



## Executive Summary

The New York Public Service Commission (NY PSC) agrees with the Federal Communications Commission's (FCC or Commission) description of broadband as transformational and its conclusion that there is a need for up to date and complete information on broadband deployment. The recognition of the need to have the data to answer threshold questions such as these is critical for ensuring continued expansion of broadband deployment.

The Commission also properly asked for comment on the most effective and efficient means of providing access and the role of market analysis and market mechanism in broadband deployment. We recommend that the Commission – and the National Broadband Plan – rely on the market in the first instance and that government intervention be tailored to addressing important public policy issues that the market has not addressed. Clearly, the many uses for and benefits of broadband cited by the Commission are compelling. Government intervention imposes costs on market participants and consumers are best served by targeted government intervention that answers needs that are not satisfied by the market (such as, for example, the Commission's open access principles, standards setting, digital literacy, and providing broadband service to underserved and unserved communities ). That approach leads to the best goods at the lowest price for consumers

## The Importance of Broadband

The widespread deployment of broadband access is a paradigm shifting development, comparable to the creation of the railroads or the development of the interstate highway system. As is clear from both the statute and the Commission's notice, broadband has the potential to improve Americans lives in many ways. Clearly, much will change for the better if broadband is widely available. It is worth noting at the

outset just a few of the multitude of benefits widespread deployment of broadband could have:

**Schools** - Broadband can boost the quality of American schools by providing and enhancing access to the resources today's students will need to solve tomorrow's problems and compete in the global economy. These objectives can only be achieved if students have access to sufficient bandwidth, possess sufficient digital literacy skills and are empowered with robust and useful online content and applications.

**Libraries** - Libraries have a long-standing tradition in communities as trusted purveyors of accurate information. Librarians are skilled searchers and trainers, ably demonstrating the value of Internet applications and thereby encouraging library visitors to adopt these services. In 2006 Libraries were visited nearly 110 million times by people in New York State, or nearly 6 times per citizen per year.

**Distance Learning** - Distance learning should be focused on all levels of learners, ranging from home-schooled children to senior citizens engaged in life-long learning. However, distance learning should be appropriately integrated within the existing educational system. Activities and resources that promote and expand literacy should be an essential component of the National Broadband Plan. Nineteen states have already incorporated media and information literacy into their education standards, and in New York State, 89 public and independent colleges already offer distance education programs. The Commission should acknowledge, encourage and support the further development and expansion of these standards.

**Worker Training** - To be effective, worker training must present real life work situations or analogs, for both current and future jobs. Technology is not the same in every work environment, and training must take account of this variability. The best approach is to integrate digital technology into existing job training curricula, rather than creating disconnected digital literacy courses. Recent research suggests that 50% of American adults do not have sufficient digital literacy to participate in a digital economy. Yet even low skill jobs increasingly require ability to use digital technologies. Many schools do not have a program of career development and do not go much beyond computer classes that are based on old typewriter courses. So while basic digital literacy might be an important start for improving the skills of American workers, training programs must go far beyond teaching keyboard, mouse, and word processor skills.

**Telecommuting** - Broadband infrastructure can enable more telecommuting thereby reducing energy usage by workers to commute. In regions with lengthy commutes and sparse public transportation this would significantly reduce energy needs for commuting and reduce carbon emissions.

**Health Care** - In general, the positive impact of the broadband infrastructure and services in advancing health care delivery lies with the following three objectives:

- Making critical health information available at the point of care for the patients in a secure fashion.
- Making healthcare providers accessible to broader populations, especially to the unserved and underserved populations.
- Making healthcare information available at citizens homes.

**Medical Records** - Foundational infrastructure services which are crucial for more efficient, effective, and secure access to medical records, include but are not limited to record locator services, secure access services, audit and logging services, and patient identification services. These services should be built into the broadband infrastructure and become part of the standard broadband services for health care delivery. Additionally, the state level broadband services for health care delivery should be compatible with related national broadband services.

**Rural Health Care** Broadband infrastructure and services can help health care delivery to patients in rural New York. We support the continuation and expansion of such programs. It is critical to require such programs to participate in, and be carefully integrated and aligned with ongoing regional and state collaborative efforts in addition to federal efforts. Properly developed and administered, broadband can:

- enhance and improve the access to primary care, and behavioral health services in medically underserved areas in our State;
- encourage clinical partnership, mentoring, and knowledge-sharing between the rural and urban project partners and beneficiaries;
- “foster” the implementation and use of telehealth and distance learning technologies to bridge the divide between underserved rural communities and urban centers; and
- develop a long-term, self-sustaining model of rural healthcare outreach services to address the healthcare and clinical educational needs of populations living in rural NY State.

**Tele-Health Initiatives** Existing tele-health initiatives have been effective. For example, NYCAT serves 12 rural counties by providing direct consultation and training by Columbia Child and Adolescent Psychiatrists to clinicians in Mental Health Clinics. Consultations are conducted via video teleconferencing (VTC) equipment utilizing a HIPAA-compliant broadband internet connection resulting in TV-quality

resolution. NYCAT provided psychiatric consultation to over 120 children and adolescents in its first year in operation.

**Research and Development** New York State is home to some of the best research intuitions in the world. Many companies like GE, Corning, Kodak, Xerox, and others have research labs with an increased need for multiple gigabit speeds as research datasets are increasing exponentially. Every research entity should be connected to a backbone that is built for the future and can provide low cost, low latency transport as well as all the necessary security to ensure research data is isolated from general internet traffic.

The current economy is forcing companies to make the most out of what they have, and trying to get the most out of their research as possible. These University partnerships are allowing them to increase their research productivity for the same cost while at the same time allow them to train and explore potential future employees, amplified if they have access via advanced networking to powerful computing and instrumentation facilities. As the economy stabilizes we believe will see more of these partnerships occurring since there is clear economic and strategic benefit from these collaborations. Consequently, these partnerships are beginning to put a strain on a not well defined or developed cyber-infrastructure. Our suggestion is that more federal resources should be put into furthering the development of the existing research cyber-infrastructure. This should be done both in the hardware (throughput) and software (security, management, collaborative tools) aspects of the cyber-infrastructure.

The inescapable conclusion is that broadband offers significant benefits for large portions of American society. How best to achieve that end is a separate and critical question – one that is not considered in the Commission's notice. The Commission should defer to the state's to develop and implement strategies to address each states unique needs with respect to the use and deployment of broadband.

The Notice, and any resulting regulations, of course only implement the statute, so some basic decisions – for example, that there will be a National Broadband Plan – have already been made. But because the statute is so broad, the Commission has wide discretion – more than it has in other rulemakings – to take the appropriate action. The requirements of 6001(k) of the Recovery Act could be met in many ways: extremes range from a Plan that specifies federal requirements for a number of metrics in great detail to a conclusion that the market with some oversight by states is the most

“effective and efficient mechanism [ ] for ensuring broadband access . . .”  
§ 6001(k)(2)(A).

The Commission should consider the appropriate balance between regulation and reliance on competition. It seems the Commission anticipates having a significant role; asserting, for example, that “[c]oupling the dynamic innovations and flexibility of the private sector with the far seeing goals of the public sector can help the nation achieve its broadband goals . . . .” It is not clear that the public sector has this advantage over the private sector. There is a role for government in, for example, assuring equal access, but it is not at all clear that the preference for central planning we infer from the Commission’s comment is appropriate. The Commission should also consider the efforts of the various states that have already begun addressing broadband deployment issues in establishing a national broadband plan. Governments do some things that markets can’t, but allocating resources efficiently isn’t one of them.

The FCC should carefully consider the costs – and the resulting efficiency losses -- that may be imposed by the central planning it appears to contemplate.

New York has for decades relied on competition as the primary driver of telecommunications policy and companies and customers have benefited greatly from those decisions. Over 95% of New Yorkers have access to wireline broadband services, and the majority of them have access to two or more providers. New Yorkers have benefited from a robust cable infrastructure with significant build out for video. These systems provided the foundation for the significant deployment of cable modem service when it was introduced. On the telephone side of broadband, we have continued to encourage broadband deployment throughout New York and have seen increasing deployment of fiber by Verizon, as well as significant DSL deployment by our local exchange companies, including many of our smaller independent telephone companies. We continue to think – even after the financial events of the last year – that policy makers should rely on competition to the extent possible. That conclusion leads us to recommend a relatively narrow national broadband plan that defers to the efforts of the

individual states to address the unique broadband deployment issues and to develop and implement their own state level strategies to address such issues.

### The Uses of a National Broadband Plan

The Commission has been directed to develop a plan, but it may reasonably question the use to which the plan is to be put. The underlying assumption seems to be that the market is not providing the appropriate level of broadband service and that government should reallocate resources so there is more broadband. More broadband means less of something else and it isn't clear that people want to consume less of that commodity and more broadband. Indeed, given that the market is free, just the opposite is true.

We're concerned that decisions will be made to subsidize the supply of broadband which would in turn be funded by the Commission's Universal Service Fund. This would harm New York, a net payer into the fund. New York would subsidize states that have not undertaken the investment – an unreasonable burden.

### Defining Access to Broadband

Congress has required that the Commission set a goal of seeking that all people in the United States "have access" to broadband capability, and the Commission has properly asked for comments on that section. The FCC should be flexible. For now, it should equate access with the ability to readily obtain broadband service at speeds equivalent to traditional DSL; while recognizing the goal is to migrate to the higher speed tiers identified by the Commission.

### Market Mechanisms and Determining Costs In the Provision of Broadband

New York State has some of the most densely packed and affluent areas in the nation, but it also has thousands of square miles of low population density agricultural and wilderness areas. There are three primary pathways into the customer's premises for Internet access: traditional wireline (ADSL), wireless, and cable modem. In general, New York companies have done a decent job of deploying high speed

services to the state's residents in the more remote and less densely populated areas. Based on the FCC's most recently released data, New York, with about 71% of its households taking high speed broadband, ranks fourth in the nation in terms of household use of high speed broadband. Ninety five per cent of the New Yorkers have access to broadband<sup>1</sup>. In addition, we have seen a very broad entrance of cable companies into the broadband market. But there is no question we can do still more to increase availability, especially in unserved areas, and adoption rates for these advanced services. As technology develops, high speed wireless Internet access may become the most efficient and affordable technology for the most rural, less dense areas. It is important that the national broadband policy recommended by the FCC take into consideration the rapid advances in technology that could transform what was once an uneconomic area for deploying broadband services into a new and vibrant market that no longer needs regulatory intervention and support.

Significant deployment within New York State has been achieved largely using market forces. It is important in developing and adopting a national broadband policy that the end result does not discourage private investment by service providers willing to deploy services in order reap the economic rewards. Many of the advancements and benefits to consumers we see in the telecommunications segment of both our state and national economies, are related to the significant levels of competition— and to the regulatory policies that have reduced entry barriers and promoted investment and encouraged competition and innovation.

A broadband plan seeking to bring broadband immediately to 100 percent of the country may be ill-advised. A goal of 100 percent broadband deployment may not be economically rational with traditional, wired service. However, the evolution of technology, like third generation wireless, could provide more efficient and cost effective alternatives for ubiquitous broadband.

The FCC should examine the efficacy of a phased approach to providing broadband access to the nation. Subsidized broadband at community centers, such as

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<sup>1</sup> Study of Rural Customer Access to Advanced Telecommunication Services, February 1, 2003, p. 23

libraries and schools, could serve as seeds in the deployment in and adoption of higher speed broadband by a community. These kinds of community gathering places act as incubation centers that, with properly managed public broadband access programs, in time would likely enhance digital literacy, drive demand and increase the economics and efficiencies in many of the areas where population density or low adoption rates had previously been a barrier to economic and efficient broadband service deployment and use.

### Universal Service Funding for Broadband Services and Subsidies for Multiple Providers

We support the expanded deployment of high speed advanced services, both in New York and across the nation. Increased access to broadband services will allow rural and low-income Americans to participate more fully in the nation's increasingly electronic economy. It will foster economic productivity and increase quality of life. However, programs to increase deployment or adoption must do so in a way that is targeted, coordinated, efficient, and fiscally responsible.

The overall size of the Universal Service Fund (USF) must be reduced and the high cost funding mechanisms that continue need to be fair, equitable, competitively neutral, and targeted to focus the effect of any subsidy on a well defined problem. The level of high cost funding under the USF has spiraled out of control and reforms must be put in place prior to expanding the list of funded programs to include broadband services. The primary purpose of the program must continue: to target support to locations where at least one reliable broadband service provider - with offerings priced in an affordable range - would not exist without the availability of subsidies. If expanded to include deployment of broadband services, the program must balance competing needs of an area without sufficient broadband services with the potential for private investment- it is critical to ensure that the program does not provide a disincentive to private companies willing to expand their service areas.

Any subsidized deployment of broadband services, under the USF or from other sources, should not provide for two or more connections to the network. Consumers

should not be forced to fund duplicative networks. A competitive bidding process that awards high cost subsidies to one winner for a given area would drive support levels closer to the actual costs incurred. It would allow for bids to better reflect the expected lower costs which come from the economies of scope and scale that could be achieved if a single company were given the ability to service all customers in a specified area, thereby reducing the burden on consumers.

The limit of one recipient provider for subsidized deployment of broadband in an unserved area should not be extended to those programs specifically addressing adoption of broadband in underserved communities. To minimize undue assessments and the resulting economic drag on broadband, subsidies should not fund the installation of duplicative, competing networks where none exist.

Support under the USF should be available only to the service provider that supplies the primary connection to the Internet for a customer at a single location (e.g. not funding competing technologies such as DSL and a wireless Internet connection). The universal service goal is to ensure that all customers, regardless of their location, have comparable accessibility to telecommunication services at reasonable rates. Funding multiple Internet pathways for one customer at a single location distorts that goal.

Additionally, states have an interest in ensuring reliable local telecommunications service for their residents. A chosen service provider receiving USF subsidies for broadband deployment to an unserved area should be able to provide service to the vast majority of residents of the geographic area for which it bids. Also, recurrent service outages and traffic congestion prevent end users from being able to make calls and undermine the public health, safety and welfare. At a minimum, rules that require funded entities to satisfy minimum network reliability standards should be implemented and enforced.

NARUC has supported a pilot program for funding broadband services under the existing Lifeline/Link Up programs. In New York we have increased our efforts on automatic enrollment program for lifeline and worked with other state agencies to

streamline the applicability process. We are also working with the New York State Telephone Association (NYSTA) regarding the use of a generic Lifeline application. While we believe that reforms must be implemented prior to expanding the list of USF eligible services, it is programs such as these, where a policy is implemented and then evaluated prior to widespread adoption, that present the best hope for determining effective reforms and informing national broadband policy.

### Open Networks

The broadband market is competitive in many regions and poised to become even more so with the evolution of technology, like third generation wireless. At this point the market has not failed in providing innovations that better serve the needs of the public. While New York supports the principle that consumer choice is paramount to sustaining an effective broadband program into the future, New York also recognizes the need to take steps to engage the provider community to deploy broadband service to those communities that either are currently underserved or unserved.

New York supports the use of the FCC's four principles for broadband networks as contained in its September 23, 2005 Policy Statement to define broadband providers' obligations for nondiscrimination and network managements techniques. These policies should be technology neutral and apply to all companies providing Internet access/ broadband services. Consistent with the FCC's four principles, a service provider should not deliberately impede the flow of information between a content provider and a willing subscriber. Companies should provide adequate capacity to content service providers and treat all similarly situated users in a non-discriminatory fashion. In times of emergency or high volume use, the need to throttle high capacity users and applications might exist. This would be analogous to the network controls put on portions of the network infrastructure that support high volume calls to radio stations. If such controls are disclosed to subscribers then they could constitute reasonable network management practices.

### Use of Broadband

The Commission seeks comment on how consumers and businesses are using broadband and how it would monitor or measure affordability and maximum utilization of infrastructure. (Notice, ¶ 53)

Consumers and businesses are using broadband to access the full range of services available to them whether it is for education, commerce, social networking, entertainment, or finance. The issue is not what broadband is being used for, but rather what impediments exist to various segments of the population to take equal access and fully utilize broadband.

The reasons for underutilization vary by segments of the population and by state and may be multifaceted. Each state is in a best position to address these issues. These impediments should be carefully studied and analyzed, including the use of pilot programs and surveys to ensure that solutions are reality based and effective, as well as deference to efforts states have or are planning to undertake.

### Training and Education

The Commission asks to “what extent should programs that address consumer training and education about broadband play a role in a national broadband plan?” (Notice, ¶56) Consumers who are unaware as to all the benefits of broadband, or who feel that they cannot effectively use and thereby benefit from broadband, are unlikely to subscribe to broadband. Also, in order for consumers to derive the benefits of broadband they must have the ability to confidently use digital media. Such skills are necessary for consumers to effectively participate in the digital world. Just as we require literacy standards in our nation’s schools and provide adult literacy classes for those unfortunate enough to have fallen through the cracks so they can fully participate in society, in the information age digital literacy is a necessity for the same reasons.

The existing universal service programs can be utilized to encourage broadband access as many applications available through broadband VOIP are replacing the

services traditionally covered by universal service programs. These programs should be applied in a non-discriminatory manner among and with respect to any disadvantaged population. As an infrastructure, broadband build-out should be included in all related infrastructure initiatives such as building and road construction and smart grid deployments.

### Subscriber Data and Mapping

The Recovery Act requires the Commission to develop a national broadband plan that includes “an evaluation of the status of deployment of broadband service, including progress of projects supported by the grants made pursuant to this section.” We note that the Commission recently revised its Form 477 collection of data regarding broadband subscribership. In particular, the Commission is beginning to collect broadband subscribership data at the Census Tract level, including data on the number of subscribers using different broadband technologies, and at various upload and download speeds.

Form 477 data contains valuable information on broadband deployment and will be highly useful to FCC (as well as to States and other broadband stakeholders) for populating Geographic Information System (GIS) mapping of broadband availability and performing meaningful analyses. Because the Form 477 data represents aggregate broadband data (including technology type, speed tier, and number of subscriber connections to businesses and residential households) for Census Tracts, it can be directly compared and analyzed in conjunction with a wealth of information reported by the US Census Bureau on the demographic characteristics of each Census Tract. For instance, dividing the total number of residential households that subscribe to broadband services (from Form 477) by the total number of household in the Tract (from the Census data), determines the residential subscriber rate for that Tract. Subscriber rates from Tract to Tract can be compared with respect to income levels in those Tracts

to assess whether there is a strong correlation between those two variables. Many other similar analyses can be performed using other Census variables and the results of such analyses can inform the FCC on factors most significant to broadband adoption. Form 477 data will be very helpful to States to augment and verify results from ongoing broadband mapping efforts. To that end, the Commission should allow for the distribution of the Form 477 data to entities in addition to the state public service commissions and include those state entities designated by the governor as responsible for the state's broadband initiatives.

In New York, mapping is being performed at greater granularity than Census Tracts. By aggregating our estimated broadband availability mapping data to Census Tracts, we will be able to compare our results with the data reported on Form 477 to “ground truth” our results and determine if the methods we are using are systematically under or over –estimating the availability of broadband services.<sup>2</sup> Our current mapping efforts are being performed without the use of proprietary information from the providers, so the Form 477 data will introduce provider data to our process without the need for non-disclosure agreements. Additionally, we are not currently mapping broadband connection speeds or some of the broadband technology types which are detailed on Form 477, so these will be welcome additions to our mapping project. We therefore offer our strongest encouragement to the FCC to publicly release the Form 477 data in its entirety and without use restrictions at the earliest possible date following the twice-annual submission deadlines. We suggest that the data be posted for download on the FCC website, by state. We also believe that the FCC should prepare summary data for public release for those who do not have the interest or need for the “raw” data, but we do not want to see the processing of summary data result in delays on release of the raw data. Timely release of the Form 477 data will be critical to its

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<sup>2</sup> See for example: <http://www.nysbroadband.ny.gov/maps/counties.htm>

use in assessing the effectiveness of grant projects under the ARRA broadband programs.

We are aware that provider companies who must submit Form 477 data may request exemptions on the release of certain elements in their submittal. We urge the FCC to be judicious in the determination of those exemptions and to favor public release of the data to the maximum possible extent. Maximum public access to the Form 477 data is an important element to meeting the transparency objectives of the ARRA. The data is already aggregated to Census Tracts and does not disclose the availability of broadband services or broadband technologies to any particular service addresses. In order to prevent delays in the release of data, we also recommend that all data [not in dispute] be released while the exemption determination process occurs.

Form 477 data, when loaded into a GIS, provide mapping of broadband availability at a consistent level of geography across the entire U.S. and will clearly depict such things as:

- Areas where competition is providing choices in broadband services
- Areas where subscriber rates are low at either the business or residential tier
- Availability of different broadband connection speeds
- Availability of different broadband technologies
- Analysis of Census data in any of these areas to evaluate broadband patterns related to household income, demographic characteristics of the population (such as age, population density, single vs. multiple family housing), etc.

In addition, the use of GIS facilitates inclusion of an almost limitless number of additional data layers that can be analyzed in conjunction with the Form 477 data, such as backbone fiber infrastructure, business locations, health care facilities, libraries and

much more. The key is to release the Form 477 data so that states and others can freely perform these analyses. It should be noted that this information will also be valuable to the broadband providers as they consider where market opportunities may be present or where to make their technology and infrastructure investments. Some providers may already have information on the availability of services and technologies offered by their competitors, but the Form 477 data will serve to “level the playing field” with respect to factual information about the broadband services that are actually being delivered.

Measurement by census tract on tribal lands, or in rural areas is an improvement over ZIP codes on the revised Form 477, but it would be far better if the data were collected to a finer level of geography. In particular, we suggest that Census Block Groups would offer substantial improvements in broadband data reporting on Form 477 for rural areas. Block Groups, which are subsets of Tracts (every Tract is constructed from two or more Block Groups; the average in New York is three), are used nationwide by the US Census Bureau. The Census Bureau also tabulates data at the Block level, but we believe that these are too small to be practical for Form 477 data reporting.

The US Census Bureau constructed Block Groups and Tracts as nominally consistent population units aligned to geographic features such as streets, railroads, shorelines, and boundaries. That is, the factor that determined their size and geographic extent is more closely related to the number of people in the unit than other geographic factors. As a result, the physical or geographic size of Tracts and Block Groups varies considerably. Generally speaking, these units are smallest in area of high population density (urban areas), and become increasingly larger in rural areas. Consequently, the areas of the US where the FCC is most interested in understanding broadband deployment issues (unserved and underserved) are also where Census Tracts are the largest and therefore least useful.

In New York, a high population state with approximately 19 million residents, we find that in the “upstate” rural areas of the State, Census Tracts are too large to adequately map broadband availability. There are 5,144 Census Tracts in New York. If we select the Tracts which coincide with rural areas according to the definition in the USDA Rural Utility Service program for Rural Broadband deployment (see §1738.2), we find that there are 415 Tracts covering 29,529 square miles or roughly 54% of New York’s total land area. These rural Census Tracts cover an average area of 71 square miles each with the largest one being 719 square miles. The latter Tract, in the Adirondack region, is far larger than a typical town or city, and in fact is larger than 30 of New York’s 62 Counties! Aggregate broadband data for an area of this size is not particularly meaningful or useful. Moving to Block Groups, we find 1,423 of them in the defined rural areas, with an average area of 19 square miles. These are much more reasonable areas that typically delineate portions of towns in rural areas (average town size in New York is 52 square miles). At the Block level, there are more than 78,000 in defined rural areas of New York, with an average area of 1/3 square mile each. These are simply too small and too numerous to be practical for this purpose and we therefore do not recommend them for Form 477 data reporting. The information is summarized in the table below.

Census Unit	Total Number in NYS	Rural Number (per USDA definition)	Rural Average Area in NYS (sq mi)	Rural Maximum Area in NYS (sq mi)
Tract	5,144	415	71	719
Block Group	15,324	1,423	19	522
Block	298,088	78,208	0.34	96

We recommend a strategy that would employ more consistent data reporting areas between urban and rural regions. Specifically, we recommend Form 477 data reporting at the Census Block Group for areas meeting the USDA RUS rural definition, while allowing for Census Tract reporting in non-rural areas. Such an approach would provide the additional granularity in areas where it is most important and most needed, while alleviating potential concerns by the broadband providers for additional reporting burden on broadband services in more heavily populated (and likely well-served with broadband) areas. In New York, we find that the average non-rural Census Tract covers 5.4 square miles, which would compare much more favorably with the 19 square mile average area for rural Block Groups than the 72 square mile average area for rural Tracts now being used for Form 477 data reporting.

One additional complexity to note when dealing with the defined units of Census geography is that the US Census Bureau has constructed these as seamless, wall-to-wall map layers, and consequently they include areas where broadband availability will be irrelevant. Included in the Blocks, Block Groups, and Tracts are lakes, military lands, protected forest preserve lands, etc. In our use of Census geography to support the State's broadband mapping efforts, we have queried the Block data to eliminate all Blocks with a population of zero. This effectively eliminates all of the non-relevant areas from further analysis. In New York, approximately 15% of our total area is excluded in this manner. Our analysis uses "adjusted Block Groups" which contain only populated Blocks, so that rates, densities, and other computations do not attempt to measure broadband in lakes and protected forest lands where broadband will never be deployed. The largest rural Block Group shown in the table above recomputes from 522 to 211 square miles with this method. We suggest that the FCC explore similar strategies when analyzing the data from Form 477 so as not to compute population densities or similar statistics that could be improperly skewed.

We note as well that the USDA RUS rural definition yields some unexpected results in New York. Any area included in a standard Metropolitan Statistical Area (MSA) is not eligible to be classified as a rural area. MSA's are defined by the US Census Bureau and include the urban core county containing a city and any surrounding counties with strong social and economic ties (i.e. commuting and employment). In New York, for example, the Utica-Rome MSA includes all of Herkimer County, even though only the southern portion of the county is proximal to the urban area. The large northern area of the county which extends into the heart of the Adirondack region is among the most sparsely populated and remote areas in the state, yet it does not qualify as a rural area under the USDA RUS definition. We bring this to the attention of the FCC only to clarify that analyses of rural vs. urban may not be as clear-cut as intended by policy-makers.

### The Public Policy Goals in the Notice

The Commission's Notice states

The Recovery Act requires the Commission to develop a national broadband plan that includes "a plan for the use of broadband infrastructure and services in advancing" a series of public policy goals. We seek comment on how to interpret this requirement and how the Commission should implement this in its development of a national broadband plan. Below, we seek comment more specifically on each of the policy goals in the order in which they are enumerated in the Recovery Act. (Notice, ¶ 63)

In the development of a national broadband plan, the Recovery Act requires that the Commission include "a plan for the use of broadband infrastructure and services in advancing consumer welfare." We seek comment on how to interpret and implement this directive, including an analysis of existing Commission policies, programs, and proposals for

advancing consumer welfare through the use of broadband infrastructure and services. (Notice, ¶ 64)

The understandable temptation is to provide a plan that speaks to all the ills that can be cured by broadband. We urge the Commission, however, to draw on its experience in regulating telecommunications and allow the market to provide and innovate. There is no more dynamic market in the United States today and providing a centralized plan from government could easily do more harm than good. The Commission should conclude that customer welfare is best served by allowing this market to flourish. The Commission should work with the states to identify areas where the market is not providing broadband services, and to develop strategies for addressing these issues.

The Commission also seeks comment on the interplay between consumer welfare and the market generally. As we explained above, New Yorkers have sufficient choice from competitors; we see no need for regulation now.

#### Public Safety, Homeland Security & Network Redundancy

Demand for public safety broadband services is strong and growing especially as broadband speeds and capacity improve; accordingly, the Commission should interpret and implement the public safety and homeland security provisions in the most forward looking manner possible. Many public safety agencies, both at the state and local level, are already using wireless broadband services offered by commercial providers. In general, mobile applications which improve situational awareness in the field are readily embraced and demanded by first responders. Applications which provide easy access to photographs, live video, and backend information and database systems are in demand. This also includes telehealth and telemedicine mobile applications which can support medical personnel in their response to medical emergencies.

The Commission should ensure broadband speeds and capacity are sufficiently defined to support the types of applications demanded by public safety. Such requirements from public safety are also synergistic with requirements emanating in telehealth and telemedicine. The optimal use of telemedicine is providing emergency responders with the ability to access the expertise of hospital staff and provide that expertise to those in need in real time.

The broadband needs of public safety and homeland security personnel parallel the migration of broadband access patterns from desktops to mobile devices. So while the security concerns may vary, the fundamental principles and concerns are the same; migrating the utility and speed of desktop access to mobile devices. As with any enhancement in technology the next iteration is built on the early adaptors, and mobile broadband access is no different. Full mobile broadband access requires merging the utility of mobile business users with the innovations demanded and deployed by Generation Y.

Emergency responders require access to real time information related to active incidents which pertain to them. On the scene of an accident, internet access could be used to assist in the identification and management of a hazard (for example, Emergency Response Guide info can be accessed via the internet). Public Safety personnel could also access valuable resources such as Homeland Security Information Network (HSIN) and the Automated Critical Assets Management System (ACAMS) while in the field. Law Enforcement could benefit by accessing criminal databases, DMV data, intelligence, etc. EMS responders in the field could exchange patient information with a physician in a hospital, and receive guidance as to appropriate patient care and treatment.

Expertise from the Information Technology and Cyber Security resources would be required to accomplish this. Some information accessed/ exchanged would need to

be limited to only authorized users, such as patient information, active investigations, facility security plans.

### Cyber Security

The National Broadband Plan must recognize the importance of securing the physical infrastructure necessary to provide ubiquitous broadband service to the nation. To achieve this objective, private and public sector Critical Infrastructure protection experts need to work in concert to identify and mitigate vulnerabilities found within these facilities. In case of failure these systems should be resilient and redundant.

Guidance should be established with input from service providers, operators, and Critical Infrastructure protection subject matter experts. If these systems are being relied upon for homeland security and public safety, some sort of accountability system should be established.

In light of the security concerns related to these efforts to secure the networks they should be addressed outside of the National Broadband Plan.

### Wireless Technologies

Because 4G wireless deployments are in their infancy a leading wireless broadband technology standard for public safety has not yet emerged. The leading contenders in this space currently are Long Term Evolution (LTE) and WiMAX. While both technologies have potential to satisfy public safety needs, more relevant experience using these technologies under field conditions is needed. While utilization of "off-the-shelf" commercial technologies is attractive to public safety due to cost considerations, especially for subscriber units, public safety needs may not allow this or may require modifications to the technology.

For the foregoing reasons the Commission should remain technology agnostic on the specific wireless broadband technologies to be adopted by public safety. Instead, the broadband plan should encourage competition in the marketplace which typically leads to aggressive pricing and feature-rich solution platforms. Through time, a leading technology will emerge based on user preference.

Wireless broadband coverage requirements for public safety uses are not necessarily the same as commercial uses. Furthermore, commercial broadband services typically concentrate coverage in population dense areas and, slowly, through time, as the economics become favorable, extend service to less populated regions. Public safety wireless deployments do not have this luxury; requiring service in areas with low population density. In order to enable wireless broadband for public safety, collocation of antenna arrays, supported with maintenance by the state, but sharing a revenue percentage with wireless carriers is a strong business model.

First responders need broadband services which work reliably at all times, but especially during times of emergencies. Reliability of commercial services has been shown to degrade during emergency events. As a consequence, first responders across New York have expressed preference for broadband services which are segregated from commercial services.

While segregation of service can be achieved in a variety of ways, implementation of a separate network(s) utilizing radio frequency spectrum dedicated to public safety is a viable option to pursue. This approach is also supported by the National Emergency Number Association.

The Commission's national broadband plan should continue to allocate spectrum for public safety wireless broadband use, including both the 4.9 GHz and 700 MHz

bands. Multiple band options should be supported to provide maximum flexibility in implementing network solutions based on state and local requirements.

To maximize fulfillment of needs at both the state and local level and the economic stimulus goal, strong consideration should be given to allocating the entire 20 MHz of the 700 MHz spectrum (including D Block and public safety broadband) directly to regional public safety entities in lieu of the original plan to auction a portion of the spectrum and build a national shared (commercial/public safety) wireless broadband network through a Public-Private-Partnership. In effect, the original national plan would be substituted for a regional plan which would give states more flexibility in developing a strategy to quickly deploy public safety broadband solutions and maximize the use of federal stimulus plans.

### Prioritization of Broadband Traffic and Access

Load levels along with surge capacity are already taken into account in network management. There may be times when an increased number of people in a given area may be using broadband for a variety of reasons including response to a natural disaster, more individuals working from home due to a pandemic, a mass-gathering, etc. The plan may include the use of assets similar to Cell on Wheels (COWs) being moved to an area to handle the increased system load. There are financial costs associated with this "surge capacity". Regarding prioritization of traffic, the Commission should consider the model established by the Telecommunications Service Priority (TSP) Program which provides national security and emergency preparedness (NS/EP) users priority authorization of telecommunications services that are vital to coordinating and responding to crises.

## Coordination with Stakeholders

The Commission should build on the public outreach undertaken by the Commission, the Department of Commerce, and Department of Agriculture to solicit input from interested parties in developing the broadband grant and loan programs under the ARRA by establishing a formal process of consultation. The Commission should establish both public and private sector groups, as well as combined public/private sector group, with whom the Commission regularly consults in the implementation and refinement of the national broadband plan.

The national broadband plan create a national council comprised of representatives from industry and the states to assist the Commission in formulating and developing broadband strategy and policy on an ongoing basis. The involvement of the states is necessary because if it is to be a "national" plan it will need the input of the states to address the varied needs across this nation, many of which the states have already addressed in the absence of a national broadband plan.

The Commission should be designated as the lead agency for the development and implementation of broadband policy and programs, with whom all other agency programs must coordinate. The lead agency would be responsible for establishing policy in a collaborative process working with other federal agencies, the states, and the private sector.

## Information Systems and Websites

The answer to both the short-term and long-term system for information sharing is the same - portals. The Commission should take the lead in developing and refining a portal for the collection and dissemination of broadband related information among

and between the public and private sectors. The portal developed by the New York State Office of Temporary Disability Assistance for coordination of benefits, <https://www.mybenefits.ny.gov/selfservice/>, can serve as a model.<sup>3</sup>

We encourage and support the consolidation of information from all departments and agencies tasked with implementing broadband initiatives to inform members of the public regarding their programs related to broadband, not in a website, but through a portal. The portal should allow for geographical and subject matter searches, and to the extent possible, deploy a single application for all programs.

The development of a portal will allow for coordination of broadband rollout with tribal, state, and local governments and other interested groups and individuals. The portal like all other Internet resources deployed by the federal government must comply with §508 of the Rehabilitation Act of 1973. The national broadband plan should require the Commission to continually review and evaluate the various data received with respect to broadband deployment to identify individuals and organizations that lack broadband access and consider systems it deems appropriate to provide broadband access to such individuals and organizations.

### Confidential Information

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<sup>3</sup> The development of portals based on services or communities is a mechanism by which government can coordinate provision of services. The recent deployment of the myBenefits portal by the NYS Office for Temporary Disability and Assistance, <https://www.mybenefits.ny.gov/selfservice/>, allows potential eligible recipients to register for various assistance programs such as food stamps, Medicaid, Home Energy Assistance Program, and health insurance programs. These portals can be enhanced by identifying public broadband access points and centers through New York's broadband mapping initiative which is based exclusively on the use of public data to provide accurate broadband mapping.

The Commission could use its existing confidentiality requirements for disclosure of Form 477 data to state public service commissions to the extent proprietary data must be disclosed. The NYS Universal Broadband Council completed its mapping initiative using only public information, eliminating any privacy issues and enabling complete use of the study by the public. The mapping initiative is currently being public vetted by the county chief information officers. The mapping initiative can be found at the following link: <http://www.nysbroadband.ny.gov/maps/maps.htm>. New York's mapping initiative can serve as a model to the federal government and other states to examine the variety of public sources of information before requesting private or proprietary data.

### Physical Diversity and Redundancy

Broadband networks increasingly carry more and more data and voice. The diversity and redundancy obligations and safeguards inherent in the legacy telecommunications network are no less important in the broadband networks. Diversity and redundancy are critical aspects of any network, independent of platform. To that end the Commission should adopt a process for communication providers to certify their compliance with specific standards and best practices so that public safety grade requirements are met. This process should cover both wired and wireless broadband and include both physical and information assets comprising the broadband solution. Where applicable, specific requirements should be established on network redundancy, security, and hardening. While many "first generation" uses of wireless broadband by public safety agencies are occurring on commercial networks, there is strong demand to develop network resources dedicated directly to public safety to achieve the highest levels of reliability, availability, and security. At a minimum, rules that require funded entities to satisfy minimum network reliability standards should be implemented and enforced.

Respectfully submitted,



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