

The City of Calgary thanks Industry Canada for the opportunity to respond to Gazette Notice No. SMSE-018-10, "Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum". All questions are answered from the perspective of The City of Calgary as a non-commercial entity. As such, The City has not provided opinions on questions regarding commercial wireless competition, auction policies, or open access.

4-1. What is the general need for additional commercial mobile spectrum at this time and what do you anticipate the future needs to be?

The City of Calgary has a growing demand for fixed, nomadic, and full mobility broadband wireless connectivity for a variety of devices and applications including surveillance cameras, wireless control of traffic intersections, mobile office, and automatic vehicle location. If spectrum could be acquired at a reasonable cost, The City could build wireless infrastructure in order to address a number of areas not currently addressed by commercial wireless operators: wireless traffic priority, security, large data upload, and coverage area. The City's main interest is in the upper D and Public Safety blocks of 700 MHz spectrum.

4-2. Provide general deployment information on the current use of your existing holdings in each mobile spectrum band. In the case where current holdings are not being used, provide information on its planned use, including timelines.

This question is not applicable to The City of Calgary.

4-3. Indicate your need for additional spectrum for commercial mobile service applications and how much spectrum is required.

(a) What deployment timelines are being considered?

The City of Calgary requires spectrum as soon as possible since demand for additional spectrum already exists.

(b) What types of applications/uses are envisioned?

A small sample of potential municipal applications include live streaming video, remote monitoring and control of field equipment, mobile office, and automatic vehicle location.

(c) To what degree will your business' anticipated spectrum needs be addressed by having access to the 700 MHz and/or 2500 MHz spectrum?

The new spectrum is intended to supplement the existing wireless services that The City currently purchases from commercial wireless providers.

4-4. Do you plan to use 700 MHz spectrum acquired in the auction with, or on behalf of, another entity, which may participate in the auction? If yes, with which entity?

The acquired spectrum will be used exclusively for municipal applications.

4-5. Provide comments on the extent to which alternate spectrum access arrangements have been investigated/considered to respond to your need for additional spectrum. In addition, provide specific efficiency measures investigated or implemented for current holdings.

The City of Calgary has had prior correspondences with Industry Canada to acquire spectrum in 2500-2690 MHz band. Additionally, The City has requested a modification of usage rules for

existing Public Safety spectrum in the 4940-4990 MHz band to include municipal applications. We have piloted a system using unlicensed spectrum (900 MHz, 2.4 GHz, and 5.8 GHz) with some success. However, use of this spectrum for mission critical applications is not realistic as it is not possible to guarantee traffic priority or interference mitigation in these bands.

5-1. Based on the criteria listed above, which of the four band plan options should be adopted in Canada? Why is this option preferred over the other options? If Option 3 (APT band plan) is selected, what should the block sizes be? In providing your responses, include supporting arguments, including potential benefits to wireless subscribers.

The City of Calgary is in favour of "Option 1: Harmonize with the U.S. band plan". Additionally, The City recommends allocation of the upper 700 MHz D band for Public Safety. This option would best allow for harmonization of equipment specifications, enabling economies of scale and greater availability for consumer and infrastructure equipment. Further, this option would allow for cross-border frequency coordination for emergency services in the event of a continent-wide public emergency. The allocation of upper D band for Public Safety would address an existing and growing demand for wireless broadband services.

In addition to harmonization with the US band plan, The City recommends modification of the usage rules on Public Safety spectrum to include municipal applications which are not directly related to Public Safety (currently defined as the preservation of life and protection of property).

Options 2a and 2b, with segmentation into 10 MHz and 5 MHz blocks, are not preferred as they allow for the possibility that all broadband Public Safety spectrum (5 + 5 MHz in D band and 5 + 5 MHz in existing US Public Safety band) could be made available for auction to commercial carriers. Option 3 is not preferred since there is no apparent provision for broadband Public Safety spectrum, and narrowband Public Safety spectrum would need to be re-allocated. This would obviously create interoperability and cross-border frequency coordination issues between Canada and the US.

5-2. The band plans presented in the options above include guardbands. Should the Department auction the guardbands, or should these frequencies be held in reserve for future use such that they are technically compatible with services in the adjacent bands? Also comment on any related aspects not addressed above or other possible options, including combinations of options.

The City recommends adopting the US band plan, including their plan for licensing of guardbands.

**5-3. Do Public Safety agencies need spectrum for broadband applications? If so:
(a) How much and for which type of applications?**

The City of Calgary recommends a minimum allocation of 10 + 10 MHz, with 20 + 20 MHz preferred to make full use of LTE wireless technology. The City's Calgary Police Services and the Calgary Fire Department have a growing demand for fixed, nomadic, and full mobility broadband wireless connectivity for a variety of devices and applications. A small sample of the applications would include surveillance cameras, red light cameras, mobile office, and automatic vehicle location.

(b) What are the anticipated deployment plans and the possible constraints, if any, in implementing these plans?

Calgary Police Services and Calgary Fire Department have no current plans to deploy their own wireless broadband network. A partnership with City IT to build a network in order to share costs and minimize duplication of infrastructure is a more sensible approach. However, current rules on using Public Safety spectrum present a challenge to such a joint wireless broadband network.

(c) Is there suitable alternate spectrum to the 700 MHz to meet these broadband requirements?

The City of Calgary is willing to work with Industry Canada to locate alternate spectrum that meets our broadband requirements.

5-4. Comments are sought on the need for Public Safety broadband radio systems to be interoperable:

(a) between various Canadian Public Safety agencies;

(b) between Canadian and U.S. Public Safety agencies.

The City of Calgary has no opinion on question 5-4.

5-5. What are the challenges faced today by Public Safety agencies to have cross-border radio interoperability in other frequency bands?

The City of Calgary has no opinion on this issue.

5-6. Notwithstanding your responses to questions 5-3 to 5-5, the Department seeks comments on whether Public Safety broadband needs can be met by using commercial systems with priority access rights for Public Safety, at commercial rates.

(a) Your views and comments are invited on priority access rights, including pre-emption, and on the feasibility of such a system.

Currently, no commercial wireless operators offer this capability on their network. Even if pre-emption were possible, there may be security issues with sensitive information travelling across multiple nodes in a network before reaching the intended destination. The City of Calgary would prefer a municipality owned and operated wireless broadband network.

(b) What Public Safety technical and operational requirements cannot be met by commercial systems, from either a Public Safety or commercial operator point of view?

The requirement for large data uploads, keeping data transfer on a local, private infrastructure for security purposes cannot be met by commercial systems. As described above, sharing the same infrastructure with a commercial carrier's customers may present security risks.

(c) What specific rules, if any, should be mandated by the Department to make such a system viable?

The City of Calgary has no opinion on this issue.

5-7. Comments are sought on the need for regional (local, provincial, etc.) dedicated broadband networks to provide access to all Public Safety agencies, and the institutional²² feasibility of implementing such a system.

The City of Calgary believes that local and provincial Public Safety agencies, and municipalities in general, have a growing demand for wireless broadband services. A jointly owned wireless broadband network shared by Public Safety agencies and the municipalities which they serve is the most efficient model to maximize spectrum usage and minimize duplication of infrastructure. This is possible if Public Safety spectrum can be shared with municipalities or spectrum is allocated explicitly for this purpose.

5-8. Is there a need for a dedicated national interoperable broadband network to provide access to all Public Safety agencies? The Department seeks comments on the institutional feasibility of implementing such a system.

The City of Calgary has no opinion on this issue.

5-9. If band plan Option 1, 2a, or 2b in Section 5.1 is chosen, which one of the three options described above should be adopted and why is this option preferred over the other options? Provide supporting rationale.

The City of Calgary believes that harmonization with the US plan, Option 1, would ensure cross-border interoperability and allow equipment manufacturers to realize economies of scale as markets for their products would exist in both countries. Options 2a and 2b are not favourable since they could allow for auctioning of existing and proposed Public Safety broadband spectrum.

5-10. If commercial operators are mandated to support Public Safety services, what tier size should be applied in order to ensure adequate Public Safety coverage?

The City of Calgary has no opinion on this issue.

5-11. If the APT band plan (See Option 3 in Section 5.1) is adopted:

(a) Given that the APT band plan requires a 55 MHz duplexing separation, can Canadian Public Safety services operate their current narrowband systems in this band plan configuration? If not, what are possible alternatives to address Public Safety needs?

The City of Calgary believes that band plan has no apparent provision for Public Safety spectrum (broadband or narrowband); only the potential for modification of SP-746 and SP-768.

(b) Should spectrum be designated for dedicated Public Safety broadband systems, and how much?

There is already existing and growing demand from Public Safety agencies for wireless broadband services. Based on experiences with pilot wireless broadband networks, a minimum of 10 + 10 MHz, with 20 + 20 MHz preferred, would be required to implement such services such as wireless streaming video for surveillance, automatic vehicle location, and mobile office.

5-12. The Department seeks comments on whether the auction of 700 MHz commercial spectrum should be based on uniform tier sizes across all spectrum blocks, or a mixture of tier sizes.

The City of Calgary has no opinion on this issue.

5-13. Based on your answer above, what tier size(s) should be adopted?

The City of Calgary has no opinion on this issue.

5-14. The Department seeks comments on the transition policy proposed above.

The City of Calgary has no opinion on this issue.

5-15. The Department seeks comments regarding its proposal to permit low-power licensed devices, including wireless microphones, to operate in the band 698-764 MHz and 776-794 MHz only until March 31, 2012.

The City of Calgary has no opinion on this issue.

6-1. The Department seeks comments on its proposed changes to the *Canadian Table of Frequency Allocations* for the band 698-806 MHz.

The City of Calgary has no opinion on this issue.

6-2. The Department seeks comments on the spectrum utilization policy proposed above.

The City of Calgary has no opinion on this issue.

7-1. The Department seeks comments on the current state of competition and its anticipated evolution, including the impact on consumers in the Canadian wireless services market:

(a) in general;

(b) in terms of its contributions and interaction to the broader Canadian telecommunications service market;

(c) in comparison with the wireless markets of other jurisdictions.

The City of Calgary has no opinion on question 7-1.

7-2. Provide views, and any supporting evidence, on the impacts of government measures adopted in the AWS auctions, including the impacts on consumers and on the state of competition. In particular, what has been the impact, if any, of such measures on industry concentration, barriers to entry or expansion of services, and the availability of new or improved service offerings and pricing plans?

Past spectrum auctions have proven to be too expensive for The City to consider as an option for obtaining spectrum.

7-3. In light of the current conditions in the Canadian wireless service market(s), is there a need for specific measures in the 700 MHz and/or 2500 MHz auction to increase or sustain competition?

The City of Calgary has no opinion on this issue.

7-4. The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions³¹ that apply to the telecommunications sector. How would the adoption of any of these proposed changes impact your responses to the questions above? Provide supporting evidence and rationale for all responses.

The City of Calgary has no opinion on this issue.

7-5. If the Department determines that there is a need for measures to promote competition, which of the above mechanisms would be most appropriate and why should this mechanism be considered over the other? Comments should also indicate if further restrictions should apply so that policy objectives are met, for example, over a given time period?

The City of Calgary has no opinion on this issue.

In light of your response above, and recognizing that pending decisions on the specific band plan, spectrum for Public Safety system, tier sizes and open access requirements could influence your response:

7-6. (a) If the Department were to implement spectrum aggregation limits (caps):

(i) Should the cap apply to the 700 MHz band only or be broader?

(ii) What should the size of the cap be?

(iii) Should bidders and their affiliates or associates share the cap?

(iv) How long should the cap remain in effect?

(b) If the Department were to implement a set-aside in the 700 MHz auction:

(i) Who should be entitled to bid in the set-aside block(s) and should the entitled bidders be restricted to bidding on the set-aside only?

(ii) How much spectrum should be set-aside and which block(s) should be set-aside?

(iii) If the set-aside were to include multiple blocks of spectrum, should they be contiguous?

(iv) What restrictions should be put in place to ensure that policy objectives are met (for example, should trading of the set-aside spectrum be restricted for a given time period)?

The City of Calgary has no opinion on question 7-6.

7-7. Are there other mechanisms that should be considered and, if so, how should these be applied?

The City of Calgary has no opinion on this issue.

7-8. The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions that apply to the telecommunications sector. How would the adoption of any of the proposed changes affect your responses to the questions above?

The City of Calgary has no opinion on this issue.

8-1. In the above context, the Department seeks comments on challenges and specific problems affecting the deployment of broadband mobile services to low-density rural and remote areas.

The City of Calgary has no opinion on this issue.

8-2. Is there a need for further regulatory measures or changes to existing regulatory rules (e.g. RP-19) to facilitate service deployments in rural and remote areas that remain unserved and/or underserved?

The City of Calgary has no opinion on this issue.

8-3. Should the Department decide that measures are necessary, comments are sought on specific measures that could be adopted within the 700 MHz spectrum auction process to ensure further deployment of advanced mobile services in rural and remote areas (e.g. roll-out conditions, tier structure, etc.).

Rationale and supporting evidence that substantiate your responses should be provided.
The City of Calgary has no opinion on this issue.

9-1 The Department seeks comments on whether there is a need for government intervention to promote open access, by increasing access by users to handsets and/or applications.

The City of Calgary has no opinion on this issue.

9-2. If government intervention is needed, which of the following options should be implemented?

Option 1: Mandated open access requirements across all future commercial mobile bands

Option 2: Mandated open access requirements for the entire commercial mobile spectrum in the 700 MHz band.

Option 3: Mandated open access requirements for the “C Block” (746-757/776-787 MHz) as in the United States.

The City of Calgary has no opinion on this issue.

10-1. The Department is considering three options to proceed with the 700 MHz and 2500 MHz ands auction processes:

Option 1: to conduct an auction for licences in the 700 MHz band first, followed by an auction for licences in the 2500 MHz band approximately one year later;

Option 2: to conduct an auction for licences in the 2500 MHz band first, followed by an auction for licences in the 700 MHz band approximately one year later;

Option 3: to conduct one combined auction for licences in both the 700 MHz and 2500 MHz bands, which would be six months later than the first auction in the case of separate auctions.

The City of Calgary has no opinion on this issue.

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