

National Antenna Tower Policy Review

Response of the



Canadian Wireless Telecommunications Association

submitted to:

National Antenna Tower Policy Review Committee

October 9, 2003

Introduction

1. With the announcement of the National Antenna Tower Policy Review¹, the Minister of Industry began a process to identify possible “improvements in the policy and siting procedures for antenna tower placement”. The Canadian Wireless Telecommunications Association (“CWTA”) welcomes the opportunity to provide comments to this review.
2. CWTA is the authority on wireless issues, developments and trends in Canada. It represents cellular, PCS, messaging, mobile radio, fixed wireless and mobile satellite carriers as well as companies that develop and produce products and services for the industry.
3. Every day, millions of Canadians make use of radio-based communications. Radiocommunication links Canadians and bridges distances, providing radio and television broadcasts, mobile telephone service, emergency information, data exchange and a variety of other services. These services are employed by all facets of society, including the public at large, utilities, municipal governments, transportation companies, and public services such as Law Enforcement Agencies. The dramatic growth in the adoption of voice and data wireless services by Canadians clearly demonstrates that wireless will be an increasingly significant component of Canada’s national telecommunications infrastructure.
4. Canadians have access to a world class radiocommunication infrastructure and have been quick to realize the benefits that new wireless services can provide. At the same time, improved access to global communication networks offers social and economic benefits for all Canadians. The challenge is to accommodate growth while respecting local land use concerns.
5. A radio antenna, its associated radio equipment and its supporting structure are fundamental components of a radiocommunication system. The antenna is needed to send and receive signals for the radio station. For most types of systems, these signals must have a clear path (referred to as line-of-sight) between the antenna and the user’s equipment. The supporting structure raises the antenna above obstructions such as trees and buildings so that it can send and receive these signals efficiently and clearly.
6. Each radio station and its antenna system (including the support structure) provide radio coverage to a specific geographic area, often called a cell. The antenna system must be carefully designed and located to ensure that it provides a good signal over the cell coverage area, without interfering with other stations. Generally the height and number of antennas are influenced by coverage and capacity requirements.
7. In areas where there is a concentration of cellular/PCS cells, such as cities and larger towns, the antennas do not need to be very high. Where the cells are

¹ *Allan Rock Announces National Antenna Tower Policy Review Committee*, Industry Canada Press Release, March 28, 2003

geographically larger, such as rural areas, the antennas must be higher above the ground to provide good radio coverage for the entire area.

8. With respect to capacity, if the base station is part of a public radio telecommunications network, the number of stations needed also depends on the number of users on the network. If the number of stations is too small, people may not be able to connect to the network, or the quality of service may be less than satisfactory.
9. Consequently, as demand increases for mobile phones and new telecommunication services, additional antennas are required to maintain or improve the quality of service to the public for either coverage or capacity or a combination of both.
10. As discussed below, CWTA notes that radiocommunication in Canada is under the exclusive jurisdiction of the Federal Government². Industry Canada is responsible for regulating radiocommunication in Canada including the authorization of the location of radiocommunication facilities. This authority is derived from the *Department of Industry Act* which describes the powers and duties of the Department and the Minister, and the *Radiocommunication Act* that specifically provides the Authority to approve antenna supporting structures.
11. The Minister holds this authority as a result of the critical importance of communications generally, and radiocommunication infrastructure more specifically, in achieving national telecommunications policy objectives as well as in light of the federal jurisdiction over telecommunications.
12. CWTA's members have a long history of consultation and cooperation with both local communities and Land Use Authorities concerning the selection of sites for the placement of radiocommunication facilities. The CWTA looks forward to continuing that tradition of consultation and cooperation.
13. In the balance of this document, we offer a number of proposals to improve the processes for consultation with Land Use Authorities under the auspices, and continued oversight of Industry Canada as central point of authority, control and, where necessary, final arbiter. The CWTA's comments on the seven policy issues, as posed by the Minister and the Committee, are preceded by a brief overview of the Canadian mobile wireless industry and its significance and role in Canada today. This discussion provides the backdrop and context for the CWTA's discussion of the specific policy questions being considered in the review.

Overview of the Canadian Wireless Industry

14. Since the initial licensing of cellular service in Canada in the mid-1980's, wireless service growth has gone from practically nil to current forecasts of one out of every two Canadians subscribing to wireless service by the end of 2004. While the original subscribers to cellular service in the 1980's were primarily business

² re Regulation and Control of Radio Communications of Canada [1932] A.C. 304 (Privy Council)

users, by the mid-1990's the service had become mainstream and today the consumer segment is a significant portion of the current subscriber base. Individual citizens use wireless to enhance their personal safety and to stay in touch with family and friends. Canadians value their mobile phones, frequently citing security, convenience and peace of mind as a few of their more important reasons for subscribing to wireless service. CWTA members are making significant improvements, and investments are being made continuously to enhance and upgrade their networks. The deployment of wireless enhanced 9-1-1 (E9-1-1) capability in Canada's wireless networks is but the most recent example.

15. Business is increasingly using wireless to enhance productivity through both voice and data applications. Indeed, the Federal government has frequently stated that the presence of an advanced wireless services infrastructure acts as an economic enabler to the entire economy³. Other levels of government also recognize this functionality as demonstrated by the fact that individuals and municipalities frequently petition the carriers to extend wireless coverage to their area⁴.
16. Enormous capital investment is required to provide and expand Canada's wireless infrastructure. Since 1996 alone, Canada's four national wireless operators have invested in excess of \$1 billion annually to provide wireless services to Canadians.
17. In addition to the expenditures to build and operate the wireless infrastructure, the introduction of spectrum auctions resulted in the industry paying \$1.5 billion for additional spectrum in 2001. This cost, which previously would have been incurred over the multi year term of the licence and only as the spectrum was put into use, is now required to be paid upfront at the start of the ten year term of those licences. This further increases the pressure on wireless operators to quickly and efficiently deploy this spectrum into productive service as soon as possible.
18. At the same time, the Canadian wireless sector is a vigorously competitive industry in which margins have been thin if existent at all, as demonstrated by the financial restructuring of one national operator earlier this year.
19. In addition to providing a key economic enabling infrastructure, the Canadian wireless industry is a significant contributor to Canada's GDP, in the order of almost \$5 billion in 2002 alone, and employs approximately 25,000 people throughout Canada.

Federal Jurisdiction over Wireless Telecommunications

20. Any discussion of tower approval procedures, in the context of municipal consultation, requires an understanding of the jurisdictional issues and the facts

³See for example: *Siting Wireless Communications Systems on Federal Property in Canada*, Industry Canada Fact Sheet; *A Spectrum Policy Framework for Canada (2002 Revised Edition)*, Industry Canada

⁴For example: Innisfil, ON.; Renfrew County, ON, Merrickville; ON, Northern Ontario Heritage Fund

upon which jurisdiction is based. As the National Antenna Tower Policy Review website acknowledges, "Industry Canada is responsible for regulating radiocommunication in Canada and for authorizing the location of radiocommunication facilities." The CWTA notes that national jurisdiction over telecommunications, including the authorization of radiocommunication facilities, is a common characteristic of the regulatory structures of all countries having advanced radiocommunication networks.

21. The cellular/PCS networks operated by the CWTA membership are inter-provincial in nature. They are composed of antennas located on support structures, and accessory equipment shelters that are vital, essential and integral to the operation of their networks. Without this radio equipment, the network would be unable to operate. As well, the precise siting of the antennas, their spatial distribution, and height of the antennas affect the quality, reliability, and function of the network.
22. It is long settled law that the Federal Government has exclusive and comprehensive jurisdiction over the area of radio communication and telecommunications⁵. The Privy Council determined *in re Regulation and Control of Radio Communications in Canada*⁶ that the Parliament of Canada has exclusive jurisdiction to regulate and control radiocommunication. Provincial Courts of Appeal (such as British Columbia and Ontario) have followed the Privy Council's decision without reservation.
23. Notwithstanding Section 92(13) of the *Constitution Act, 1867* which grants the Provinces power over civil and property rights (and which is the basis for the land use controls delegated to municipal governments), the Courts have been clear that affected Federal undertakings, such as telecommunication towers, are immune from other otherwise valid Provincial land use legislation. As a result, municipal land use planning controls such as zoning by-laws⁷, development

⁵ *Canadian Municipalities and the Regulation of Radio Antennas and their Support Structures*, David Townsend, 1987

⁶ *re Regulation and Control of Radio Communications of Canada* [1932] A.C. 304 (Privy Council)

⁷ *In Grimsby (Town) v Rogers Radio Broadcasting Limited*, Unreported, Craig J., January 10, 1981 the court determined that municipal zoning does not apply to a radio tower. In doing so the court said that:

Parliament has exclusive jurisdiction "to enact legislation in relation to radio communication and broadcasting" by virtue of the power granted to it by Section 91 of the *BNA Act* to enact legislation for the peace, order and good government of Canada and Section 92(10) which excepts radio communication and broadcasting from the classes of subjects that fall within provincial jurisdiction. We are not concerned, in the instant case, with the doctrine of paramountcy. Whether the Federal legislation has occupied the field is irrelevant ...

In the instant case the by-law is not exclusively directed toward legislating broadcasting and transmitting facilities of the type licenced by the CRTC and proposed to be erected by the Defendant (if the by-law did so it would be *ultra vires* in my opinion). The by-law is a general zoning by-law in which the erection of broadcasting and transmitting facilities is not a permitted use; and it therefore purports to prevent the Defendant from proceeding with the erection of its facilities. In the language of McKinnon J.A. in *Orangeville Airport* this "battle" had been "fought" and lost by the Provinces in the *Johannesson* case for these reasons. It is my opinion that the by-law in question is not effective to prevent the Defendant from proceeding with the erection of its facilities pursuant to the Federal licence.

approvals, and Building Code requirements⁸ are rendered inoperative to the extent that they affect the siting, physical location, design, construction and operation of the Federal undertaking. In other words, the prohibition, restriction or regulation of land for its use as a wireless telecommunication facility, would be *ultra vires* the authority of the Land Use Authority.

24. The aeronautics industry in Canada provides a long list of examples of land use controls that are inoperative when applied to an exclusive federal undertaking such as an airport⁹. The Supreme Court of Canada has determined, for example, that municipal zoning preventing the development of a hanger is *ultra vires* the municipality¹⁰. The British Columbia Court of Appeal and the Ontario Court of Appeal have determined that airport related buildings do not require a Building Permit, Site Plan Approval nor are they liable for Development Charges or levies¹¹. In fact, the courts have gone so far as to prevent the construction of non-airport related buildings, even though located away from the airport, when it is determined that such construction would interfere with the airport's operation. These cases are also based on the Federal Government's exclusive jurisdiction¹².
25. It is clear, based upon these uncontroverted decisions that a provincial land use regime and the municipal regulatory powers which rely on them are inapplicable to wireless telecommunication facilities¹³. Consequently, there is no legal basis to require the proponents of antennas support structures to comply with local land use regimes. Rather, in the spirit of co-operation, antenna proponents consult with Land Use Authorities to ensure that potential land use impacts are fully considered prior to the development of a tower. Industry Canada's Client

⁸ The Province of Ontario has issued a legal opinion to the effect that the Ontario Building Code does not apply to Towers. The opinion can be found at:

http://www.obc.mah.gov.on.ca/userfiles/HTML/nts_4_9023_1.html and

http://www.obc.mah.gov.on.ca/userfiles/HTML/nts_4_9079_1.html

⁹ In re Regulation and Control of Radio Communications of Canada, *supra*, the court relied upon its earlier reasoning in re Regulation and Control of Aeronautics in Canada. The analogy between aviation and radiocommunications was found to be compelling by the Ontario Court of Appeal in C.F.R.B and the Attorney General for Canada (1973) 38 D.L.R. (3d) 335

¹⁰ *Johannesson v. West St. Paul* [1952] S.C.R. 292

¹¹ *Johannesson v West St. Paul* [1952] S.C.R. 292 and *Mississauga (City) v Greater Toronto Airports Authority* (2001) 50 O.R. (3d) 641 (Ont. C.A.) - Leave to Appeal from the Supreme Court of Canada was denied

¹² *Re Walker v Minister of Housing for Ontario* (1983) 41 O.R. (2d) 9 (Ont. C.A.). Leave to appeal to the Supreme Court of Canada refused.

¹³ *Mississauga (City) v Greater Toronto Airports Authority*, *supra*, At page 658 the Court stated:

“The recent *Home Builders’* case in the Supreme Court of Canada confirms that the subject matter of the *Building Code Act* and the *Development Charges Act* is land development: *Ontario Home Builders’ Assn. v York Region Board of Education*, [1996] 2 S.C.R. 929, 137 D.L.R. (4th) 449. Iacobucci J. wrote at p. 966 that the *Planning Act*, including the scheme of education development charges imposed under the *Development Charges Act*, “is one component of a comprehensive regulatory scheme governing land development in Ontario, comprised of at least nine difference statutes”. One of these statutes is the *Building Code Act*. Therefore, the *Building Code Act* and the *Development Charges Act* stand on the same constitutional footing as provincial planning and zoning legislation. None of this legislation applies to the construction of airport buildings.”

Procedures Circular (CPC)-2-0-03, *Environmental Process, Radiofrequency Fields and Land –Use Consultation* recognizes the benefits of such consultation between proponents and Land Use Authorities without conferring jurisdiction, or a right of veto. In this regard, as noted previously, the record is clear that the CWTA's membership is committed to effective land use consultation.

26. As noted in the introduction, the Minister's and Industry Canada's authority is derived from the *Department of Industry Act* that describes the powers and duties of the Department and the Minister, and the *Radiocommunication Act* that specifically provides the Authority to approve antenna supporting structures. In addition, Industry Canada, through the *Radiocommunication Act* and with due regard to the *Telecommunications Act*, is responsible for developing national policies and goals for spectrum resource use including "fostering the orderly development and operation" of Canada's wireless communications infrastructure¹⁴.
27. The CWTA believes that without a central point of authority and control, such as the federal government, the goal of fostering the orderly development and operation of Canada's wireless networks, and hence Canada's spectrum resource, would be at serious risk. As opposed to the orderly development and operation of the wireless infrastructure, the possibility of stagnation in the expansion and improvement of those networks would become a real possibility if central authority for authorization of radiocommunication facilities were balkanized. Consequently, the CWTA is strongly of the view that Industry Canada and the Minister must retain final authority over the development and siting of radio antennas and their support structures.

CWTA Position Statements on Policy Questions

28. In the following sections the CWTA outlines its position on seven policy questions, six posed by the Minister, and one added by Prof. Townsend relating to impacts of antenna towers on real property value.
29. At the outset, CWTA notes that radio antennas may be placed on a variety of different structures. In addition to purpose-built radio towers, antennas are often placed on building rooftops or existing utility structures, such as water towers or electrical distribution towers. The questions presented all refer specifically to "towers". As a result, CWTA's comments refer primarily to antenna towers.

1) How can the local consultation process regarding the siting of a specific tower be improved?

30. To conduct a meaningful analysis of this question, the CWTA considers that the issue of tower siting should be quantified as clearly as possible. There are tens of thousands of antenna sites located across Canada supporting various radiocommunication applications including broadcast, mobile radio, public safety, navigation, amateur, point-to-point and point-to-multipoint fixed wireless, and cellular/PCS. Experience shows that only a very small fraction of these sites

¹⁴ *A Spectrum Policy Framework for Canada* (revised, 2002). Industry Canada.

have been subject to significant controversy as a result of the local consultation process.

31. The current consultation however focuses largely on the problem cases. For example, the RFP for the review specifically refers to information, to be provided by the Department to the National Review contractor, regarding “the problems that have been encountered under the current regime and procedures based on actual cases drawn from around the country¹⁵.” The CWTA submits that this type of analysis, while useful for identifying the source of controversy, over-emphasizes the extent of the actual problem.
32. CPC-2-0-03 outlines the procedures and processes to be followed for considering the impact of antennas and their supporting structures on their surroundings. In the vast majority of cases, the existing procedures and policies — as outlined in CPC-2-0-03 — are effective. In general, the CWTA submits that modifications are only required to the current procedures and processes applied when consultative negotiations have reached an impasse and final resolutions cannot be reached.
33. For example, knowing when to apply CPC-2-0-03 to the construction of an antenna support structure has proven to be challenging to proponents. The CPC only requires consultation for “significant antennas structures¹⁶”. However, some Land Use Authorities have required consultation for very modest installations which objectively have no land use impact. Other Land Use Authorities, when asked to determine which structures are insignificant have responded by exempting a broad range of minor installations including the addition of antennas to existing support structures, the co-utilization of structures such as roof tops or electrical transmission towers, temporary installations, and increases in height of an existing support structure. As a result, the CWTA submits that CPC-2-0-03 would benefit by a clearer definition of insignificance with reference to land use impact. Examples such as those cited above would be helpful to both the industry and Land Use Authorities. The definition of insignificance is important to avoid unnecessary and unwarranted delays in situations where little or no land use impact will occur.
34. From the perspective of the CWTA it is also important that carriers can reasonably expect that the local consultation process has clearly defined timelines for the commencement and the conclusion of the process. Note that the CWTA's discussion of the specific timeframes is expanded in its response to Question 2 below, at Paragraphs 40 and 41. Wireless operators believe that they are living up to and in many cases, going well beyond the spirit of CPC-2-0-03 in terms of local consultation. The flexibility contained in the CPC is helpful, as it allows municipalities to address their own unique circumstances. In those few cases where siting becomes contentious, however, it is important that an appropriate entity has the responsibility and role of adjudicator to resolve an impasse. The CWTA submits that that role must be played by Industry Canada.

¹⁵ *Terms of Reference, Radiocommunication Antenna Supporting Structures Siting Procedures Review*, RFP IC400210, 3.1(d)

¹⁶ CPC-2-0-03 at page 7

35. Further, CWTA submits that any process must apply equitably to all categories of radio users and must not unduly target commercial operators, particularly cellular/PCS operators. Emergency communications and municipal operations should receive the same treatment as commercial operators. It should be noted that commercial operators provide significant voice and data services to public agencies, including federal and provincial government departments, municipalities and public safety agencies. In fact, Industry Canada policy supports the provision of service to such entities by commercial operators¹⁷.
36. The CWTA also notes that cellular and PCS antenna sites, in some instances, represent a small proportion of the total antenna supporting structures that exist in communities today. In 1999, the City of Toronto prepared an inventory of antenna sites within the municipality¹⁸. The total number of antenna sites reported was 4,996. Of that total, the number of cellular/PCS sites was relatively small at 779 or approximately 16% of total sites. The remainder included certain public systems (e.g. Toronto Transit Commission, Municipal Departments, and Toronto Hydro) at 630 antenna sites, a number which is not incomparable to that of the cellular/PCS operators. It is also of note that these inventory numbers did not include emergency services or federal/provincial government sites, which were not reported in the study.
37. For cellular/PCS operators, consistency and timeliness of the local consultation process is extremely important, especially given the considerable investment in obtaining spectrum and building out wireless networks. Further, significant financial and human resources are dedicated to searching out and designing new sites and, from the carriers' perspective; it is not acceptable if the process can be drawn out interminably and without recourse.
38. CWTA recommends in the few cases where concurrence from the Land Use Authority is not possible that CPC-2-0-03 be fine tuned in order to permit a speedy resolution. These changes would include the following;
- a. The CPC should specifically define those support structures which are deemed to be insignificant from a land use impact point of view. While the "exemption list" need not be exhaustive it should include the addition of antennas to an existing tower including co-locations, the establishment of rooftop facilities, increases in the height of existing towers where the increase does not exceed 25%, temporary installations where the expected duration is less than 6 months and co-utilization of existing structures such as high tension electrical towers and water towers¹⁹.
 - b. The time for a response from a Land Use Authority ought to be strictly enforced in order to ensure that issues are identified at the earliest

¹⁷ *A Spectrum Policy Framework for Canada (2002 Revised Edition)*, Industry Canada, p.9

¹⁸ City of Toronto Staff Report to Telecommunications Steering Committee re: Siting of Telecommunications Antennas, December 6, 1999

¹⁹ Protocols which have recognized insignificant structures include: City of Markham, approved 18 June, 2002, Town of Niagara-on-the-Lake approved January 13, 2003, Niagara Escarpment Commission approved November 29, 2001.

possible time. Those Land Use Authorities who choose not to respond within 60 days of the filing of an antenna site proponent's request to consult should be deemed to have concurred with the proposal. In order to ensure clarity, proponents of tower sites ought to be required to file a dimensioned site plan drawing, a structural cross section and a survey in order to commence the time period for a municipal response. Time extensions to the 60 day municipal response timeframe should only be granted by Industry Canada based on compelling circumstances.

2) What are the most appropriate time frames for the processes of approving and resolving debates surrounding specific tower placements?

39. In CPC-2-0-03 Industry Canada considers that, once a Land Use Authority is contacted concerning a significant antenna siting proposal, it should make its views known to the applicant within 60 days of receiving a proposal. CPC-2-0-03 further notes that the entire consultation process should be completed within a total of 120 days of receiving a proposal.
40. The CWTA notes that the 60/120 day time frames reflected in CPC-2-0-03 compare favourably with the time frame limits applied by other national jurisdictions. The United Kingdom, for example, limits the entire consultation process to a total of 57 days after the Land Use Authority has been contacted. The UK's process, moreover, enables the tower placement to proceed if no decision has been rendered by the Land Use Authority at the end of that 57 day time frame.
41. In general, the CWTA considers that the time frames outlined in CPC-2-0-03 are reasonable to all concerned parties. This view is supported by the fact that Canada's current total local consultation time frame is twice that of the UK. In certain cases, however, the final determination from either a Land Use Authority or Industry Canada has substantially exceeded the 120 day timeframe contemplated by CPC-2-0-03 — at times extending into a year or more. For cellular/PCS operators this is a significant concern for the following reasons.
42. As noted in our response to Question 1 above, antenna sites require large capital investments. A protracted process leading to final determination ties up those funds that could either see a financial return if the site is approved and turned on, or redirected to another location if the site is refused.
43. As a condition of licence on certain of their spectrum authorizations, cellular/PCS operators must demonstrate they have put licenced spectrum to use within specified timeframes. For example, certain PCS authorizations require that "Within five years of the auction's close, the licensee must demonstrate to the Department that the spectrum has been put into use. The establishment of coverage to 50% of the population within the licensed service area, or some other indicator of usage that is acceptable to the Department, will be required²⁰."

²⁰ *License Conditions for the Auction of Additional PCS Spectrum in the 2 GHz Frequency Range Licensees*, Condition 14, Implementation of Spectrum Usage.

44. In addition, with the shift from site licences to the licensing regime proposed under DGRB-004-02²¹, cellular/PCS providers would be required to pay licence fees based on the geographic area licenced, rather than when spectrum is actually put into use. Undue delays in antenna approvals could prevent licensees from recovering those licence fees, or indeed simply using the very spectrum for which they would be expected to pay licence fees.
45. The CWTA notes that where a specific local consultation process becomes protracted, the factual basis of that consultation can also be put at risk causing further delay, misunderstandings and frustration. Changes may be made to elements within the existing network around the proposed site to mitigate the radio engineering impacts arising from the absence of the proposed site. Delays may also result in the loss of potential landlords for the facility. Consequently, such changes often result in a reduction of the range of potential sites under consideration, which reduces the effectiveness of the consultation. As a result, the land use consultation process itself would benefit from an early determination of issues of concern to the Land Use Authority so that they may be dealt with in a timely manner and be based on a full range of available options.
46. In the preceding Paragraph 38 CWTA recommended that Land Use Authorities be deemed to have concurred with proposals should the Land Use Authority not respond within 60 days. Such a requirement would ensure that issues for resolution are identified at the earliest possible time. In cases where issues have been identified, the CWTA recommends that the 120 day period be respected by all concerned

3) What means are available to readily identify whether proposed installations may create radiofrequency fields in excess of established exposure limits in areas where people live and work?

47. CPC-2-0-03 notes that Health Canada's Safety Code 6 contains recommended safety procedures for the installation and use of radiofrequency emitting devices. Industry Canada requires that radio stations be installed and operated in a manner that complies with Safety Code 6.
48. CWTA notes that all wireless operators consider these limits during all stages of the planning and design of an antenna site. Computer models²² are used to provide estimates prior to construction and actual measurements are taken following the activation of the site. The CWTA notes that the emission levels from wireless operators' antenna facilities are well within the limits prescribed by Health Canada. A U.S. website, jointly hosted by the Federal Communications Commission and the Food and Drug Administration, for example, indicates that , "In fact, ground-level exposure from such antennas is typically thousands of

²¹ Canada Gazette Notice DGRB-004-02, *Consultation on a New Fee and Licensing Regime for Cellular and Incumbent Personal Communications Services (PCS) Licensees*

²² In 1997, CWTA and some of its members, with the assistance of Industry Canada, developed *RaPD Calc*, a software program to predict the RF emitted from antenna sites prior to installation to ensure conformity with Safety Code 6. RaPD Calc is no longer widely used, but the techniques and models are still employed by the operators.

times less than the exposure levels recommended as safe by expert organizations. So exposure to nearby residents would be well within safety margins²³." Further, a recent Industry Canada study in Toronto²⁴ demonstrated, for example, that general radio frequency levels are substantially less than the limits specified in the Safety Code 6 guidelines. This is particularly notable because Toronto has among the most intense use of radio spectrum of any municipality in Canada. Also notable is the fact that the study determined that cellular/PCS emissions represented less than one quarter of the total measured radiofrequency levels identified.

49. The results from both the computer models and measurements are designed for use by radio engineers, the people who use these tools to design and build radio systems. While for the general public, the specific results may not be informative, antenna site proponents are required to file an attestation to the effect that the site meets the Health Canada limits.
50. CWTA also notes that the Safety Code 6 limits are established by Health Canada, the federal Department with the authority and expertise necessary for the task. CWTA submits that it would not be appropriate for local Land Use Authorities to modify these limits or to require justification or validation beyond what is required by Industry Canada or Health Canada. Further, Land Use Authorities should not withhold antenna structure concurrence based on questions related to the methodologies used to estimate or measure RF emissions.

4) What information would most benefit concerned members of the public and how should it be provided?

51. CPC-2-0-03 directs that consultation be undertaken with the relevant Land Use Authority recognizing that they represent the public. Further, while cellular/PCS operators frequently do so during the course of some site proposals, there is no requirement that consultation also be undertaken with the public directly.
52. Antenna site proponents currently provide Land Use Authorities, as representatives of the public, a significant amount of information regarding proposed sites, some of which could be shared with the public. This includes evidence of the concurrence of the landlord for placement of the antenna, site plans, construction drawings, as well as an indication of the appearance of the structure in either cross section or photo-simulation format.
53. It should be noted, however that commercial radio licencees, including mobile radio and cellular/PCS, operate in highly competitive industries and any information provided to a Land Use Authority, if disclosed to others, can provide a market advantage to competitors, particularly when they are already operating in the proposed location.

²³ U.S. Food and Drug Administration at www.fda.gov/cellphones/qa.html

²⁴ *Evaluation of Electromagnetic Field Intensity in the City of Toronto*, Industry Canada, June 2002

54. The cellular/PCS industry also helped establish the Wireless Information Resource Centre, an independent non-profit organization that provides up-to-date, impartial and objective information about research on the health effects of wireless technology²⁵.
55. The CWTA also submits that it is incumbent on the regulator – Industry Canada – to play a significant role in informing the public of the rules and regulations that antenna proponents must adhere to, the scope of land use consultation, as well as providing general information concerning all aspects of RF safety.
56. The CWTA believes that it would be inappropriate to mandate a public information package. Rather, it should be left to local preferences.

5) How and to what extent can tower sharing be utilized in order to reduce the total number of towers?

57. Some municipalities that have adopted a formal policy on antenna sites state a preference for the use of existing structures and / or tower sharing. Most of these municipalities acknowledge that tower sharing inherently results in larger structures with a more visible profile. These municipalities are willing to accept larger, more visible structures if it results in a reduction of the number of sites. Others object to the use of larger towers supporting collocated antennas, due to their more prominent profile.
58. There is a recent trend in urban circumstances and where a facility is located in close proximity to a residential area, to move away from the preference for co-located sites in favour of less obtrusive designs. Less obtrusive designs generally rely on a reduced number of antennas to be effective. As a result co-location, which relies on a multiplicity of antennas, is inconsistent with the less obtrusive designs which are available today
59. CWTA estimates that there approximately 8,000 cellular/PCS antenna sites across Canada. For comparative purposes there are approximately 35,000 sites in the UK, which has a considerably smaller land mass than Canada. Of the Canadian sites, about 40% are located on structures other than purpose-built cellular/PCS towers (e.g. building rooftops, water towers, and other radio towers). Approximately 30% of all sites, including towers, are shared either with another cellular/PCS operator or another radio service. This percentage applies to towers alone as well.
60. Clearly the use of site sharing and non-tower options has reduced the number of towers constructed for cellular/PCS services. CWTA believes these numbers demonstrate that the cellular/PCS operators have actively worked to reduce the number of towers required²⁶.

²⁵ More information can be found at <http://www.wirc.org/>

²⁶ According to the Mobile Operators Association in the UK, 66% of mobile telephony sites are located either on shared towers or existing structures meaning a separate tower was not required. In Canada, this number is 58%.

61. In locations where the predominant built form is low density and low rise, the options for an antenna site proponent become limited. Antennas must be a certain height above the ground to be useful. If there are no, or few, existing structures, the only option may be to build a new, dedicated supporting structure.
62. There are practical limitations, however, to the extent that sharing can happen. These include:
 - a. For technical reasons, certain services cannot coexist on the same structure, or in close proximity to each other
 - b. Certain services (such as law enforcement, DND) will not share antenna structures for security related reasons.
 - c. Frequency co-ordination and interference avoidance becomes more difficult as the number of antennas and services increases on a given structure, sometimes removing the sharing option.
 - d. The timing of network deployment across operators may not coincide.
 - e. Network design and coverage patterns, combined with existing infrastructure can require distinct locations.
 - f. RF emissions increase as the number of antennas and services increase, limiting the number of services that can be located together.
63. Considering only mobile telephony, it is simply not possible to accommodate the two analogue and five digital networks that provide service across Canada at the same location.
64. Despite these limitations there are benefits that can accrue to operators through the use of collocation.
 - a. Infrastructure costs can be reduced because adding antennas to an existing structure is less complex and less expensive than the construction of a new structure.
 - b. Deployment time can be substantially decreased if existing structures are used since construction time is minimized, and the addition of antennas to an existing structure is insignificant from a land use point of view .
 - c. Existing structures frequently represent the optimum siting location in an area and hence are highly desirable locations.
65. As a result, for business and technical reasons, operators regularly consider collocation as a standard part of their network planning processes. They also consider less obtrusive designs where local circumstances warrant. CWTA submits that this type of flexibility should be maintained in order to permit proponents to respond to local conditions with appropriate tower designs.

6) Can protocols be arranged between local land-use authorities and antenna proponents regarding the planning and siting of antenna structures, visual guidelines and dispute resolution mechanisms?"

66. While recognizing the exclusive federal jurisdiction over antenna structures, some municipalities have nonetheless created protocols, in co-operation with the wireless industry, in order to assist municipal staff in making decisions on providing concurrence to Industry Canada. These protocols can also provide guidance to tower proponents about the Land Use Authority's preferences.

Protocols

67. CWTA's members have already worked with Land Use Authorities in this area. As a result, many Land Use Authorities already have well designed, comprehensive protocols / policies in place to deal with antenna siting issues. In fact, some municipalities are now using second generation protocols. In Ontario, approximately 10% of municipalities have a local municipal consultation protocol. In other provinces the number tends to be lower.
68. The first protocol appears to have been adopted by North York City Council in 1990. That protocol was as a result of an all industry meeting with the Planning Department focusing on roof-top facilities. The discussion was influenced by the City's acceptance of the fact that they had no jurisdiction to issue building permits or to require site plan approval for radiocommunication facilities under Ontario's *Planning Act*. Consequently, protocols began to be developed in earnest in about 1996.
69. Protocols seem to be of interest to those urban municipalities who anticipate facing a number of tower site applications over time. This is a reflection of the fact that such protocols are time consuming to develop. Smaller municipalities appear to want to use existing processes. While recognizing the jurisdictional issues associated with land use approval processes, they seem to be content to use these processes to identify and address their particular preferences or concerns.
70. While many protocols share features, each appears to be unique in order to permit it to address local conditions and character. No protocol addresses dispute resolution beyond identifying Industry Canada's impasse process. This is an appropriate response given the Minister's authority in this area.
71. The CWTA is not convinced that a national protocol would be possible or useful. The current process has provided Land Use Authorities the flexibility to reflect local circumstances and priorities in their dealings with antenna site proponents. A national protocol would remove that flexibility.

Visual Guidelines

72. The CWTA does not view the establishment of visual guidelines as appropriate beyond the identification of a preference for less obtrusive designs as opposed to co-location. While there may be instances where protocols attempt to specify visual guidelines, these guidelines are generally subjective, difficult to interpret

and do not appropriately reflect the physical and technical requirements necessary for radio towers and, by implication, for wireless networks. That being said, however, as the demand for wireless service grows worldwide, antenna equipment manufacturers and wireless operators are working to improve the visual aspects of wireless antennas.

73. Antenna equipment manufacturers, for example, have progressed beyond the first generation of highly visible and sometimes obtrusive tower design. These original designs are being supplanted by more streamlined monopole structures that are more easily blended in to the local landscape.
74. Canadian wireless operators have used a number of creative methods to reduce the visual impact of antenna support structures. These include such approaches as mounting antenna within church steeples and related structures, or disguising antenna support structures to blend into the local environment. One example of this latter approach is the use of antenna support structures disguised as ornamental light posts in Vancouver's Stanley Park. Even where such creative solutions cannot be used, Canadian wireless operators are sensitive to the need to reduce the visual impact of support structures. Expert staff is careful to seek placement solutions that will reduce the visual impact of these structures. For example the placement of support structures behind trees or adjoining existing utility poles can significantly reduce the visual impact of a support structure. In any event, wireless operators expend significant effort working with local planners using, among other things, photo simulations to arrive at a placement solution that meets the needs of all parties. However, other than a guideline to make support structures as unobtrusive as possible, the CWTA is not convinced that more workable guidelines can be developed.

Dispute Resolution Mechanism

75. The CWTA believes that both local planners and wireless operators apply best efforts to negotiate and arrive at acceptable siting solutions. The problem arises when these two parties, despite these best efforts, cannot arrive at a mutually acceptable solution within a reasonable timeframe. The CWTA notes its response to Question 2 at Paragraphs 40 and 41 above where we suggest that when the parties reach an impasse, an adjudicator is needed and that the CWTA submits that Industry Canada must fill that role. The CWTA further submits that this resolution mechanism can be incorporated into existing Departmental practices and procedures.

7) What evidence exists that property values are impacted by the placement of antenna towers?

76. To our knowledge, there are no empirical studies in Canada which demonstrate that residential property values are impacted by the placement of antenna towers. In fact, the CWTA notes that an extensive literature search reveals that there are no empirical studies of relevance in Canada which demonstrate that tower placements have any impact on property values.
77. Real property consumer markets are extremely complex and involve the interaction of many factors. The presence of a tower or the absence of wireless

service all-together are just two hypothetical factors which a consumer of real property might take into account. Again, there is no empirical data that even suggests that these factors are considered by arm's length purchasers .

78. Further, the CWTA notes that the Personal Communications Industry Association (PCIA), a U.S. based body specializing in wireless infrastructure issues and acknowledged as such on the National Antenna Review web site, has stated that, "Empirical analysis consistently shows that the presence of a tower or monopole has no demonstrable effect on either sales price or the time it takes to sell a property within view of a communications tower." Similarly, independent study has demonstrated that "there was no consistent market evidence suggesting any negative impact upon improved residential properties exposed to such (telecommunication tower) facilities in the areas included in the study²⁷".

Conclusion

79. The National Antenna Tower Review has the potential to impact the daily lives of virtually every Canadian. There is no question that radio antennas and their supporting structures are of fundamental importance to radio-based communications. As a result, changes to the policies governing the construction of antenna structures could have significant effects on Canada's communications infrastructure.

80. The Review may also impact CWTA's members, who build and operate this infrastructure. CWTA's members also have a long history of consultation and cooperation with both local communities and Land Use Authorities concerning the selection of sites for the placement of radiocommunication facilities. For these reasons, CWTA offers the following recommendations for the Review Committee:

- a. To realize the goal of fostering the orderly development and operation of Canada's wireless networks and Canada's spectrum resource, Industry Canada and the Minister must remain the central point of authority and control of the development and siting of radio antennas and their support structures .
- b. Recommendations should seek to address the procedures and processes applied to the few cases when consultative negotiations are unable to achieve workable final resolutions, including:
 - i. Providing a clearer definition of those support structures which are deemed to be insignificant from a land use impact point of view and are therefore exempt from the requirement to consult.
 - ii. Providing for strict enforcement of the time for a response from a Land Use Authority using a deeming provision in order to ensure that issues are identified at the earliest possible time. Consistency

²⁷ *The Impact of Communication Towers on Residential Property Values*, Allen G. Dorin, Jr. A similar conclusion is reached by the first phase of a New Zealand Study authored by Sandy Bond, Si-Yeoul Mun, Pornsiri Sakornvanasak and Nick Mahon titled *The Impact of Cellular Phone Base Station Towers on Property Values*, University of Auckland, New Zealand.

and timeliness of the local consultation process, especially given the considerable investment in obtaining spectrum and building out wireless networks, are extremely important.

- c. Land Use Authorities should not be permitted to modify the RF emission limits established by the Federal Government, or to require justification or validation beyond what is required by Industry Canada or Health Canada. Nor should Land Use Authorities be permitted to withhold antenna structure concurrence based on questions related to the methodologies used to estimate or measure RF emissions.
- d. It should be a role of the regulator to inform the public of the rules and regulations that antenna proponents must adhere to, the scope of land use consultation, as well as providing general information concerning all aspects of RF safety. It would be inappropriate, however, to override local preferences and mandate a public information package.
- e. Existing flexibility should be maintained regarding tower sharing in order to permit proponents to respond to local conditions with appropriate tower designs. CWTA has demonstrated that the cellular/PCS operators have actively worked to reduce the number of towers required, but sharing is not always the optimal solution.
- f. There should be no mandated national protocol established for the siting of antenna structures. The flexibility that currently allows municipalities to reflect local circumstances and priorities in their dealings with antenna site proponents, through the establishment of local protocol/policies developed in co-operation with the industry, should be maintained.
- g. No action is required on the issue of property values, given that there are no empirical studies of relevance in Canada which demonstrate that tower placements have any impact on property values.