Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION
ADMINISTRATION, US DEPARTMENT OF COMMERCE AND RURAL
UTILITIES SERVICE, US DEPARTMENT OF AGRICULTURE
Washington, D.C. 20230

American Recovery and Reinvestment Act of
2009 Broadband Initiatives   Docket No. 090309298-9299-01

COMMENTS OF THE CITY OF NEW YORK
APRIL 13, 2009

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I. EXECUTIVE SUMMARY

The Broadband Technologies Opportunities Program correctly focuses on the two essential pre-conditions for distributing the benefits of broadband throughout the American population: nationwide access to reliable, high-capacity data networks (deployment); and robust uptake of service across all segments of the population (adoption). New York City urges an expansion of adoption as a central goal of BTOP, and offers a set of specific recommendations for the way in which such efforts can be most successfully pursued.

In 2006/2007, New York City rigorously analyzed broadband deployment and adoption across its population through a comprehensive Broadband Needs Assessment Study. Results from this effort indicate that broadband is available to City residents in their neighborhoods. However, the Study found a significant lag in broadband adoption by low-income residents. The reasons identified for this lag were multiple, including cost of service, a lack of computer ownership, the absence of computer literacy skills, and the failure to perceive value in broadband adoption - obstacles that were often faced simultaneously. Facts suggest that across the United States, urban areas generally suffer more acutely from a demand-side problem of adoption, rather than a supply-side one of deployment.

The City of New York submits that overcoming these demand-side obstacles represents a critical challenge to increasing broadband usage nationwide. As broadband becomes increasingly ubiquitous, whether via free market forces or government subsidized initiatives, the primary national need will increasingly become one of adoption rather than of availability. In this respect, urban areas such as New York City are harbingers of the challenges the nation will face if both supply- and demand-side obstacles are not simultaneously addressed.

II. CONTEXT

The comments of the City of New York's ("City") in response to the instant Request for Information ("RFI") are informed by an in-depth analysis of broadband deployment and adoption across the City's five boroughs. The analysis was commissioned in 2006 and undertaken over a period of approximately 18 months (detailed methodological background is provided in the attached Appendix.)

It is by now widely recognized that broadband is a prerequisite for effective participation in the contemporary global economy. There is little dispute that broadband will indeed prove to be a key driver for economic recovery and competitiveness over the immediate- and long-term. The Broadband Technologies Opportunities Program ("BTOP"), therefore, correctly focuses on the two essential pre-conditions for distributing the benefits of broadband throughout the American population: nationwide access to reliable, high-capacity data networks (*deployment*); and robust uptake of service across all segments of the population (*adoption*). The City commends the BTOP's program objectives of achieving economic stimulus and job creation through the funding of programs that are linked to both deployment *and* adoption.

A. *New York City's Broadband Needs Assessment Study*
As noted, New York City rigorously analyzed broadband deployment and adoption across its population, and within specific segments of the population (such as subsidized housing), through a comprehensive Broadband Needs Assessment Study ("Study"). The Study: (1) inventoried existing and planned broadband infrastructure; (2) mapped broadband availability at the residential address level; (3) conducted detailed analyses of adoption trends and patterns; and (4) gathered input from residents citywide as well as representatives of hundreds of institutional stakeholders in the public, private and nonprofit sectors.

Results from the Study indicate that broadband is available to City residents in their neighborhoods, with virtually every household currently being "passed" by one service provider and 89% of households passed by at least two providers.[1] The study further found that in 2006/2007 the New York broadband adoption rate stood at approximately 52 percent – a rate above the national average of 47 percent in that same time period, although comparable to that of

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[1]*See* New York City Broadband Landscape and Recommendations, July 2008, *available at* http://www.nyc.gov/html/doitt/downloads/pdf/bac_presentation_7_30_2008.pdf.

other major domestic urban markets, such as Boston, Chicago, Miami and San Francisco.[2] Moreover, the capacity and speed of New York's networks was on par with those of other American cities, and generally in line with best-in-class residential networks nationwide.[3]

However, the Study found that broadband adoption among low-income households was lagging. Specifically, in New York City, the broadband adoption gap between low-income versus moderate- to high-income households was found to be approximately 28 percent as of 2006/2007.[4] Additionally, while broadband adoption was expected to grow among all household income "segments" over time, the disparity was not projected to narrow significantly, through at least 2012, in the absence of programs specifically targeted toward increasing broadband adoption rates among low-income households. In the absence of such programs, the Study predicted that by 2012 the adoption gap in the City would exceed 20 percent.[5]

B. *Reasons for Limited Broadband Adoption by Low-Income Households*

The major reasons found by the Study for the relatively lower adoption rate by low-income households include, often simultaneously: (1) the cost of broadband service; (2) the lack of computer ownership; (3) the absence of computer literacy skills; and (4) a failure to perceive value in broadband adoption, such as a clear impact on a child's education or a demonstrated opportunity to advance employment or to address a major health problem.

C. *Limited Broadband Adoption by Low-Income Households is a National Urban Problem*

In reflecting on the Study's results in the broader context of American cities, it became apparent that urban areas suffer more acutely from a problem of adoption than of deployment. With widespread deployment largely achieved, urban centers are likely to face significant *demand-side* obstacles to adoption, including issues of affordability, computer literacy and value perception. Low-income and other vulnerable populations, in particular, are more likely to face these

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[2] R1 2007 Scarborough Research data for Designated Market Areas (DMAs). Comparable urban area broadband adoption rates include: Boston 58.3%, San Francisco 57.5%, New York City 52.3%, Miami 50.6%, Chicago 49.9%; National average 47.2%.

[3] Within New York City, there also remains a notable arena in which the physical deployment of broadband remains an issue—in the approximately 1,200 public school buildings that serve over 1.1 million students. The bandwidth capacity at most of these schools currently is not at the level where it can sustain the simultaneous use of computing devices as a primary teaching and learning tool for all teachers and students.

[4] American Community Survey 2006, survey of Internet and broadband availability and adoption among NYCHA residents, Scarborough Research, Pew Internet & American Life Project, and Diamond Management and Technology Consultants analysis.

[5] Ibid.

obstacles. Thus, despite the "availability" of broadband service, these populations are underserved in a practical sense. Given that nearly 60 percent of the US population lives in highly urbanized areas, overcoming these demand-side obstacles represents a critical challenge toward driving nationwide broadband adoption on a sustained basis.[6]

At the same time, as broadband becomes increasingly ubiquitous, whether via free market forces or government subsidized initiatives, the primary challenge nationwide will increasingly become one of adoption rather than of availability. In this respect, urban areas such as New York City are harbingers of the challenges the nation will face if both supply- and demand-side obstacles are not simultaneously addressed.

D. *Summary Recommendations*

Accordingly, the City urges an approach that includes expanding adoption as a central goal of BTOP, and that targets *multiple* demand-side obstacles to broadband adoption. Such a holistic approach will enable all Americans, and in particular vulnerable populations, to become "active" technology users – individuals empowered to utilize broadband technology to enhance their educational, employment and economic opportunities; to access health and human services; to participate in government and politics; and, increasingly, to communicate with, and enhance their place in, the society at large. Toward this goal, vulnerable populations must be provided with access to affordable broadband service, computer hardware and software, and ongoing technical training and support. Optimally, they should be provided with digital literacy skills in a manner that is tailored to and meets their specific needs and requirements. Perhaps most importantly, the value of broadband adoption must be demonstrated, either through provision of enhanced educational opportunities or workforce readiness training, improved access to healthcare, health-related information, and other critical services, or simply the ability to connect with distant relatives and friends.

Based on the Study's findings, the City further believes that, to the greatest extent practical, public and private entities should be encouraged to form coalitions to accelerate efficient broadband adoption. Such alliances can foster innovative approaches and help avoid duplication and waste. In many urban areas today, there are numerous programs diligently working to drive broadband adoption; yet, many of these programs are under-resourced or incomplete. A concerted and coordinated public-private effort can reinforce these individual efforts to the benefit of

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[6] According to the 2000 US Census 58.27% of US citizens reside in urban areas with a population greater than 200,000.

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individuals and cities as a whole. Forging strategic public-private partnerships can drive a wealth of resources, expertise, and innovative thinking.

Finally, the impact of broadband programs must be carefully monitored and measured. Targeted pilot programs, for example, may be utilized to measure the impact of proposed programs on each target segment before they are scaled more broadly. Key metrics for the impact of each program should be established at the outset and monitored as the programs are executed. This systematic approach will ensure that investments are optimized and will provide critical lessons to help policy makers execute future successful broadband adoption programs across the US.

III. RECOMMENDATIONS

In light of the above context, New York City submits the following specific recommendations for BTOP:

Question 1: Purposes of the Grant Program

- The stated objectives of the BTOP present a thoughtful set of goals for the program:

    1) "Provide improved access to broadband service to consumers residing in underserved areas of the United States;"

    2) "Provide broadband education, awareness, training, access, equipment, and support to—
        a. Schools, libraries…and other community support organizations and entities to facilitate greater use of broadband service by or through these organizations;
        b. organizations and agencies that provide outreach, access, equipment and support services to facilitate greater use of broadband service by low-income, unemployed, aged, and otherwise vulnerable populations; and
        c. job-creating strategic facilities…"

    3) "Stimulate the demand for broadband, economic growth, and job creation."

- The City believes that the inclusion of these objectives reflects an explicit and strong prioritization of programs to support broadband use and adoption, particularly among vulnerable populations. Based on the City's analysis of broadband needs in New York, and other urban areas, the City strongly supports this prioritization. (Please see our response to Question 13 for a recommended definition of "underserved areas" that incorporates vulnerable populations and adoption issues.)

- Given this expressed priority in the legislation, we recommend that substantially more than the $200M and $250M minimum amounts be allotted to programs to expand public computer center capacity and to innovative programs to encourage sustainable adoption of broadband. We submit that such programs must be prioritized, to the extent of at least half of the total BTOP funding available, if broader efforts to spur global competitiveness and economic revitalization through broadband are to be effective. Indeed, by allocating a baseline of funding for these types of programs, the law itself clearly highlights their importance, and seeks to ensure that these critical efforts are given due attention.

Question 2: Role of the States

- ARRA gives the NTIA discretion to consult with states in identifying appropriate areas for grant funding by stating that the NTIA "may consult" with states. Clearly, this is not a required consultation. The City strongly disagrees with the recent recommendation by the National Association of Regulatory Utility Commissioners ("NARUC") that the NTIA ask states to "review and rank all applications for in-state projects." The City's view is that NARUC's proposal pushes the state role beyond congressional intent. Unlike ARRA programs in other areas which require a primary role for the states, Congress chose not to insert such a provision in its broadband programs. There is no reason for NTIA to override the Congressional intent by making the state the gatekeeper for such programs. Moreover, there is a potential conflict of interest in giving the state government authority to rank applications from that state. State governments may be applicants themselves and will be competing for the same funds as the entities they are ranking.

- Nor would rankings by the states promote more efficient proposal evaluations. It is not self-evident, as NARUC suggests, that states have an inherently better grasp of the broadband needs of local governments. (Indeed, the states have not been leaders in the efforts of hundreds of localities to undertake "muni-broadband" initiatives of their own.) For NARUC now to assert their expertise and interest in the area of broadband deployment and adoption does not strike the City as an altogether plausible position. By contrast, the NTIA has not only long-term subject matter expertise in the area of broadband, but experience in allocating federal grant dollars among the various regions, states and localities in, for example, the context of public safety communications funding. Introducing a "gate keeping" role by the states will not streamline the process, but rather add an extra layer of bureaucracy which could well delay the immediate deployment of shovel ready projects that is the goal of the ARRA. The NTIA is certainly able to adjudicate the merits of specific proposals without layer upon layer of other governmental processes from agencies whose expertise and grant making prowess is no greater than that of the federal bodies charged with this responsibility.

- The City has enjoyed an ongoing dialog, and productive working relationship with New York State on a range of broadband-related matters of mutual concern; and fully intends to cooperate with the state throughout the application process. Generally, states can play an important role in implementing the BTOP, especially by assisting smaller communities with logistics and organization in implementing program applications and grants. However, a state role as gatekeeper or evaluator would be beyond the scope of BTOP's legislative mandate and counterproductive to program implementation.

Question 3: Eligible Grant Recipients

- In the effort to ensure that proposals from for-profit entities are "in the public interest," the City suggests that such entities be required to either partner with, or gain endorsement of, state or local governments prior to being awarded BTOP funding.

- If Congress intended for-profit entities to be considered directly it would have listed them in Section 6001(e) of the ARRA. Clearly, Congress intends for there to be some sort of additional showing from for-profit entities to qualify for eligibility. Requiring them to partner with or be endorsed by state or local governments would provide such a showing that for-profits are acting "in the public interest."

- New York City disagrees with industry and private service provider commenters' contentions that a municipal cable or telecommunications franchise or a state CPCN qualifies as finding

of a "public interest." Such rights are often issued in a different context than programmatic endorsement, and thus such endorsement cannot be implied as a matter of course from such actions. We suggest that there be a separate form of public endorsement or involvement in the specific proposed project by the private sector applicant.

Question 4: Selection Criteria

- As previously stated in the City's response to Question 1, given the substantial gap in adoption currently faced by residents of urban areas, as well as the expectation that demand-side stimulation will become a central national challenge as deployment becomes widespread, the City believes it is critical that BTOP place a heavy emphasis on programs that spur usage and adoption by low-income, unemployed, older adult and otherwise vulnerable populations.

- To ensure that funding is allocated to programs that will successfully achieve this objective, the City strongly believes that BTOP should select programs with the following characteristics:

    1) Holistic programs that focus on helping residents overcome *multiple* demand-side obstacles in a manner tailored to the specific needs of the vulnerable populations served

    2) Programs that encourage government entities to find creative ways to leverage broadband to enhance, or lower costs of, service delivery

    3) Programs that incorporate collaboration across public and private sector boundaries to maximize available resources and support

    4) Programs that incorporate key metrics for monitoring and measuring impact

- In addition, the City believes that priority should be given to programs that leverage other ARRA programs and goals. The successful integration of educational, health and human services, workforce readiness, and other Recovery Act efforts can not only strengthen the overall social and economic impact of BTOP programs, it can improve their sustainability by supporting the use of broadband in government service delivery.

Question 5: Grant Mechanics

- The City encourages NTIA to expressly confirm that compliance with the twenty percent matching requirement associated with grant-funded programs may take the form not just of *cash* participation in programs but also of *in-kind* contributions. Contributions in-kind such as discounted service, training, advisory services, and access to property and equipment could all be essential to implementing the kinds of adoption and use-focused programs that should and will, as described in these comments, represent a major aspect of BTOP-funded activities.

- Section 24.24 of Title 15 of the Code of Federal Regulations specifically contemplates that in-kind contributions may be counted as valid matching costs for purposes of complying with matching cost criteria and requirements under Commerce Department grant programs, and the City urges NTIA to incorporate this concept into its BTOP grant criteria. The City has long found that in-kind contributions provide a powerful and effective source of resources to offer important public services.

- For example, the City's CityNet network, which represents a core element of the City's internal data and communications network (and which successfully provided continuous service enabling on-going City government functions during the events of September 11, 2001), was largely built using in-kind contributions provided by communications companies. Goods and services provided in in-kind form can, in the City's experience, often prove more

efficient than cash participation, as the donors of in-kind goods and services are often able to provide such service at cost, where cash contributions might require the purchase of the same goods or services at retail price. For these reasons the City urges NTIA to expressly recognize that BTOP-funded programs may meet their twenty percent match requirement through in-kind, and not just cash, contributions.

Question 6: Grants for Expanding Public Computer Center Capacity

- Public computer centers are critical to driving adoption (in addition to providing much needed broadband access in unserved areas) because they provide vulnerable populations the opportunity to utilize computers and the Internet in supportive environments, and can also provide much needed digital literacy and other related training programs, helping to empower individuals to utilize technology to their own benefit.

- To ensure that projects to expand public computer center capacity and impact are successful, we recommend that BTOP include the following selection criteria:

  1) Evidence of effective partnerships with coordinating entities, be they government agencies, non-profits, or equipment or service providers.

  2) Evidence of the integration of other ARRA programs and goals.

  3) Inclusion of training tailored to the needs of the specific vulnerable population(s) served.

  4) Inclusion of ongoing, multi-lingual technical support.

  5) Inclusion of a plan for covering ongoing costs.

- In addition to community colleges and public libraries, we recommend that public housing facilities, community centers, school buildings and any publicly- accessible facility that can serve at-risk and unserved or underserved populations be considered as eligible recipients under this program.

Question 7: Grants for Innovative Programs to Encourage Sustainable Adoption of Broadband Service

- The City defines sustainability as creating "active" technology users who are able to utilize broadband to enhance economic and social standing. Thus, programs must help residents overcome all obstacles to adoption with a holistic approach that is customized to the unique needs of the targeted segments.

- To ensure that programs are effective in achieving sustainability, it is critical that comprehensive mechanisms are established to measure and evaluate program impact at the macro and micro level:

  o Measuring impact at the macro level means determining whether the specific program has had an impact on usage and subscription levels beyond program participants. For example, has adoption increased in New York City as a whole as a result of the program?

  o For purposes of BTOP, however, sustainability is best gauged by reviewing micro level changes. Specifically, the effectiveness of programs in encouraging long-term adoption of technology by individuals, and the impact such adoption has on the quality of their lives. Micro-level assessments may include three types of data: 1) attitudinal, 2) behavioral, and 3) outcomes.

  o Attitudinal changes can be gauged from information shared by participants that give insight into their state of mind. For example, surveys can be conducted to determine

participants' attitudes towards technology, including whether they think it is beneficial to them, and their willingness to pay for the technology before and after a program "intervention" is conducted.

o Behavioral changes can be assessed by tracking participants' activities, such as whether they continue to subscribe to broadband service, how many times they visit specific websites, types of activities they engage in on the specific websites, and time spent on workforce training or educational software programs.

o Outcomes can include achievement of specific milestones. For example, as a result of services and skills provided in the program, participants may improve their academic standing, be able to successfully complete a GED, obtain specific qualifications or certifications or find employment.

o NTIA should explicitly state that fund recipients must identify a methodology for measuring these changes over time so that innovative and beneficial programs can be enhanced and replicated in the future.

Question 9: Financial Contributions by Grant Applicants

- The question of what showing should be necessary to demonstrate that a broadband proposal would not have been implemented absent Federal assistance is, of course, not fundamentally different than the question of how the Federal government will ensure, generally, that stimulus funding is not used by recipients to supplant already anticipated spending and, thereby, provide budget relief rather than serve their intended stimulus-related purpose(s).

- Ultimately, the City expects that some combination of self-certification and budgetary audits may be required. Of particular importance to the City, however, is that this requirement not be implemented in such a manner as to have a chilling effect on Federal funding of broadband initiatives that may have been long evaluated, contemplated and, even, "planned," but which have not been implemented precisely due to fiscal constraints. Indeed, such initiatives represent precisely the sort of "shovel ready" projects that lie at the heart of achieving the ARRA's core objectives.

Question 10: Timely Completion of Proposal Programs

- Given that one of the principal purposes of the ARRA is to provide immediate stimulus to the economy, the City urges the NTIA to prioritize those requests for funding that come from organizations that have demonstrated (1) a thorough analysis of and a sustained involvement in broadband-related programs, (2) a reasoned, data-driven solution to the problems of unserved and underserved populations and (3) a demonstrated record of success in initiatives of similar scope and magnitude.

Question 11: Reporting and De-obligation

- As mentioned above, funded programs should be required to specify performance metrics and a performance management approach. In making grant awards, NTIA could adjust or amend these proposed metrics, which then would be incorporated into the terms and conditions of the grant award.

- Grant recipients that fail to satisfy the performance metrics set forth in the grant award should be given a reasonable opportunity to satisfy them. If the performance metrics in the award terms and conditions are not otherwise amended or cannot be met, NTIA should be empowered to notify the award grantee and enforce the de-obligation of funding. De-obligation should be on the basis of a grantee's inability to satisfy the clearly articulated

performance metrics that were proposed in the grant application, reviewed by NTIA and incorporated into the grant award that is made.

- Consistent with other ARRA programs, the City suggests that fund recipients be required to submit to an independent oversight or audit process.

Question 13: Definitions
- The clear intent of the BTOP is not simply to have broadband be available, but to ensure that it is used by all residents. For that reason, in defining the term "underserved area," the City urges NTIA to adopt a definition that primarily focuses on broadband adoption. Defining "underserved" in a manner that does not emphasize broadband use will significantly limit the ability of the BTOP to achieve its goals as expressed by Congress.

- The Recovery Act delineates residential consumers living in two types of areas – those that are "unserved" and those that are "underserved." "Unserved" is a term that is best understood as covering areas that lack broadband facilities or delivery infrastructure. The fact that the Recovery Act also required the BTOP to address consumers living in "underserved" areas indicates that the term "underserved" must involve more than just a lack of facilities or delivery infrastructure.

- Based on the City's research and experience, merely building high speed, high capacity infrastructure with sophisticated technologies and applications will do little to solve the underlying broadband problems in this country if the potential users passed by the network lack the resources, ability or motivation to actually use available services. Experts from the public sector,[7] the private sector,[8] and the not-for-profit sector[9] have all emphasized that demand-side impediments to adoption should be considered a principal characteristic of underserved areas.

- Consequently, the City urges NTIA to adopt a definition of "underserved area" that focuses on municipalities, or other political subdivisions or geographic locations, with a significant number of low income residents or members of other vulnerable communities (e.g., disabled or elderly), in light of the significantly lower than average adoption rates among such low income and other vulnerable residents. Such status as an "underserved area" should apply irrespective of whether the relevant area includes physical infrastructure that can theoretically supply broadband service to the population.

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[7] In her comments to the NTIA forum on March 17, 2009 in Las Vegas, Emy Tseng, Director of Digital Inclusion Programs for the City and County of San Francisco noted that:

"[F]or urban areas, especially to address the needs of low income communities in urban areas, there is a real need to define underserved in this…fashion, because major metropolitan areas such as San Francisco, New York, Minneapolis, Seattle have high broadband adoption rates compared to the national data but have also large underserved and low income populations…[with] a larger broadband adoption gap."

Comments of Emy Tseng, BTOP Public Meeting transcript, March 17, 2009.

[8] Verizon, in its ex parte filing of April 2, 2009 in the FCC's GN Docket No. 09-40, stated that underserved areas are areas that need to address "demand side" issues, such as lack of computer ownership or computer literacy rather than "supply side" issues. Ex parte filing of Dee May, Vice President, Federal Regulatory, Verizon, GN Docket 09-40, April 2, 2009.

[9] Testimony of Dr. Nicole Turner-Lee, Senior Vice President of One Economy Corp. before the Subcommittee on Communications, Technology and the Internet, April 2, 2009.

Question 15: Additional Comments

- In no case should the application or grant process be implemented in a manner that would compromise or inhibit any local government's control of the public rights of way. We expect some commenters may urge NTIA to take actions that would "facilitate" access to public rights of way for deployment of cable, antennae or other equipment. Any such action could create public safety and administrative problems for local governments and raise thorny legal issues for all parties. As noted in City of Dallas v. FCC, 165 F. 3d 341, 347-348 (5th Cir., 1999), without express Congressional preemption authority, a federal agency is not lawfully empowered to preempt local control over public rights of way. Congress gave NTIA no such express preemptive rights in connection with any BTOP funded project.

Respectfully submitted,

/s/

THE CITY OF NEW YORK

New York City Department of Information Technology and Telecommunications
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Paul J. Cosgrave
Commissioner

April 13, 2009

Appendix:
City of New York Broadband Needs Assessment Study
Highlights of Approach & Key Findings

City of New York Broadband Needs Assessment Study

Highlights of Approach & Key Findings

NYC Information Technology & Telecommunications

Diamond Management & Technology Consultants

Summary of Needs Assessment Findings

Key Findings

1. **Broadband for Residents**
   Home residential service widely available; low-income residents *adopt* at less than half the rate of middle- and high-income residents

2. **Broadband for Businesses**
   Large businesses well served; service options may be limited in some industrial/manufacturing areas

3. **Availability of Public Access Centers**
   Public technology centers fill critical need, yet many public library branches and City-operated centers in need of connectivity, computers, staff
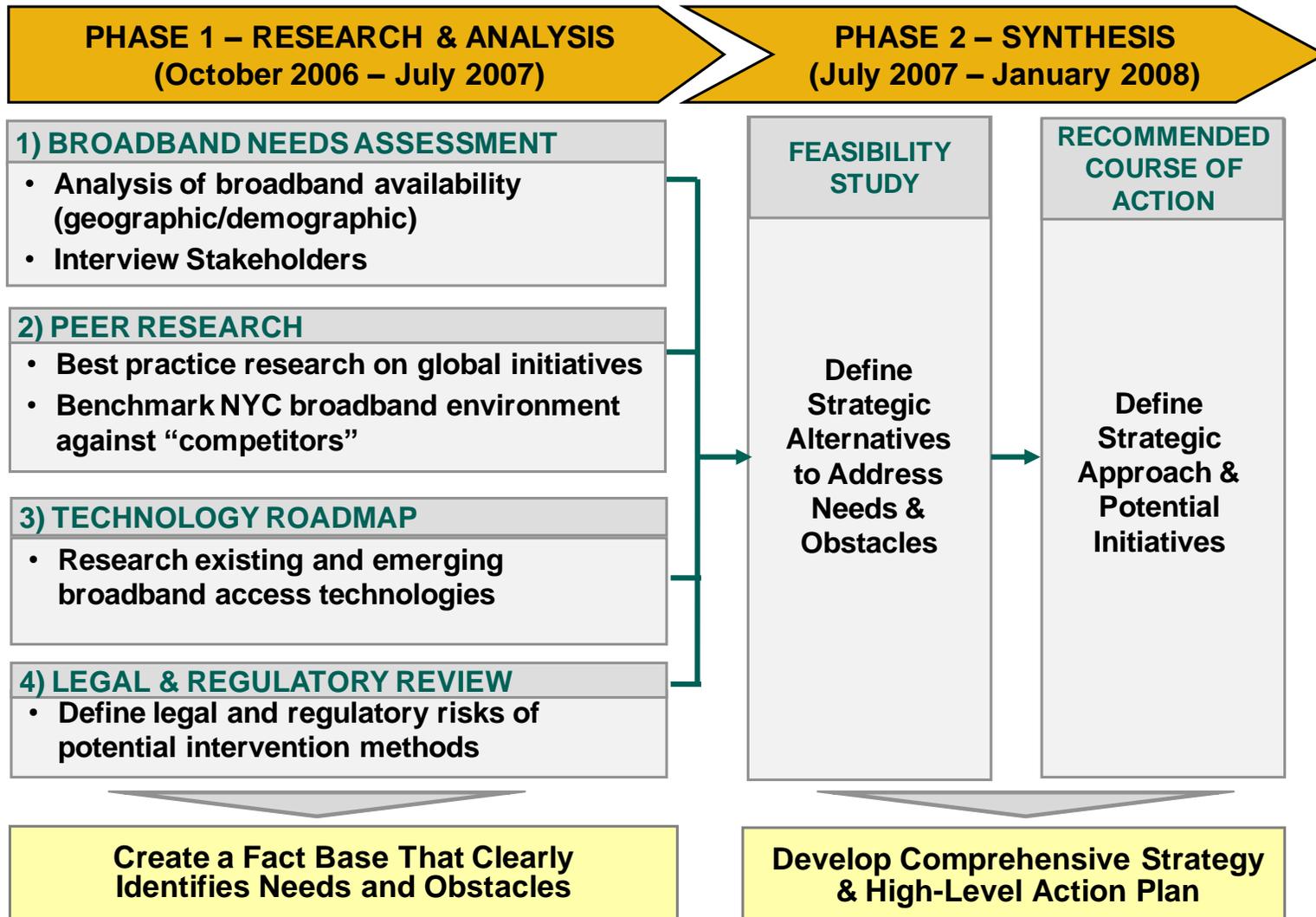
4. **Availability of WiFi in Public Spaces**
   NYC well covered by WiFi hotspots, but opportunity to expand coverage in public spaces

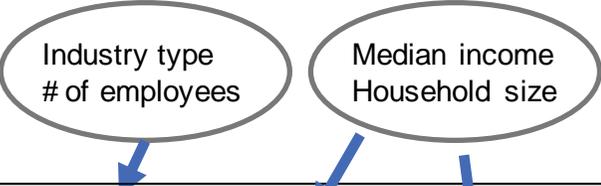5. **Competition in the Marketplace**
   NYC has above average provider competition, but can continue to enhance through franchise process

In 2006-07 the City performed a comprehensive broadband study

PHASE 1 – RESEARCH & ANALYSIS (October 2006 – July 2007)	PHASE 2 – SYNTHESIS (July 2007 – January 2008)

1) BROADBAND NEEDS ASSESSMENT
- Analysis of broadband availability (geographic/demographic)
- Interview Stakeholders

2) PEER RESEARCH
- Best practice research on global initiatives
- Benchmark NYC broadband environment against "competitors"

3) TECHNOLOGY ROADMAP
- Research existing and emerging broadband access technologies

4) LEGAL & REGULATORY REVIEW
- Define legal and regulatory risks of potential intervention methods

FEASIBILITY STUDY

Define Strategic Alternatives to Address Needs & Obstacles

RECOMMENDED COURSE OF ACTION

Define Strategic Approach & Potential Initiatives

Create a Fact Base That Clearly Identifies Needs and Obstacles

Develop Comprehensive Strategy & High-Level Action Plan

The study carefully assessed supply and demand-side issues in the City's broadband market

A core aspect of the study was a '4 layer' analysis of the current state of NYC's broadband market

	Type of Analysis	Data Collected	Source/Method
4 QUALITATIVE FEEDBACK		• Validation of infrastructure and address-level data • Feedback on affordability, customer satisfaction, broadband usage & demand trends	• Community hearings • Phone surveys, mail surveys • Web-based surveys
3 DEMOGRAPHIC VIEW	Industry type # of employees Median income Household size	• Residential demographics (e.g. population density, education attainment) • Business demographics	• Census data • 3rd-party data • City data sources
2 ADDRESS-BASED VIEW		• Address-based view of broadband serviceability by connection type; speed, pricing, terms & conditions (random sample)	• Data request to service providers • Mining of service providers' and 3rd party aggregators' websites
1 INFRASTRUCURE VIEW		• Central office locations, wire center boundaries • Fiber routes & fiber-lit buildings • Cable franchise boundaries • Wi-Fi hotspots	• Existing City inventories • Data requests to service providers • 3rd-party data

As part of the study, a wide range of City stakeholders were interviewed

City Agencies / Organizations		
Brooklyn Public Library	NYC Dept. of Housing Preservation & Development (HPD)	
City Hall	NYC Dept. of Information Technology & Telecom (DoITT)	
City University of New York (CUNY)	NYC Dept. of Parks & Recreation	
Mayor's Office of Comprehensive Neighborhood Economic Development (CNED)	NYC Dept. of Small Business Services (SBS)	
Metropolitan Transit Authority	NYC Dept. of Youth & Community Development (DYCD)	
New York City Council	NYC Economic Development Corporation (EDC)	
NYC Center for Economic Opportunity (CEO)	NYC Housing Authority (NYCHA)	
NYC Dept. for the Aging (DFTA)	NYC Law Department	
NYC Dept. of City Planning (DCP)	NYC & Company	
NYC Dept. of Education (DOE)	New York Public Library (NYPL)	
	Queens Borough Public Library	

City Agencies / Organizations

- Brooklyn Public Library
- City Hall
- City University of New York (CUNY)
- Mayor's Office of Comprehensive Neighborhood Economic Development (CNED)
- Metropolitan Transit Authority
- New York City Council
- NYC Center for Economic Opportunity (CEO)
- NYC Dept. for the Aging (DFTA)
- NYC Dept. of City Planning (DCP)
- NYC Dept. of Education (DOE)
- NYC Dept. of Housing Preservation & Development (HPD)
- NYC Dept. of Information Technology & Telecom (DoITT)
- NYC Dept. of Parks & Recreation
- NYC Dept. of Small Business Services (SBS)
- NYC Dept. of Youth & Community Development (DYCD)
- NYC Economic Development Corporation (EDC)
- NYC Housing Authority (NYCHA)
- NYC Law Department
- NYC & Company
- New York Public Library (NYPL)
- Queens Borough Public Library

Service & Technology Providers

- Ambient
- Bway.net
- Cablevision
- Covad Communications
- Crown Castle Solutions Corp.
- Extenet Systems
- Mobilitie
- Nokia Networks
- RCN
- Sprint
- TCC Teleplex
- Telkonet / MST
- Terabeam / Proxim Wireless
- Time Warner Cable
- T-Mobile USA
- Towerstream
- Urban Communications Transport
- Verizon
- Verizon Wireless
- Wi-Fi Salon

Additional Stakeholders

- Alliance for Downtown NY
- Andrew Rasiej (FON, MOUSE)
- Anthony Townsend (Institute for the Future)
- Baruch College School of Public Affairs
- Center for an Urban Future
- Columbia Institute for Tele-Information (CITI)
- Computers for Youth
- Dragonfly Technologies
- Empire City Subway
- Hispanic Information & Telecom Network (HITN)
- Industrial & Technology Assistance Corp. (ITAC)
- Jewish Community Council of Greater Coney Island
- Non-Profit Help Desk
- Jewish Home and Hospital
- Mount Hope Housing Company
- New York State Public Service Commission (PSC)
- Non-Profit Coordinating Committee of New York
- NPower NY
- NYCwireless
- NYSERNet
- Older Adults Technology Services (OATS)
- Partnership for New York City
- People's Production House (PPH)
- Per Scholas
- Rudin Management Company
- Securities Industry & Financial Markets Association (SIFMA)
- South Bronx Overall Economic Development Corp. (SoBro)
- Wireless Harlem Initiative
- Wolf Block

Representatives from other cities / regions and subject matter experts were also interviewed to understand global best practices

Peer City Representatives

Berkshire Connect
Boston Digital Bridge Foundation
Brookline, MA
Charlie Kaylor (Connect Kentucky)
City and County of San Francisco, CA
City of Boston, MA
City of Chicago, IL

City of Grand Rapids, MI
City of Miami, FL
City of Philadelphia, PA
City of Seattle, WA
Earthlink Municipal Network Division
Wi-Fi Long Island

Additional Subject Matter Experts

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Tropos Networks

Diamond also conducted interviews to gain a better understanding of broadband and digital inclusion initiatives in other cities / regions and consulted numerous subject matter experts.

As a baseline, the City purchased broadband and computer penetration data to understand adoption across the 5 boroughs

NYC Comparative Computer & Internet Penetration Data

	Computer Ownership	Internet at home	DSL at home	Cable at home	Broadband at home[1]
All Boroughs	• 67.3%	• 61.8%	• 22.7%	• 23.7%	• 45.6%
Bronx	• 57.9%	• 54.8%	• 21.6%	• 17.2%	• 37.8%
Brooklyn	• 65.2%	• 57.0%	• 21.2%	• 20.3%	• 40.6%
Manhattan	• 71.0%	• 68.4%	• 24.7%	• 31.0%	• 55.4%
Queens	• 71.1%	• 64.3%	• 22.7%	• 23.7%	• 45.0%
Staten Island	• 72.0%	• 69.7%	• 25.9%	• 32.0%	• 56.8%
National[2]	• 68.4%	• 66.9%	• 17.2%	• 19.2%	• 36.0%

This baseline data was analyzed to determine variations in adoption across demographic groups in the City

	Internet Penetration	Broadband Penetration	Computer Ownership
Total (5 boroughs)	58.4%	40.7%	63.4%
<$25K	30.6%	19.7%	37.6%
$25-$35K	40.6%	28.1%	47.2%
$35-$50K	50.5%	33.7%	55.4%
$50-$75K	64.4%	45.9%	71.2%
$75K+	79.8%	56.9%	82.6%
Age 18-24	74.6%	57.0%	80.6%
Age 25-34	69.6%	47.1%	72.4%
Age 35-44	63.8%	47.6%	65.9%
Age 45-54	63.2%	41.9%	68.0%
Age 55-64	47.9%	31.0%	56.7%
Less than HS grad	29.4%	20.3%	38.0%
HS grad or less	41.2%	28.8%	47.8%
College grad +	83.6%	58.4%	85.4%
Any post grad	86.9%	61.4%	88.4%
Employed full-time	71.5%	48.9%	74.3%
Employed part-time	56.2%	41.6%	64.0%
Not employed	44.2%	30.8%	50.7%

Source: Scarborough Research New York R2 2006. Data collected through a mail-based survey conducted between September 2005 and August 2006. Results represent a total of 4,256 New York City respondents.

In effort to better understand these variations in adoption, the City conducted two major citizen surveys

1. New York City Housing Authority (NYCHA) Residents[1]

- A statistically significant mail-based survey of 6,700 NYCHA households (197 developments across the 5 boroughs)

- Survey evaluated public housing residents' attitude towards technology and potential obstacles to broadband adoption, including availability and affordability of service, value perception, technology literacy, computer ownership, etc.

- The study also evaluated residents' usage of public access centers, including NYCHA's community centers, and level of satisfaction with available services and

2. Public Library Patrons

- Survey of public library patrons at the City's three public library systems – the New York, Brooklyn and Queens Borough Public Libraries

- Survey explored why patrons came to the libraries to use computers and to access the Internet, whether they had alternate access to computers and the Internet (e.g., at home, work, etc.), and if not, why that was the case

- The study also evaluated patrons' usage of public library computer centers and Internet access, including frequency/intensity of use, participation in training programs, etc.

Note: [1]The New York City Housing Authority (NYCHA) provides affordable housing for low- and moderate-income residents throughout the five boroughs of New York City. NYCHA is the largest public housing authority in North America with a conventional housing program that includes 177,976 (as of December 2, 2008) apartments in 340 developments throughout the City.

Overview of the New York City Housing Authority (NYCHA) Survey

Primary Objectives

1. Determine Internet and broadband penetration rates for NYCHA residents
2. Identify main obstacles to Internet/ broadband adoption
3. Assess NYCHA residents' computer and Internet technology literacy
4. Gauge demand for computer technology and Internet training
5. Evaluate usage levels for NYCHA computer facilities and training programs

Methodology

- Paper survey mailed to 6,700 NYCHA households (197 developments across the 5 boroughs)
- Survey was translated into 4 languages – English, Spanish, Simplified Chinese and Russian
- Survey instructions requested <u>head of household</u> to complete the survey
- 1,140 "valid" survey responses meaning there is 95% certainty that the results are within 3% (+/-) of the result for the entire population

NYCHA Survey Results – Summary of Findings

Major Takeaways from NYCHA Survey[1]

- Households headed by older residents (age 50+) are the most at risk
  - Nearly 70% of households headed by residents aged 50-64, and more than 90% of households headed by residents aged 65+ do not have Internet access at home

- Major obstacles are affordability of computer hardware and Internet service
  - Older residents are more likely to cite lack of computer ownership as barrier
  - Younger residents are more likely to cite cost of Internet access

- Respondents expressed relatively strong interest in training, particularly on computer use, Microsoft Office, and how to access the Internet
  - Strongest interest in training on how to use a computer is by older residents (age 50+) without Internet access at home

- However, only a small percentage of residents is participating in NYCHA computer training programs

Notes: Paper survey mailed to 6,700 NYCHA households (197 developments across the 5 boroughs). Survey was translated into 4 languages – English, Spanish, Simplified Chinese and Russian and requested the head of household to complete the survey. Received 1,140 "valid" survey responses meaning there is 95% certainty that the results are within 3% (+/-) of the result for the entire NYCHA population.

NYCHA Survey Findings - Internet and Broadband Penetration Rates

- 30.9% of NYCHA households have an Internet connection at home *(Q1)*

- Only 26% of households have broadband Internet service *(Q2)*

- Broadband penetration rates for younger NYCHA households are equivalent to the national average

- Broadband penetration rates for older NYCHA households (age 50+) are relatively low
  - Lower than national rates for same age groups
  - NYCHA households 65+ are 12 times less likely to have broadband than NYCHA households age 18-29 and age 30-49

1) NYCHA Broadband Penetration Rates Compared to National Studies

Percentage with broadband Internet service at home			
	NYCHA	Leichtman[1]	Pew[2]
Overall			
Total population	26%	53%	47%
Age			
18-29	61%	N/A	63%
30-49	60%	N/A	59%
50-64	24%	N/A	40%
65+	5%	N/A	15%
Household Income			
Under $30K	N/A	29%	30%
$30K-$50K	N/A	47%	46%
$50K-$75K	N/A	58%	58%
Over $75K	N/A	76%	76%

Sources: 1) "Broadband Across the US." Leichtman Research Group, Inc. May 2007.   2) Home Broadband Adoption 2007, Pew Internet & American Life Project, June 2007.

2) Type of Internet Access at Home by Age Group (Q1 & Q2)

Age Group	Dial Up	Broadband	No Internet/ Don't Know	Total Respondents
<18	0.0%	0.0%	100.0%	3
18-29	7.6%	60.6%	31.8%	66
30-49	8.1%	60.0%	31.9%	260
50-64	5.0%	24.1%	71.0%	303
>64	2.2%	5.0%	92.8%	403
Not Mentioned	3.0%	5.9%	91.1%	101
Total	**4.7%**	**26.0%**	**69.4%**	**1136**

Internet penetration rates for NYCHA residents are low compared to national studies; households headed by older residents (50+) are particularly at risk

NYCHA Survey Findings - Barriers to Internet Adoption

- Affordability issues are primary obstacles to Internet adoption *(Q8)*
  - 82.8% of respondents cited lack of computer ownership as primary reason for not having home Internet service
  - 4.7% of respondents without access stated Internet service is too expensive

- Only 3.2% of respondents without access stated they did not want Internet service at home *(Q8)*

- Lack of service availability does not appear to be a major problem, but survey data is inconclusive *(Q8)*

1) If you Do NOT have Internet access <u>in your home</u>, please select the statement which best describes why. (Q8)   *[Respondents without Internet access]*

Reason	<18	18-29	30-49	50-64	>64	Not Mentioned	Total Respondents
Do not have a computer	100%	68.4%	73.7%	79.5%	88.4%	77.3%	**82.8%**
Do not want Internet access	0.0%	0.0%	3.5%	2.5%	3.6%	4.5%	**3.2%**
Internet is too expensive	0.0%	15.8%	7.0%	6.8%	2.2%	4.5%	**4.7%**
Internet service is not available in my area	0.0%	5.3%	1.8%	0.0%	0.0%	0.0%	**0.4%**
Access Internet at job	0.0%	5.3%	0.0%	0.6%	0.0%	0.0%	**0.4%**
Access internet at library	0.0%	0.0%	7.0%	2.5%	0.0%	2.3%	**1.6%**
Access Internet at Community/Senior Center	0.0%	5.3%	0.0%	0.0%	0.0%	0.0%	**0.2%**
Other	0.0%	0.0%	7.0%	8.1%	5.8%	11.4%	**6.8%**
Total (%)	100%	100%	100%	100%	100%	100%	100%
Total Respondents	2	19	57	161	276	44	559

Inability to afford a computer and/or Internet service are primary obstacles to home Internet access

NYCHA Survey Findings - Use of "Alternative Access" Points

- Many NYCHA residents are without regular Internet access *(Q10)*

  – 79% of respondents without home Internet service did not use an alternative access point in past 30 days

  – Older respondents without home Internet access are most likely to not have used an alternative access point in past 30 days (76% respondents age 50-64; 84.7% respondents age 65+)

- Use of NYCHA computer facilities is limited *(Q10)*

  – Only 2.6% of all respondents used a NYCHA Community Center/ Senior Center in the past 30 days

1) At what places, <u>other than in your home</u>, have you accessed the Internet in the past 30 days? (Q10)   *[All respondents]*

Access Point	Respondents With Internet	Respondents Without Internet	All Respondents
NYCHA Community Center/Senior Center	3.5%	2.0%	**2.6%**
At Work	39.4%	4.2%	**16.8%**
Public Library	19.7%	10.9%	**13.8%**
School/Local Community Center	15.5%	2.2%	**6.8%**
Free "W-Fi" Hotspot	4.2%	0.7%	**2.1%**
Paid "Wi-Fi" hotspot	0.3%	0.7%	**0.6%**
None	41.3%	79.0%	**65.6%**
Other	6.8%	8.2%	**7.5%**

A large percentage of NYCHA residents are without regular Internet access, particularly older residents (50+)

NYCHA Survey Findings - Satisfaction with Computer Skills and Interest in Training

- Many residents without home Internet access believe they lack computer skills *(Q15)*
  - Only 14.5% of those *without* home Internet service were either "very" or "somewhat" satisfied with their skills
  - Compared to 81.7% of respondents *with* home service

- Greatest demand for training is on how to use a computer *(Q16)*
  - Training on how to use a computer received 22.3% of all responses
  - Highest interest was by those aged 65+ without Internet access, receiving 39.1% of this group's responses

1) How satisfied are you with your own computer skills (Q15) *[All respondents]*

Satisfaction Level	With Internet	Without Internet	All Respondents
Very Satisfied	31.9%	3.0%	**14.5%**
Somewhat Satisfied	49.8%	11.5%	**26.5%**
Somewhat Unsatisfied	15.5%	11.3%	**13.0%**
Very Unsatisfied	2.8%	11.7%	**8.2%**
N/A - No Interest in Using Computer	0.0%	62.6%	**37.8%**

2) What types of computer training would you attend at a NYCHA community or Senior Center? (Q16) *[All responses]*

Technology Training	< 18	18-29	30-49	50-64	>64	Not mentioned	Total
Use computer	0.0%	13.0%	15.5%	23.4%	35.1%	21.6%	**22.3%**
Access Internet	0.0%	12.0%	14.4%	16.2%	21.5%	17.7%	**16.4%**
Job Searching	0.0%	10.9%	12.3%	8.4%	4.1%	11.8%	**9.2%**
Microsoft Office	0.0%	28.3%	25.9%	21.3%	11.2%	17.7%	**21.1%**
Photo technology programs	0.0%	27.2%	23.8%	19.5%	12.0%	15.7%	**19.8%**
Other	100%	8.7%	8.1%	11.1%	16.1%	15.7%	**11.3%**
Total (%)	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Total Responses	**1**	**92**	**382**	**333**	**242**	**51**	**1101**

Respondents without Internet access lack computer skills, but have relatively strong interest in computer literacy training programs

Overview of the Public Library Patrons survey

Primary Objectives

1. Test hypothesis that public library computer centers are often the "last resort" for access for some residents who do not have Internet access at home

2. Identify main obstacles to Internet/ broadband adoption at home

3. Assess patrons' computer and Internet technology literacy

4. Determine frequency of usage of public library computer facilities

Methodology

- Partnered with three public library systems to distribute paper surveys to 80 branches across the 5 boroughs

- Targeted adults (age 18+)

- A total of 58 branches successfully administered the survey and 2,249 responses were collected from the participating branches

Public Library Survey Results – Summary of Findings

Major Takeaways from the Public Library Survey[1]

- More than half of all survey respondents (52.6%) do not have Internet access at home

- For roughly one third (33%) of all survey respondents, their *sole source* of Internet access is at a public library
  - Of respondents without home Internet service, 67.2% (33% of all respondents) stated that they go to a public library to access the Internet because they cannot access the Internet *anywhere else*.

- Respondents without home Internet service are heavy users of public library computer facilities
  - More than half of all respondents without Internet service (52.1%) used public library computer facilities three or more times a week.

- 34.6% of respondents with home Internet service stated that they used the Internet at public libraries because the library's connection was faster than at other places where they accessed the Internet (for example, at home)

- The primary reasons respondents cited for not having home Internet service were inability to afford computer hardware and Internet service
  - A majority of respondents (53%) without Internet access at home cited lack of computer ownership as the primary reason for not having home Internet service
  - The second most commonly cited reason for not having Internet access at home was because it was too expensive (cited by 14.2% of respondents)

Note: [1]Paper survey of public library patrons at 58 branches resulting in 2,249 responses