Scope of the Broadband Strategic Plan

To provide a strategic vision for the role of Broadband in Portland's future that:

- ***Establishes Portland as a world class hub of competitiveness and job creation in the 21st century economy,***
- ***Expands Portland's Broadband capacity essential to achieving its livability, prosperity, sustainability, and equity goals.***
- ***Creates a roadmap for Portland's success in the global digital economy.***
- ***Builds upon and retains Portland's heritage of leadership in urban planning and telecommunications policy.***

5 Goals

Portland is a leader and partner in innovative use of Broadband and related technologies.
Portland attracts Broadband -intensive business and institutions.
Close digital divide in access and use of Broadband technologies for all residents, small businesses and community-based organizations.
Portland is home to the most technology- able residents, industries and workforce in the nation.
Essential Broadband infrastructure supports development and planning, energy conservation, transportation, health, education and public safety.

6 Key Strategies

Prioritize "Big Pipe" Capacity: Plan and incentivize very high bandwidth Broadband deployment through clustering and co-locating very large capacity users, and providing economic incentives to providers to serve these areas.

Establish Neighborhood Broadband Hubs: Establish a Broadband service array that combines affordability of mid-tier capacity and high capacity Broadband presence in at least one public location within each "20 minute neighborhood."

Facilitate Marketplace Competition: Advocate for and facilitate robust competition in Portland's Broadband marketplace.

Foster Broadband Infrastructure Alliance: Create innovative alliance, partnerships, and incentives to develop advanced services and applications locally.

Energize a Dynamic City Technology Culture: Foster a change in the culture of City bureaus so that the use of technology and civic engagement is facilitated, embraced and cultivated.

Institutionalize Continuous Renewal of Technical and Human Capital: Leverage existing and support new investment in life-long technology education and training.

Expand City Capacity to Address Digital Equity, Address affordable access, technology literacy and relevant content, through dedicated funding and staff resources and community partnerships.

Metrics

Bandwidth meets or exceeds goals of the National Broadband Plan.
Adoption rates exceed 95%.
Digital divide is closed.
Number of companies and institutions locating in Portland with high capacity bandwidth requirements.
Broadband tools adopted to facilitate citizen engagement in civic dialog and policy-making.
At least one Research and Development Center of Excellence focused on the new economy locates in Portland.

Requirements for Success

This Broadband Strategic Plan represents a milestone in urban planning for the City of Portland. For the first time, the City has taken steps to include Broadband as an essential, utility-type infrastructure in the planning fabric, along with transportation, telecommunications, power, and water/sewer infrastructure. A robust Broadband ecosystem of infrastructure, competitive providers, services and devices is necessary for economic growth, job creation, livability, sustainability, public safety and civic engagement. However, achieving the goals outlined in this plan cannot be accomplished by City policy and actions alone. The City must engage a host of regional and statewide players with its vision, and must create partnerships that can move together in a strategic direction. The partnerships required include both public sector and private sector entities.

- **ALLIANCESPARTNERSHIPS**
  - *PUBLIC PRIVATE* – Develop alliance/ partnerships with software and digital media companies, Broadband services providers, utilities, energy and tech companies.
  - *LOCAL PUBLIC SECTOR* – Build upon alliances/ partnerships with TriMet and other regional transit companies, Multnomah County, universities (public and private), K-12 schools (public and private), public utilities, etc.
  - *STATE AND FEDERAL* – Develop alliance/ partnerships to move forward similar agendas, share costs and funding and adopt common strategies.

- **FEDERAL OR PRIVATE GRANTS**

The Broadband Strategic Plan will require Federal, State and Private grant funds to fully develop strategies.

- **BUDGET POLICY**

The City will need to adopt budget policy and identify funding sources for each phase of the Strategic Plan.

- **ORGANIZATIONAL CHANGES**

The Plan identifies several areas where organizational development is key to the success of key strategies.

  - **Vision and Culture**
  - **Management**
  - **Decentralization and Diffusion of City Government**
  - **Civic Engagement**

- **LEADERSHIP**

Effective policy changes and transformation of the City government and its institutions requires strong and committed leadership. The Broadband Strategic Plan describes sweeping changes in government structures, relationships and technology. These cannot be implemented easily, and the steadfast commitment of the City's elected officials and top managers is necessary throughout the change process.

Strategic Plan Content

The following pages contain tables which illustrate the strategic plan.

- Each Key Strategy of the Plan is described in a separate table which includes Recommendations for Actions in the short (by 2013), medium (by 2017) and long-term (by 2020).
- The combined Recommended Actions are presented in a Strategic Plan Roadmap to illustrate the range of recommended activities during each timeframe
- A 2011-2013 Work Plan is presented which describes specific organizational, policy and funding actions necessary to support planning strategies in the short term implementation phase.

KEY STRATEGY
1. **Prioritize "Big Pipe" Capacity. Plan and incent high bandwidth broadband deployment through clustering and co-locating large capacity users, and providing economic incentives to providers to serve them.**

Broadband service has developed in Portland for most of the "Middle Market", defined as businesses located in the urban core, small businesses in most neighborhoods in Portland, where business needs for Internet service are for relatively moderate speeds, and middle-to-high-income residential users. However, Portland is still a "Tier 2" City, where Broadband Providers do not see a market for expansion of high-speed, high-capacity infrastructure equal to Tier 1 Cities. The challenge for Broadband planning is that two extreme market ends are not served:

This strategy addresses Portland's need to insure that very high capacity Broadband infrastructure is developed in strategic corridors or "geographic clusters" that will anchor new industries and improve employment. The two prongs of this strategy are "pipes" and "tenants" (supply and demand).

Deploy High-Capacity "Pipes": Fiber connections are available for some high-capacity users in facilities within the urban core. However, the cost to extend fiber to new locations is very high. Fiber is necessary to achieve high-end service anticipated in the National Broadband Plan. PDC has noted that: "[D]rivers of the knowledge economy such as high tech and creative services, as well as more traditional manufacturing industries...require cutting edge communications technologies to enhance productivity and maintain competitiveness."

Attract Broadband Anchor Tenants: Locating one or more very large anchor tenant in strategic cluster areas will spur the development of Broadband infrastructure. The City must attract research institutions, data centers, media companies or other entities that require Broadband skilled workforces and high Broadband services to create the anchor tenancy for a cluster area.

Recommendations

By 2013	• Identify urban development areas for high capacity Broadband infrastructure deployment • Establish a policy to drop conduit into all street trenching in identified areas

By 2017	• Create a program with Industry to identify economic incentives to encourage fiber core build-outs to cluster areas. Such a package might include low cost power, free or reduced cost access to City owned or financed assets (such as conduit, roof-tops, permits, etc.) • Create an assistance program for very high capacity users to finance initial installation of fiber infrastructure, and to provide subsidies for high capacity bandwidth to spur job creation, and industry relocation to the clusters
By 2020	• Leverage the IRNE fiber assets, City streets, sewers and other rights of way to place publically owned infrastructure assets at the disposal of service providers who agree to deploy very high bandwidth services at lower than market cost to industry and employers. Include Broadband infrastructure development in public works projects, such as streets, sewers, etc. to diffuse high capacity infrastructure throughout the City and region. • Leverage Tax Increment Financing (TIF) funds for investment in Broadband infrastructure in Urban Renewal Districts • Work with PDC, Higher Education, the State and other potential partners to incentivize research partnerships that require large pipe Broadband. Develop projects that will anchor a large pipe "campus" such as a genomic research project, Central Eastside URA for mid-to-small business cluster projects, other URAs such as North Macadam and Interstate

KEY STRATEGY

2. Establish Neighborhood Broadband Hubs. Establish a broadband service array that combines affordability of mid-tier capacity and high capacity Broadband presence in at least one public location within each "20 minute neighborhood".

Until recently, not having affordable Broadband was an inconvenience. **Now, Broadband is a prerequisite to economic opportunity for individuals, small businesses and communities.** Those without Broadband and the skills to use Broadband-enabled technologies are becoming more isolated from the modern American economy. Broadband provides students and families' access to global and local educational resources, immigrant and minority communities' access to cultural connections, and small businesses to achieve operational scale more quickly. **Telework and telecommuting can reduce congestion, pollution and energy consumption. Where travel can be eliminated from work, civic participation and meeting basic communication needs, carbon emissions and congestion can be eliminated.**

This strategy adds Broadband to the Portland Plan's vision for "20-minute neighborhoods" where all services necessary for livability are within walking distance of home. Broadband access centers provide tools to "move information not people," connect diverse communities, level inequities in civic participation and educational opportunities, and reduce geographic and economic challenges.

The vision for telework centers includes state of the art Broadband communications centers, training, and affordable access within a neighborhood center. These can be located within existing centers, such as neighborhood libraries, community centers or schools.

Recommendations

By 2013	• Develop tele-work resources, including training, technical assistance and technology subsidies for small businesses and large employers • Work with Higher Education to create HR resources and advisors for employers who wish to promote telework • Provide tax incentives to employers who embrace telework solutions using Broadband and decreasing commuting
By 2017	• Begin distributing City workforce from office buildings to neighborhoods, where they are connected digitally to City Hall. • Create partnerships that can provide job training and workforce development using "20-minute" tele-centers to connect job seekers • Create incentives with the wireless carrier industry to ensure 4-G wireless access in all Portland neighborhoods
By 2020	• Build telework centers and resources within community centers, K-12 schools or community college campuses that align with "20-minute neighborhoods" • Become a "city without walls" where all city services, meetings and records are available to all residents and constituents on interactive digital platforms so that it is never necessary to travel to a city office to conduct business, provide testimony or participate in City business • Conduct all City public meetings, hearings, etc. via interactive video so that residents can participate from their neighborhood

KEY STRATEGY

3. Facilitate Marketplace Competition. Advocate for and facilitate robust competition in Portland's Broadband marketplace.

Competition provides consumers the benefits of choice, better service and lower prices. Building Broadband networks—especially wireline—requires large sunk investments. **Policies which help bring down the fixed cost of infrastructure and which spur greater demand** may encourage new network expansion and new competitors.

The National Broadband Plan notes that Broadband **competition is both fragile and insufficient** to keep pricing affordable, and to push advanced services into all markets and neighborhoods. The NBP also notes that current Federal policies may be ineffective at driving true competition in Broadband, and that local public policy is a determinant of the level of competition locally.

This strategy addresses ways that the City of Portland can leverage its public assets (rights-of-way, IRNE, spectrum), fiscal and franchising policy, tax incentives and its substantial public sector market demand to encourage a robust Broadband marketplace served by multiple, competitive providers.

Broadband providers appear to invest more heavily in network upgrades in areas where they face competition. Providers generally offer faster speeds when competing. **Next generation wireless Broadband networks**—for instance, Long Term Evolution Systems (LTE)—could offer speeds between 4 and 12 Mbps which can compete with mid-tier fixed Broadband speeds and rates.

Recommendations

By 2013	• Convene a planning committee with the provider industry to identify and leverage incentives for Broadband service expansion including complete neighborhood coverage for wireless. This could include access to public sector assets (rooftops, conduit, fiber etc), tax or franchise fee reductions, etc. • Begin a standards process with the public safety community on a regional level to develop public safety standards for commercial wireless use, so that public safety could become an anchor tenant on a 4-G wireless infrastructure • Advocate, at local, state and federal levels for robust competition in Broadband markets • Study ways to lower the cost of infrastructure deployment including working with industry to pool or share core infrastructure builds (towers, conduit, spectrum, etc.) to move the model toward competition with collaboration • Conduct a study to demonstrate the impact of Broadband availability on property values
By 2017	• Negotiate a service agreement for public safety levels of reliability, capacity and coverage with a provider. Identify and commit to policy and financial incentives such as franchise fee credits, shared trenching, City-provided conduit, grant programs, or other means to reach accessibility goals and objectives. • Develop strategic spectrum plan for spectrum licenses available to the City in the 700 MHz, 4.9 GHz bands that will serve public safety and promote Citywide Broadband goals • Aggregate public sector demand among several institutions and entities (higher education, government, transit, K-12) to incentivize development of service providers in underserved areas
By 2020	• Promote a subsidy or grant program for low income or distressed communities to allow them to obtain commercial service at affordable rates, to pull latent demand for service into the marketplace

KEY STRATEGY

4. Foster Broadband Infrastructure Alliance. Create innovative alliances, partnerships, and incentives to develop advanced services and applications locally.

Four key emerging and evolving technologies are driving digital adoption and the Internet economy in the near and long term - These include expanded video use in all of its forms; in-home services accessed remotely; evolution and rapid growth of applications for portable mobile devices; and collaborative, real-time, high capacity applications.
Emerging technologies will positively impact several key network attributes – This includes ease of use; highly scalable bandwidth; centralized data storage and network reliability and redundancy.

This strategy will demonstrate Portland's ability to innovate and accelerate technology developments to accomplish desirable social outcomes. This strategy focuses on ways to propel innovation into Portland's structures, institutions and educational and social fabric.

Portland cannot wait for innovations to trickle down to second-tier cities. Oregon is a nationally recognized center for the open-source software movement, and software start-ups and mobile and cloud-based computing. Portland needs to leverage the skills of tech-savvy professionals to develop a digital services economy. A key to this strategy is the development of technology "Centers of Excellence" in Portland, which will establish the area's leadership in new economy innovations. Also key is investment in research and development in science and technology which require very high bandwidth connectivity.

Recommendations

By 2013	• Work with PDC, Higher Education, the State and other potential partners to incentivize research and development partnerships in software, applications and digital services • With the transit community, develop smart applications to assist in traffic management, traffic safety, commuter connections and fuel conservation
By 2017	• Support wide adoption of "wired household or Smart Home" standards. Incentivize builders and homeowners through expedited review or financing through an energy conservation trust model. • Investigate and adopt "smart building" codes. Evolve connectivity subsidies using smoke detector model. Incentivize in partnership with home insurance industry. • Develop small business training for owners and employees in the use of digital tools • With the medical community, establish a pilot project for aging-in-place that features affordable high-capacity Broadband for patient/physician connectivity and information exchange
By 2020	• Partner with Industry and Education to establish "Centers of Excellence" which promote innovation in Digital Communities and undertake research and development in advanced applications and economic and social change • Incubate start-up leading edge developers with incentives, and advanced institutional support

KEY STRATEGY

5. Energize a Dynamic City Technology Culture. Foster a change in the culture of City bureaus so that the use of technology to foster City goals, service delivery to citizens and civic engagement is facilitated, embraced and cultivated.

Smarter use of Broadband can facilitate a vast change in government. Like private companies, government can make its services available 24 hours a day, seven days a week, 365 days a year across departments and across different levels of government. Currently, the City's use of web-enabled technologies is inefficient and ineffective, and could be improved.

Enhance Internal Government Efficiency: A study by Booz Allen Hamilton estimates that an agency that migrates its infrastructure to a public or private cloud **can achieve savings of 50-67%.**

Adoption of Social Media: Social media technologies provide the government another platform to spur innovation and collaboration. The private sector has come to recognize the efficiency gains and other benefits of social media within the workplace. Today, **out of the 36% of Americans involved in a civic or political group, more than half of them (56%) use digital tools to communicate** with other group members. Government must take advantage of these trends to encourage citizens to communicate with government officials more often and in richer ways.

Close the Digital Divide: Local government should continue its critical role in working to **overcome inequities in access** to communications technology.

This Strategy addresses the application of Broadband tools to improve City operations and services, especially to improve public access to government services and public safety services. This strategy also addresses productivity improvements and cost reductions through the adoption of advanced Broadband applications in City government.

Recommendations

By 2013	• Lead a "culture change" within City government to promote full utilization of digital tools, especially to provide public access to civic engagement and city services • Revise City policies and practices that inhibit adoption and utilization of digital tools • Put wireless Broadband accessible to the public in all public buildings • Investigate any health hazards, e-waste issues associated with Broadband deployments and issue credible study results to inform the public and decision-makers • Improve use of social media to engage citizen involvement in local government
By 2017	• Emphasize the adoption of digital tools in City government through modernized equipment, software, data storage techniques and workforce education. Adopt best practices from emerging technology-rich business models and social media platforms. • Seek funding or redirect existing funds to modernize the City's technology and software to support Broadband utilization and workforce mobility, especially for public safety • Implement a fully-functional, Web 2.0 enabled "311" service online • Place all government information in standardized, usable, searchable, accessible formats on-line

By 2020	• Increase municipal telework-force and tele-work hours over time so that only mandatory commuting happens. Address and change city culture (personnel and management policies, workforce technology, incentives and rules) to reward higher levels of telework in Bureaus. Calculate and monitor direct and indirect savings and other benefits (such as reduced carbon emissions, longer "hours of operation", family and quality of life and other benefits) from telework. • Adopt cloud computing platforms to replace data centers, equip buildings with energy sensors • Implement next-generation 911, including text and video call taking

KEY STRATEGY

6. Institutionalize Continuous Renewal of Technical and Human Capital. Leverage existing, and support new investment in life-long technology education and training.

Broadband and Internet access is essential for student achievement and workforce development.

The current workforce development system is fragmented and relies heavily on bricks-and-mortar facilities to deliver services. This physical infrastructure makes it difficult to adjust to changes in demand, resulting in inconsistent supply, quality and information distribution.

- Delivering services online through a scalable platform to expand the reach of One-Stops to everyone who has access to the Internet. Additionally, adopting content and service standards would ensure every participant receives consistent high-quality service.
- Broadband-enabled solutions address time, information and technology barriers faced by disadvantaged Americans seeking jobs and training.
- Research shows that unemployed workers who receive re-employment services land a job and exit unemployment insurance approximately one week sooner than those who do not receive such services.

Computer and Internet access alone do not produce greater student achievement. Access needs to be combined with appropriate online learning content, systems and teacher training and support. Some school districts are finding that online systems can help with high dropout rates. In addition to dropout prevention, online systems provide flexibility to students who cannot be in school for health, child-care, work or other reasons.

This strategy establishes regional partnerships aimed at making sure that Portlanders are well trained and well educated at the earliest possible age to thrive in a digital economy. We need to focus on literacy, content, and mentoring, not just technology to create a population that is ready for the new economy.

Recommendations

By 2013	• Establish a clearinghouse for digital information access and resources • Study the Broadband needs of small and micro businesses • Work with non-profits and NGOs to increase access to Broadband tools for minority, impoverished and immigrant communities • Partner with PPS, universities and other educational institutions to create an initiative to disseminate effective Broadband tools in Portland's classrooms, and for students and families in their homes, or within libraries and community centers
By 2017	• Assist local educational institutions and school districts to modernize technology and teacher training in on-line instruction • Partner with Education and Industry to create programs to expand access to training, tools and education that will enable them to participate in digital formats • Develop a pilot project for a public/private partnership providing virtual small business Broadband support centers, involving libraries, higher education

By 2020	• Support, K-12 and ongoing digital literacy programs in libraries, schools and other institutions • Create learning centers for small businesses and job seekers • Work with Portland's education institutions to have a fully developed distance learning platform in place which supports digital literacy and lifelong learning