

## Table Of Contents

<b>1. THE DESIRED ROLE OF THE CITY .....</b>	<b>2</b>
<b>2. OTHER COMMUNITY INITIATIVES .....</b>	<b>4</b>
<i>Ontario Initiatives .....</i>	<i>4</i>
<i>Adjacent Communities .....</i>	<i>4</i>
<i>Initiatives and Municipal Involvement.....</i>	<i>5</i>
<i>Viable Options Based on the City's Defined Role .....</i>	<i>5</i>
<b>3. LAND DEVELOPMENT AND CONSTRUCTION.....</b>	<b>7</b>
<i>Background Information .....</i>	<i>7</i>
<i>Permitting and Municipal Issues .....</i>	<i>7</i>
<i>Developer Issues to be addressed in the plan.....</i>	<i>7</i>
<b>4. MUSH SECTOR INSTITUTIONS/ORGANIZATIONS.....</b>	<b>9</b>
<b>5. AFFORDABLE PRICING AND A REASONABLE LEVEL OF COMPETITION .....</b>	<b>11</b>
<i>Competition.....</i>	<i>12</i>
<b>6. THE CITY'S PROCUREMENT OF TELECOMMUNICATIONS SERVICES .....</b>	<b>13</b>
<b>7. THE CITY'S RIGHTS-OF-WAY, TOWERS AND OTHER INFRASTRUCTURE .....</b>	<b>14</b>
<i>Current City Right Of Way (ROW) management Practices: .....</i>	<i>14</i>
<i>Current City Issues: .....</i>	<i>22</i>
<i>Tower Activity to Date: .....</i>	<i>22</i>
<i>Summary .....</i>	<i>23</i>
<b>8. SPECIFIC TECHNOLOGIES AND MINIMUM BANDWIDTHS.....</b>	<b>24</b>
<b>9. FUTURE BANDWIDTH MODELS .....</b>	<b>25</b>

## Table of Tables

Table 1: Broadband Initiatives in Ontario .....	4
Table 2: Business Models for Community Broadband Initiatives.....	5
Table 3: General Characteristics of Broadband Technologies .....	11
Table 4: Minimum Bandwidths for Broadband Applications.....	24

## 1. THE DESIRED ROLE OF THE CITY

The City of Ottawa will be the facilitator of this strategy and plan. The City needs to take the leadership to “make it happen.”

The City has no specific agenda to centralize service provisioning. The goal is to have it happen. In other projects, as with this one, the City will act as facilitator. The agenda and needs will be determined by the community through a community consultative process.

The City will not:

- a) Be the owner of telecom infrastructure.
- b) Be service providers themselves.
- c) Invest money specifically to make this happen.

The City will:

- a) Be the facilitator of the process
- b) Have input into the process as a major user of the services.
- c) Leverage current budget allocations for telecom services to help make things happen i.e. Install a tower to provide service to a City facility and arrange for this tower to be used for community broadband service to residents and businesses in the area.

The resulting services of broadband will be equitable and available for all City residents.

The plan meets all principles outlined in “Charting a Course” as they apply to the various plan components.

- a) A Responsible and Responsive City

This strategy addresses the needs of City of Ottawa residents and businesses for access to broadband telecommunications services. These needs were identified in the October 2001 workshop in Ottawa and have been further stated to several City Councillors, particularly in the rural Wards of the City.

- b) A Caring and Inclusive City

All Ottawa residents should have access to broadband telecommunications services. This strategy is the first step in ensuring these services will be available for all.

- c) A Creative City rich in Heritage, unique in Identity

Ottawa’s uniqueness as a technology centre and a place where people want to live and work will be enhanced through this initiative. Ottawa will become one of the few cities in Canada where broadband is available for all.

Appendix A  
Community Background Information

---

d) A Green and Environmentally Sensitive City

Reduction in disruption of roadways and coordination of tower installations will help to reduce environmental impacts of the telecommunications systems required to implement this strategy. In addition, if residents choose to work at home, broadband connectivity will enhance the ability to be effectively connected to the world.

e) A City of Distinct, Liveable Communities and

No matter where you live in Ottawa, broadband services can enhance your lifestyle while still allowing you to maintain your community's distinct nature.

f) An Innovative City where Prosperity is Shared by All

Broadband connectivity allows community members the choices about how their work is done and where they will work. Ottawa will be the world leader in affordable, high quality, equitable broadband access to all of its citizens.

## 2. OTHER COMMUNITY INITIATIVES

### ONTARIO INITIATIVES

**Table 1: Broadband Initiatives in Ontario**

<b>Community</b>	<b>Current Activities</b>	<b>Years in Operation</b>	<b>Municipal Involvement</b>
Simcoe County	Fibre network services being implemented for the MUSH sector in the County	Less than 1	As a customer of the services <sup>1</sup>
Waterloo Region	Fibre network with dark fibre service implemented for the MUSH group. The MUSH group manages the services as a cooperative service.	Less than 2	As a customer of the services and a member of the cooperative group managing the network.
Peel Region	Dark fibre network cooperatively owned by some members of the MUSH sector	Less than 3	As a part owner of the fibre network.
Upper Canada network	A wireless rural based network established for both MUSH and commercial business as a not-for-profit entity.	Less than 2	As a member of the organization. Little, if any, funding involvement. Services purchased by individual municipal decision.
South Dundas	Fibre network throughout business areas. (South Dundas is also a part of the CEONET initiative for the broader community area)	Less than 2	Owned by the Township of South Dundas. Established as a Township initiative.
CEONet	A combination of wireless and fibre initiatives dispersed throughout the area.	Less than 1	Some assistance in coordination.

### ADJACENT COMMUNITIES

The City of Ottawa has adjacent municipal administrations under CEONet, UCnet, Lanark and Gatineau. CEO net and Ucnet were interviewed as part of this survey.

Both CEONet and UCnet indicated that due to their size and buying power, there is a real need to be able to aggregate requirements with the City of Ottawa. CEO net quotes the needs of Long Sault, Ingleside and Hawkesbury. Wireless operators have been given tower rights and still could require some help from a cost relief perspective.

UCnet also pointed out that the cost of Internet access is a significant cost element for the success of that network. As well, the lack of credibility of a startup network has impaired the sign up of customers.

<sup>1</sup> All cities/municipalities in the County are not currently customers of the service. Barrie is not involved currently.

Appendix A  
Community Background Information

Generally, these areas are faced with very similar problems to the rural areas of Ottawa. The solutions developed in this plan will have very real applications in each of the respective operating areas.

**INITIATIVES AND MUNICIPAL INVOLVEMENT**

The following chart shows the variety of business models in communities throughout the world. As demonstrated, the options and services offered vary widely. Any of these could be options for the City of Ottawa although the Montreal duct rental option would work best if it was implemented when the other City infrastructure was being constructed so complete coverage of the City would be enabled through the duct commission.

**Table 2: Business Models for Community Broadband Initiatives**

Line of Business	Stockholm Sweden	Montreal	Chicago IL USA	City of Ottawa	Simcoe County ON	Palo Alto CA	Fredericton NB
ROW Rental							
Duct Rental							
Dark Fibre							
Fibre IRU							
FTTH							
Managed Services							
Tower Rental							
ISP Service							
Internet Wholesale							
<b>Entity Type</b>							
City Department							
City Company							
City Commission							
Elect. Utility Sub.							
Joint Venture City-Private							
<b>Governance Model</b>	Company Board	Commission Board	Company Board	Company Board	Company Board	Company Board	??

**VIABLE OPTIONS BASED ON THE CITY’S DEFINED ROLE**

The following information is a summary of the options for business that have been undertaken in other communities. Following that summary the business option viability based on the City of Ottawa’s desired role is outlined.

- 1) Stockholm Sweden;
  - a. Dark fibre provisioning and tower rentals
- 2) Montreal
  - a. Duct rentals.

Appendix A  
Community Background Information

---

- 3) Chicago
  - a. A broad range of fibre cable related services including offering managed network services in a joint venture model.
- 4) Simcoe County
  - a. Managed network services based on a (mainly) fibre network.
- 5) Palo Alto
  - a. Managed network services and fibre to the home.
- 6) Fredericton
  - a. Managed network services jointly funded by the City and sponsors.

The City's desired role as a facilitator but not an infrastructure owner effectively eliminates all of the options listed above. The City of Ottawa indirectly owns Telecom Ottawa through Hydro Ottawa Holdings. Telecom Ottawa, as an infrastructure and telecommunications services firm has already implemented many of the services outlined in other communities. In addition, Telecom Ottawa has built a broad fibre based network throughout the City

The City's role as a facilitator of this strategy must take into account the relationship with Telecom Ottawa. Telecom Ottawa will have a significant positive impact on the outcome of this plan. Because of the broad reaching fibre optic infrastructure being implemented by Telecom Ottawa, this infrastructure and the services that can be provisioned over it will reach far out into the underserved areas of the City. This high-speed telecom backbone will be open and accessible for all telecommunications service providers at fair and equitable rates allowing those providers to offer services beyond their traditional business base. The City's impact on this plan through this ownership and the ability to leverage the Telecom Ottawa infrastructure and services will be an enabling strategy for much faster deployment of broadband services into underserved areas for multiple competitive service providers.

### **3. LAND DEVELOPMENT AND CONSTRUCTION**

Developers in the Ottawa area have varying views on the need for and their commitment to high-speed telecommunications services. Options that could be considered as a part of this strategy and planning range from doing nothing differently than today which means very little, if any, infrastructure planning for future telecom needs to requiring developers to install complex cabling and duct systems ready to be connected to a telecom service provider's network.

The following information summarizes the discussions with two land development firms and is followed by the plan for future development in Ottawa.

#### **BACKGROUND INFORMATION**

Both firms (Minto Developments Inc. and Urbandale) have a large development base in Ottawa with a mix of development activities from commercial office towers to residential subdivisions.

#### **PERMITTING AND MUNICIPAL ISSUES**

Two years ago, before amalgamation, the smaller communities adjacent to Ottawa were growing quickly and had permitting and development processes in place that made requirements relatively easy from a developer's perspective. There was very little growth in the Ottawa urban area and, because Ottawa City staff did not do a lot of it, the permitting and development processes were not as smooth or fast. Since amalgamation, the permitting and development process of the amalgamated City is based on the old Ottawa system. The process is slower and somewhat more cumbersome than some of the adjacent communities processes were. Many of the smaller communities had (and still have) different rules concerning development issues (set back requirements etc). These rules have not been coordinated yet through the new city. Despite all of the above info, the process in Ottawa is workable and is better than some other communities where these firms do business.

#### **DEVELOPER ISSUES TO BE ADDRESSED IN THE PLAN**

What is required to have smart buildings<sup>2</sup> and what equipment needs to be installed to meet that need? Some developers are willing to do what is needed once they know. Others are willing to install telecom infrastructure or duct only if someone else is willing to pay for it. The general philosophy was that customers are not asking for high speed telecom services (beyond what they can get today) so why should a developer pay for something customers do not want?

With most of the discussions, the developers interviewed had opposing views where one agreed with the concept and was willing to move forward in that way while the other was only willing to do it if another party was paying. One of the principal options discussed and comments made was whether the developer was willing to install duct and/or fibre in residential subdivisions to each home and along the roadways. Answers ranged from "We would be willing to do that since the incremental costs of that

---

<sup>2</sup> Smart buildings are buildings that have the systems and capabilities to provide occupants with the option of choosing to use all of the available applications for communications and lifestyle enhancements. These systems will include all of the cabling and connections to make these applications possible.

Appendix A  
Community Background Information

---

duct are minimal when installing the other services” to “It is not currently essential. It is not fair excluding the developer as a partner but requiring this type of thing. Customers aren’t asking for it so why should the developer pay?” Very similar responses were received to the question of a developer paying for and installing duct and/or fibre from the building to the road for commercial developments.

### **Summary of Developer Comments**

- Clearly the developer community does not have consistent views about the high-speed telecom infrastructure requirements in the City of Ottawa.
- Installation of duct and/or fibre would be welcomed by some and resisted by others
  - If the developer has to pay, this is the case.
  - If someone else is paying, then the developers will be happy to install the infrastructure required.
- Customer demands for this type of service will drive the development community to provide what the customers want.
  - At this time, residential customers in general are not asking for high-speed telecom service at the time of a new home purchase.



#### **4. MUSH SECTOR INSTITUTIONS/ORGANIZATIONS**

The following information is a summary of discussions with various members of the Municipal, University, School and Health (MUSH) sector. Collaboration among them is a common goal. Currently many of them are connected through the Telecom Ottawa fibre network.

1) Education sector

The University of Ottawa negotiated a special rate for their students to get high-speed services. This type of initiative could be spread across more public sector institutions, particularly those with a need for high-speed connectivity to their staff/students. This type of initiative effectively aggregates demand for service at the retail level and may be the justification needed for service providers to expand their broadband coverage area.

Consolidation of needs and directions could also assist in driving application development and work. Libraries generally have a significant amount of research information digitized. Museums generally do not have this level of digitization. There is an opportunity for a collective effort to develop museum applications that could help all members of the education (and broader) community. Like all broadband applications, if the community has a need for the application, the requirement for broadband service will increase allowing expanded implementation of the services of broadband providers.

2) Health Care

Health care applications requiring high-speed connectivity are of three main types: educational uses, need for health care practitioner connectivity (family physician to hospital, etc.) and then individual patient services.

Individual patient type services require a high level of security for the information. These uses will require upgraded infrastructure capabilities to reach those individual patients in their homes. General educational applications in health care, when coordinated with the other MUSH sector needs will likely help to justify connectivity to common community facilities. Community centres and meeting places will be natural places to do health care educational training as well as doing other educational programs, government programs etc.

Cross connectivity between university, SMART Systems, public Internet without introducing security problems is a key need in the Health Care community. Because health care communication needs extend to community centres and beyond, consolidation of those needs with the school system and government needs will help to justify the business case for service providers to offer services to smaller communities.

3) Government

Local government/City facilities are throughout the City with approximately 250 City sites. As mentioned in the Health Care section, many of these facilities are in smaller communities.

Appendix A  
Community Background Information

---

Connectivity to these facilities is being provided by Telecom Ottawa. Leveraging the needs of the MUSH sector could allow high-speed services to be deployed to the residences in the many small centres in Ottawa through the high speed backbone facilities that have been, or are being, installed to meet MUSH sector needs.

### Summary

As discussed above, there is a significant overlap of needs among the MUSH sector in the City of Ottawa. These needs should not only allow service providers to reach to smaller communities because of the coverage area of MUSH sector facilities throughout Ottawa and the high speed backbone facilities in place to serve the sector, but it should also allow those service providers to develop a business case for providing expanded services to the residents and businesses in those communities.

## 5. AFFORDABLE PRICING AND A REASONABLE LEVEL OF COMPETITION

As noted in Appendix B, Research and Technical Information, there are various technical options for provision of broadband services within Ottawa. The options include; land based wireless, satellite-based services, Digital Subscriber Line (DSL) services, cable modem services and fibre optic cable based services. Each of these options is a competitive service offering with its own strengths, weaknesses and pricing.

Customer choices and options will depend on several factors:

1. Desired bandwidth
2. Desired reliability and quality of service (QoS)
3. Desired price
4. Customer location

In the following table we outline the basic information about these factors for each of the technologies as they relate to residential services. For business class services reliability and QoS can be enhanced with the associated pricing increases with land based wireless, digital subscriber line (DSL) and cable modem technologies.

**Table 3: General Characteristics of Broadband Technologies**

Technology	Bandwidth <sup>3</sup>	Reliability and QoS <sup>4</sup>	Price <sup>5</sup>	Location Factors
Land based wireless	< 2Mbps	Low	Low	Some gaps in coverage. Line of sight issues.
Satellite	< 1 Mbps	Low	Medium	Almost complete coverage. May be occasional line of sight issues.
DSL	< 1Mbps	Medium	Low	Gaps in coverage area and technical limitations.
Cable Modem	< 1Mbps	Medium	Low	Gaps in coverage area
Fibre	Essentially unlimited	High	High	Very limited coverage area for residential. Services are designed for medium to large businesses and enterprise networks.

<sup>3</sup> Bandwidths shown are actual throughput based on reports of in-service networks. They are not the “nominal” throughput levels quoted in service provider sales literature. In the case of satellite, various service offerings are available but for residential service the available bandwidth is less than 1Mbps.

<sup>4</sup> Reliability and QoS comparisons are among the technologies shown.

<sup>5</sup> Price is based on comparing the technologies shown.

## Appendix A Community Background Information

---

### COMPETITION

The level of competition and the competitive services available to an individual resident or business is currently determined by location. In the following information we break the City into the three main components that differ in competitive services availability; within the “greenbelt”, outside the “greenbelt” but in medium sized settlement areas and finally in the less densely populated areas of the City.

#### **Within the “Greenbelt”**

- According to the local Rogers office, cable modem service is currently available for all residents in this area. Additionally most hotels have cable modem service available as well as many of the schools.
- DSL service is available to approximately 85% of residents in this area.
- Wireless service is available in much of this area (although as mentioned, this service is limited by line-of-sight issues).
- Satellite services will be available to almost all residents of this area although some may have line-of-sight issues to the satellite because of trees.
- Within the “greenbelt” all residents have one or more options for broadband services.

#### **Outside the “Greenbelt” In Medium-sized Settlement Areas**

- In medium (or larger) sized settlement areas broadband coverage is generally available through a combination of wireless, DSL and/or cable modem services.
- Where gaps exist in service availability the current ORCnet initiatives are filling in those gaps.
- Because of the small business potential in much of this area, competitors may not offer services where an existing service provider offers broadband services. Until customer demand increases to the point that more than one service can be sustained in the area, competition for service is unlikely. However, broadband services will likely be available in these areas of the City in a relatively short time frame with the current initiatives underway.
- Service pricing tends to be consistent from the various service providers whether there is direct competition in a specific location or not.

#### **In the Less Densely Populated Areas of the City**

- Satellite services are available to almost all residents in these areas with very few exceptions. The exceptions will be because of line-of-sight issues generally related to trees. Current satellite service pricing tends to be higher than other options with monthly fees approaching \$150 and relatively high installation costs. These prices are being reduced as competitive forces and technology requirements change.
- Wireless services are available in some parts of these City areas however there are still significant gaps in coverage and, as distance from the wireless base towers increases, line-of-sight becomes more problematic.
- DSL and cable modem services are generally not available in these areas because of technical limitations (distance in the case of DSL) and business limitations (particularly for cable modem services where there is not a large and compact enough customer base to justify cable infrastructure build costs).
- Where services are available, service pricing tends to be consistent from the various service providers whether there is direct competition in a specific location or not.

## 6. THE CITY'S PROCUREMENT OF TELECOMMUNICATIONS SERVICES

Telecom Ottawa provides the services required to connect City of Ottawa data facilities through the Telecom Ottawa fibre network. Currently, City connectivity to sites is a mix of 10Mbps, T1, wireless and dial up. A migration to 100 Mbps and 1Gbps service provided by Telecom Ottawa is currently underway. The City inherited many telecommunication contracts through the amalgamation with various terms and timing. City voice requirements are generally on Bell Centrex service.

New City facilities are a challenge for IT since budget constraints limit funding available for telecom connectivity. One of the City's goals is to eliminate rural dial up connectivity as the only available option in areas of the City with no current broadband service. The City has a network renewal project underway mainly dealing with the issues surrounding all of the inherited systems during amalgamation.

**Applications and opportunities.** City staff are looking at Voice over the Internet (VoIP) for the future. Other electronic services (E-services) issues and the services being considered are:

- Future e-services will be available through the City with 60% of the e-service efforts targeted at external users.
- E-democracy initiatives:
  - Support official plan
  - Webcasts from the City and video conferencing to community facilities is planned for the future.
- The goal is to have community video facilities and applications available for community members.

Because planning in the City's IT group has been focused on the requirements of amalgamation (and this work is expected to be completed in the spring of 2003) actual detailed cost information regarding detailed budget amounts for the various sites and telecommunications related services is not readily available. Staff mentioned that budget information for the IT section would be of very little value since the budget is continually under review and it is so "tight" that there is very little opportunity to have funds to leverage.

## 7. THE CITY'S RIGHTS-OF-WAY, TOWERS AND OTHER INFRASTRUCTURE

The City of Ottawa has a significant influence on the implementation of any type of high-speed telecom infrastructure. In this section we outline current practices, comments from community sectors influenced by those practices including the carriers and development industry and in the summary section suggest ways that the City's influence can be used to facilitate high-speed telecom initiatives.

### **CURRENT CITY RIGHT OF WAY (ROW) MANAGEMENT PRACTICES:**

There is currently a Bylaw at the City of Ottawa concerning cutting and reinstatement of roads. It currently applies to arterial roads but is under consideration for expansion to cover all roads. It covers the entire City of Ottawa. Costs involved include a pavement degradation fee. Also includes a 3-year moratorium on any new cuts (except in cases of emergency).

Telecom firms must have a Municipal Access Agreement (MAA) with the City of Ottawa to get permits for use of the City ROWs. Without this MAA the permits from the firms must go to Council for approval. New firms have 6 months of operation before the formal MAA must be completed. Ottawa were the first City to actually complete and formalize an MAA with Bell Canada, (in February 2002). The MAA covers the main principles suggested by the Federation of Canadian Municipalities (FCM). Four of these are:

- The City has the authority to impose these requirements
- The City accepts no liability associated with telecom installations
- The City will not pay costs for associated work relating to telecom firm installations
- The City can charge rent for use of the City ROW (This feature has not been invoked pending the final decision regarding the Leducor vs City of Vancouver case in Vancouver)

Some issues regarding the City's MAA requirements with the carriers are controversial. The City can require the carrier to install an extra duct for the use of others. The installing carrier owns this duct and charges to others are to be held to the market rate at the time. Carriers installing fibre can be required to make dark fibres available for the City's use. (This is currently under review). When relocation is required of the telecom plant due to City work (road widening etc), the telecom firm pays 100% of relocation costs (except Bell Canada as the incumbent carrier. Bell pays something less than 100% of the cost.). Some carriers dislike taking 100% of the liability.

**Permitting Issues.** All City work involved with issuance of permits to telecom firms is intended to be done on a cost recovery basis. Modeling is currently under way at the City to determine what the full cost of permitting actually is. City staff feels that the current charges recover as little as 25% of the actual costs. Once this modeling and cost changes are completed, this eventual permit cost may be an incentive for the carriers to coordinate their systems and do more efficient infrastructure planning.

Appendix A  
Community Background Information

---

A summary of comments from a survey of the service providers about permitting issues in Ottawa is:

Ottawa is not the easiest place for a carrier to do business. Ottawa appears to have a long approval process to get permits, etc. Of particular concern is the onerous task of getting approval for cabinets in "Green Spaces". There are claims that this is causing service introduction to be delayed.

Approvals take from 6-8 weeks. The carriers claim this is much longer than other municipalities.

One of the wireless carriers says that it is very difficult to get timely approval to get access to City infrastructure such as towers or rooftops.

**Ottawa has a Public Utility Coordinating Committee (PUCC).** It is currently under study for improvements in process. There is a central registry for all ROW infrastructures. It is kept up to date and the users all share in the cost for this service with the City paying 50% and the others paying proportionate to their usage. There is a polling process. If a carrier wants to install cable, a poll is done of all interested parties to make sure that no one else has a desire to install plant at the time of the original installation. There is some concern with this process. There is no set time for others to indicate interest (or not) possibly delaying work. The City's position on installations is that there is an equal opportunity for all telecom firms. If a new development is being done, all carriers have the opportunity to place their plant in the trench. (Residential or commercial development). This is supported by a City bylaw and is relatively recent.

Comments about the City's permitting process from a service provider<sup>6</sup>:

I have been outside of the UPUCC for the last 3 years and with my return to the table, I find that the City's Municipal Consent (MC) process has not made much progress. It remains one of the most complicated, difficult and time consuming of any municipality I have worked in. The City is making good changes such as implementing new standards about MC exemptions and electronic circulations via email however, some of the vague policies around pedestals placements and the turn around time for agencies to respond is not reasonable. For example, circulations are currently taking as much as 6 to 8 weeks. This time consumption could be reduced drastically by imposing a "must respond by" time frame such as 10 business days with failure to do so considered as having no objection. Business and residential services are both impacted by these extended circulation times slowing down progress within the City boundaries. The "Road cut permit" policy is also of concern. For example, my understanding is that a road permit now has to be taken for every anchor to be placed at a cost of \$195 ea. Imagine the cost of going around a long sweeping corner. Considering that an inspector could survey the job in one visit, why should our project be hit with these tremendous costs? Past practice would reflect 1 cut permit by street and although anchors don't need to be circulated, I have just been told that we have just been denied a road cut request since we have an outstanding MC on the project. Point being, we never know what to expect. Rules seem to change on the fly depending on who is being approached.

---

<sup>6</sup> These comments are essentially verbatim as submitted in one of the carrier survey requests.

Appendix A  
Community Background Information

---

**Installation options.** City staff have seen the Stream sewer technology work in Toronto. Nothing has been done with that technology in Ottawa. Staff feels it is a good option for retrofit installations avoiding roadwork.

The following information is from the staff at the City of Ottawa and entails more information concerning Right-of-Way Management Practices at the City

### **Regulatory Tools**

There are two regulatory tools used by City Council to manage its rights of ways by telecommunication companies ("telecoms") wishing to use and access the municipal roads to install their equipment. These are: the Municipal Access Agreement, and the Road Cut By-law. Telecoms wishing to use the City's roads are required to enter into a Municipal Access Agreement whereby it agrees to a number of terms and conditions for the right to access the rights of ways. The Road Cut By-law requires that no person shall make a cut in the road without first obtaining a permit from the City.

### **Municipal Access Agreements**

City Council, at its meeting of March 28, 2001, confirmed policies of the former Region and the former City of Ottawa and approved a policy authorizing the General Manager, Transportation, Utilities and Public Works to issue road cut permits only to telecommunications companies that have a Municipal Access Agreement (MAA) in place with the City of Ottawa or to those companies that have complied with interim authority requirements.

Although telecommunication companies generally have a statutory right to use a municipal public right-of-way, this is subject to the consent of the municipality. The process, terms and conditions for granting municipal consent are embodied in a legal document called a Municipal Access Agreement. Councils of both the former Region and the former City of Ottawa directed staff to negotiate municipal access agreements with telecommunications companies on the basis of the five right-of-way management principles developed by the Federation of Canadian Municipalities (FCM).

1. In pursuance of bona fide purposes, municipal governments must have the ability to manage the occupancy and uses of rights-of-way, including the establishment of the number, type, and location of facilities, while taking into account applicable technical restraints;
2. Municipal governments must recover all costs associated with occupancy and use of the rights-of-way by other parties;
3. Municipal governments must not be responsible for the costs of relocating facilities situated along municipal rights-of-way if relocation is for bona fide municipal purposes;
4. Municipal governments must not be liable for losses associated with the disruption of services or with damage to property as a result of usual municipal activities or the activities of other parties along municipal rights-of-way; and
5. Recognizing that rights-of-way have value, municipal governments must receive full compensation for the occupancy and use of municipal rights-of-way by other parties.



Appendix A  
Community Background Information

---

With one exception, Council policy is that the issuance of road cut permits is subject to a telecommunication company accepting these five principles, and agreeing to negotiate an MAA. The exception relates to a pending Decision of the Canadian Radio-television and Telecommunications Commission and allows telecommunication companies to make its acceptance of the fifth principle subject to the CRTC decision on compensation in excess of costs.

The ability of municipalities to insist on needed elements in an MAA was the subject of a CRTC decision in January 2001 with respect to a dispute between the City of Vancouver and Leducor Industries about the terms and conditions associated with the use of Vancouver's public rights-of-way by Leducor. Although the specific decision is binding only on the City of Vancouver and Leducor Industries, the CRTC indicated that it expects that the general principles articulated would be applicable in resolving disputes that may arise elsewhere.

Although the CRTC recognized some of the key elements with respect to municipal interests in managing public rights-of-way, the CRTC fell short of recognizing all of the principles. Moreover, and more significantly, the CRTC assumed for itself complete control over the use of the right-of-way by telecommunication companies. In other words, it denied a municipality's right to manage its right-of-way, and claimed for itself the final say on what staff believes are municipal rights-of-way management matters. These shortcomings raise significant concerns for the municipalities and constitute a fundamental blow to municipal ability to safely and efficiently manage public rights-of-way and consequently, City Council, at its meeting of March 28, 2001, authorized staff to support an appeal of CRTC Decision 2001-23. The Federal Court of Appeal is expected to hear the appeal later this spring or early summer.

In view of a pending CRTC Decision, the former Region of Ottawa-Carleton (Region) and the former City of Ottawa modified their policies to permit telecommunications companies to make the acceptance of the FCM principles subject to the eventual outcome of the CRTC Decision and also decided not to pursue the matter of compensation in excess of costs (FCM's fifth principle) pending resolution of the CRTC case.

### **Excess Duct Capacity Policy**

One of the key provisions of the Municipal Access Agreements is to require, a telecom carrier to build excess conduit capacity for the carrier's own use for a period of time to be agreed between the parties and inserted in the MAA when requested by the municipality. Generally, except for lateral connections and except when waived by the City, a telecom carrier is required, when installing new conduits by open cut along or across a road right-of-way, to install over and above its own planned requirement as excess capacity a minimum of one (1) four (4) inch conduit or the equivalent thereof as approved by the City. The telecom carrier is required to make such excess capacity available at competitive market rates for use by Third Party telecommunications carriers.

At the option of the City, to be exercised at the time of approval of the work, the telecom carrier is also required to install additional ducts on behalf of the City at the same time as the work is installed. Should the City exercise this option, the costs of the additional ducts will be the responsibility of the City and be based on the incremental costs incurred by the telecom carrier in installing the additional

Appendix A  
Community Background Information

---

ducts. The additional ducts will become the property of the City, which, if made available for use by Third Party telecommunications carriers, shall be at competitive market rates.

**Access to New Developments by Telecom Companies**

In 1998, in the Town of Richmond Hill, Ontario, a major developer, Metrus Development Inc., decided to permit only its affiliate, Futureway Communications Ltd., to place cable and other telecommunications facilities in one of its subdivision developments. These facilities were to provide cable and telephony services to residents that would occupy the development. The developer specifically denied access to other telecommunications companies. Bell Canada and Shaw Communications requested the Canadian Radio-television and Telecommunications Commission (CRTC) to intervene on their behalf. In its subsequent decision on Public Notice CRTC 98-35, the CRTC declined to take any action on the basis that Bell, Shaw and other telecommunications companies would have the right to construct and operate their facilities after the registration of the plan of subdivision and the transfer of the rights-of-way to the Town of Richmond Hill.

The problem with the CRTC decision is that by the time the development lands involved became public rights-of-way, the original cable trenches had already been filled in and restored. To come along a second time and retrench newly finished roads and boulevards is exceeding costly to a telecommunications company and very disruptive to the community. In addition, a second round of construction works can result in permanent pavement damage, exposes workers and the public to work zone hazards and contributes to noise and air pollution.

Because of the expense involved in going in after the fact, Bell Canada decided not to install any of its facilities at all in several new subdivisions in the Richmond Hill area. This raised further concerns with potential loss of service resulting from business failures, with the reliability of service in general, and with the 911 service in particular. It also deprived customers of having their choice of telecommunications providers, thus defeating one of the CRTC's prime objectives, effective competition.

In a dissenting opinion CRTC Commissioner Stuart Langford wrote that:

“Common sense alone dictates that the time to ensure efficiency and competitiveness is before the common trenches are filled in and paved or sodded over and the only way left to introduce new facilities is by reopening them or digging new trenches.”

It is known that senior CRTC officials, although they felt the decision was not a good one, were of the view that the CRTC did not have the authority to intervene until the lands became public property.

To date, this problem has not been experienced in Ottawa, but the potential is there. In discussions with Bell Canada on a Municipal Access Agreement, Bell had indicated that this issue was of great importance to it. In view of this, staff proposed that henceforth as a condition of plan of subdivision approval all developers be required to give equal opportunity for access to their

Appendix A  
Community Background Information

---

developments, including lands for future public rights-of-way and lands involving access to buildings, to all telecommunications companies regulated by the CRTC (i.e. Canadian Carriers and Broadcast Distributing Undertakings, etc) to install, repair, maintain and operate telecommunications facilities and that these facilities be designed and constructed (including any trench restorations) to the same municipal standards and requirements as if they were located on the City's public rights-of-way.

In April, 2002, in approving a Municipal Access Agreement with Bell, City Council approved the following "access to new developments" clause, by which the City agreed to include a condition in its subdivision agreements requiring a developer to provide to all telecommunications companies the opportunity to install ducts in a common trench within future roads, and from the road to, but not connecting to, the buildings.

"The Owner shall by written notice to all telecommunications carriers and distribution undertakings regulated by the Canadian Radio-television and Telecommunications Commission and operating within the City and as specified by the City provide the opportunity to install, and subsequently to repair and maintain, equipment in a common utilities trench within all future road allowances, and up to but not interfacing with or connecting to, individual dwelling or commercial building units."

### **Road Cut By-law**

With amalgamation, the new City of Ottawa had eleven (11) road cut by-laws and twelve administrative processes for tracking, managing and controlling utility cuts in the municipal road rights-of-way. In September 2001, City Council enacted a new harmonized Road Cut By-law, which established a harmonized road cut permit issuance and inspection process. With the establishment of the new Road Cut By-law and a single set of provisions, the challenge of providing permit issuance and inspection services throughout the new City became significantly less complex and more manageable, from the City's, and user's perspective.

Road cut management processes and approaches embodied in a Road Cut By-law, are supported by complex analysis and consideration of a number of engineering, legal and financial issues. The term "road cut" generally applies to any surface or sub-surface cut in any part of a highway made by any means, including any excavation, reconstruction, cutting, saw-cutting, overlaying, crack sealing, breaking, boring, jacking or tunnelling operation. The Road Cut By-law deals primarily with the following types of provisions:

- Road Cut Permit Requirement,
- Permit Fees,
- Notice to Commence Work,
- Emergency Road Cuts,
- Insurance Requirements,
- Security Requirements,
- Excavation and Reinstatement Requirements,
- Protection of Trees, Health and Safety,
- Traffic Management,

Appendix A  
Community Background Information

---

- Warranty of the Reinstated Works,
- Indemnification Requirements

In adopting the new Road Cut By-law, Council acknowledged that this was to be considered a Phase I review comprising primarily of the best elements of the existing road cut by-laws and supporting the effective and timely integration of the administrative processes related to permit issuance and inspection. Staff was directed to undertake a more thorough Phase 2 review incorporating best practices and following a thorough review of all technical, legal, and financial issues related to the management of utility cuts and other road related works on the public road rights-of-way. This review is currently underway and it is expected that a revised by-law will be submitted to City Council in mid-2003 which will address setting new permit fees, plan approval fees and pavement degradation fees to enable the City to recover its full costs.

### **Moratorium Policy on Road Cuts**

The Road Cut By-law continues the moratorium provisions in the former Regional Regulatory Code as applicable to former Regional Roads. The moratorium applies to all utility organizations and prevents the undertaking of utility excavations on any former Regional Road that has been constructed, reconstructed or resurfaced for a period extending three years from the year in which the new road surface has been placed. A moratorium also applies to telecommunications companies in that where telecommunications trench work is carried out no further work is permitted for a period of three years following the year in which the trench work is carried out. Exceptions can be provided where

- § The applicant applies to the General Manager in writing for an exemption and receives written notification and approval from the General Manager. An exemption will be granted by the General Manager if satisfied that, the proposed work must be done within the moratorium period and alternatives such as trenchless installation, the use of alternative highways, or the use of abandoned or other active plant is not available to the applicant;
- § A road cut is made pursuant to the emergency provisions of the By-law, provided that the subsequent permit application is accompanied by a written description of the emergency and the reasons why the moratorium requirements could not be met;
- § The work proposed is the maintenance, rehabilitation, construction or reconstruction of a City road, or the carrying out of other municipal works, the primary purpose of which is pavement provision or preservation:
- § The subject of the application is the necessary repair or maintenance of existing underground works or the work involves the repair of fluid or gas leaks.

The moratorium provisions for telecoms are managed by a polling procedure whereby telecoms are required to poll each other to determine if there are any other telecoms interested in installing cables in the trench at the same time.

The administration of moratoriums requires considerable effort and organization and given the focus on the timely integration of permit and inspection services an extension of the roads to which

Appendix A  
Community Background Information

---

moratoriums currently apply was not included in the proposed By-law provisions. This matter will be dealt with during the Phase 2 review of the Road Cut By-law.

### **Utility Circulation Process**

For all applications for a road cut permit, except for lateral service connections, the telecom companies are required to submit engineering plans to the City for approval. In addition, to undertaking its own review, other utilities in the ROW are circulated for comment. Should an objection be received from any of the other utility companies concerning the planned work (e.g. a location conflict), the plan approval and road cut permits are held up until the objection is removed. The parties meeting and resolving the conflict usually handle this. Much improvement has been made to the utility circulation process since amalgamation with the initiation of an electronic circulation process and the digitalization of many of the City's utility drawings.

### **Public Utility Coordinating Committee**

The former City of Ottawa established the Ottawa Underground Public Utilities Coordinating Committee (UPUCC) in 1957 to promote cooperation among municipal agencies and the various private and public utilities. Since that time the committee has organized and standardized the placement, details, standards and ideal locations of the various underground utilities within the municipal boundary. As well, the committee was instrumental setting up and maintaining a central registry to record all the existing information available in composite plans for existing underground plant.

Membership in the UPUCC is comprised of representatives from all municipal, public and private utilities operating within the limits of the former in the City of Ottawa. The Committee has no legal right or power which would be binding on any party, but rather operates as a voluntary non-statutory authority acting in an advisory capacity as a clearing house of information for the common benefit of its members. The Committee's mandate is to provide comments on pending municipal legislation (e.g. by-laws) and put forward recommendations for consideration by municipal officials. The Committee meets regularly on a monthly basis and at times establishes sub-committees to study and recommend causes of action with respect to matters requiring concentrated and detailed attention.

With the amalgamation of the eleven former municipalities and the Region of Ottawa-Carleton into the new City of Ottawa, the UPUCC is undergoing a transition and restructuring process to integrate and harmonize its mandate and policies to encompass all of the underground utilities within the boundaries of the new city. To assist in this endeavour, in August, 2002, the City of Ottawa, in conjunction with the UPUCC, has initiated a comprehensive review of the organizational model of the existing Ottawa UPUCC for the purposes of developing a new and more up-to-date and effective operating and administrative structure for the utility coordinating committee to bring it in line with the structure and objectives of the new City of Ottawa and the member utility agencies. As well, a review of the existing Ottawa UPUCC Procedure Manual will be undertaken for the purpose of updating its policies and procedures.

Appendix A  
Community Background Information

---

**Telecom Joint Build Initiative**

In 2000, through the persuasion and efforts of the former Region, a group of telecom companies operating joined together to simultaneously undertake the construction of a fibre optic telecommunications network in a common trench in the downtown core and agreed to share in the costs of the joint construction. At the same time, the City of Ottawa (former Region) also elected to participate in the joint build and agreed to share in the costs for having its own ducts installed. The City's interests in installing and owning additional ducts under these important downtown arteries was to protect against any further disruption to its roads by making these extra ducts available to other companies that may wish to install ducts in the future.

The original partners in the joint build were 360 Networks, Wispra Networks, GT Group Telecom, Telus, Videotron and the City of Ottawa. Wispra has since dropped out of the project and the ownership of its ducts has subsequently been transferred to the remaining partners.

The construction of the joint build was completed in 2001 and in accordance with the terms of the Joint Build Agreement the participants have entered into a Shared Facilities Agreement to provide for terms and conditions pursuant to which facilities, access chambers and the building connection lateral ducts will be accessed, shared and maintained. The Shared Facilities are managed by a Manager appointed by the owners and decisions relating to the facilities are undertaken through a committee ("Shared Facilities Committee") comprised of representatives of the owners of the Shared Facilities.

**CURRENT CITY ISSUES:**

Access to information from the telecom firms has been difficult. Sharing of fibre and co-builds have been difficult to put in place and have any influence by the City.

**TOWER ACTIVITY TO DATE:**

Approximately 3 years ago, City staff met with the carriers to try to encourage co-location of facilities on Towers. There has been success with some carriers but resistance from others. Towers have been going up in the City for others without City staff involvement or knowledge except in the case of towers on City land. In that instance, staff will know about the tower installation planned. Currently, there is no mechanism in place for staff to find out of impending installations. Staff feels there is significant benefit in allowing other users on existing towers and the City is willing to do this where technically feasible. In a recent survey responses from carriers were that Cellular carriers indicated they have joint us agreements in place today and where possible use each others towers. At least one indicated that towers are in the exclusive jurisdiction of the Parliament of Canada as represented by the Minister of Industry. They recommend that the City use the Industry Canada "Client Procedure Circular" entitled Environmental Process, Radio frequency Fields and Land-Use Consultation-CPC-2-0-03. This CPC summarizes the jurisdictional issue and provides a template for meaningful municipal participation as the supervising land-use authority.

Appendix A  
Community Background Information

---

Some carriers' charges for space on towers are set at a level that others are discouraged from using available collocation space on towers. This type of pricing discourages the local wireless firms from attempting to offer services in the areas affected. Some firms have taken this position in the past with fees as high as \$15,000/year for a tower space.

Telecom Ottawa owns 5 towers. One of them is in Osgoode at the library. The tower is on City land and the liability issues around the installation rest with both the City and Telecom Ottawa. The City is currently in control of the tower use. This same position currently applies to the other Telecom Ottawa towers. The application to use the Osgoode tower by a competitive wireless firm took several weeks for approval. In a competitive telecommunications environment, this process is somewhat slow and could be improved with City developed processes and standards.

Tower space lease agreements are already in place for several of the City owned/controlled towers. Pricing for the rural initiatives that have taken place has been negotiable. Storm received a fixed fee price with a revenue sharing arrangement with the City should more than "X" customers be served from the North Gower tower. In smaller communities there may be a need for funding to totally eliminate the tower lease cost but the City still needs to have revenue for the tower costs. Funding may need to come from a rural initiative fund to be established.

### **SUMMARY**

The current City policies regarding infrastructure are an improvement over past practices, however, there are still concerns among the carriers about timing, administration that is burdensome and costs. These issues and a plan for improvements will be developed in the strategy.

## 8. SPECIFIC TECHNOLOGIES AND MINIMUM BANDWIDTHS

**Table 4: Minimum Bandwidths for Broadband Applications**

<b>Application</b>	<b>Required Up Load Speed</b>	<b>Required Down Load Speed</b>	<b>Works Today</b>
Video Conferencing	386 Kbps	386 Kbps	No
Small Facility Health Care	384Kbps	384Kbps	No
Hospitals to HealthNet	50 Mbps	50 Mbps	Yes
City Government Video Conferencing and Web-Casting	386 Kbps	386 Kbps	No
e-Learning	386 Kbps	386 Kbps	No-74 Kbps Up Average Achieved
Video On Demand-Res	100 Kbps	1.5 Mbps	Not on Average
Tele-Working	1 Mbps	1 Mbps	No
Web Browsing	200 Kbps	500 Kbps	Yes
MP3 Downloads-Res	200 Kbps	1.5 Mbps	No
File Swapping-Res	1.5 Mbps	1.5 Mbps	No

Note: The speeds here are shown as estimated minimums. Higher speeds are preferable as the efficiency of the workers involved is enhanced.



## 9. FUTURE BANDWIDTH MODELS

The need for broadband services will be determined by the applications and uses developed and implemented for residents and businesses in Ottawa. All of the technologies used to reach homes and small businesses today have some limitations in their technical capabilities to deliver broadband services. However, all communications networks rely on fibre optic cables for the main transmission of almost unlimited bandwidth.

Revenues of the service providers will increase as the requirements for broadband services increase. These revenues will pay for a fibre network to be built closer to the user<sup>7</sup>.

The future of broadband is that fibre will come closer and closer to the user<sup>8</sup>.

---

<sup>7</sup> A good example of how this works is a cable television network broadband service. As more users are on the network, fibre “nodes” are located closer to the homes of the individual users. As fewer users are connected at each fibre connection, more bandwidth is available for each user.

<sup>8</sup> Ultimately fibre may come to the home. However, with current and foreseen applications requiring broadband services, fibre to the home is unlikely.