



July 12, 2018

Senior Director, Spectrum Licensing and Auction Operations

Innovation, Science and Economic Development Canada (ISED)

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Re: **Gazette Notice 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

Dear Sir/Madam,

Introduction

1. The BC Broadband Association (“BCBA”) is a group of telecommunications service providers, equipment suppliers and infrastructure constructors in Western Canada. We represent regional and local internet service providers who operate in both rural and urban parts of British Columbia and Alberta.
2. The single most effective measure that the Government of Canada can take to promote rural broadband connectivity is to make spectrum available to small, regional, and rural service providers.
3. The most direct and effective way for ISED to serve rural communities is to add 50 MHz, from 3700-3750 MHz, or more, to the WBS band. This should be undertaken immediately, prior to any re-allocation of the 3500 MHz band.
4. In order to assist the CRTC to realize the basic service objective of 50 Mbps down / 10 Mbps up and the availability of unlimited traffic packages, ISED should enable non-national and non-incumbent carriers to access more spectrum in Canada’s rural and remote communities.
5. The availability of spectrum to carriers in rural communities will have more impact on bridging the digital divide than funding programs. The market will serve many un-served and under-served communities if this spectrum is available to the local carriers who will deploy it.
6. Making spectrum accessible to small companies in rural Canada will promote investment, innovation, employment, and economic development in rural Canada.
7. With this consultation, the BCBA is concerned that ISED is embarking on a direction that will harm, rather than support, rural connectivity. With this consultation, ISED proposes to recuperate spectrum that is currently deployed in rural communities. This will result in the degradation of rural services.
8. ISED is further indicating its intention to auction this recuperated spectrum in a format that will exclude non-national, non-incumbent providers. This will mean that more spectrums are deployed for the benefit of mobile consumers in urban cities, while rural Canadians gain no benefit from this public resource.



9. The BCBA believes that both urban and rural communities can benefit from this spectrum, if the spectrum described in this consultation is made available to small, rural, and regional service providers across Canada.

Response to Questions

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.

10. The BCBA agrees with ISED's assessment that the timelines for the development of technology and standards in the 3500 MHz bands will support 5G services in the coming decade.

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

11. The BCBA does not object to the additional mobile allocation in the 3450-3475 MHz band, and the removal of the radiolocation allocation.
12. The BCBA notes the potential of the 3450-3475 band to contribute to rural broadband connectivity. If this band is licensed using large service areas with a mobile allocation, the band will be used primarily to provide urban mobile services, and this potential will be lost.
13. The existing fixed allocation of this band should be supported by ISED through the licensing mechanism.

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

14. The addition of spectrum to the 3500 MHz band would have a significant positive impact on rural connectivity in Canada if this spectrum is made available to rural and regional service providers for use in fixed wireless networks.
15. In conjunction with the flexible designation, ISED should introduce policies that enable the use of the band for the benefit of rural Canadians who depend on fixed wireless networks for broadband connectivity. These policies include the creation of an auction framework that permits small, regional, and rural carriers to win spectrum, as well as making spectrum available in rural areas using First-Come-First-Served (FCFS) and light licensing.
16. The BCBA supports the proposal to designate this spectrum for flexible use, to align with the rest of the band. If non-national, non-incumbent carriers are able to access this spectrum, then the market will drive both fixed and mobile use of this spectrum, to the benefit of all Canadians.



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.

17. The BCBA supports the exploration of options that would permit small and regional carriers to offer broadband services in rural areas using spectrum in the 3400-3450 MHz band.
18. The BCBA supports a first-come-first-served (FCFS) licensing mechanism in non-urban service areas that would be licensed by hexagonal grid cell. Operation in certain bands and certain areas could be prohibited, in order to provide protection to existing users, using such a mechanism.
19. The BCBA would support other simple mechanisms, such as the light-licensing system used for the 3650-3700 MHz band, where operators register their frequency use. Operation in certain bands and certain areas could be prohibited, in order to provide protection to existing users, using such a mechanism.
20. Alternatively, if a lightly-licensed system is inadequate to provide protection to priority users, then a database system like that proposed for the TVWS bands could be put into place. Such a system should only be implemented following positive industry feedback and the success of the TVWS database. We note that this database mechanism has not yet gained wide commercial acceptance in either Canada or the US.
21. The availability of this spectrum to rural providers would support the realization of the basic service objective of the CRTC, as well as ISED's policy objective to facilitate the deployment and timely availability of services across the country, including rural areas (par.10).

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.

22. The BCBA does not support Option 1.
23. The BCBA acknowledges that Option 2 provides business continuity to most small regional carriers that currently have spectrum.
24. BCBA recognizes ISED's goal of seeing more spectrum utilized for mobile services. However, this goal should not be pursued at the expense of rural communities. Any recuperated spectrum in the 3500 MHz band should be allocated in a manner that permits small, regional, and rural carriers to serve rural communities.



25. The BCBA disagrees strongly with ISED's view that, with improved deployment efficiencies and new technologies, licensees should be able to continue to maintain current service offerings with a reduced amount of spectrum (par.43). This is a dangerous misconception. Small operators across Canada deploy the most spectrally-efficient technology available in order to keep pace with consumers' growing demands. The reduction of spectrum holdings of any carrier with limited spectrum holdings will result in service degradation and disruption in rural communities.
26. The BCBA encourages ISED to consider further options that will better serve rural communities.

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.

27. BCBA is primarily concerned that the recuperated spectrum be distributed in a way that permits small carriers to deliver more broadband services to rural communities.
28. The BCBA encourages ISED to investigate alternative options that will not have significant impacts on rural consumers.
29. It is important that rural Canadians have access to the same data transfer volumes and services as urban Canadians. In rural communities, households and businesses depend on the internet for economic and cultural engagement. In rural communities served by fixed wireless access, data availability is limited by spectrum availability.
30. The BCBA encourages ISED to give particular attention to those carriers that have engaged in subordinate licensing arrangements with smaller regional and rural carriers. These licence holders contribute to bridging the digital divide, and their spectrum holdings should not be reduced.

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

31. The BCBA supports a revision of the band plan that replaces paired FDD-based licences to un-paired TDD-based licences. Most systems operating in the 3 GHz bands use TDD technology, so the un-paired band plan is appropriate.
32. For example, paired 25 MHz + 25 MHz licences should be replaced with licences of five contiguous 10 MHz blocks.

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

33. In the case where operators have adjacent frequency allocations, they should be responsible for working together to conduct frequency co-ordination to mitigate interference.

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.

34. The BCBA supports the issuance of flexible use licences at the earliest possible time.



35. The BCBA notes that the spectrum held by large national carriers is generally designated as either fixed or mobile, so that these carriers are able to compete with spectrum-poor small operators by offering fixed services (commonly called “hub” or “stick”). Holders of fixed licences should also be free to compete with mobile services if they so choose.

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.

36. The CCA auction format presents challenges to both auction participants and the auctioneer in terms of price discovery. In this format, bid or clock prices are not highly correlated with the final sale price.
37. Large bidders are advantaged by the CCA auction format, in three ways. Bidding on more licences results in lower prices paid, and the complicated nature of the auction format favours large bidders’ with the ability to pay for the high cost of participation. Finally, bidders must have adequate cash reserves to pay for the clock price, since there is a risk that the final clock price will be the sale price. The final clock price may indeed be equal to the sale price for small bidders.
38. Simpler auction formats, such as SMRA, provide better price discovery during the auction process. They also enable smaller companies to participate through their simpler format.
39. The proposed addition of a price discovery phase in the 3500 MHz spectrum auction might increase the complexity of the auction and the cost of participating in the auction. This would further discourage small and regional carriers from participating in the auction.
40. The BCBA is concerned that ISED is choosing a path of increasingly complex auction formats, which will continue to discourage competitors in the telecommunications market.
41. All frequency auctions in the past decade have been inaccessible to small, rural, and regional carriers, as large national carriers build an inventory of under-utilized spectrum in rural Canada.
42. While large national and incumbent carriers use their spectrum to invest in urban mobility projects, rural communities depend on fixed wireless carriers for services.
43. By discouraging competitors in small regional markets, auctions have served urban Canadians at the expense of rural communities. The proposed price discovery process, generating a more complicated auction format, will hurt rural Canadians further.
44. The allocation of spectrum in the 3400-4200 MHz bands should be governed by a framework that enables small, rural, and regional operators to invest in networks that support 50 Mbps services in rural communities.
45. In many small rural communities, spectrum held by incumbent national providers is under-utilized or sits idle. In these communities, households are served by fixed wireless carriers who have limited access to spectrum. These carriers would be able to offer 50 Mbps services with high traffic volumes with access to more spectrums.



46. Achieving a fair price for spectrum is an important goal. ISED must, however, recognize that the current framework of auctioning large blocks to the highest bidder, while maximizing revenue, does not deliver value to rural consumers.
47. Any price discovery phase should be designed to reveal the demand for spectrum in rural and remote communities, and the value of the benefits that accrue to those rural communities if the spectrum is used efficiently to provide broadband connectivity.
48. The spectrum allocation framework should serve rural consumers through mechanisms such as set-aside spectrum blocks in rural service areas where spectrum is available on a FCFS basis, and small licensing areas such as hexagonal grid cells. This process will permit small, rural, and regional carriers to bring the CRTC's basic universal service objective to rural households and businesses.

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

49. The proposed protection periods are too short in service areas near large urban population centres.
50. The proposed 10 km buffer around large urban population centres is too large. This buffer should be reduced the extent of the city limits.
51. There are many households within 10 km of many of these large urban population centres that do not have access to reliable high-speed broadband services through cable, ADSL, or fibre infrastructure. These households depend on fixed wireless services, and a 6-month protection and notification period would result in severe service disruptions for these clients.
52. In addition, sites that serve many remote areas are often within 10 km of these urban centres. In these cases, hundreds of rural subscribers would lose their services. In many cases, the loss of spectrum is irrecoverable; these subscribers would lose services permanently. Where an alternative site might be found to serve these subscribers, a 6-month notification period is not adequate to acquire and construct a new site.



53. In general, most operators would require 2 to 3 years to transition a broadband network to a new allocation. Longer timeframes may be required by operators with extensive networks, and operators who serve very rural and remote communities where a network overbuild presents logistical and financial challenges.

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.

54. We note that the reduction of spectrum holdings of any carrier offering services in rural communities will result in severe service disruptions and potential service termination.
55. The BCBA suggests that ISED make additional WBS spectrum available to small, regional and rural service providers prior to commencing any auction process, adjacent to the existing band (i.e. 3700-3750 MHz). This will permit those carriers who are using their spectrum to offer broadband services in rural communities to mitigate the service disruptions caused by network migration, and would encourage further deployments in rural communities.

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.

56. There is no doubt that intermittent interference from radar systems would degrade the performance of LTE and 5G systems. Users of systems that are subject to such interference would experience poor or interrupted service. Streaming video applications would be especially vulnerable to degradation, resulting in low customer satisfaction.
57. Licences in these bands would therefore be devalued. This would be reflected in the market prices of these licences. Such low-cost licences may be more accessible to small, rural, and regional carriers.

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.

58. The light-licensing regime has been highly successful for rural Canadian subscribers. Regional and local carriers have used the WBS (3650-3700 MHz) band extensively in order to deploy fixed wireless networks. These networks have brought high-speed connectivity to many otherwise un-served communities.
59. The 3650-3700 band has become a key band in the deployment of rural broadband networks. The availability of this spectrum has stimulated investment, innovation, widespread broadband deployment, and competition in rural communities across Canada.
60. Many BCBA members and small fixed wireless operators across Canada have invested heavily in equipment operating in the 3650-3700 MHz (WBS) band. Much of this equipment is not frequency-agile, and if ISED obliges carriers to replace this equipment, many rural consumers will experience service degradation or termination.
61. Additional certainty would further support deployments in this band. Licensees should be assured that their operations will not be affected by policy changes for a period of 10 years.



62. The BCBA encourages ISED to continue to licence this spectrum in the same way, and to add more spectrum to this band in adjacent frequencies. By changing the licensing requirements of this band, and by obliging operators to replace entire networks, ISED will damage the confidence of investors in competitive telecommunications services.
63. The BCBA strongly encourages ISED to add 50 MHz to this band immediately, adjacent to the existing band (i.e. 3700-3750 MHz). This would further support Canada's vigorous regional telecommunications markets. We note that 50 MHz is not adequate to support 50 Mbps services in a medium-sized rural community.
64. The BCBA does not recommend adopting a database system that would have the capacity to analyse interference situations and instruct base stations to reduce power or move to a different channel in order to minimize interference. Such a system would reduce certainty for operators.
65. Further, we note that commercial uptake in bands currently administered by database has been slow. The database administration systems, while technically feasible, have not gained wide commercial acceptance. For this reason, we recommend against using database solutions for band management until these mechanisms gain wider success.

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

66. Given the tremendous impact of the 3650-3700 MHz band on rural connectivity, we encourage ISED to explore all possible avenues to make additional spectrum available to rural and regional carriers.

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.

67. The BCBA agrees that it would be reasonable for unlicensed operators to provide usage information to ISED, so that ISED is better equipped to make decisions regarding this band.

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).

68. The BCBA suggests that ISED issue licences to existing users of the band. These licences would be valid during a transition period.
69. The BCBA suggests that ISED make the band available to operators on a lightly-licensed basis (similar to the 3650-3700 MHz band), or using First-Come-First-Served licenses, using grid-cell hexagons, in areas outside of large urban population centres. Protection could be offered to TVRO operators using this licensing mechanism if necessary.
70. Again, given the tremendous impact of the 3650-3700 MHz band on rural connectivity, we encourage ISED to explore all possible avenues to make additional spectrum available to rural and regional carriers.



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.

71. Interference-free coexistence is possible where co-operation between operators is mandated.
72. We note that co-operation is common amongst operators of similar sizes, but larger operators are often unwilling to co-operate with small local providers.
73. The BCBA believes that mobile and fixed wireless networks can, and should, coexist. This is only possible if the spectrum is made available to operators of fixed wireless networks in rural and remote communities.
74. If the 3700-4200 MHz spectrum and recuperated 3500 MHz is auctioned in the same way as recent auctions – that is, using large service areas and a complicated spectrum auction format – then these bands will not support rural connectivity. The spectrum will be won by large national carriers, and these carriers will focus their investments on urban mobility projects. Rural Canadians will be left further behind.
75. These bands should be allocated in a way that permits small, regional, and rural carriers to bring broadband and mobile services to rural communities.

The BCBA thanks ISED for the opportunity to participate in this proceeding.

Kind regards,

A handwritten signature in blue ink, appearing to read 'Rey Sonico'.

Rey Sonico
Secretary
BC Broadband Association