also with government agencies, to inform sound policy decisions. It seems obvious that imperfect information thwarts effective investment and decision making, thus decreasing awareness and use of broadband infrastructure. The State therefore believes that essential data about broadband supply (i.e., location, price and speed) and about consumer demand must be readily available to the public and state agencies, and therefore cannot reside solely with industry. While the State respects the business plans and profit-making requirements of private industry, it remains a public policy of the state to bring broadband services to all communities and citizens.

The State Plan requires that all aspects of the mapping projects must be based on objective evidence of the capacity of the public and private partners to achieve the public policy goals enunciated by the State plan. This includes a record of accomplishment and experience, expedient data delivery, and reasonable goals and deadlines.

It is with this principle firmly in mind that the State has deliberately chosen to use its own personnel and agencies, together with consultants and involving all providers of broadband services operating in Connecticut, to gather data regarding broadband and develop the mapping projects that will disseminate this vital information rather than use private partnerships. It has not escaped the State's notice that there are clearly conflicts of interest between the public and private members of such partnerships that reduce the

usefulness of such endeavors, even in light of the ease of simply hiring a third-party vendor, and thus the State's plan is that private entities should supplement and not supplant state and federal data gathering efforts.

Related to the goal of accurate mapping of broadband infrastructure and use will be 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 regard 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 . It will thus be vital to tie the mapping project and data collection from Internet providers into a high-end conceptual framework for structuring any mapping effort, while assuring that quality and relevance expectations are met. It is clear that most of the focus of the Recovery Act's broadband mapping projects will center on the wireline segment (i.e. cable, DSL, fiber), the fact that there are already more mobile broadband subscriptions than wireline in the U.S., a number that is growing much faster, will dictate that the State's long-term plan must account for an encroaching wireless presence by developing an understanding of the degree to which mobile broadband may supplant fixed broadband as the primary consumer access mode.

Another area that the State Plan provides for is any concerns broadband providers have toward releasing their confidential data to State regulators. The State's Plan recognizes the State's responsibility to create mapping data that will be accessible, capable of repeated updating of the data, and will provide ready access to this data to the NTIA, the public, and local and other state governments, while protecting confidential information supplied to it by providers and other sources.

The State Plan's highest data collection priority is the development and maintenance of a national broadband map designed to gather data at the address-level on broadband availability, technology, speed, infrastructure, ARPU, and, in the case of wireless broadband, the spectrum used, across the project areas. While there are obvious obstacles inherent in the proprietary nature of the data to be collected from free market competitors operating in this state, the State agencies collaborating on this endeavor are committed to

using all resources at their disposal to obtain the greatest amount and highest level of data from the providers. The State is also committed to the federal guidelines and state statutory protections afforded commercially-sensitive information, a process that is quite familiar to the DPUC and other state agencies involved in this mapping project.
Through a concerted effort to reach out to such providers, the State is in a unique position through a variety of its agencies to gain the confidence of the providers that their data will be kept confidential and used with integrity. In the long term too, the State may be able to aid providers that actually do not readily have the data available by helping consolidate other sources of data such as research studies and consumer surveys that can be utilized in developing broadband maps. The State should plan also to coordinate with federal entities such as the NTIA and the FCC in consolidating information and data that could be useful in the ongoing efforts to identify needs and resources on the State level, as well as in developing a national broadband plan.
Additionally, the State must plan for and practically encourage various types of supply- and demand-side subsidies and other inducements or promotions that would be most cost effective in stimulating broadband adoption in Connecticut. These activities must incorporate rural and urban areas, business and residential, for all segments of the population.
As further investment opportunities present themselves over time, the State must plan to actively promote the inclusion of the entire breadth of various entities operating in the State to submit effective applications that will undoubtedly involve a multi-layered evaluation process similar to that required in the present NOFAs issued by the NTIA and the RUS, with applicants having to meet many qualifications requirements and scoring criteria. While these tasks may often be daunting to many potential applicants, the State can lend its expertise and resources to entities willing and able to support the State's efforts to encourage greater broadband use. Such assistance to applicants in preparing strong applications in this highly competitive context would be an ideal way to leverage the State's resources for the benefit of all citizens and broadband providers operating in the State.

F. The State Is Well Prepared To Immediately Implement Broadband Programs With The Otherwise Unavailable Funding To Be Provided By The Federal Government

The State, like its brethren among states and indeed the federal government itself, faces unprecedented budget shortfalls and thus it is imperative that feasible projects must demonstrate reasonable and cost-efficient budgets in order to start and must further evidence an ability to be self-sufficient on a minimum of outside funding.
The State plans to identify and evaluate funding opportunities at the federal level as the White House and the FCC develop their own broadband plans in the future that could further support State broadband initiatives, while seeking to encourage the many private-sector investment sources available in Connecticut which may be less than able to fund projects in this fiscally challenged period. The State is hopeful that these projects, to be identified in our State planning process, will include applications and content development-related investments in areas such as education and health care. Ultimately, all planning processes will keep the goal of formulating guidelines for a consolidated

broadband utilization and procurement strategy that will stand the State in good stead in the long-term perspective, by providing access, encouraging usage, and promoting further education related to broadband usage to all its citizens.

As a result, the rigorous engineering, market analysis, and business planning essential to best employ the grant opportunities to be provided by the federal government are at hand and ready for use by the State. The State is also confident that it will be able to demonstrate the ability to provide, from non-federal sources, funds required to meet or exceed the 20 percent matching funds requirement unless a waiver of that requirement has been requested.

The State is well prepared to immediately, with the otherwise unavailable funding to be provided by the federal government, to use full qualitative and quantitative suite of resources to complete the proposed projects within the time constraints imposed in the NOFA. By definition, the projects here proposed by the State convincingly demonstrate the ability to be sustained beyond the funding period since they are each so squarely within long-established public policy goals of the State.

Each of these projects will clearly support viable, sustainable, and scalable long-term investments accruing to the benefit of the State and all of its communities by providing broadband access to consumers, the community, and stimulating further demand for broadband. Finally, each of these programs will serve the highest priority needs for federal investment since each of these projects offer the potential for economic growth and job creation, and provide benefits to education, health care, and public safety.

G. The State Plan Balances Regulatory Flexibility To Encourage Private Sector Decision-Making, With Carefully Government Intervention

The State Plan fully supports and includes the essential process element of balancing regulatory flexibility to encourage private sector decision-making, innovation and experimentation with carefully configured government intervention in the broadband market. Such involvement has been demonstrated to be essential to a successful program for expanding the use of high speed broadband in this state and the State will continue to focus on ensuring cooperation among its many state agencies, funding, and use of assets in conjunction with the resources available to other public and private entities that share the goal of delivering broadband service to areas that are unserved or underserved, and overcoming barriers to consumers' broadband adoption.

The State Plan holds that reasonable government action can spur deployment and affordability, and finally that the State's leadership will not thwart private industry in its efforts to provide services and to earn a reasonable return for its efforts.

Broadband, like transportation systems, provides a public good that yields social benefits above and beyond the "utility" that an individual consumer derives from broadband access. On this basis, the State has developed a broadband policy that encourages build-out in unserved areas in order to provide adequate and ubiquitous access for consumers to the benefit of these communities, Connecticut, and indeed the nation as a whole.

While the State intends to exercise appropriate flexibility in its regulation of broadband services in order to encourage private sector decision-making, innovation and experimentation remain the essential drivers for future expansion and usage of

broadband. Consequently, government participation in the broadband market should be focused on ensuring deployment to areas that are unserved or underserved, with particular support for government programs that overcome barriers to consumers' broadband adoption.

H. State Authority Includes Consumer Protection Measures Regarding Broadband Service Quality

While there are various legal and policy issues that call into question the authority of governments and their agencies to generally regulate the provision of broadband, the State believes there is no ambiguity about its authority to, at a minimum, impose and to enforce consumer protection measures regarding broadband service quality. This authority also precludes any assertion of exclusive authority – including preemption of state authority – and indeed is supported by President Obama's May 20, 2009 Presidential Memorandum, entitled "Preemption," issued to all Executive Branch agencies, cautioning them against action that would preempt states absent clear authority otherwise. The State supports the President's call for cooperation and fully intends to act in harmony with the goals and operations of the federal agencies embarked on the task of bringing broadband services to the entire nation.

With regard to consumer protection, the State specifically insists that Connecticut consumers deserve "truth-in-billing," and that because of the importance of a broadband connection, carriers that seek to "discontinue, reduce, or impair" services must first request authority to do so and should properly notify affected customers and others of their plans. Responsibility for assuring that these features of broadband service are provided in all cases on a non-discriminatory basis will surely rest with the State, particularly through its Department of Public Utility Control, the Office of Consumer Counsel, and other consumer protection agencies. As with other types of telecommunications services, broadband consumer protection measures should be established and enforced by states such as Connecticut since the states remain on the "frontlines" of consumer complaints and concerns, and therefore better positioned to address these concerns. As stated above, the State Plan keeps consumer welfare and protection as a keystone to the expansion of broadband services to all citizens as a basic tenet of its public policy goals.