



**Broadband Infrastructure Application  
Submission to RUS (BIP) and NTIA (BTOP)**

<b>Submitted Date:</b> 8/17/2009 10:38:12 AM	<b>Easygrants ID:</b> 28
<b>Funding Opportunity:</b> Broadband Initiatives Program and Broadband Technology Opportunities Program	<b>Applicant Organization:</b> Executive Office of the Commonwealth of Pennsylvania (Office of Administration)
<b>Task:</b> Submit Application - Infrastructure Programs	<b>Applicant Name:</b> Mr. Luc Miron

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## A. General Application Information

### 1. Applicant Information

#### 1-A. Name, Address, and Federal ID for Applicant

<b>i. Legal Name:</b>	Executive Office of the Commonwealth of Pennsylvania (Office of Administration)
<b>ii. Employer/Taxpayer Identification Number (EIN/TIN):</b>	236003107
<b>Street 1:</b>	209 Finance Building
<b>Street 2:</b>	
<b>City:</b>	Harrisburg
<b>County:</b>	Dauphin
<b>State:</b>	PA
<b>Country</b>	United States
<b>Zip/Postal Code:</b>	17120

#### 1-B. Name and Contact Information of Person to be Contacted on Matters Involving this Application:

<b>Prefix:</b>	Mr.
<b>First Name:</b>	Luc
<b>Middle Name:</b>	
<b>Last Name:</b>	Miron
<b>Suffix:</b>	
<b>Telephone Number:</b>	717-705-5462
<b>Fax Number:</b>	
<b>Email:</b>	lmiron@state.pa.us



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<b>Title:</b>	Project Manager
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<b>1-C. Other Required Identification Numbers</b>	
<b>i. Organizational DUNS:</b>	188655898
<b>ii. CCR # (CAGE):</b>	4TW06
<b>iii. Funding Opportunity Number:</b>	1
<b>iv. Catalog of Federal Domestic Assistance Number:</b>	<b>BTOP CFDA Number:</b> 11.557 <b>BIP CFDA Number:</b> 10.787 <b>BTOP CFDA Title:</b> Broadband Technology Opportunities Program <b>BIP CFDA Title:</b> Broadband Initiatives Program

**1-D Eligible Entities**  
Please classify your organization. (Note: If there are multiple organizations involved in the project, designate the lead applicant that would enter into a Loan or Grant agreement with the Agency and assume operational and financial responsibility should an award be made). **State or State Agency**

**1-E. RUS Borrower Status**  
No

**1-F. Applicant Federal Debt Delinquency Explanation**  
Is the Applicant Delinquent On Any Federal Debt? **No**  
**Federal debt delinquency Explanation:**  
The Commonwealth is not delinquent on any federal debt.

**2. Project Description & Project Title**

**2-A. Project Title:** Commonwealth of Pennsylvania Broadband Middle Mile Project: Enhancing Connectivity in Northern PA

**2-B. Project Description:** The Commonwealth of Pennsylvania’s Middle Mile Broadband Plan leverages the physical infrastructure of our existing MPLS 50Mbps Public Safety microwave network. This plan



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adds a parallel 150Mbps Ethernet backbone, bridging service providers' fiber Edge networks as gateways for last mile broadband providers serving rural, remote, unserved and underserved areas.

**3. Application ID for Multiple Submissions for Identified Service Areas:**

BTOP Infrastructure Pennsylvania Education Network, Easygrant ID: 2677 BTOP Public Computer Center Pennsylvania Education Network, Easygrant ID: 2376 BTOP Sustainable Broadband Adoption Pennsylvania Education Network, Easygrant ID: 2619

**4. Rural Area Determination**

At least 75 percent of the proposed service area to be funded falls within rural areas that are unserved or underserved.

**Yes**

**5. Applications for Rural Areas:** Please choose the funding program(s) to which you are submitting this application.

a) BIP broadband infrastructure category to which you are applying:

**BIP - Middle Mile Project**

b) Would you like this Application for Rural Areas to also be considered for BTOP funding?

**Yes**

c) BTOP Infrastructure category for which you are applying.

**Middle Mile**

**6. Applications for All Other Areas:** Per the NOFA, all applications to fund broadband infrastructure projects in areas that are less than 75% rural must be submitted to NTIA for consideration under BTOP.

BTOP broadband infrastructure category to which you are applying: **Middle Mile**

## **B. Eligibility Factors**

**7. Application Submission**

**BIP and BTOP Factors Selected By Applicant:**



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**Applicant has submitted a completed application and provided all supporting documentation required for the application.**

**The Project will be substantially complete within 2nd year from the award date, and the project will be fully complete by the end of the 3rd year from the award date.**

**For projects seeking more than \$1 million funding, the Applicant agrees to submit a certification, from a Professional Engineer, that attests that a) the system will deliver the stated performance; and b) the projected project will be substantially completed within two years, and fully completed within three years.**

**The Applicant provides two-way data transmission with advertised speeds of at least 768 kbps downstream and 200 kbps upstream.**

**Applicant understands and agrees to comply with the nondiscrimination and interconnection obligations outlined in the NOFA.**

**If applying for a last mile Broadband Infrastructure project, applicant understands and agrees to comply with the last mile coverage obligations as outlined in the NOFA.**

**Additional Factors for BIP Selected By Applicant**

**At least 75 percent of the proposed funded service area qualifies as unserved and underserved rural areas in accordance with the NOFA.**

**Applicant understands and agrees that the project will be fully funded in accordance with the requirements of the NOFA.**

**Applicant understands and agrees that only projects that RUS determines to be financially feasible and/or economically sustainable will be eligible under this NOFA.**



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**Additional BTOP Factors Selected By Applicant**

- **Conformity with Statutory Purposes**
- **Cost Sharing/Matching**
- **Reasonableness of Project Budget**

The project advances at least one of the statutory purposes for BTOP

Applicant has provided documentation that the project would not have been implemented during the grant period without federal grant assistance.

Applicant has provided a budget that is appropriate to the proposed technical solution and only includes eligible costs.

- **Demonstration the Project Could not be Implemented But For Federal Grant Assistance**  
Applicant is providing matching funds of at least 20 percent towards the total eligible project costs?  
**Yes**

**7-k. Cost Sharing/Matching Fund Explanation**

The Commonwealth is not requesting a waiver of the matching funds contribution.

## C. Executive Summary

### Executive Summary of Project for BIP and BTOP:

#### 8. Infrastructure Projects Executive Summary

The Opportunity

The Commonwealth of Pennsylvania (Commonwealth) is submitting the enclosed application for funding of a BIP/BTOP middle mile regional wireless system to provide broadband services to a large area of the Commonwealth which is currently unserved or underserved by



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commercial broadband providers.

Pennsylvania Act 183 of 2004 tracks the implementation of broadband services within the Commonwealth from broadband system providers. An analysis performed in the preparation of the Pennsylvania Statewide Broadband Plan reveals that while there are 36 broadband providers in the Proposed Funded Service Area, much of this region remains unserved or underserved by these providers. The population density in this region makes it difficult for providers to build a sound business model to serve these areas profitably. The Commonwealth sees this as an opportunity to build upon existing Commonwealth-owned infrastructure in this region to provide middle mile service to potential last mile providers, as well as bringing broadband service to anchor institutions.

#### Background

The Commonwealth has constructed a statewide Land Mobile Radio communications system (PA STARNet) for use by state law enforcement, public safety and public service agencies. This system operates in the 800 MHz spectrum and will soon be expanded to utilize 700 MHz spectrum which is adjacent to spectrum recently auctioned to major last mile service providers by the FCC. The STARNet system utilizes 74 High (~300 ft) towers and 147 lower (~75 ft) cell sites to provide 95% coverage of the land mass in this region, on a point to mobile and point to multipoint basis. A microwave and landline backbone system, diagram attached, is installed on these towers, which currently provides 50 Mbps bandwidth in the major loops and 1.544Mbps or greater bandwidth between the cell sites and primary loops. This system currently backhauls the land mobile radio traffic and mobile data terminal traffic to the primary system control points and dispatch centers. The Commonwealth is currently in the process of installing Multi-Protocol Label Switching (MPLS) onto this microwave and land line network to increase system speed, create a method of prioritizing traffic, improve data throughput, and create alternate routing in the event of a path failure. This improvement is funded by the Public Safety Interoperable Communications (PSIC) grant funds released in 2008.

#### Proposed System

The Commonwealth proposes to add an additional 150 Mbps capable microwave system to the existing 50 Mbps system to provide a middle mile solution, available to last mile providers and anchor institutions in the proposed funded service area (PFSA) on an "open system" basis.

Last mile providers which use the recently auctioned 700 MHz spectrum to deliver their broadband service may expect to be able to cover 95% of the land mass in this region using the



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full tower and cell site network.

#### Proposed Funded Service Area (PFSA)

The PFSA is an east-west corridor between I-80 and the Pennsylvania-New York State border. The PFSA encompasses 32 counties, approximately one-half of the total area of the state, with a population of 2,450,060 living in 988,135 households. There are also 2657 Community Anchor Institutions, and 202,808 businesses. The PFSA also includes 1,222 Public Safety agencies (Law Enforcement, Fire/Rescue, Emergency Medical, and Emergency Management), 255 medical and health care facilities, 1,180 schools, institutions of higher learning, and libraries.

The PFSA includes 9,315 unserved census blocks and 1,243 underserved census blocks.

#### Proposed Services

The Commonwealth's middle mile project proposes to provide a very robust microwave and landline-based broadband middle mile transport system which will be available on a non restricted basis to last mile providers in need of middle mile backhaul to internet or other network points of presence. We believe access to affordable middle mile broadband facilities will encourage buildout of broadband last mile systems to homes and businesses by last mile providers, no longer saddled with the cost of building their own middle mile facilities. We believe many of these local last mile providers to be entrepreneurial small businesses.

In addition we propose to make bandwidth available as well to anchor institutions and public safety agencies which require broadband transport from point to point. Examples of this requirement would be applications such as Next Generation 911 systems, 911 Communication Centers for backup and dispatching, and for the transport of high bandwidth public safety applications such as mug shots, in-car and surveillance video. Health care applications would include full motion video applications for telemedicine, records sharing, diagnostic image sharing and remote patient consultations between the patient's home, health care facilities and clinics.

#### Non Discrimination

The Commonwealth middle mile System will be open and available to all users on a non-discriminatory basis.

#### Technology





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The technology employed by the network will vary based upon bandwidth and specific microwave hop or connection to the cell sites. The attached system diagram shows the system architecture and proposed bandwidth of each leg of the system.

The core is a two loop microwave configuration. Each loop is a redundant, reversible loop which provides 99.999% reliability and availability. The current 50 Mbps microwave will be left in place to continue to carry the traffic of the PA STARNet radio system. An additional 150 Mbps microwave radio system will be placed alongside the 50 Mbps radios. The new 150 Mbps radios will share antenna dishes and site facilities, reducing the cost. Both microwave systems will share the MPLS system, currently being installed.

From the system's major loops, there are point to point spurs which serve additional high towers as well as cell site towers. Some spurs are microwave and some are leased line circuits. Where a line-of-site path is available either 150 Mbps, 50 Mbps microwave or new 3.65 GHz 20 MBps WiMax microwave radios will be employed (literature on the proposed equipment is attached). Where line-of-site is not available, a network of point-to-point leased 1.54 Mbps DS1 circuits are employed. These DS1 circuits are to the Cell Sites only. These circuits are reflected in the attached network drawing. Excess capacity on the 50 Mbps hops and DS1 circuits will be available to the middle mile subscribers.

Internet points of presence and providers have been and continue to be identified. It is the desire to have as many "on and off ramps" to the internet as possible, to keep the number of hops needed between the ISP and Last Mile provider to a minimum, and accommodate more traffic on the network overall.

At the tower sites all of the needed facilities are in place. Environmentally controlled, secure equipment shelters and equipment rooms are in place with sufficient expansion room to accommodate the additional equipment. Likewise, standby power systems, generators, battery backup, and UPS systems are in place and have the needed additional capacity. System monitoring and alarm systems are in place.

All of the proposed paths exceed the FCC broadband definition of 768 kbps downstream and 200 kbps upstream. The Commonwealth system, as a middle mile provider is providing the same bandwidth capacity in both directions. MPLS is being implemented on each and every



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path.

#### Qualifications

The Commonwealth of Pennsylvania has the in-house expertise and ability to construct, operate and manage a system of this magnitude. The tower network is already in place, and was constructed by the same management team that will have the responsibility to implement and operate the middle mile system. In addition to construction management expertise, the Commonwealth operates a Network Operations Center (NOC) which monitors PA STARNet on a 24/7 basis. The NOC will assume the additional responsibility of monitoring the Middle mile system. Fault alarm and reporting systems already in place will be expanded to accommodate the middle mile equipment.

#### Budgeted Cost

Current budget cost for this project is \$35,980,017. These budgeted costs are for a complete turnkey system, including equipment procurement, system installation, system engineering, project management, system implementation and operation. The required budgetary attachments have been completed and are included.

#### Subscriber Projections

Current conservative loading projections indicate the 150 Mbps system will be fully loaded in 3 years following system launch. These projections consist of an estimated 180,000 last mile household subscribers, 6,725 last mile business subscribers, and a combined last mile and middle mile subscriber total of 420 anchor institutions.

#### Jobs Created

A recent study by the Brookings Institute stated that for every 1% of broadband penetration in Pennsylvania, 6,857 non-farm jobs are created and saved.

#### Conclusion

This project meets the requirements, goals and objectives of RUS and NTIA in bringing affordable broadband service to unserved and underserved areas of the Commonwealth and provides broadband availability to critical community anchor institutions. The system provides affordable broadband access to end mile service providers, and anchor institutions best served by a last mile provider. With aggressive last mile provider participation we anticipate having



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service to these unserved/underserved populations quickly.

The contracts and purchasing vehicles for system procurement are in place using existing state term contracts. The towers and cell sites are built and ready. A well-qualified Commonwealth team is in place and ready to build and operate this system.

The budget and business plan reflects a sustainable investment.

This project is truly “shovel-ready”, reflecting the goals of ARRA.

**Description of BTOP Project Purpose (BTOP Applicants Only Next Three Questions)**

**9. BTOP Statutory Purpose:**

Provide access to broadband service to consumers residing in “unserved” areas of the United States.
Provide improved access to broadband service to consumers residing in “underserved” areas of the United States.
Improve access to, and use of, broadband service by public safety agencies.

**10. Description of BTOP Project Purpose:**

The Proposed Funded Service Area (PFSA) covered by this project solution includes both unserved and underserved regions of the Commonwealth of Pennsylvania in the 32 county region north of Interstate Rt. 80 to the New York state border.

The primary purpose of this project is to provide broadband access to unserved and underserved regions of the Commonwealth, where little or very limited middle mile service exists today. The limited availability of broadband in the PFSA presents the opportunity to not only address the compelling availability problem, but create a solution consistent with BTOP Statutory Goals.

The compelling problem being addressed is that to date it has not been economically feasible to build the needed infrastructure to serve the population of the PFSA, due to the sparse



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population distribution through the region. Thus there has been neither a compelling business case to be made nor financial incentive for any provider to provide broadband service to the unserved/underserved PFSA. This results in most subscribers in the PFSA having to use either dial-up internet services at less than broadband speeds, or expensive satellite service for internet access.

The project addresses this problem by providing an extremely robust, wide area, high capacity microwave and wireline-based middle mile network which any provider may take advantage of to provide last mile service in the PFSA. The network will also be available to anchor institutions throughout the PFSA which desire to connect directly to this network. The pricing model for this middle mile service will provide economical access to Internet points of presence for both last mile providers and anchor institutions throughout the PFSA.

This project takes advantage of the extensive assets of the PA STARNet statewide radio system. STARNet has a large existing network of towers and associated facilities. This existing network of towers supports a statewide microwave system used to backhaul STARNet radio voice and data traffic. The PA STARNet system in the PFSA is a network of 74 high profile towers and 147 cell sites. This tower network will provide the tower and site facilities needed for last mile providers to install their wired or wireless last mile distribution systems. The Commonwealth proposes to install additional microwave facilities on these towers, capable of 150 Mbps bandwidth, dedicated to the middle mile system. The Commonwealth further proposes to utilize excess STARNet system capacity currently available on the spur paths to individual towers and cell sites for middle mile transport. Multiprotocol Label Switching (MPLS) will be implemented to establish priority and increase throughput. The middle mile system will interconnect with Internet points of presence wherever available within the network. Please refer to the attached system drawings for paths, site locations, and bandwidth of each path.

This proposed microwave system will provide the backhaul capabilities and capacity to economically interconnect the last mile provider to internet points of presence, completing the broadband path from the internet to the end user household, business or anchor institution.

This approach and system design is easily replicated and expanded. Since the PA STARNet system covers the entire Commonwealth, the approach of using STARNet's current tower and



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site assets to build middle mile systems for other areas is easily replicated.

In addition to improving access to broadband for the general public, businesses, and anchor institutions throughout the PFSA, the proposed system will improve access to broadband for public safety agencies in multiple ways.

- The next generation of 911 systems (NextGen 911) will use broadband networks to interconnect Public Safety Answering Points (PSAP) and Emergency Management facilities throughout the Commonwealth. As these systems are implemented this proposed middle mile system will provide the needed secure bandwidth to accommodate NextGen 911.
- The system will provide the capability for implementing “Virtual PSAP” applications when a 911 center must be abandoned for some reason and another center takes over call answering, call processing and dispatching activities.
- The system will allow real time sharing of Computer Aided Dispatching, Records Management and other critical data needed for prompt and safe first responder responses.
- Both Law Enforcement and Fire/Rescue are utilizing higher bandwidth applications in the field, including live video, surveillance video, fingerprint and photo data, download of building floor plans, access to hazardous material management information and for field investigation reporting. This system will provide the needed bandwidth for these mobile applications.

As demonstrated above, the Commonwealth’s proposed middle mile system meets many of the BTOP statutory purposes directly and indirectly by providing the middle mile resources for last mile providers, anchor institutions, and Public Computer Centers to meet their BTOP objectives.

- The proposed system, in concert with last mile providers and anchor institutions, brings broadband service to unserved areas of the Commonwealth.
- The proposed system, in concert with last mile providers and anchor institutions, brings broadband service to underserved areas of the Commonwealth.
- The proposed system provides high bandwidth internet and wide area network backbone/transport resources to schools, libraries, medical and health care providers, and community organizations.
- The proposed solution provides the broadband middle mile transport needed for computer and educational centers operated by organizations providing outreach to vulnerable populations.
- The proposed solution provides the broadband transport needed for implementing broadband



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service to Job-creating strategic facilities.

This project is coordinated with other BTOP project applications submitted by the Commonwealth for Sustainable Broadband Adoption and Public Computer Centers, and is expected to provide middle mile transport for those projects, as applicable.

**11. BTOP Enhanced Services for Health Care Delivery, Education, and Children:**

Populations living in remote and rural areas often do not have easy access to quality medical and educational facilities. These constituencies do not have ready access to the health care, educational diversity and the wide range of cultural activities found in urban areas.

The Commonwealth's middle mile project provides the necessary bandwidth for last mile providers and anchor intuitions to make quality medical care, a wide range of educational and training opportunities, and cultural activities available to unserved, underserved, and rural constituencies.

The proposed middle mile system provides the bandwidth needed to move beyond the simple provision of broadband, but to also support those anchor institutions who provide these critical services. Applications such as full motion video and videoconferencing, distance learning, telemedicine, remote diagnostics, and other full bandwidth applications are utilized to provide these services.

Beneficiaries of these services are the entire population of these areas. At one time or another, every person and child will have a need to use broadband.

For example, the University of Pittsburgh Medical Center (UPMC) has applied for BTOP funding for a Sustainable Adoption project for a Telehealth network to deliver healthcare services to unserved and underserved areas. This project focuses on delivering scarce specialty care services to patients in these communities through remote diagnostics, video conferencing, medical records and diagnostic information sharing. Applications include direct on-line communication between care givers and patients, removing the need for long distance travel. Remotely located specialists are enabled to provide instant real time consultation and instruction to local health care staff for trauma, emergency and acute care patients, resulting in better outcomes. The proposed middle mile system will have the capacity to support this initiative in the Proposed Funded Service Area (PFSA).



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Public safety is enhanced, as Emergency Medical Service providers and Paramedical personnel have access to mobile broad band connectivity to remote trauma and medical specialists for medical command improved diagnosis, treatment, and outcomes.

Schools and institutions of higher learning are targeted anchor institutions for distance learning applications. Schools from Pre-K to the Graduate University level now offer a wide range of on-line courseware and classes to serve all age groups with quality educational content. However broadband connectivity is needed to take full advantage of these offerings. This middle mile project provides the network bandwidth needed to provide these educational applications, full video for virtual classroom, and delivery of high bandwidth internet-based learning materials to unserved and underserved areas in the PFSA.

The middle mile network proposed will be available to provide the bandwidth to support the PA Dept of Education's BTOP projects bringing broadband learning and training into unserved and underserved areas.

In addition to the wide range of medical and educational benefits that this middle mile system makes available, broadband access now opens up the vast amount of news, world view, knowledge and information available through the Internet.

The Commonwealth's middle mile project provides the necessary bandwidth for a wide array of enhanced services for Health Care delivery, Education, and, as a result, Children are the beneficiaries of these opportunities.

## **D. Proposed Funded Service Area**

### **12. Proposed Funded Service Area Maps:**

**12-A.** Service Area Map (Reference Number): **26F9-79FA-45D2-9ABD**

**12-B.** Is the applicant is seeking a waiver for providing less than 100% coverage of a census block. **No**

### **13. Proposed Funded Service Area (BIP - Last Mile Projects):**

Please refer to section M at the end of document.



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**14. Proposed Funded Service Area (BTOP - Middle Mile Project):**

Please refer to section M at the end of document.

**15. Non-Funded Service Area( BIP Only):**

There will no areas of our PFSA that will not be funded by BIP or BTOP.

**16. Coverage Waiver:**

Applicant is seeking a waiver for providing less than 100% coverage of a census block.

No

For Response of "Yes" please refer to upload section for additional supporting documentation.

**17. Methodology for Area Status:**

Data Source/Background:

The Pennsylvania Department of Community and Economic Development (DCED), through Act 183 of 2004, is required to map broadband coverage within the state regardless of technology. Broadband, under this act, is defined as 1.544 mbps downstream and 128 kbps upstream. DCED has acquired such data directly from service providers (utilizing non-disclosure agreements where necessary to ensure the confidence of proprietary data), and has mapped the availability of DSL, Cable, and wireless coverage as follows:

DSL providers – coverage depiction of service availability based on the latitude/longitude location of the Independent Local Exchange Carriers' (ILECs) central offices and the reasonable expected range of coverage outward from that point ( feet radius)

Cable providers - coverage depiction of service availability at the census block level

Wireless providers – coverage depiction of service availability based on the latitude/longitude location of wireless providers tower/antennas and the reasonable expected range of coverage outward from those points based on beam radius, width, and azimuth

These coverage maps are made available in two forms:

Public map - published on DCED's website.

Private map – the Pennsylvania Technology Investment Map – available to state agencies and other economic development partners for strategic decision making.

Challenges:

With release of the BTOP NOFA definitions of unserved and underserved areas, Pennsylvania faced a number of challenges in determining areas served for:

Broadband definition differs: PA 1.544 downstream/128 kbps upstream; NTIA 768 kbps downstream/200 kbps upstream





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Depictions of coverage are mostly based on the location of infrastructure and had not previously been associated with a census block or other geography  
Incomplete data: while state law requires providers to comply in providing coverage data, there is no enforcement provision to compel the delivery of data. Therefore, some providers, particularly, the larger wireless providers, are not reflected on Pennsylvania's coverage maps. We do not collect or have access to subscription.  
We do not collect or have access to advertised rates.

**Approach/Methodology:**

For the determination of unserved and underserved areas, Pennsylvania used the best available data to analyze existing coverage data reported under Act 183 at the census block level and employ a methodology to identify all unserved and underserved areas statewide.

We revised our reported coverage maps to exclude one wireless provider known to provide only commercial service to large entities and much of its service is in areas with no other reported coverage, which overstated the availability of service to households and small businesses.

We then analyzed the revised reported coverage maps to determine the proportion of coverage within each individual census block.

Based on the proportion of coverage, we utilized the percentages of coverage referenced in the NOFA to classify and map each census block within one of the following categories, as follows:

Unserved: reported coverage equating to less than 10% of the census block

Underserved: reported coverage equating to greater than 10%, but less than 50% of the census block

Served: reported coverage equating to 50% or greater of the census block

A snapshot of the resulting map is included in the supplemental materials. (green=served; yellow=underserved; red=unserved)

Determinations were also made for each census block to classify each as rural, urban, and remote per the federal definitions to allow additional filtering and reporting  
Reporting was enabled to extract data elements for each census block related to household, businesses, and population impacts. These numbers are derived by applying the percentage of coverage determined for each census block to the demographics associated with that census



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block

### **18. Middle Mile Benefits**

The Commonwealth is looking to build a robust middle mile infrastructure backbone which spans across a portion of the state that has been chronically challenged from a broadband availability standpoint. The forested and mountainous Appalachian Plateau which dominates the northern region of Pennsylvania contains the highest preponderance of the digital divide in Pennsylvania and has the highest concentration of unserved/underserved communities in the state.

Pennsylvania has targeted this middle mile project to that portion of the state. The subject area roughly translates into an east-west corridor between I-80 and the Pennsylvania-New York State border. This proposed service area encompasses 32 counties, approximately one-half of the total area of the state, with a population of 2,450,060, about 1/6 of the state population. Except for a few urban centers in the targeted area, such as Erie, Scranton, and Wilkes-Barre, this is a rural area with low population density. Exclusive of urban areas, the average population density is about 149 people/sq mile.

The cost of accessing Internet backbone networks is an important, if not definitive, factor in the deployment of broadband networks. The cost paid by a small local network provider serving a relatively small number of customers is a significant driver of what they must in turn charge and how much capacity they are able to provide. Broadband connectivity at the last mile is only as good as the middle mile backhaul that delivers the information to the Internet backbone.

The Commonwealth will provide a platform that will create additional, scalable, and affordable middle mile capacity that will accommodate the needs of last-mile providers and of critical facilities and community anchor institutions.

There are 36 known providers offering some level of broadband connectivity to their customers in this area (see att. Local Last Mile Providers); however, their offerings are limited and much of their potential service area is designated as unserved or underserved. By providing additional middle mile services, the Commonwealth will enable these providers to enhance their services and coverage areas by providing points of presence and facilities in previously uncovered areas. Through these last mile providers, we expect to expand broadband up to about 200,000 new households and businesses.



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We have identified over 2,600 community anchor facilities in the service area including 939 public and private schools(almost 400,000 students in grades pre-K through 12),142 public libraries, and about 1,500 public safety and medical entities(see att. Community Anchors). Many of these facilities are located in identified unserved/underserved areas of the northern tier counties and have limited,if any,internet access.

In 2006, the Commonwealth and its Department of Education undertook the Classrooms for the Future initiative. The goals of the program include increasing technology use by teachers and preparing students to enter and compete in the high-tech global marketplace. Broadband access is an important tool needed to support this innovative program.

Police departments require access to records from other law enforcement entities.Immediate access to such resources is critical not only for public safety,but also to the wellbeing of the officer himself.

Efforts are underway at the federal level to create a system of electronic medical records to facilitate the sharing of such information in patient care.Diagnostic services, including online consultations, rely on broadband connectivity.Nursing homes provide internet services to their residents. Libraries provide free or low-cost internet access to their clients.

The increased number of middle mile points of presence will enhance existing connectivity for these facilities and will further expand broadband availability to them.Overall,we expect to expand broadband coverage to an additional 160 community anchor facilities.

## **E. Proposed Service Offering**

### **19. Broadband Service Offerings for Last Mile Project:**

Please refer to upload section at the end of the document.



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**20. Service Offerings for Middle Mile Project:**

Please refer to upload section at the end of the document.

**Competing Service Providers**

**21. Existing Broadband Service Providers and Services Offered:**

Please refer to upload section at the end of the document.

**Non-Discrimination, Interconnection**

**22. Description of Network Openness:**

The Commonwealth of Pennsylvania presently operates a microwave network stretching across the state which is open to state users of its radio network as well as some limited access for local users. The state's broadband project proposal encompasses 2 parts of which only one is included in this project. The first piece of the project is to overbuild an already existing Commonwealth owned network. This is necessary because the northern tier of Pennsylvania is both fairly rugged and very rural. No commercial carrier can span the state and carry traffic across the entire north with existing infrastructure except for that which is presently owned and operated by the state itself. The Commonwealth will actively partner with existing last mile providers to facilitate the delivery of broadband services to areas of the state as defined as either unserved or underserved. Up to the limits of the available capacity of the network, the Commonwealth will not discriminate against any last mile provider who can assist the state in the stated goals of this grant. As a state government, we are prohibited from any form of discrimination in access to our facilities.

The second piece of the state's effort is to begin leasing space on our tower infrastructure for broadband deployment. Since we are not asking for funds for this project, it is only mentioned peripherally in the grant. As a government, we are interested in all our citizens the Commonwealth has no vested interest in discriminating against any provider who may want to use our infrastructure.

The Commonwealth, through its Office of Public Safety Radio Services, will either advertise the availability of these services on its web site or hire a company to manage these resources for us. It may end up as a combination of the two approaches.



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The Commonwealth will manage traffic on the network so that public safety traffic which is deemed critical to the life and safety of citizens or first responders will be separate from commercial traffic. The present network already has 50 Mbps capacity being used by public safety and much of this bandwidth is presently unused. Our intention is to devote more of this bandwidth to additional public safety entities in the state up to the limit of the available bandwidth. The grant project proposes a 150 Mbps overbuild which will be over and above the 50 Mbps which already exists. This 150 Mbps will be allocated to those entities which can provide services to the unserved and underserved areas of the state on a non-discriminatory basis and we will actively seek last mile partners to assist us in this endeavor. As long as the requesting entity best meets the goals of the grant, state law would not permit us to favor one vendor over another.

**Non-Discrimination and Interconnection (BTOP applicants only for next three questions)**

**23. Non-Discrimination Obligations (applicable to Last Mile and Middle Mile Applicants):**

Adhere to the minimum non-discrimination requirements as set forth in the NOFA.

Display the nondiscrimination practices in a prominent location on the service provider's web page, and provide notice to customers of changes to these policies.

**24. Interconnection Obligations (applicable to Last Mile Applicants):**



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**25. Interconnection Obligations Middle Mile Applicants:**

Adhere to the minimum interconnection requirements as set forth in the NOFA.
Display the interconnection policies in a prominent location on the service provider's web page, and provide notice to customers of changes to these policies.
Commit to offering wholesale access to network components and services such as wavelength or fibers at reasonable rates and terms.
Commit to binding private arbitration of disputes concerning interconnection obligations.

**Cost Effectiveness and Affordability**

**26. Cost per Household (BTOP only):**

Because the Commonwealth is submitting a Middle Mile project, this question is not relevant.

**27. Affordability**

The Commonwealth of Pennsylvania's pricing will be affordable and appropriate for region being served. The Commonwealth's advantage is that our plan leverages existing infrastructure constructed to create the Pennsylvania Statewide Radio Network (PA-STARNET). Because this system was required to provide 800MHz 2-way voice and data coverage in 95% of each county, the Commonwealth invested in infrastructure that did not make economic sense for commercial entities, including cell phone companies, cable television companies, or internet service providers. The pricing model is based on research of similar services, and existing contract pricing in other parts of the Commonwealth. Our pricing includes a 20% discount for governmental organizations and non-profits. Our pricing includes a 33% discount for public safety organizations.

As a middle mile supplier, we expect that the larger last mile organizations that may be interested in larger purchases of bandwidth will attempt to negotiate prices based on volume.



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## F. Technology Strategy

### 28. Technology Type:

Wireline - Fiber-optic Cable
Wireless - Terrestrial Fixed
Other

**Other:** Layer II Ethernet Services

### 29. System Design

#### System Design Strategy

A key reason why service providers have not provided broadband access to unserved and underserved areas is due to the cost of building the network infrastructure to reach those areas. The Commonwealth of Pennsylvania has an existing public safety network that provides extensive coverage across Pennsylvania – including unserved, underserved rural and remote areas that no other carrier reaches today. The assets of this existing infrastructure include not only communications equipment, but towers, roads, rights-of-way, real estate, buildings, cabinets and other facilities. By leveraging and upgrading this existing infrastructure, the Commonwealth will be able to provide the most cost-effective and shovel-ready approach to expedite broadband proliferation in unserved and underserved areas of Pennsylvania, while also improving communications for public safety, education and healthcare. The proposed system will provide Middle Mile connectivity enabling equal opportunity for all Service Providers to reach the unserved and underserved areas of Pennsylvania. Companies like Last Mile Inc, Level 3, and Verizon have already expressed interest in leveraging the Commonwealth's Middle Mile network. Service providers will now have the business case necessary to provide broadband services in the remote areas of Pennsylvania.

#### Key Network Components

The objective of the proposed Middle Mile network is to transport traffic from targeted unserved and underserved areas of Pennsylvania to the existing Service Provider networks.



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The Middle Mile network enables connectivity from the end-user to the Internet by providing backhaul bandwidth and infrastructure to Rural ISPs, as illustrated below:

Service Provider <-> Commonwealth Middle Mile <-> Rural ISP Last Mile

The Commonwealth will leverage its existing infrastructure to build a Middle Mile network that provides MPLS over Microwave and 3.65 GHz WiMAX technology. The key components of this network are as follows:

- The Microwave/MPLS network currently provides 50 Mbps for public safety traffic. This network will be upgraded to provide an additional 150 Mbps of Middle Mile bandwidth to backhaul service provider traffic, with potential growth to 600 Mbps.
- The WiMAX addition will provide new infrastructure to extend the bandwidth and provide deeper penetration into rural areas of Pennsylvania, with 20 Mbps to every pole. It is the point at which the Service Provider can connect to the Middle Mile to backhaul their Broadband traffic.

Service providers like Verizon, Level 3 and Last Mile Inc., will interconnect with the Commonwealth Middle Mile network via fiber optics at redundant locations, creating internet gateways to the service provider of choice. The Middle Mile network will transport traffic between these internet gateways and the Last Mile, where ISPs can deliver Last Mile services using technology such as LTE or WiMAX. Additional details of the proposed Middle Mile solution are provided below.

#### Wireless Technology Details

**Microwave/MPLS Middle Mile:** The existing microwave loops use upper 6GHz spectrum currently. In order to increase capacity from 50 Mbps to 200 Mbps, there will be an overbuild in the 6 GHz spectrum, with a few possible exceptions where 5.7 GHz will be used. The lower 6 GHz radios can share a common wide band antenna with the existing upper 6 GHz radios, thus avoiding significant incremental tower loading. To be most cost-effective the solution will share antennas with separate radios and feeder / waveguide installations whenever possible. All traffic will converge on the common MPLS network, where it will be logically separated through virtualization, enabling the appropriate security and quality of service mechanisms for the public safety and service provider traffic. Dynamic bandwidth allocation will enable the most efficient use of the available bandwidth, while Committed Information Rates for different Service Providers and public safety communications will ensure reliable





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service delivery and equal access opportunities for the Service Providers.

**WiMAX Middle Mile:** The Middle Mile backhaul network will use 3.65GHz WiMAX radios in point-to-point or point-to-multipoint configurations to extend its reach into rural areas broadband traffic and to backhaul public safety land mobile radio traffic. These links will also be powered by MPLS, to ensure the extension of the MPLS services, security, reliability, and QoS mechanisms all the way to the demarcation point with the service provider.

**Spectrum availability:** Spectrum has been pre-determined to be available for what is required by the design.

**Topology and Morphology of the Area:** The design considers the terrain which has 80 foot trees and 10 feet of growth to guarantee line of site now and in the future for the microwave. Similar steps will take place for the 3.65 and 4.9GHz deployments. All links have been engineered to vegetation and seasonal changes and will have reliability of 99.999%.

**Power Levels at User Devices:** "Users" in this proposal are service providers. The solution uses already proven, widely-used technology. All power levels will be within FCC recommendations.

#### Specific Advantages of System

Advantages of the Proposed Network Include:

- Cost-effective, shovel-ready approach by leveraging existing state network
- Converged broadband backhaul enables service providers to deliver broadband services to unserved and underserved citizens, healthcare, education and public safety
- 150 Mbps Middle Mile network to extend broadband services to most un/underserved areas of Pennsylvania
- 50 Mbps public safety network with better control, flexibility and capacity for public safety traffic at reduced costs
- 200 Mbps of bandwidth will effectively function as 1Gb pipe using the statistical multiplexing capabilities of MPLS
- Complete logical segregation of different traffic types (public safety, rural broadband, education, healthcare) with MPLS advanced security and Quality of Service mechanisms
- Standards-based solution enabling interoperability between service providers, education, healthcare and public safety
- Reliability ensured via MPLS fast re-route in the event of a link loss



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- MPLS and microwave network designed for 99.9999% reliability with no single point of failure at the nodal and network-wide level
- Strategically placed handoffs to existing fiber optic networks to scale network bandwidth, offload traffic and conserve microwave bandwidth where required, and provide redundant connections to ensure high availability.

**Upgrade Paths and Future Capabilities**

The proposed solution features standards-based technologies to assure interoperability across multi-vendor products. It provides higher bandwidth connectivity with the option of adding capacity in future to support future applications, at small incremental costs. For example, the bandwidth of the microwave network can be increased by 150 Mbps increments, up to 600 Mbps. Increases can be done across the entire network, or on a per hop basis to support the needs of a particular school or healthcare facility. The WiMAX bandwidth can be increased in 20 Mbps increments. Fiber POPs could be introduced to help off-load future traffic growth. The design also provides the Commonwealth the flexibility to add or move public safety land mobile radio sites without the Middle Mile being a cost or timeline constraint. By eliminating the reliance on leased lines, the Commonwealth will have better control and flexibility of its backhaul network, enabling easy rollout of additional applications such as video camera backhaul or 700MHz LTE data network backhaul.

**30. Network Diagram:**

Please refer to upload section at the end of document.

**31. Certification by Professional Engineer:**

Please refer to upload section at the end of document.

**32. Buy American Waiver Request:**

Is the applicant seeking an individual waiver of the Buy American provision? **No**

**Buy American Waiver Request – Legal Justification**

The Commonwealth is not requesting a waiver of the Buy American Requirement.



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**33. Choice of Service Provider:**

Does the project's Infrastructure and the Company's business plan allow more than one provider to serve end users in the proposed funded service area?

Yes

## G. Project Milestones and Completion Factors

### Timeline & Milestones

**34. Infrastructure Build-out Timeline:**

Please refer to upload section at the end of the document.

**35. Licenses, Regulatory Approvals and Agreements:**

The Commonwealth of Pennsylvania, through its Office of Public Safety Radio Services (OPRS) already employs a frequency coordinator for regulatory matters. Because of the size and complexity of our network, we also hire outside consultants to assist with frequency coordination and regulatory issues when needed. We also employ an attorney and have on retainer an FCC attorney. Here is the status of any and all regulatory issues at the time of grant submission:

**Tower Leases:** There are 67 high profile radio towers included in the system design. The majority of towers being proposed in this broadband application are owned and operated by Commonwealth of Pennsylvania's State Government Agencies (46), Commissions (7), Radio System Partners (5), or County Governments (1). There are also a few commercially owned towers in the system design (8). At these locations, we have master site license agreements in place with the tower owners that allow us access to additional tower loading via a streamlined application process. OPRS maintains a written agreement with all other state entities and partners which can be modified to allow the addition of equipment or extra shelter space if needed.



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**Equipment Leases:** The Commonwealth owns all equipment on its network and will own all the new equipment provided by the grant.

**Building Leases:** The Commonwealth will not lease any space within buildings as part of this project nor will we lease buildings themselves.

**Land Leases:** Some of the land in this project is owned or controlled by the Commonwealth. Some of the towers are located on leased property. In these cases, the Commonwealth would modify the lease if required by the project scope. The Commonwealth either has site agreements with the individual landowners or agreements with the tower companies which can be modified for any additional equipments or land which might be needed for this project.

**FCC Authorizations:** The Commonwealth deals through its vendor with a company called Comsearch, to do frequency searches. This process is underway now and will be completed shortly.

**State Authorizations:** The only state authorizations needed for this project are to ensure the appropriate individual signs the grant application. No other authorizations are needed. The Commonwealth has existing contracts with the vendors which will be needed to complete this project so all contracts are also in place.

**Pennsylvania Public Utility Commission Issues (PUC):** The PUC has 2 members on the Commonwealth's broadband committee and they are actively monitoring both the project and application for appropriate state regulatory needs. There is nothing in either the project or the grant which requires PUC regulatory approval.

### **36. Construction and Vendor Contracts**

The Commonwealth of Pennsylvania has a contract in place with Alcatel-Lucent for a Statewide Microwave System and Network Management System. The Commonwealth has worked closely with Alcatel-Lucent since the contract was signed in 1999 to design, deploy, and manage one of the largest publicly owned microwave networks in the U.S. This operational network supports the Commonwealth's Statewide Public Safety Radio Network (PA-STARNet), which provides voice and data mobile radio services to public safety agencies across the Commonwealth of Pennsylvania, using the Harris Corporation's OpenSky IP based



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technology.

In parallel to entering into a contract with Alcatel-Lucent, the Commonwealth of Pennsylvania also signed a contract in 1999 with M/A-COM Inc. (later a division of Tyco Electronics and now a division of Harris Corporation). This contract resulted in the deployment of a two-way public safety radio system, consisting of over 850 high profile radio tower and micro-cell sites, which today provides mobile radio coverage over 95% of the landmass of the Commonwealth. Over the next 12 months, an additional 175 micro-cell sites will be added across the northern tier of Pennsylvania.

In addition to these two prime contracts used to build PA-STARNet, the Commonwealth has contracts in place with Level3 Communications, Sting Communications, and Verizon that would allow us to connect our Middle Mile backhaul solution and any last mile providers co-located at our towers and micro-cell locations to those Edge Network providers. The Commonwealth also has engineering, quality assurance, tower site commodities and construction services in place with RCC Consultants, CSA Group, L. Robert Kimball and Associates, Crown Castle Communications, and Tower Services Unlimited.

The Commonwealth has complete confidence that we can implement the proposed System Design using existing contracts and other state procurement vehicles currently in place.

Please see the Supplemental Material for a detailed list of existing contracts.

**Qualification of Management Team and Organizational Readiness**

**37. Management Team Resumes:**

Please refer to upload section at the end of the document.

**38. Organizational Readiness:**

The Commonwealth of Pennsylvania's Office of Administration already provides critical enterprise services to a diverse and geographically separated group of organizations, including a 2-way voice and data system with over 18,000 devices and a telecommunication network with over 3,500 circuits.



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As a middle mile solution, we are targeting 100 to 500 new customers. The Commonwealth will use the integrated enterprise system (IES) to generate invoices and accounts receivables. The sales and network management will be handled through the customer support team and 24x7 Network Operations Center within the Office of Public Safety Radio Services. Operations and provisioning will be handled by increases to the existing service contracts in place for the Public Safety Radio System. The Office of Public Safety Radio system already manages 1,000 unique locations for radio towers and micro-cell site radios. The middle mile solution will be co-located on the same infrastructure.

The organization is prepared to implement the middle-mile solution using existing resources and will augment staff and technology with revenues generated from sale of the network capacity

**Other**

**39. Organizational Chart:**

Please refer to upload section at the end of document.

**40. Legal Opinion:**

Please refer to upload section at the end of document

**41. Government and other Key Partnerships:**

The Commonwealth will leverage relationships through state agencies to reach out to critical constituencies and anchor institutions. For illustrative purposes the following agencies will become engaged, as appropriate: Department of Education (schools, libraries, and higher education); Labor & Industry (workforce development agencies); Health (health care providers and hospitals); Community & Economic Development (private sector businesses, technology councils; local governments and m); Pennsylvania Emergency Management Agency (public safety and first responders); and Public Welfare (community service organizations).

The Commonwealth has identified 10 Regional Partnerships, primarily consisting of Local Development Districts (LDDs). These entities will be fulfilling their role by linking with the Commonwealth for the purposes of identifying potential end-users, aggregating demand, promoting adoption, building partnerships, and coordinating local and regional efforts. LDDs



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are recognized and funded at the federal level through the Appalachian Regional Commission. Attached is letter of support from the state association of LDDs.

The public safety community is also keenly interested in the success of the proposed Middle Mile project in light of the tangible benefits that the deployment would bring for the purposes of emergency communications. This agency serves as the primary liaison to the emergency management and first responder communities in the state. Attached are letters of support from Pennsylvania Emergency Management Agency.

**42. Recovery Act and Other Governmental Collaboration.**

At the state level, deployment of the infrastructure will build upon prior and ongoing state investments made through the Broadband Outreach and Aggregation Fund (BOAF), a grant program aimed at aggregating demand to help unserved communities overcome challenges associated with low population density and physical isolation from larger population centers. This program assists communities with the identification of potential demand leading to the development of shovel ready projects. Nearly \$4M from this program has been invested in projects through June, 2009.

From 2004 until 2011, the PA Department of Education administers the Education Technology Fund (E-Fund) that provides a total of \$10M/year in funding to assist schools with the purchase of technology services, hardware, technical assistance, and distance learning. E-Fund is structured in part to help its beneficiaries leverage federal E-rate discounts. Funding is issued through competitive grants over six years to eligible entities including Intermediate units.

At the federal level, PA is a member of the Appalachian Regional Commission and receives approximately \$6M annually in non-highway funds. These resources support community and economic development projects in 56 rural Appalachian counties. This includes technical assistance and deployment activities to improve the delivery of broadband and related technologies to citizens and businesses across the region.

Related to ARRA programs, Pennsylvania schools were awarded \$12.6M in Title II d funding through the Department of Education for the purposes of integrating technology into the school curriculum and providing related professional development.

Pennsylvania received allocations of HUD funds under ARRA for the following programs:



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\$12.4M under Community Development Block Grant – Recovery (CDBG) and \$23.4M under Homelessness Prevention and Rapid Re-housing Program (HPRP). In addition, PA applied to HUD for \$13.4M under ARRA Neighborhood Stabilization Program (NSP). To the extent permitted under the programs above, the Commonwealth will be supportive of the increasing number of housing agencies and developers incorporating broadband technology into the construction and rehabilitation work that they undertake. DCED encourages the use of such aspects in a home design and rehabilitation and affordable and reliable broadband service is essential for community revitalization efforts.

The PA Commission on Crime & Delinquency received several ARRA Justice Assistance Grants (JAG). Under the approved plan, this will include \$2.5M for Law Enforcement Initiatives (data interoperability; automated vehicle identification systems; video surveillance for high crime areas; computer crime training and equipment), as well as \$2M for county technology initiatives (info sharing, data improvement, records management), and \$3M for Criminal History Records Improvements (technology deployment and info sharing).

Substantial federal transportation money has been received by PA from ARRA. While most of it is from road and bridge, the expenditure of some of the ARRA funding by PennDOT has extended to Intelligent Transportation System (ITS) improvements which require connectivity and could link into a statewide network which overlaps the proposed project area.

In 2008, under Executive Order 2008-03, Governor Rendell established the Pennsylvania Health Information Exchange (PHIX) to create a statewide system for improving the authorized access to electronic health information for all Pennsylvania healthcare providers, payers, and patients. The Commonwealth expects to pursue funding under ARRA from the Department of Health & Human Services for telemedicine, electronic health information deployment, and loans to providers for HIT adoption (via states).

**Community Involvement (BTOP Applicants Only)**

**43. Partnering with Disadvantaged Businesses**

The Commonwealth will not be partnering with any SDBs.





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## H. Project Budget

### 44. General Overall Budget



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Budget	Loan Request	Grant Request	Equity	Debt	Bond	Other
Network & Access Equipment (switching, routing, transport, access)		9,507,934		1,332,516		500,000
Outside Plant (cables, conduits, ducts, poles, towers, repeaters, etc.)		5,264,264				
Buildings and Land – (new construction, improvements, renovations, lease)				4,863,486		500,000
Customer Premise Equipment (modems, set-top boxes, inside wiring, etc.)						
Billing and Operational Support Systems (IT systems, software, etc.)		2,000,000				
Operating Equipment		205,000				



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(vehicles, office equipment, other)						
Engineering/ Professional Services (engineering design, project management, consulting, etc.)		11,806,817				
Testing (network elements, IT system elements, user devices, test generators, lab furnishings, servers/computers, etc.)						
Site Preparation						
Other						
<b>TOTAL BROADBAND SYSTEM</b>		<b>28,784,015</b>		<b>6,196,002</b>		<b>1,000,000</b>



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**Total Budget:** \$ 35,980,017

**45. Detailed Budget:**

Please refer to upload section at the end of the document.

**Sustainability**

**46. Reasonableness**

The Commonwealth of Pennsylvania is proposing a middle mile project to offer middle mile bandwidth to commercial providers. Bandwidth will also be offered to public safety, hospitals and educational institutions at discount rates. The attached budget is “reasonable” for the following:

**Past Experience with Similar Systems**

The Commonwealth has already built and presently operates a large scale microwave network which supports a statewide radio initiative. The prices referenced in the attached budget are comparable to what we have already paid for engineering, frequency searches, project management, microwave radios and antennas for our radio project. The state has a long history with our microwave vendor and all of these prices and services will be incorporated into the contract the Commonwealth presently has with Alcatel-Lucent.

**Independent Quality Control**

When we approach a large technical project of this size and scope, one of the best practices the Commonwealth employs is to hire an independent ‘pair of eyes’ to determine if the prices are reasonable and fair. The Commonwealth will follow this practice with this project and will hire a qualified consultant to work in quality control to oversee both the technical aspects of the project as well as the project cost.

**Competitive Bid Process**

The equipment purchase contract in support of this program resulted from a competitive solicitation (Commonwealth of Pennsylvania Request for Proposal 1998-MW-1, dated 10-7-98).



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The contract itself (Contract ME915135, dated 11-4-99) includes the equipment prices which were competitively bid by this supplier, and requires that the parties conduct an annual review for market competitiveness. The contracted prices are based on a significant discount off the manufacturer's list price. The discounts applicable to this program are greater than the standard discount afforded by the manufacturer in its federal and state schedule (general purchase catalog) contracts. To assure continued reasonableness, the contract associated with this program has been updated annually. During each of the past five years, the parties have modified the contract price to reflect appropriate and fair discounts for the Commonwealth's forecasted purchase volume and the features, functionality and capacity of the equipment being purchased.

**47. Historical Financial Statements:**

Please refer to upload section at the end of the document.

**48. Broadband Subscriber Estimates:**

Please refer to upload section at the end of the document.

**49. Other Services:**

Please refer to upload section at the end of the document.

**50. Pro Forma 5-Year Financial Forecast and Assumptions:**

Please refer to upload section at the end of the document.

**51. Commitment of Capital Funding Support**

Type of Funding : Commonwealth Capital Budget Authorization (public debt)

Key Terms of Financing: Pennsylvania General Assembly Act 148 of 1996 and Act 41 of 2008

Use of Funding: Expansion and Improvement of Remote Telecommunication Shelters and Generators at 11 sites, New Towers and/or Major Modifications at 12 sites.

Percent of Project: \$6.2 million of capital budget funds will be used as part of the \$36 million middle mile broadband project, or approximately 17% of the total project cost.

Commonwealth will make 20% match of project cost. The remaining 3% will be based on depreciation of fixed assets used to for broadband.



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**EXPLANATION:**

The statewide radio system was defined and funded through the a capital budget law - Act 148 of 1996 - by the Pennsylvania General Assembly. The act provided the incurring of debt to construct a system for the transmission of voice and data communication connected by a digital microwave system.

The initial funding was supplemented by additional capital budget acts. These acts were Act 35 of 1999, Act 40 of 2004, Act 83 of 2006, and Act 41 of 2008.

As a result of these budget authorizations, the Office of Administration has available approximately \$6 million of capital budget spending authority to improve Commonwealth of Pennsylvania owned infrastructure that supports the microwave backhaul in the Northern Tier of Pennsylvania. These funds can be spent on improving towers, shelters and generators at sites that host the Pennsylvania Stateside Radio Network (PA-STARNET), to the extent that spending extends the capabilities and life expectancy, as well as public safety worthiness of the statewide radio system. The Office of Administration also sees the public safety benefit of extending broadband into rural and remote areas, as both extended cellular phone coverage and internet access improves preparedness and response during emergencies

## **BTOP Requirements**

### **52. Matching Funds:**

- a. **Cash:** \$ 6,196,003.00
- b. **In-Kind:** \$ 1,000,000.00
- c. **Percent of Total Project Cost:** 20

### **53. Demonstration of Financial Need:**

As a state, the Commonwealth of Pennsylvania has never in the past been an actual provider of broadband services. This was left up to commercial entities. Pennsylvania did, however, attempt to solve the broadband problem by passing a statutorily mandated effort under the 1993 enacted Chapter 30 (Ch. 30) of the Pennsylvania Public Utility Code for the ubiquitous



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deployment of broadband facilities and services by regulated telecommunications carriers in Pennsylvania under specific alternative regulation and network modernization plans (NMPs) approved by the Pennsylvania Public Utility Commission (Pa. PUC). Following the legislative sunset of the original Ch. 30 law, the Pennsylvania General Assembly enacted a new version of Ch. 30 on November 30, 2004 (Act 183 of 2004).

Despite these efforts, however, there are significant portions of Pennsylvania without broadband services. Although the state funds a wireless network, that network to-date only serves public safety and other state agencies by providing radio services through the Commonwealth's Office of Public Safety Radio Services (OPRS). Thus, all wireless services provided by the Commonwealth are done through OPRS. Within the OPRS there are no funds – nor were there ever any funds – for the provision of broadband services.

The northern half of Pennsylvania is sparsely populated and there is no financially feasible economic model which would entice a broadband provider to service many of these areas. Indeed, although the law exists, in some sections of the state, commercial providers have built infrastructure only to abandon it later when they could not at least break even.

Although there has been much press on the issue of state budget deficits, an excerpt from the Philadelphia Business Journal sums up the state's plight.

Friday, June 12, 2009

Pa. budget deficit passes \$3B mark

Philadelphia Business Journal - by Athena D. Merritt Staff Writer

"The effects of the recession are expected to push Pennsylvania's budget shortfall to \$3.2 billion in the current fiscal year.

The state also expects no growth in revenue in 2009-10 and mandatory cost increases including public welfare, medical assistance and other items of \$421 million (\$145 million in 2008-09 and \$276 million in 2009-10), Budget Secretary Mary Soderberg told state legislative leaders in a letter Thursday.

The recession is causing, among other things, increased demand for services provided by state



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Department of Welfare and Department of Aging and Long-Term Living. The larger anticipated shortfall puts both Gov. Ed Rendell's \$29 billion budget, proposed in February, and the \$27.3 billion Republican Senate counterproposal made last month out of balance. The Republican proposal was rejected in a 20 to 14 vote by the House Appropriations Committee on Monday."

As of this writing, Pennsylvania still does not have a final state budget. What Pennsylvania is going to provide to this project is access to our infrastructure, i.e. state towers for use by commercial broadband providers.

Pennsylvania, like almost all other states, would not be contemplating this project without federal funds. Pennsylvania's model of providing both access to state towers for commercial carriers and backhaul is meant to make it possible to provide broadband services across the most needed areas of the Commonwealth within the timeframes specified by the grant. There is no other model which can make this claim and serve as many citizens as this project proposes to do.

The link for the proposed budget for the Commonwealth of Pennsylvania is here:

[http://www.budget.state.pa.us/portal/server.pt/community/current\\_and\\_proposed\\_commonwealth\\_budgets/4566](http://www.budget.state.pa.us/portal/server.pt/community/current_and_proposed_commonwealth_budgets/4566)

In this budget, there is no provision for broadband services which might duplicate or contribute to the project set forth in this application

#### **54. Unjust Enrichment**

The Commonwealth of Pennsylvania has neither applied for nor received any Federal funds or support for non-recurring costs for any of the new equipment for which an award is sought.

The addition of the Multi-protocol Label Switching (MPLS) system to the existing 50 Mbps microwave system and DS1 circuits are funded by the Public Safety Interoperability Communications (PSIC) Grant program. The MPLS system will be shared by both the existing microwave system and the proposed middle mile system. No grant funds from this application





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will be used to implement MPLS.

We view this as good stewardship and use of Federal funding, and not unjust enrichment.

**55. Disclosure of Federal and/or State Funding Sources**

Other than the state capital funds being used, as already indicated in other documents attached to the grant application, the Commonwealth of Pennsylvania is using money from no other source other than its own resources. We are not using Universal Service Fund (USF) monies or any monies derived from USF programs to fund our match or to fund any portion of this project. There are also no federal funds derived from any source for this project.

## **I. Self Scoring – BIP Only Self Scoring**

**56. Self Scoring Sheet**



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Criteria	Method	Points	Self Scores
<b><u>PROJECT PURPOSE</u></b>			
Proportion of Rural Residents Served in Unserved Areas	1 point for every 10,000 unserved households	Up to 5	5
Rural Area Targeting	1 point for every 5% increase in the rural service area up the minimum 75% rural area requirement	Up to 5	5
Remote Area targeting	1 point for every 50 miles a service area is located from a non-rural area	Up to 5	5
Title II Borrower	If you are or were a Title II borrower	5	0
Recovery Act and other governmental collaboration	1 point will be awarded for each governmental or Recovery program the applicant is partnering with	Up to 5	5
<b><u>PROJECT BENEFITS</u></b>			
Performance of the offered services	If a last mile wireline project delivers 20M to household – if a last mile wireless projects delivers 2M to end-user – if a middle mile projects delivers 100M to end points	<b>10</b>	10
Affordable of services offered	Points awarded based on the proposed rate structure and the logistics of the proposed service area	Up to 5	5



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Choice of service provider	If the proposed infrastructure is available to be used by multiple service providers	<b>5</b>	5
Critical Community Facilities	If discounted rate packages at least 25% lower than advertise rates are available to critical facilities	<b>5</b>	5
<b><u>PROJECT VIABILITY</u></b>			
Applicant's organizational capability	Points will be awarded on the strengths and accomplishments of key management	Up to 12	12
Community Support	If a letter of support has been received from a designated representative of the community for every community in the proposed service territory	2	2
Ability to promptly start project	If the applicant can demonstrate that all licenses and regulatory approvals have been received, contractors and vendors are ready to enter into contracts, and equity has been deposited into applicant accounts	10	10
Socially and economically disadvantaged small businesses (SDB), as defined by section 8(a) of the Small Business Act, 15 U.S.C. §637.	If the applicant is a Section 8(a) entity	1	0
<b><u>PROJECT BUDGET AND SUSTAINABILITY</u></b>			
Reasonableness of the budget	Points will be awarded based the	Up to 5	5



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	adequacy of the proposed budget		
Leverage of outside resources (outside funding/financing requested)	(i) 10 points if this ratio is greater than 100% (ii) 7 points if this ratio is between 100% and 75% (iii) 5 points if this ratio is between 75% and 50% (iv) 3 points if this ratio is between 50% and 25% (v) 1 points if this ratio is lower than 25%	10	1
Extent of grant funding (Grant funds/loan funds)	(i) 0 points if this ratio equals 100% (ii) 1 points if this ratio is between 100% and 75% (iii) 3 points if this ratio is between 75% and 50% (iv) 5 points if this ratio is lower than 50% (v) 10 points if no grant funds are requested	10	0
<b>Total Points</b>		100	75



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## J. BTOP Certification Requirements

### Certification (Requested for BTOP)

Please refer to upload section at the end of the document regarding following uploads.

1. U.S. Department of Commerce, Broadband Technology Opportunities Program
2. SF-424D Assurances—Construction Programs (Schedule N)
3. CD-511, Certification Regarding Lobbying (Attachment O)
4. SF-LLL, Disclosure of Lobbying Activities (Attachment P)
5. CD-512, Certification Regarding Lobbying—Lower-Tier Covered Transactions (Attachment Q) This certification will not be required until the time of the grant award, because it applies to subcontractors, etc.

## K. BIP Certification Requirements

### Certification (Requested for BIP)

Please refer to upload section at the end of the document regarding following uploads.

1. Equal Opportunity and Nondiscrimination Certification
2. Certification Regarding Architectural Barriers
3. Uniform Relocation Assistance and Real Property Acquisition - Policies Act of 1970 Certification
4. Certification Regarding Debarment, Suspension, and Other Responsibility Matters – Primary Covered Transactions
5. Certification Regarding Lobbying for Contracts, Grants, Loans, and Cooperative Agreements



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6. Network Design and Implementation Plan Certification (to be complete for projects requesting more than \$1 million in federal assistance)

## L. Schedules

### Schedule: A-1 Congressional Districts

**1. State the Congressional District of the Applicant's headquarters**

Pennsylvania - 17

**2. State the Congressional District for each area covered by the Project.**

Pennsylvania - 3

Pennsylvania - 5

Pennsylvania - 10

Pennsylvania - 11

## M. Proposed Funded Service Area Details (BIP & BTOP)

**13. Proposed Funded Service Area (BIP - Last Mile Projects):**

**Proposed Funded Service Area Name:**

**Census Blocks in Proposed Funded Service Area:**

**Community Name:**

**Rural Classification of the Community:**

**BIP - Service Status:**

BIP - If Service Status is "Underserved" please select at least one applicable option from this list.
---



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**BTOP – Service Status:**

<b>BTOP - If Service Status is "Underserved" please select at least one applicable option from this list.</b>
---

- Total Square Miles of Community:**
- Total Population :**
- Total Number of Households:**
- Total Number of Businesses:**
- Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities:**

**14. Proposed Service Area (BTOP - Middle Mile Project):**

**Middle Mile Span Name:** Pennsylvania Northern Tier  
**Census Blocks in Middle Mile Span:** Greater than 10,000 Census Blocks in Middle Mile Span. See attached list in Supplemental Material.  
**Last Mile Service Area Name:** Pennsylvania Northern Tier  
**Community Name:** Pennsylvania Northern Tier  
**Rural Classification of the Community:** Rural  
**BIP – Service Status:** Underserved

<b>BIP - If Service Status is "Underserved" please select at least one applicable option from this list.</b>
No more than 50% of the households in the census-designated community [or other area] have access to facilities-based, terrestrial broadband service at greater than the minimum broadband transmission speed;

**BTOP - Service Status:** Underserved

<b>BTOP - If Service Status is "Underserved" please select at least one applicable option from this list.</b>
No more than 50% of the households in the proposed funded service area have access to facilities-based, terrestrial broadband service at greater than the minimum broadband transmission speed;

**Total Square Miles of Service Area: 14,825**  
**Total Population : 2,450,060**



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**Total Number of Households: 988,135**

**Total Number of Businesses: 202,808**

**Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 2,657**

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## Uploads

The following pages contain the following uploads provided by the applicant:

Upload Name
13) Q-40. Attachment F - Legal Opinion*
26) Pg-22. BTOP ONLY Certification Requirements*
27) Pg-23. BTOP ONLY Att. N - Assur-Construction*
28) Pg-24. BTOP ONLY Attachment O - Lobbying*
30) Pg-26. BTOP ONLY Attachment Q - Lobbying*
32) Pg-28. BIP ONLY Architectural Barriers*
33) Pg-29. BIP ONLY Relocation and Real Property*
34) Pg-30. BIP ONLY Debarment and Suspension*
35) Pg-31. BIP ONLY Lobbying Certification*
12) Q-39. Organization Chart
25) BTOP ONLY Authentication*



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08) Q-30. Network Diagram
04) Q-20. Attachment B - Middle Mile Offerings
11) Q-37. Management Team Resumes
18) Q-48. Attachment H - Subscriber Estimates
10) Q-34. Attachment E - Build-Out Timeline
09) Q-31. Attachment D - Engineer Certification*
16) Q-45. Attachment G - Detailed Project Cost
17) Q-47. Historical Financial Statements
21) Q-50. Attachment K - Income Statement
22) Q-50. Attachment L - Balance Sheet
23) Q-50. Attachment M - Statement of Cash Flows
15) Q-44. JOINT APPS ONLY: Additional Budget



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24) Q-50. Financial Assumptions
31) Pg-27. BIP ONLY Equal Opportunity*
14) Q-41. Government and Other Key Partnerships
43) Supplemental Information 1
07) Q-27. Affordability
29) Pg-25. BTOP ONLY Attachment P - Disclosure*
45) Supplemental Information 3
05) Q-21. Attachment C - Competitor Tables
19) Q-49.Attachment I - Projects, Rates - Voice
20) Q-49.Attachment J - Projects, Rates - Video**
44) Supplemental Information 2

To preserve the integrity of the uploaded document, headers, footers and page numbers have not been added by the system



**COMMONWEALTH OF PENNSYLVANIA  
GOVERNOR'S OFFICE OF GENERAL COUNSEL**

July 27, 2009

*LEGAL OPINION*

Administrator  
Rural Utilities Service  
U. S. Department of Agriculture  
Washington, D. C. 20250-1500

Assistant Secretary  
National Telecommunications and Information Administration  
U.S. Department of Commerce  
Washington, D.C. 20230

**Re: Commonwealth of Pennsylvania – Grant Application**

Dear Sir:

We are counsel for Commonwealth of Pennsylvania, Office of Administration, (the "Applicant"). In such capacity, we acted as counsel to the Applicant in connection with its ability to apply to the Broadband Initiatives Program and the Broadband Technology Opportunities Program and in the review of the grant agreement, as referenced in the Notice of Funds Availability.

We are of the opinion that:

- (a) the Applicant is a duly organized and existing legal entity under the laws of the Commonwealth of Pennsylvania.
- (b) the Applicant has corporate power: (1) to execute and deliver the grant agreement; and (2) to perform all acts required to be done by it under said agreement.
- (c) no legal proceedings have been instituted or are pending against the Applicant, the outcome of which would adversely affect the Applicant's ability to perform the duties under the grant agreement, and there are no judgments against the Applicant which would adversely affect the Applicant's ability to perform the duties under the grant agreement.

Sincerely,

Nora L. Doyle  
Deputy Chief Counsel for Information Technology

**Broadband Infrastructure Application  
Submission to RUS (BIP) and NTIA (BTOP)**

**Certification Requirements BTOP**

**U.S. Department of Commerce  
Broadband Technology Opportunities Program**

(i) I certify that I am authorized to submit this grant application on behalf of the eligible entity(ies) listed on this application, that I have examined this application, that all of the information and responses in this application, including certifications, and forms submitted, all of which are part of this grant application, are material representations of fact and true and correct to the best of my knowledge, that the entity(ies) that is requesting grant funding pursuant to this application and any subgrantees and subcontractors will comply with the terms, conditions, purposes, and federal requirements of the grant program; that no kickbacks were paid to anyone; and that a false, fictitious, or fraudulent statements or claims on this application are grounds for denial or termination of a grant award, and/or possible punishment by a fine or imprisonment as provided in 18 U.S.C. § 1001 and civil violations of the False Claims Act.

(ii) I certify that the entity(ies) I represent have and will comply with all applicable federal, state, and local laws, rules, regulations, ordinances, codes, orders and programmatic rules and requirements relating to the project. I acknowledge that failure to do so may result in rejection or deobligation of the grant or loan award. I acknowledge that failure to comply with all federal and program rules could result in civil or criminal prosecution by the appropriate law enforcement authorities.

(iii) If requesting BTOP funding, I certify that the entity(ies) I represent has and will comply with all applicable administrative and federal statutory, regulatory, and policy requirements set forth in the DOC Pre-Award Notification, published in the Federal Register on February 11, 2008 (73 FR 7696), as amended; DOC Financial Assistance Standard Terms and Conditions (Mar. 8, 2009); DOC American Recovery and Reinvestment Act Award Terms (April 9, 2009); and any Special Award Terms and Conditions that are included by the Grants Officer in the award."

08/3/09

(Date)

Naomi Wyatt

(Authorized Representative's Signature)

Naomi Wyatt

Name:

Secretary of Administration

Title:

## ASSURANCES - CONSTRUCTION PROGRAMS

OMB Approval No. 4040-0009  
Expiration Date 07/30/2010

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.

**PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.**

**NOTE:** Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.
14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-1 33, "Audits of States, Local Governments, and Non-Profit Organizations."
19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

*SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL <i>Nann Wyatt</i>	*TITLE Secretary of Administration
*APPLICANT ORGANIZATION Commonwealth of Pennsylvania	*DATE SUBMITTED 08/3/09

## CERTIFICATION REGARDING LOBBYING

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

### LOBBYING

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

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

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

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

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

### Statement for Loan Guarantees and Loan Insurance

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

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

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

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

NAME OF APPLICANT Commonwealth of Pennsylvania	AWARD NUMBER AND/OR PROJECT NAME Commonwealth Broadband Project
PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE Naomi Wyatt, Secretary of Administration	
SIGNATURE <i>Naomi Wyatt</i>	DATE 08/3/09



### CERTIFICATION REGARDING LOBBYING LOWER TIER COVERED TRANSACTIONS

Applicants should review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, "New Restrictions on Lobbying."

#### LOBBYING

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

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

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

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

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

#### Statement for Loan Guarantees and Loan Insurance

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

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

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

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

NAME OF APPLICANT

Commonwealth of Pennsylvania

AWARD NUMBER AND/OR PROJECT NAME

Commonwealth Broadband Project

PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

Naomi Wyatt, Secretary of Administration

SIGNATURE

*Naomi Wyatt*

DATE

08/3/09

**Broadband Infrastructure Application  
Submission to RUS (BIP) and NTIA (BTOP)**

**Certification Regarding Architectural Barriers**

**U.S. Department of Agriculture  
Broadband Initiatives Program**

All facilities financed with Rural Development loans that are open to the public, or in which physically handicapped persons may be employed or reside, must be designed, constructed, and/or altered to be readily accessible to, and usable by, handicapped persons. Standards for these facilities must comply with the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §4151 *et seq.* and with the Uniform Federal Accessibility Standards (UFAS), (Appendix A to 41 C.F.R. subpart 101-19.6).

As a prospective primary participant recipient of financial assistance from Rural Development, this organization commits to carry out Rural Development's established policy to comply with the requirements of the above referenced law to the effect that all facilities must be readily accessible to and usable by handicapped persons.

We, the Commonwealth of Pennsylvania (the Applicant) hereby certify that, as a prospective recipient under the Rural Broadband Initiatives Program, we are in compliance, or will be in compliance upon completion of the Project, with the above referenced law.

08/3/09

(Date)

Naomi Wyatt

(Authorized Representative's Signature)

Naomi Wyatt

Name:

Secretary of Administration

Title:

**Broadband Infrastructure Application  
Submission to RUS (BIP) and NTIA (BTOP)**

**Uniform Relocation Assistance and Real Property Acquisition  
Policies Act of 1970 Certification**

**U.S. Department of Agriculture  
Broadband Initiatives Program**

We the Commonwealth of Pennsylvania (the Applicant) assure the U.S. government that we will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. §4601 *et seq.*, and with implementing federal regulations in 49 C.F.R. Part 24 and 7 C.F.R. Part 21.

Specifically, we assure that whenever Federal financial assistance is used to pay for any part of the cost of a program or Project which will result in the displacement of any person:

- (a) Fair and reasonable relocation payments and assistance shall be provided to or for displaced persons in accordance with sections 202, 203, and 204 of the Uniform Act;
- (b) Relocation assistance programs offering the services described in section 205 of the Uniform Act shall be provided to displaced persons; and
- (c) Within a reasonable period of time prior to displacement, comparable replacement dwellings will be available to displaced persons in accordance with section 205(c) (3) of the Uniform Act.

08/3/09  
(Date)

Naomi Wyatt  
(Authorized Representative's Signature)

Naomi Wyatt  
Name:

Secretary of Administration  
Title:

**Broadband Infrastructure Application  
Submission to RUS (BIP) and NTIA (BTOP)**

**Certification Regarding Debarment, Suspension, and Other Responsibility Matters -  
Primary Covered Transactions**

**U.S. Department of Agriculture  
Broadband Initiatives Program**

This certification is required by the regulations implementing Executive Order 12549, *Debarment and Suspension*, 7 C.F.R. § 3017.510, *Participants' Responsibilities*.

- (1) We the Commonwealth of Pennsylvania (the Applicant) (hereinafter the "Company") hereby certify to the best of our knowledge and belief that neither the Company, nor any of its principals:
- (a) are presently debarred, suspended, proposed for Debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
  - (b) have within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (c) are presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
  - (d) have within a 3-year period preceding this Application had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) If we are unable to certify to any of the statements in this certification, we shall attach an explanation hereto.

08/3/09  
(Date)

Naomi Wyatt  
(Authorized Representative's Signature)

Naomi Wyatt  
Name:

Secretary of Administration  
Title:

**Broadband Infrastructure Application  
Submission to RUS (BIP) and NTIA (BTOP)**

**Certification Regarding Lobbying for Contracts, Grants, Loans, and Cooperative Agreements**

**U.S. Department of Agriculture  
Broadband Initiatives Program**

We the Commonwealth of Pennsylvania (the Applicant)  
, the undersigned certify, to the best of our knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on our behalf, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant or loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, we shall complete and submit Standard Form-LLL, Disclosure Form to Report Lobbying, in accordance with its instructions. See <http://www.whitehouse.gov/omb/grants/sflllin.pdf> for Disclosure Instructions.
- (3) We shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

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

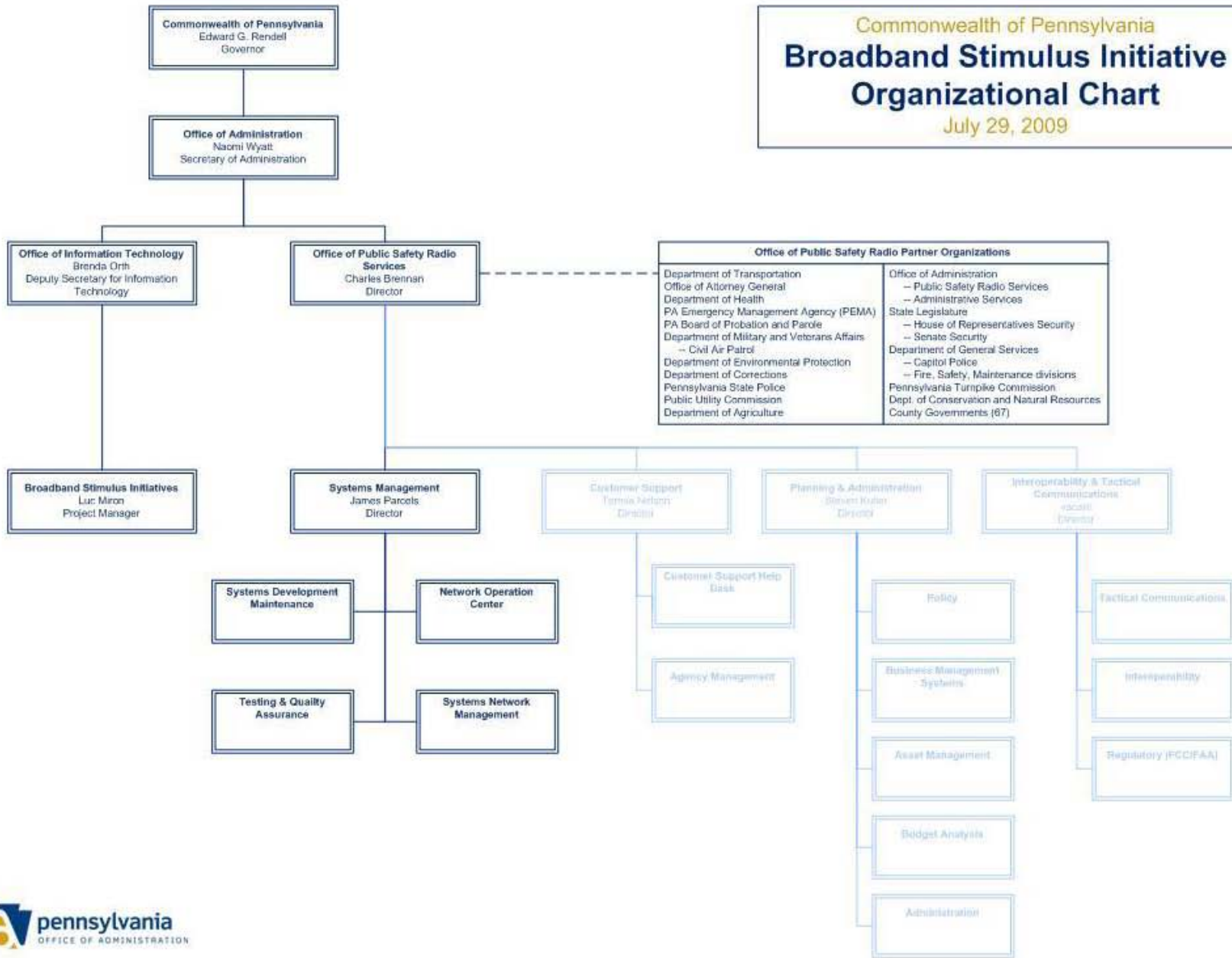
08/3/09  
(Date)

*Naomi Wyatt*  
(Authorized Representative's Signature)

Naomi Wyatt  
Name:

Secretary of Administration  
Title:

Commonwealth of Pennsylvania  
**Broadband Stimulus Initiative  
 Organizational Chart**  
 July 29, 2009



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**U.S. Department of Commerce  
Broadband Technology Opportunities Program**

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I certify that I am the duly authorized representative of the applicant organization, and that I have been authorized to submit the attached application on its behalf. A copy of the applicant organization's authorization for me to submit this application as its official representative is on file in the applicant's office, and I am identified as the applicant organization's Authorized Organization Representative (AOR) in the Central Contractor Registration database. By signing this certification, I certify that the statements contained in the application are true, complete, and accurate to the best of my knowledge, and that if an award is made, the applicant organization will comply with all applicable award terms and conditions.

08/3/09

(Date)

*Naomi Wyatt*

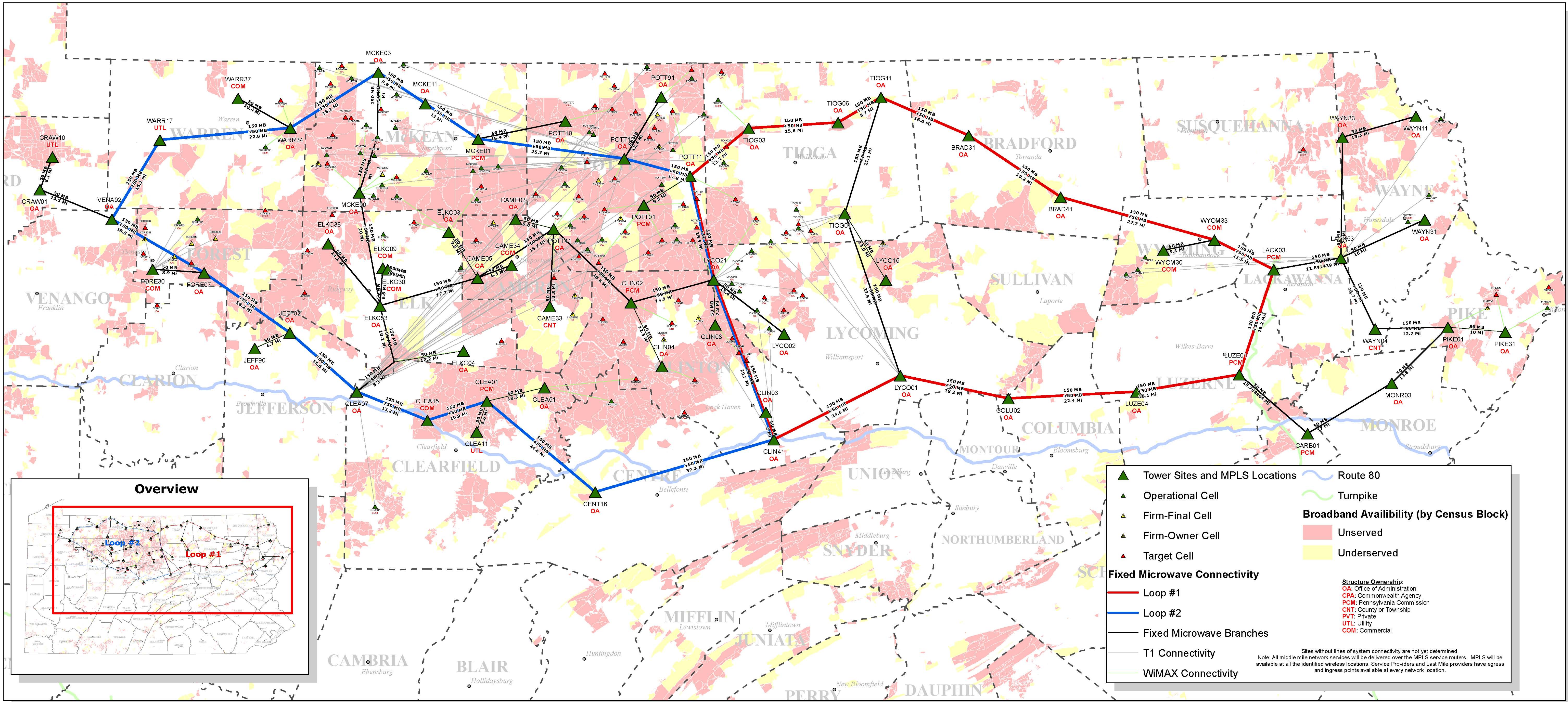
(Authorized Representative's Signature)

Naomi Wyatt

Name:

Secretary of Administration

Title:

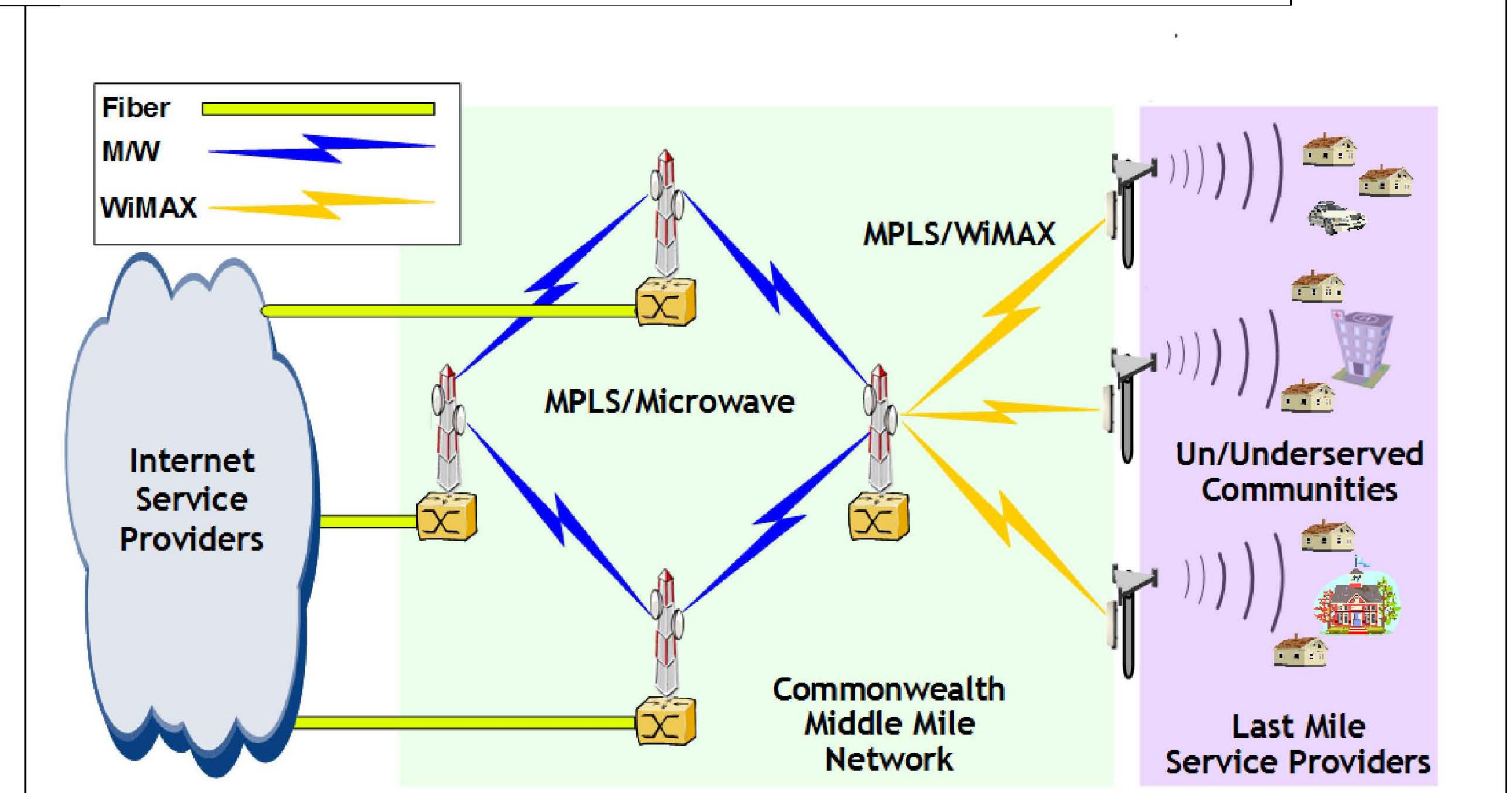


# Enhancing the Backbone for Multi-Service Delivery



Produced by: Adam B. Repsher, PA Office of Administration/OPRS - 2009Aug04  
 Information sources:  
 Network - OPRS and Alcatel  
 Broadband Availability - DCEd

## End-to-End Wireless System for Broadband Delivery





**ATTACHMENT B**

**Response to Question #20, Section E Proposed Service Offerings.**

*Commercial Offering*

Service Offering	Distance Band or Point to Point	Minimum Peak Load Network		Monthly Pricing Fixed	Monthly Per Mile Rate	Access (NNIA) termination	Monthly, per	Site Facility Charge (6'x6' pad) Monthly
		Bandwidth	Capacity					
Shared Ethernet Services	Point to Point	T1 (1.544 Mbps)		\$ 99.00	\$ 4.25	\$	230.00	\$ 245.00
Shared Ethernet Services	Point to Point	T2 (6.312 Mbs)		\$ 297.00	\$ 17.00	\$	690.00	\$ 245.00
Shared Ethernet Services	Point to Point	T3 (44.736 Mbs)		\$ 1,485.00	\$ 119.00	\$	3,450.00	\$ 245.00

*Governmental / Non-Profit Institution - 25% Discount'*

Service Offering	Distance Band or Point to Point	Minimum Peak Load Network		Monthly Pricing	Network to Network Interface Access (NNIA)	Monthly	Site Facility Charge (6'x6' pad) Monthly
		Bandwidth	Capacity				
Shared Ethernet Services	Point to Point	T1 (1.544 Mbps)		\$ 79.20	\$ 3.40	\$ 184.00	\$ 196.00
Shared Ethernet Services	Point to Point	T2 (6.312 Mbs)		\$ 237.60	\$ 13.60	\$ 552.00	\$ 196.00
Shared Ethernet Services	Point to Point	T3 (44.736 Mbs)		\$ 1,188.00	\$ 95.20	\$ 2,760.00	\$ 196.00

*Public Safety Application -> 33% discount*

Service Offering	Distance Band or Point to Point	Minimum Peak Load Network		Monthly Pricing	Network to Network Interface Access (NNIA)	Monthly	Site Facility Charge (6'x6' pad) Monthly
		Bandwidth	Capacity				
Shared Ethernet Services	Point to Point	T1 (1.544 Mbps)		\$ 66.00	\$ 2.83	\$ 153.33	\$ 163.33
Shared Ethernet Services	Point to Point	T2 (6.312 Mbs)		\$ 198.00	\$ 11.33	\$ 460.00	\$ 163.33
Shared Ethernet Services	Point to Point	T3 (44.736 Mbs)		\$ 990.00	\$ 79.33	\$ 2,300.00	\$ 163.33

Example	Service	Mileage	Monthly Price Fixed	NNIA Charges	Pad	Installation
MCKE03 to WARR17	T2	41	T2	2	1 Service Pedastal	\$ 1.00
		\$ 697.00	\$ 297.00	\$ 1,380.00	\$ 245.00	\$ 525.00
Total Monthly Recurring	\$ 2,619.00					
Total Non-Recurring	\$ 525.00					
Network Capacity for Similar Install						
	24					
Total Revenue	\$ 62,856.00					
Annual Revenue	\$ 754,272.00					
Total Loop Capacity @ 2 hops per customer		35				
Annual Revenue	\$ 26,399,520.00					
Discounted Fully be Public Safety Application	\$ 17,599,504.00					
Assume 10% utilization of capacity	\$ 1,759,950.40					

Total System is 620.3 miles  
 price per mile, per T1 4.25  
 # of available T1's at 150Mbps 96.52509653 monthly fixed c 99  
 Potential Revenue Per Mileage, per month \$ 254,466.70 9,555.98  
 Annual Revenue \$ 3,053,600.39 114,671.81

monthly payment on 15 year loan, @2%, ROI (\$224,853.29)

## Management Team Summary

The Governor's Office of Administration, Office for Information Technology (OA/OIT) is the executive agency responsible for leading and coordinating information technology services in the Commonwealth of Pennsylvania and providing enterprise-wide technology, policy, standards, architecture, information, and solutions to enhance system interoperability, security, and cost effectiveness. The Governor's Office of Administration also manages PA-STARNet, one of the largest public safety communications systems in North America, and one of the largest private microwave networks anywhere. It is used by state and local government agencies and business partners for agency dispatch and mobile voice and data communication for public safety and emergency response

The Office of Administration has highly-qualified personnel and a well rounded team with subject matter expertise in conducting projects of similar scope and scale in the areas of project management, broadband telecommunications, public safety communications, security, and geospatial technologies.

The **Secretary of Administration** was appointed by Governor Edward G. Rendell in 2007 to serve as the commonwealth's cabinet-level executive responsible for information technology, human resource, public safety radio, travel, diversity, continuity of government and cost savings operations for 40+ state government agencies, boards and commissions. She manages an agency budget in excess of \$150 million and more than 600 staff. She is trained as an attorney and serves on several state commissions and authorities, including the Ben Franklin Technology Development Authority.

The **Deputy Secretary for Information Technology/State CIO** has been employed as an Information Technology professional with the Commonwealth since 2003 and has more than 25 years of management experience in the field of Information Systems. Prior to joining the Commonwealth, the State CIO served 20 years with ExxonMobil Corporation as an IT Professional. Her achievements include the implementation of major, multi-national IT business projects and the implementation and management of large strategic IT systems and initiatives. The State CIO has a proven track record of delivery and has earned several recognition awards for exceptional achievement in the field of Information Technology.

The **Deputy Secretary for the Office of Public Safety Radio Services (OPRS)** has a 30 year career in Information Technology. Prior to working for the Commonwealth of Pennsylvania, he spent 33 years in the Philadelphia Police Department where he retired as a Deputy Police Commissioner in charge of Scientific and Technological Services. Those duties included the installation of an 800 MHz public safety network used by the 5th largest police department in the United States. Presently he leads OPRS and is responsible for the build-out and maintenance of the state's 800 MHz radio network which supports 17 state agencies and connects to all of Pennsylvania's 67 counties.

Broadband policy expertise for this project will be provided by the **ARRA Broadband Program Manager**, who joined the employ of the Commonwealth in October 2003 as the Director of Strategic Technology Initiatives for the Department of Community & Economic Development. He was involved in the negotiation and drafting of landmark telecom legislation and was responsible for the development and implementation of the broadband mapping tool created by DCED under Act 183. He joined the Governor's Office of Administration during the spring of 2009 and serves as primary point of contact for ARRA broadband initiatives. He reports to the state CIO and has a JD and earned an MBA and advises the Governor's Office on the substance of policy and regulation related to telecommunications. He reports directly to the Secretary of Administration.

The **OPRS Director of Systems Management** has been involved with the installation and maintenance of communications networks for 35 years. He had an extensive career in the United States Air Force where his last assignment was as the Chief, Information Systems Operations, directing one of the Department of Defense's largest data centers housing mainframe, client-server, and network control systems. He was also instrumental in streamlining the Department of Defense global cargo and passenger movement operations. He came to the Commonwealth of Pennsylvania in 1998, where he is serving as Engineering Director, overseeing the build-out of the 800 MHz radio network and accompanying microwave network which spans 45,000 square miles and encompasses over 800 sites.

## Professional Experience

**Deputy Secretary of Administration, Commonwealth of Pennsylvania**  
2006 – Present

**Commonwealth of Pennsylvania, Office of Administration**

Responsibilities:

The Commonwealth of Pennsylvania's Office of Administration (OA) is charged with the oversight for all major IT initiatives at the state level. As head of the Office of Public Safety Radio Services (OPR) within OA, I am responsible for the implementation of a statewide radio VOIP network for the Commonwealth of Pennsylvania including the provision of interoperable communications for state agencies and counties. The capital and operating budgets for the project will exceed \$500M and involve all 67 counties in Pennsylvania when completed in 2008. This is the largest technical and construction project in the Commonwealth's history. This project requires interaction with all major state agencies and all of Pennsylvania's 67 counties. Also responsible for the development of all policy and procedure relative to system use throughout the state.

Deputy Police Commissioner, Philadelphia Police Department, Philadelphia, PA  
1998 – 2006

**Deputy Commissioner Scientific and Technological Services - CIO**

Responsibilities:

This post was the Department's Chief Information Officer (CIO) managing a workforce of 500 sworn and civilian employees with a budget of \$28M. Recruited in 1996 to oversee the rebuilding and management of the Police Department's emergency communications system. Promoted to Deputy Commissioner in 1998 by then Police Commissioner John Timoney. Given responsibility for all major technical projects in the Police Department including programming support, Chemical and DNA laboratories, Ballistics, Communications Units and Crime Scene Units.

## Education

**M.S. Criminal Justice Administration**

St. Joseph's University, Philadelphia PA

**B.S. Psychology, St. Joseph's College**

St. Joseph's College, Philadelphia PA

**Harvard University, John F. Kennedy School of Government**

Program for Senior Executives in State and Local Government

**FBI Academy, National Associates Program**

Quantico, VA

**Police Executive Research Forum (PERF)**

Andover, MA

# Luc M. Miron J.D. M.B.A.

[lmiron@state.pa.us](mailto:lmiron@state.pa.us)

## Education

<b>Masters in Business Administration (MBA)</b> University of Wisconsin-Oshkosh	1997 - 1999
<b>Law Degree, cum laude</b> University of Ottawa	1987 - 1990
<b>Political Science</b> University of Ottawa	1985 - 1987

## Professional Experience

<b>Project Manager, Broadband Stimulus Initiatives</b> Governor's Office of Administration In this role, I serve as primary contact for the implementation of the broadband stimulus initiatives undertaken by the Commonwealth under the auspices of the Broadband Technology Opportunity Program and the Broadband Improvement Program (BTOP/BIP).	2009 –
<b>President &amp; General Manager</b> Pennsylvania Public Television Network (PPTN) Agency head at PPTN, an independent state agency providing technology services and funding assistance to public television broadcasters in Pennsylvania. The Commission is comprised of Cabinet officials, legislators, and other gubernatorial appointees	2007 - 2009
<b>Director, Strategic Technology Initiatives</b> Pennsylvania Department of Community & Economic Development (DCED) Senior-level position in DCED's Technology Investment Office, the primary center for funding and assistance for Pennsylvania's technology industry. In this role, I was responsible for the coordination and implementation of several high-profile technology and economic development initiatives. Key accomplishments include: <ul style="list-style-type: none"><li>Advising Governor's Office, DCED and Office of Administration on the substance of policy and regulation in the field of telecommunications</li><li>Critical role in the negotiation and drafting of landmark broadband state legislation (reauthorization of Chapter 30) and responsible for implementation of all programs created under Act 183 of 2004 (chapter 30)</li><li>Prepared and/or delivered testimony to Senate and House Committees on various emerging technology-related issues such as Chapter 30, Voice over Internet (VoIP), telecom deployment, and health information technology</li></ul>	2003 - 2007
<b>Executive Director</b> Key-Net Alliance Key-Net Alliance was a statewide non-profit organization whose mission was to facilitate deployment of broadband connectivity to Pennsylvania's underserved communities for the advancement of economic development, education, healthcare, public safety. The organization was a public-private partnership undertaken under state telecom contract, Commonwealth's Keystone Communications Project (OA/OIT & Level3/TelCove).	2001 - 2003
<b>Attorney</b> Byck, Hoyles & Grant, New Liskeard, Ontario, Canada Lawyer with practice emphasis on corporate and commercial law, contracts, real estate law, dispute resolution, municipal law, and employment/labor issues. <ul style="list-style-type: none"><li>participated in firm administration, personnel and human resources, and staff supervision</li><li>responsibility for billing and business development; grew practice over 400% during stead</li></ul>	1992 - 1997

## RESUME

**Brenda S. Orth**

Office: (717) 783-0267

### **SUMMARY OF QUALIFICATIONS**

- More than 25 years of progressively responsible experience in developing and managing effective and efficient information systems.
- Solid expertise in implementing state-of-the-art hardware, software, and information management practices.
- Demonstrated ability to manage multiple projects simultaneously and bring each to a successful completion on schedule and within budget.
- Proven management capabilities and strong leadership skills.
- Excellent communication, interpersonal, and motivational skills.

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### **Commonwealth of Pennsylvania**

*Governor's Office of Administration – Office of Information Technology- Chief Information Officer  
(2/2008 - Present)*

*Governor's Office of Administration – Office of Information Technology -Chief Technology Officer  
(7/07 – 2/2008)*

*Governor's Office of Administration – Enterprise Architecture - Bureau Director  
(7/05 – 6/07)*

*Governor's Office of Administration – Enterprise Architecture – IT Policy Specialist 2  
(6/04 – 6/05)  
Acting Bureau Director (7/05 to 10/05)*

*Governor's Office of Administration – IT Planning & Support – IT Policy Specialist 1 (1/03 –5/04)*

### **ExxonMobil Corporation**

*Global Account Manager – Fuels Marketing (1/02 – 1/03) Global Information Services (Fairfax, VA)*

*eBusiness Project Manager – Enterprise Portal Project (1/01 – 12//01) Global Information Services (Fairfax, VA)*

*Project Management Consultant (12//99 – 12//00) Global Information Services (Fairfax, VA)*

*Project Manager – Corporate Financial Data Warehouse (9/98 – 12/99) Global Information Services (Fairfax, VA)*

*Global Desktop Product Mgr. (12/31/97 – 8/31/98) Global Information Services (Fairfax, VA)*

*Program Manager - Standard Managed Environment (10/95 – 01/98) GIS (Fairfax, VA)*

*Staff Redesign Project - Special Assignment (1/95 - 10/95) Staff Redesign Project (Fairfax, VA)*

*Technology Consultant (5/94 – 1/95) International Marketing and Refining (Fairfax, VA)*

*European Office Automation Manager (10/93 - 5/94) Mobil Europe (London, England)*

*European Project Manager (10/89-10/93) Marketing & Refining, Mobil Europe (London, England)*

*Office Automation Training & Support Supervisor (3/88-10/89) Mobil Corp. (New York and Fairfax)*

**JAMES W. PARCELS**

Office: (717) 772-8182

**OBJECTIVE:** Director, Public-Safety Radio Network Program

**EXPERIENCE:**

**Commonwealth of Pennsylvania**

2008 – Present                                      Director of Systems Management                                      Harrisburg, PA

- Responsible for all elements of planning, designing, site acquisition, construction, and testing, and maintenance of the Commonwealth of Pennsylvania's Statewide Public-Safety Radio Network.
- Greatly enhanced the channelized DS-3 microwave backbone with a MPLS 50Mb network overbuild using committed and peak service rates and providing alternate routing and restoral.

2003 – 2008    Engineering Manager    Harrisburg, PA

- Made dramatic changes to system design approach. Efficiently delivered radio coverage across Pennsylvania's demanding terrain, meeting both land area and roadway coverage needs.
- Managed technical integration efforts between the Project's three primary vendors.
- Ensured the radio, microwave, and site development contractors were fully compliant with all contract requirements.

**Widener University School of Law**

1996 – 1997    Student    Harrisburg, PA

**GTE Government Systems**

1994 - 1996    Program Manager    Fairview Heights, IL

**United States Air Force**

1992 – 1994    Chief, Information Systems Operations    Belleville, IL

1990 - 1992    Radio Systems Program Manager    Belleville, IL

**EDUCATION:**

- Master of Arts (International Relations), Webster University, 1989
- Bachelor of Science (Digital Electronics), Texas State University, 1980
- Additional Training:
  - Project Management Institute (PMI) Seminars: Effective Cost Estimating and Contracts
  - USAF Communications-Computer Systems Engineering Staff Officer Course, 1200 hours
  - USAF Communications Systems Operations and Maintenance Officer Course, 1240 hours
  - USAF Systems Acquisition Management Courses, 200 hours

# Naomi Wyatt

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- skillful executive with proven record of managing \$100+ million budget and 600+ staff
- forward-thinking leader who improves operating realities and fosters visionary goals
- effective communicator, excellent public speaker, and adept media spokeswoman
- experienced educator with sophisticated knowledge of technology applications
- member of the Pennsylvania and California bars

## Experience

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### **Commonwealth of Pennsylvania, Harrisburg, PA**

*Secretary of Administration*

*Aug 2007 - present*

Appointed by Governor Edward G. Rendell to serve as the commonwealth's cabinet-level executive responsible for information technology, human resource, public safety radio, travel, diversity, continuity of government and cost savings operations for 40+ state government agencies, boards and commissions. Developed and enforced operating policies for entities under the Governor's jurisdiction. Managed budget in excess of \$150 million and more than 600 staff. Saved hundreds of millions of dollars by re-envisioning services, renegotiating contracts, and deploying new technologies. Served as spokeswoman on sensitive issues including employee furloughs, retiree benefits changes, troubled projects, and more. Brokered new programs across multiple jurisdictions, including allocation of authority and resources.

*Deputy Secretary for Human Resources*

*Feb 2007 - Aug 2007*

Directed human resource policies and processes for the commonwealth's 85,000 person workforce. Managed five bureaus, 120 employees, and a budget of \$25 million. Areas of responsibility included labor relations, employee benefits, classification and pay, training and workforce development.

*Director, Governor's Office of Management & Productivity*

*Jan 2006 - Feb 2007*

Identified, developed and managed projects to improve efficiency and productivity across commonwealth government.

### **Ballard Spahr Andrews & Ingersoll, LLP, Philadelphia, PA**

*Associate, Litigation*

*Sep 2002 - Jan 2006*

Handled variety of state and federal court actions involving accounting malpractice, breach of contract, products liability, internal investigations and general business disputes.

### **Latham & Watkins LLP, San Francisco, CA**

*Associate, Litigation*

*Sep 2000 - Aug 2002*

Prepared pleadings, motions and briefs for federal and state court actions.

### **Teach For America**

*9th Grade English Teacher, Greenville, Mississippi*

*Aug 1995 - Aug 1997*

## Education

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### **University of Colorado School of Law**

Juris Doctor, cum laude, May 2000  
Order of the Coif; Class Rank 4/183

### **Yale University**

Bachelor of Arts, English, May 1995  
Women's Varsity Track Team; Captain (1994-95)

## Board Affiliations

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Ben Franklin Technology Partnership (2007 - present)  
Pennsylvania Employee Benefits Trust Fund (2007 - present)