WATERFRONT TORONTO'S APPROACH TO BUILDING INTELLIGENT COMMUNITIES

In 2014, the City of Toronto was recognized as Intelligent Community of the Year by the Intelligent Community Forum (ICF) in New York. Toronto was honoured for employing best practices and strategies that support high-speed broadband Internet access, policies that encourage digital inclusion and that support the development of the city's knowledge workforce by fostering innovation in the business, technology and education sectors. Waterfront Toronto's catalytic intelligent community efforts were a key factor in this recognition.

Waterfront Toronto is leading the way in developing new Intelligent Communities. Together with technology partners – such as Cisco, IBM, Element Blue and others – the agency is helping to develop communities where people can live, learn, work, and play in a seamless, technology-enabled environment.

Toronto's new waterfront communities will use technology to enhance quality of life and create economic opportunity for the citizens of Toronto, helping to keep the city competitive with major urban centres around the world for business, jobs and talent.

What are the components of Waterfront Toronto's Intelligent Community initiative?

Waterfront Toronto and its partners are developing a destination community for homeowners and businesses, including economic and social innovators, where the latest technology applications and advancements are intuitively designed and understood to be part of today's modern lifestyle.

The Intelligent Community initiative consists of:

- ***Ultra-high-speed broadband community network***
  By partnering with Toronto-based Beanfield Metroconnect, Waterfront Toronto is building one of Canada's first ultra-high-speed broadband networks. The network is guaranteed to be maintained among the best in the world for at least 10 years and will use advanced fiber-optic technology to deliver Internet connection speeds exponentially faster than the North American average. Network access is provided for a capped fee that delivers unlimited access starting at 500Mbps symmetrical Internet service (scalable to 1GB for residential and 10GB for commercial users). The network also provides IPTV, VoIP and advanced safety and energy management systems.
    - This means Waterfront residents and businesses will have among the highest performance Internet services in Canada, guaranteed "among the best in the world" network services for more than a decade. Beanfield will now be providing subscribers in new waterfront communities with 500 megabit per second symmetrical Internet connections (both uploading and downloading speeds). Residents will continue receive this enhanced unlimited fibre-to-the-home Internet service at an exclusive rate of $60.00 per month.
    - Unlimited 500 megabit per second Internet service will change how typical residential customers use the internet, with speeds fast enough to download a music album in as

little as one second, an hour-long TV show in about 3 seconds, and a high definition full-length movie in less than a minute.

- ***New Blue Edge Portal***
  In collaboration with IBM Canada and Element Blue, Waterfront Toronto has launched a powerful community portal and platform using cloud computing services and technologies from IBM's Intelligent Operations Center (IOC) for Smarter Cities. The features currently available – including traffic congestion reports, public transit information, weather and news – are intended to demonstrate the wide-ranging capabilities of the system. Waterfront Toronto will be working with IBM, Element Blue and others to launch new tools on a regular basis. Ultimately, thenewblueedge.ca will serve as the platform for a suite of tools that will enable users to make smarter decisions about everything from their daily commute to health and wellness, energy and water use, and much more.

- ***Neighbourhood-wide Wi-Fi Internet access***
  Beanfield Metroconnect is also ensuring new waterfront communities will have neighbourhood-wide Wi-Fi Internet access. This ubiquitous outdoor Wi-Fi network provides community access to the Internet, bridging the digital divide to make essential data and services available to all residents.

- ***Information Communications Technology Cluster With A Focus on Advanced Visualization***
  Waterfront Toronto and its partners are creating mixed-use waterfront communities where smart infrastructure allows people to thrive and gives businesses a competitive advantage. We are working with global and local technology leaders to design and build advanced telecommunications infrastructure that will create a leading edge, technology-enabled work and residential destination. Toronto's waterfront will be synonymous with driving innovation and global competitiveness – a future-ready community on the cutting-edge of technology, communications, media and design.

- ***Waterfront Toronto Innovation Centre***
  Waterfront Toronto intends to create an innovation centre in East Bayfront. The centre will act as an anchor for the Information and Communication Technology companies and institutions that are putting Toronto and Canada at the forefront of tomorrow's technology and design - today. To help refine the vision for the innovation centre, Waterfront Toronto has conducted extensive case study research and engaged in discussions with potential tenant groups. Through a competitive procurement process, Waterfront Toronto is currently seeking a visionary partner to develop the Waterfront Toronto Innovation Centre. The Request for Proposals closed in late September 2014.

Why do we need ultra-broadband?

The rapid proliferation of internet-enabled devices has ushered the world into a state of hyper-connectivity. Whether we are tweeting, watching or uploading videos on YouTube, streaming music or performing countless other bandwidth-hungry applications, we need to be constantly connected. As demand for bandwidth increases exponentially – fuelled in large extent by multimedia content – limitations in current broadband infrastructures are being exposed.

Without improved capacity, responsiveness and the speeds that these applications require will not be met and consumers will grow dissatisfied. More importantly, this may have an adverse effect on the economy as businesses increasingly rely on internet-enabled applications, and innovation could be stunted.

Enter the ultra-broadband network - the next generation of performance - that will provide the speed necessary to handle bandwidth-intensive applications such as video on demand, 3D HD internet protocol television, video telephony and telepresence/teleconferencing.

Start-ups and growing businesses will be more likely to thrive and create new employment opportunities with the availability of high-speed broadband Internet access and smart infrastructure. Improved access to the network and mission-critical applications will allow more employees to telecommute, thereby providing environmental benefits to the community, while also decreasing the strain on urban infrastructure.

What can ultra-broadband do?

The evolution from DSL to cable to fibre-optic ultra-broadband will be incredibly beneficial for both consumers and businesses.

Those who enjoy downloading music or video will be stunned by the difference. For instance, downloading a full-length movie (usually around 700 megabits) using DSL takes approximately an hour and a half, assuming normal internet traffic usage; with a cable modem, the same file would take approximately 20 minutes to download. But with an ultra-broadband connection of 1 gigabit per second, you'll be watching that film after just eight seconds. At that speed, downloading an entire CD will take less than a second.

On the business side, ultra-broadband networks will facilitate even greater enhancements. For example, the film industry could realize significant savings in production time and hundreds of millions in costs by having the ability to remotely conduct expensive and time consuming work. With this technology, a film director could be shooting on site and working remotely with editors back home in their fully equipped studios and editing suites.

Ultra-broadband also enables new dimensions in social services such as advanced healthcare delivered directly into our homes and collaborative lifelong learning. New forms of communication between home and school will allow our institutions to interact with the public in ways never before possible.

Advanced technology companies like Cisco Systems and IBM are already developing smart applications that will change the way we live. Cisco has developed Cisco HealthPresence to improve communications between healthcare professionals and patients. It will provide easier access to reports and images while maintaining patient confidentiality and will employ video and collaboration technologies to allow patients to visit their doctor – without leaving their homes – which is particularly beneficial for people with disabilities or impairments that restrict travel.

What will the ultra-broadband economy bring?

Ultra-broadband networks will foster the creation of intelligent communities that will be better equipped from a social, economic and environmental aspect. These communities will be capable of greater collaboration between individuals, institutions and businesses. No longer constrained by affordability and quality of access issues, the new Intelligent Communities will become breeding grounds for creativity and innovation.

The World Bank summarized the benefits in a 2009 report: "Widespread access to broadband enables citizens, businesses, and governments to expand the scope of their economic and social activities. From a long-term economic growth perspective, broadband is a critical element in the global innovation and information economy, allowing countries to unlock their innovation and exports potential."

A PricewaterhouseCoopers (PwC) report similarly concluded that the speed and quality of broadband service is a critical element in attracting top talent and companies, driving innovation and creating real economic benefits. PwC believes broadband quality is a key indicator when measuring leading cities; the firm considers this factor when ranking its *Cities of Opportunities*.

The Intelligent Communities Forum employs the same criterion as PwC when choosing its Top Seven Intelligent Communities of the Year, a distinction in which Canadian communities have fared extremely well at over the years with Toronto named Intelligent Community of the Year in 2014, Waterloo, Ontario in 2007, and Calgary, Alberta the co-winner in 2002.

Cities that have switched to ultra-broadband networks are already realizing economic benefits. According to Mayor Ron Littlefield of Chattanooga, Tennessee, his city has received $4 billion in outside investment in the two years after they installed a one gigabit fibre-optic network.

Examples of existing or planned ultra-broadband networks are scattered across the globe: South Korea has already installed one, and both Australia and New Zealand are developing national networks; Toyko, Stockholm, Paris and London have either already created such a network or are in the development stages.

The push to evolve to ultra-broadband networks has been furthered with significant investment by some of the biggest high-tech players. IBM's Smarter Planet, Cisco's Smart+Connected Communities and Google's Fiber initiatives are designed to help cities drive sustainable economic growth, experience improved quality of life and reduce government costs.