

## CORRIDOR COMMUNICATIONS INC. COMMENTS

INNOVATION, SCIENCE, AND ECONOMIC DEVELOPMENT CANADA  
CONSULTATION ON REVISIONS TO THE 3500 MHz BAND TO  
ACCOMMODATE FLEXIBLE USE AND PRELIMINARY CONSULTATION  
ON CHANGES TO THE 3800 MHz BAND

CANADA GAZETTE, PART I, JUNE 2018 (SLPB-004-18)



JULY 12, 2018

## Comments on Consultation from Corridor Communications Inc. to ISED

Corridor Communications Inc., operating as CCI Wireless (“CCI”), appreciates the opportunity to provide comments on the issues raised under SLPB-004-18 – Consultation on Revisions to the 3500 MHz Band to Accommodate Flexible Use and Preliminary Consultation on Changes to the 3800 MHz Band (“the Consultation”).

Under the Consultation, Innovation, Science and Economic Development Canada (“ISED”) seeks comments on revisions to 3450-3650 MHz band to accommodate flexible use for fixed and mobile services and the future deployment of 5G technologies.

CCI is the second-largest wireless internet service provider (WISP) in Canada and is operated out of the organization’s head office in Calgary, Alberta. The business supports the universal service objective and believes the key components to meeting that objective are firstly, access to spectrum that facilitates service in rural and remote regions of Canada and, secondly, government policies that enables the efficient and expedited deployment of infrastructure in those regions.

CCI’s submission will provide ISED with its perspective on the transition to how flexible use for fixed and mobile services can be most efficiently realized by incentivising existing licensees to more rapidly deploy additional wireless network infrastructure. The risk to the integrity of access to broadband services for the rural and remote populations of Canada grows with the number of licenses changing hands and with the amount of capital that is spent on the licensing process.

CCI responds below to ISED’s 18 questions on its proposed framework for the revisions to the 3500 MHz band, and the contemplated changes to the 3800 MHz band, considered under this Consultation.

### **Q1 – ISED is seeking comments on its assessment of the timelines identified for the development of an equipment ecosystem for 5G technologies in the 3500 MHz and 3800 MHz bands, and whether the timelines will be the same in both bands.**

CCI agrees with the timeline presented by ISED for 5G technologies in the 3500 MHz band. The push for the development of an equipment ecosystem for 5G is being driven by the efforts to provide access to that band made by governments in Europe, Asia and the United States of America. This greater international interest in that spectrum will accelerate development of an equipment ecosystem for 5G.

While demand for fixed wireless resulted in development of LTE equipment using the 3500 MHz band, within Canada the environment in that band is unique relative to the rest of the world, specifically in how broadly the equipment has been deployed.

CCI does not agree with the timeline presented by ISED for 5G technologies in the 3800 MHz band. Internationally, the prevalence of legacy C-band fixed satellite systems limits the availability of the 3800 MHz spectrum and hampers the development of the 5G equipment ecosystem required to use the 3800 MHz spectrum.

**Q2 – ISED is seeking comments on the proposals for:**

- **adding a primary mobile allocation to the 3450–3475 MHz band**
- **removing the radiolocation allocation in the 3450–3500 MHz band**
- **making the corresponding changes to the Canadian Table of Frequency Allocations**

CCI agrees with adding a primary mobile allocation to the 3450-3475 MHz band, and with removing the radiolocation allocation in the 3450-3500 MHz band.

CCI is supportive of the corresponding changes to the Canadian Table of Frequency Allocations.

**Q3 – ISED is seeking comments on the proposal to allow flexible use in the 3450–3475 MHz band.**

CCI supports the proposal to allow flexible use in the 3450-3475 MHz band.

**Q4 – ISED is seeking comments regarding interest in sharing spectrum between radiolocation and other services in the 3400–3450 MHz band, and options for doing so.**

CCI has great interest in sharing spectrum between radiolocation and other services in the 3400-3450 MHz band. CCI shares the assessment that radiolocation, given its intermittent use for government aeronautical and maritime applications, may allow for advantageous sharing with low-powered services.

CCI believes that the simplest solution to support the provision of other services in the 3400-3450 MHz band is to create “exclusion zones” around government institutions/installations that require that band for radiolocation services. Later, the exclusions zones could be phased out when advanced technologies and techniques (such as cognitive radio and dynamic spectrum access) become widely commercially available.

**Q5 – ISED is seeking comments on the expected impacts of the following options with regards to the continuation of existing services, competition in the Canadian marketplace and availability of new 5G services for Canadians.**

**Option 1 – For each licence area, existing licensees would be issued flexible use licences for one third of their current spectrum holdings rounded to the nearest 10 MHz, with a minimum of 20 MHz.**

**Option 2 – For each licence area, existing licensees would be issued flexible use licences for a fixed amount of spectrum. Any licensee that holds 50 MHz of spectrum or more would be licensed for 50 MHz, and all other licensees would be licensed for 20 MHz.**

Regarding the impact of the options on the continuation of existing services, CCI believes that Option 1 poses the greatest risk to that objective. Given that a large portion of the 3500 MHz spectrum holdings in most Tier 4 areas are concentrated in the hands of a single entity, this option will result in a change in

ownership of a much larger portion of the spectrum. The shift in resource holdings will cause a larger disruption to the existing operating environment.

While the threat to the continuation of the existing services is still very present in Option 2, it will result in a more consistent market dynamics for both operators and consumers.

As for the impact of the options on competition in the Canadian marketplace, CCI does not believe that increasing the number of spectrum holders is going to have a meaningful impact on the competitive landscape.

The participants in the eventual auction of the spectrum in the 3500 MHz band will be primarily existing providers of mobile services in Canada. Even with the effect of pro-competitive measures in an auction, the allocation of the spectrum assets among existing providers will be the only result, not the number of carriers providing services.

In addition, for those mobile operators that choose not to participate in the auction, due to the Framework for Mandatory Roaming and Antenna Tower and Site Sharing published by ISED, they will still be able to access the 3500 MHz spectrum, for the benefit of their subscribers, keeping the existing market dynamics intact.

While Option 1 will yield a more diverse group of holders of the 3500 MHz spectrum, versus Option 2, it will not increase competition in the Canadian marketplace.

Concerning the availability of new 5G services for Canadians, CCI believes Option 2 will best support that effort in that it will cause less disruption to the existing marketplace, allowing existing operators to continue to invest capital to deploy 5G enabled equipment in the 3500 MHz band. Those deployments will facilitate an accelerated rollout of new 5G services for Canadians.

**Q6 – ISED is seeking comments on alternative options for licensees to return spectrum to the Department to make available for a future licensing process. Respondents are asked to provide a rationale for any alternative proposals, including how they would meet ISED’s policy objectives as stated in section 3.**

Regarding alternative options for licensees to return spectrum to the Department, in consideration of the policy objectives for the 3500 MHz band, CCI questions why a future licensing process requires the return of spectrum to the Department.

The stated policy objectives for the 3500 MHz band are as follows:

- to foster innovation, investment and the evolution of wireless networks by enabling the development and adoption of 5G technologies;
- to support sustained competition so that consumers and businesses benefit from greater choice;
- to facilitate the deployment and timely availability for services across the country, including rural areas.

To achieve these policy objectives, significant investment in wireless network infrastructure will be required. The Canadian Wireless Telecommunications Association (CWTA) estimates that carriers must invest \$26 billion between 2020 and 2026 to deploy 5G in Canada. A process that requires the return of spectrum to the Department will divert funding away from necessary infrastructure. The less capital

available to carriers to invest in wireless network infrastructure, the longer the time required for ISED's policy objectives to be realized.

CCI believes that a better option is to amend the terms of license for current holders of spectrum in the 3500 MHz band and require greater spectrum sharing across all frequency bands, based on tariffed rates. This option will facilitate the continuation of existing services, support competition in the Canadian marketplace, and improve the availability of 5G services for Canadians.

CCI believes that amending the terms of license and improving access to spectrum resources across all bands will facilitate a more rapid development and adoption of 5G technologies for the benefit of all Canadians. This would be a result of creating an environment where unnecessary capital costs are removed and accelerated value-added capital deployment is required.

The necessary changes to terms of license for current holders in the 3500 MHz band include shortening the license period (to possibly 5 years), requiring coverage of a greater percentage of the population in each tier within that license period, and only allowing the licensee to deploy equipment using 3GPP-based protocols to facilitate synchronization between licensees. These changes to the terms of license will foster innovation, investment, and the evolution of wireless networks by enabling the development and adoption of 5G technologies by increasing the pace with which those technologies are deployed.

The necessary changes to the process of spectrum sharing across all frequency bands includes introducing legislation that mandates that holders of all spectrum licenses must provide access to those resources at tariffed rates. This process would allow spectrum license holders to realize a return on their investment, and would support sustained competition. As a result, consumers and businesses would benefit from greater choice by facilitating better access to the spectrum resources. The availability of the spectrum for those that are ready to deploy wireless network infrastructure will support timely accessibility to services for Canadians across the country.

**Q7 – ISED is seeking comments on a revised band plan using unpaired blocks of 10 MHz in the frequency range of 3450–3650 MHz.**

The TDD equipment ecosystem designates “carriers”, or a single contiguous frequency block, as 20 MHz. Based on the technical specification of existing 5G-ready equipment, CCI believes that ISED should revised the band plan using unpaired blocks of 20 MHz in the frequency range of 3450-3650 MHz to support the realization of the capabilities of the 5G network equipment and the necessary return on the capital invested.

It is important to note that while 5G technology is expected to yield greater spectral efficiency than LTE, the exponential increase in throughput that has been forecasted is relying on large contiguous blocks of spectrum (between 50 and 100 MHz) as much as it is relying on the improved efficiency.

**Q8 – ISED is seeking comments on whether any additional measures should be taken to limit potential interference issues with the proposed TDD band plan.**

CCI believes ISED should mandate the use of 3GPP-based protocols in the 3500 MHz and 3800 MHz bands to limit potential interference issues. With the exception of the suggestion above, CCI does not believe any additional measures should be taken to limit potential interference issues with the proposed TDD band plan.

**Q9 – ISED is seeking comments on the proposal to align the timing of the issuance of flexible use licences to incumbents with the issuance of licences to those who acquire 3500 MHz flexible use licences in a future licensing process.**

CCI does not believe the proposal to align the timing of the issuance of flexible use licenses, with the issuance of licenses to those who acquire 3500 MHz flexible use spectrum, will have any effect on ISED's objective of supporting sustained competition.

This lack of effect is due to factors including the limited development of mobile handsets that can use the 3500 MHz band, the fact that all handsets use multi-frequency chip sets (allowing a handset that utilizes the 3500 MHz band to operate on other frequencies), and that the fact that the Framework for Mandatory Roaming and Antenna Tower and Site Sharing requires mobile operators to allow roaming on their network at tariffed rates.

**Q10 – ISED is seeking preliminary comments on the importance of price discovery in a licensing process for flexible use licences in the 3500 MHz band.**

CCI believes that price discovery in a licensing process for flexible use licenses in the 3500 MHz band is imperative for a fair and transparent auction process.

**Q11 – ISED is seeking comments on the proposed protection and notification provisions for incumbent licensees as outlined below.**

**Protection period:**

- For Tier 4 service areas that include a population centre of 30,000 people or more:
  - a minimum protection period of 6 months for sites within **large urban population centres** and the 10 km buffer zone surrounding those centres
  - a minimum protection period of 2 years for all other sites
- For all Tier 4 service areas that include a population centre of less than 30,000 people, a minimum protection period of 3 years

**Notification period:**

- a minimum notification period of 6 months in large urban population centres and in the 10 km buffer zone surrounding those centres
- a minimum notification period of 1 year in all other areas

CCI believes the proposed protection and notification provisions outlined in the consultation is likely sufficient within large urban population centres. However, including a 10 km buffer zone around the large urban population centres ignores the rapid transition from suburban density to rural density.

Outside of large urban population centres, the proposed provisions will create an environment wherein ISED asks carriers to invest capital in the acquisition of spectrum via a licensing process (likely an auction), but ISED will then prevent the carrier from deploying capital to realize a return on that investment for at least two years. The proposed provisions will create a void of investment capital in these tiers, as the incumbents will only invest in infrastructure that can utilize the spectrum they will retain after the transition, and the new licensees will be prevented from investing until near the end of the protection period.

Reducing the proposed protection and notification period outside of large urban population centres to match the periods proposed for large urban population centres will not change the gap in investment capital in those tiers. The incumbents would still only invest in infrastructure that can utilize the spectrum they will retain after the transition period. The new licensees, while now free to invest, will only selectively deploy capital to address the best business cases. The secondary and marginal rural and remote markets will find themselves with substandard service as a result of the transition and thereby without any improved access to resources.

**Q12 – ISED is seeking comments on alternative transition plans, or variations to the times proposed. Respondents are asked to provide a rationale for any alternative proposals.**

In alignment with CCI's response to Q6 (alternative options for licensees to return spectrum to the Department), a transition plan should focus on transitioning from the current conditions of license and spectrum sharing regime to one that both requires a more rapid deployment of wireless network infrastructure and ensures capital remains unencumbered to do so.

CCI believes ISED should establish the new conditions of license and spectrum sharing regime via a public consultation, and select a definitive date (before the end of 2019) when the conditions of license will change and the spectrum sharing regime will go into effect.

Any transition plan for tiers outside of large urban centres that results in the simultaneous loss and gain of access to a spectrum resource will result in an interruption in investment and, ultimately, in service levels within the area.

**Q13 – ISED is seeking comments on whether the fixed and mobile equipment for LTE and 5G technologies will be able to operate with intermittent interference from radars, including cross-border interference, within the 3450–3650 MHz band and in adjacent bands.**

CCI believes that fixed and mobile equipment for LTE and 5G will be able to operate with intermittent interference from radars, including cross-border interference, within the 3450-3650 MHz band and in adjacent bands.

Licensees that are broadcasting in the 3450-3650 MHz band will be able to mitigate the effects of intermitted interference from radars by adjusting equipment heights, azimuths and power levels.

**Q14 – ISED is seeking preliminary comments on how to optimize the use of the 3650–3700 MHz band, including the potential use of a database access model.**

CCI believes ISED should continue to license the 3650-3700 MHz band on an “all-come, all-served” basis with the requirement that equipment used in both the upper and lower blocks employs 3GPP-based protocols (in both urban and rural areas).

The development of a specific process and procedure for a relatively small portion of the 3400-4200 MHz band being discussed in this consultation could represent an unnecessary consumption of ISED’s resources that can be better used to invest in infrastructure to meet policy objectives.

**Q15 – ISED is seeking comments on the importance of the 3700–4200 MHz band to future FSS operations.**

CCI believes the 3700-4200 MHz band is not important to the future of FSS operations.

The number of TV-receive only stations and cable head-ends that rely on satellite connectivity are decreasing annually because the proliferation of “cord-cutting” and IPTV platforms are supplanting traditional television services.

According to the Communications Monitoring Report 2017: Broadcasting sector overview, published by the CRTC, revenues from conventional television services and DTH/MDS services have realized compounded annual growth rates (CAGRs) of -4.3%, and -3.6% respectively, between 2012 and 2016. The same report indicated that discretionary and on-demand television and IPTV realized CAGRs of 2.7% and 32.2%, over the same period.

Regarding broadband connectivity for rural and remote users, the shift has been towards high throughput satellites (HTS) that operate in the Ku-band (10 GHz – 18 GHz) and Ka-band (18GHz – 30 GHz). According to data from Northern Sky Research, the demand for satellite capacity using C-band (3500 MHz – 7000 MHz) is expected to grow by a CAGR of -2.3% in North America between 2016 and 2025.

**Q16 – ISED is seeking comments on whether unlicensed operators in the 3700–4200 MHz band should be required to submit their technical parameters to ISED to assist in frequency management.**

CCI believes it would be prudent for ISED to mandate that unlicensed operators in the 3700-4200 MHz band be required to submit their technical parameters to ISED to assist in frequency management.

**Q17 – ISED is seeking comments on which steps Canada should take to optimize the use of the 3700–4200 MHz band in consideration of the current services being provided and the developing technologies that would permit the use of new services in this band (e.g. exclusion zones).**

In consideration of the current services being provided, to optimize the use of the 3700-4200 MHz band CCI believes that ISED, in addition to creating a database of the location and technical parameters of users operating in that band, should add mobile and fixed wireless access as primary allocations in the 3700-4200 MHz band so that current holders of the spectrum can work with carriers and equipment manufacturers to develop an ecosystem in the band while being mindful of its existing use.

If ISED is able to identify areas where the use of terrestrial wireless network equipment in the 3700-4200 MHz band will not cause interference with FSS operations, CCI believes that implementing exclusion zones for sole use of terrestrial services would be beneficial in the development of 5G technologies in that band.

**Q18 – ISED is seeking comments on the challenges and considerations related to the coexistence of other services, such as mobile and/or fixed wireless access, in the 3700–4200 MHz band.**

The lack of standardization in the satellite industry has created an environment of isolated, proprietary systems. As such, broad based co-ordination of existing FSS with terrestrial wireless services would be almost impossible.

CCI believes that ISED must identify areas that do not use the 3700-4200 MHz band for FSS and make development licenses available for carriers and manufacturers to develop wireless network equipment for use in that band.

For those areas that do use the 3700-4200 MHz band for FSS, ISED needs to work with existing license holders to transition away from FSS use to fixed wireless and mobile use. Existing licensees should be permitted to retain ownership for as long as they continue to transition the use of that spectrum away from FSS and towards fixed wireless and mobile applications.

**\*\*\* End of Document \*\*\***