

**Comments on the
Consultation on Revisions to the 3500 MHz Band to
Accommodate Flexible Use and Preliminary Consultation on
Changes to the 3800 MHz Band**

by the

**Eastern Ontario Wardens' Caucus (EOWC) and the
Eastern Ontario Regional Network (EORN)**

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Introduction

1. Nearly a decade ago, the Eastern Ontario Warden's Caucus (EOWC) recognised that a regional approach was required to address the broadband gaps within the 13 County and Single Tier municipalities, and six First Nation communities, representing in total over 750,000 residents in our region of 50,000 square kilometres. Working with our provincial and federal counterparts, the EOWC developed the Eastern Ontario Regional Network (EORN), and with private and public-sector investment of over \$175M, delivered a successful broadband project that provided access to new or improved broadband services for 89% of our households. The project was completed in late 2014 and was delivered on time and under budget. EORN closely collaborated with its 6 private commercial partners, who actually own and operate the network. Most of our rural residents were provided access through wireless services.
2. After our success in delivering a fixed broadband project, the EOWC tasked EORN to investigate solutions to address the mobile broadband gap that residents were identifying as part our ongoing regional consultation process. Using independent expertise, engineering coverage and capacity gap analysis was completed, resulting in a conceptual design and costing model. We have presented our Business Case to both Federal and Provincial Ministries, have received positive feedback, and are working towards confirming funding.
3. EORN and EOWC do not own or operate either fixed or mobile wireless networks, nor is it likely that we will ever own the rights to any spectrum. But we do represent over 500,000 households and have contributed to a network with currently over 150,000 subscribers. Within this network, 60,000 subscribers and approximately 275,000 households can only access the internet through either fixed wireless or satellite, many of which have no competitive choice. This represents just over 40% of the subscribers on our project builds, and an estimated view of 75% of our rural households¹.
4. As a representative of rural communities, we feel it is important to continue to highlight the challenges faced by rural communities and underserved regions across the country. Private sector incentives to invest and serve our communities are significantly lower than in high density urban centres of the country, limiting the capacity of market forces to meet rapidly growing demand for broadband network resources, whether it be fixed or mobile. This currently leads to a digital divide between urban and rural areas of Canada for the general public.
5. EORN acknowledges the complex challenges that ISED has in trading off the near future demand by Canadians for improved connectivity including both mobile and fixed 5G and the direction of the global market, versus the current requirement to maintain incumbent 3500 MHz license users, and the resulting impact on current subscribers. But Canada has a unique situation that differentiates it from the global trend, with its rural population that is currently being served by 3500 MHz expecting at least the CRTC Universal Service Objective for internet.

¹ Households outside of communities greater than 30,000 population

6. EORN agrees with ISED's Spectrum Outlook 2018-2022 Consultation that "Today's economy is digital. ...The information and communications technologies (ICT) sector is an enabler of the digital economy that is embedded in the transformations underway in industries, such as manufacturing, the automotive sector, agriculture and financial services²". The digital economy is also driving changes in our rural economy only limited by the lack of connectivity.

Wireless Services significant factor to providing Internet to Rural Users

7. The CRTC's Universal Service Objective of 50/10 to 90% of all households by end of 2021 has almost been reached - if you live in an urban center. According to the CRTC's Communications Monitoring Report for 2017 - 84% of Canadian households are able to access this objective by the end of 2016. However, only 39% of rural households have access to this kind of service, versus 96% in urban areas. Wireless based services and the associated demand on spectrum will be a significant factor in moving the rural population closer to the universal service objective. Whether this is through a 4G fixed wireless service or 5G technology remains to be seen.
8. In EORN's Comments and Reply Comments to the Consultation on Spectrum Outlook 2018-2022, we make the following key points:
 - Spectrum must be available for use in rural areas, and especially critical for fixed wireless use if there is any hope of meeting the CRTC's Universal Service Objective in rural areas
 - Don't impact broadband service levels in rural areas by taking away spectrum that is currently being used to deliver fixed wireless
 - If spectrum is not being used throughout the Service Area, then "Use it or Lose it"
 - The issue must be addressed where Service Areas contain both large urban areas and rural areas to ensure that the rural areas also get served
9. Usable spectrum for fixed wireless access continues to be an issue in our region. In our own experience, service providers do not have access to sufficient spectrum to meet the current demands of our residents. With an average growth in data demand of 20 -25%, the requirement for increased capacity is ongoing. In most of our rural areas, fixed wireless is the only solution.

Claw back of spectrum currently in use will significantly impact rural users

10. EORN continues to be extremely concerned about the potential impact of clawing back spectrum that is currently in use within the region. Up to 31,000 subscribers in our region will be impacted if any of the 3500 MHz spectrum that's currently in use was clawed back. There are no other terrestrial broadband alternatives available for these residents and we have no hope or expectation that the reallocation of 3500 spectrum for 5G would provide broadband services to all of these residents at any time in the near future based on past experience.
11. There is continued discussion that 5G services will be in lower demand in rural areas than in urban areas. EORN argues instead that the demand exists for the 5G potential, but it is market failure that may delay its rollout to rural areas.

² Spectrum Outlook 2017-paragraph 5

12. The CWTA commissioned Accenture Whitepaper titled Fuel for Innovation – Canada’s Path in the race to 5G³ states that:

“The benefits that come from the widespread adoption of 5G will be experienced not just by Canadians living in urban areas, but also by rural residents who currently experience a lack of access and/or lower service levels. As the definition of broadband evolves to higher speeds, Canada will need continued investment to keep pace with global leaders and rising expectations of Canadians.

With the advent of 5G, there is an opportunity to not only close this gap between rural and urban access, but also keep stride with evolving expectations of speeds and capacity. Given the cost to deploy Fiber to the Premises (FTTP) in rural markets, carriers may look to leverage wireless as opposed to fixed lines for this ‘last mile connectivity’. It is estimated that 5G-based Fixed Wireless Access (FWA) can reduce the initial cost of establishing last-mile connectivity by as much as 40% in comparison to FTTP. In addition, 5G can significantly accelerate rollout times by eliminating the need to lay cables as required for FTTP rollouts.”

13. The potential claw back of spectrum in Eastern Ontario alone could effectively make the investment made by the Provincial and Federal governments of approximately \$11.9M⁴ in our network now in place worthless. This does not include the investments made initially and ongoing by our private partner.
14. The CRTC’s Universal Service Objective of 50/10 by 2020 has set the expectation for rural residents across most of Canada that they too will receive 50/10 services and will not be left further behind. The potential claw back of spectrum that is actually being used by rural subscribers, and its impact on internet service levels, is just starting to be realised by the general public⁵, and the **fallout could be considerable**. We hope that as stated by the Globe and Mail article *“any proposal that impacts rural Canadians will be given careful consideration because connectivity is essential for Canadians no matter where they live.” ...*

Summary

15. In summary EORN makes the following key points:
- i. Do not claw back spectrum from current licensees where it impacts existing rural users
 - ii. As in 2014, policy decisions made with respect to spectrum service areas that include population centres greater than 30,000, must ensure that there is no significant impact to the rural areas that are included in the same spectrum service area.
 - iii. Ensure that the policy and auction process facilitate competition in the market, including the options for smaller carriers to participate
 - iv. 3650 MHz spectrum is important for many of the smaller wireless service providers that provide internet service to rural users. The future consultation on this part of the spectrum must not impact their ability to deliver service.

³ 5G Canada Council website: www.5gcc.ca

⁴ This represents the investment in the affected wireless network, from a total federal and provincial investment of \$110M in the overall project.

⁵ Globe and Mail article July 8, 2018 “Federal Spectrum auction pits rural internet customers against 5G technology development”, <https://www.theglobeandmail.com/business/article-planned-federal-auction-of-cellular-airwaves-pits-rural-internet/>

16. EORN is only responding to the questions in this Consultation process that we believe will affect our residents, and that we have relevant expertise or opinions.
17. We thank ISED for the opportunity to comment on the consultation and would be more than willing to respond to any subsequent questions.

Comments on the questions

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

18. EORN supports the addition of a mobile allocation and removing the radiolocation allocation with the objective of increasing the amount of spectrum available for mobile and fixed usage.

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

19. EORN supports the proposal to allow flexible use in the 3450-3475 MHz band. It allows service providers the ability to meet the needs of their customers and the flexibility to evolve.

6.6 Provisions to allow existing licensees to continue services in the 3500 MHz band

20. In rural areas across Canada, and more particularly of interest to EORN and Eastern Ontario, 3500 MHz spectrum is a **critical component** to providing internet services to rural residents. In our region alone 31,000 subscribers are dependent on this spectrum through our original project partner Xplornet, with no other option for terrestrial based internet service. The service provided to these residents was funded in part by the Federal government through the original EORN project.
21. With the continued growth and demand for Internet Data, many of the service areas in the region, despite several iterations of technology advances and operational practices, have exhausted our partner’s available spectrum. In many service areas, there is no option to give any back without impacting rural residents.
22. On the other hand, it appears that there are significant amounts of unused 3500 MHz spectrum in the same service areas licensed by other providers with no obvious customers. Those service providers may argue that they are in compliance with the terms of the license, but we know that they are not actually meeting the intent of the license to provide service to all users in the spectrum service area, or at least the significant geographic of the service area, and not just the population center.
23. ISED must ensure that the compliance definition of any future license ensures that it addresses the broader intent to ensure effective use of spectrum to all Canadians, and not just to urban population centers.
24. One suggestion with respect to compliance is to ensure that compliance is not just based on service to a percentage of the population, but to the area covered. Where area is not covered

with a short period of time (say 2 years) the license should be subdivided and made available other carriers especially those focused on a rural objective.

25. If Spectrum needs to be re-allocated to additional licensees, then it should only be taken from those that are not currently using it.
26. Given previous history, we continue to be concerned about the likelihood of additional licensees actually deploying returned spectrum in our region. This spectrum clawed back from current licensees actually using it will likely sit idle and resold at a later time for future profit.

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

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. Based on the information from Annex A, our service provider partner in EO would lose under Option 1: 64% of their current total spectrum, and 55% of spectrum in three service areas where the demand far exceeds the capacity. Under option 2: they would lose 45% of their total spectrum and 33% in the three high demand service areas.
28. For a region that continues to demand increased capacity, and in some areas is not being met, telling even 1 in 3 subscribers that their service is cut or reduced, is unacceptable.
29. EORN continues to recommend that lack of compliance in the licencing agreement, be used as one means of freeing up licenses.
30. One potential option that should be considered, is that incumbent licensees who can demonstrate full license usage, be allowed to keep the full amount of spectrum in a service area if they commit to introduce either mobile or fixed 5G services at some reasonable period (say 2 years) in the Service Area.
31. Serious consideration should be given to options proposed by the incumbent licensees, especially those who acknowledge that there must be some return of spectrum, but who actually provide broadband service to rural consumers.

6.9 Future licensing process in the 3500 MHz band

32. As stated in paragraph 59 of the Consultation “As demand is expected to exceed supply, an auction is likely to be selected as the optimal licensing process”. As part of the policy direction for the 3500 spectrum, there is an objective to encourage additional licensees. With any of the proposed options, a cap for spectrum is imposed on the existing licensees. This effectively limits additional licensees in our region to a single national mobile carrier who has not demonstrated any interest in rural areas. The only exception to this gifting of spectrum, would be if there is a set aside provisions for smaller carriers, or some other means of ensuring access to the spectrum by smaller carriers.
33. While set asides can fragment the spectrum available and may run the risk of having the spectrum not used, it may be the only way to ensure that smaller carriers can have access to this important spectrum in rural areas, where the three large incumbents would not go.
34. While Xplornet is currently the only national fixed wireless carrier, other than arguably Bell/Rogers/Telus (questionable as to their actual FWA scope), other smaller service providers (such as EORN’s original project partners Storm and Nexicom), also provide solid reliable service to rural residents. These smaller providers are even more limited as to their ability to access licensed spectrum. There needs to be a mechanism to ensure that suitable spectrum for rural broadband is available for these small to medium size carriers.
35. Given the currently unknown 5G deployment plans by most carriers, and the potential timing difference between large to middle urban population centers and rural areas, EORN is suggesting that Tier 4 service areas that include both a rural and a population centre larger than 30,000 be subdivided to allow licensees only interested in the urban areas to focus on that part of the service area.

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. If ISED and the Federal government truly value and support competition in the Canadian telecom industry then any investigation of price discovery must take into account the price tolerance for both large national carriers and smaller regional entities – all of whom are interesting in investing in licensed spectrum if the license conditions are made accessible to smaller regional and rural areas.

6.10 Transition plan for incumbents of the 3500 MHz band

37. On the assumption that spectrum must be freed up in some manner, EORN generally supports both objectives of the transition plan and fundamentally believes that this can be done without having to claw back spectrum from fixed wireless providers that are currently deploying the spectrum:
- i. providing timely access to flexible use spectrum in order to facilitate the introduction of 5G technologies for Canadians, and
 - ii. accommodating the continued provision of existing fixed wireless broadband services to Canadians who rely on them.
38. ISED is of the view that 5G mobile services will first be deployed in large urban population centres. In the past the economic reality and associated market failure has generally proved this true. But it may not be so with the next generation of technology. Carriers are looking at ways to provide more services in rural areas, with less spectrum and 5G provides the ability. In fact, one known carrier claims to be ready to deploy fixed 5G later in the fall of 2018.
39. As stated, ISED is seeking to adopt a transition plan that will allow for the timely deployment of mobile services in urban areas while providing rural providers of fixed services with more time to transition to the new flexible use system. In reality this so-called transition process is really the length of time that a carrier or subscriber has until they must convert to a new technology or find a new service provider if one is available.

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

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.

40. As in the consultation in 2014, EORN is concerned about proposals that group a rural population in a spectrum service area, with a large or midsize urban area. Of the 14 Tier 4 service areas in our region, 2 include large urban population centers (Cities of Ottawa and Kingston), 3 others

include cities with populations over 30,000. These service areas that include a population center of greater than 30,000 represent 54% of the area of the total region or approximately 47% of the households.

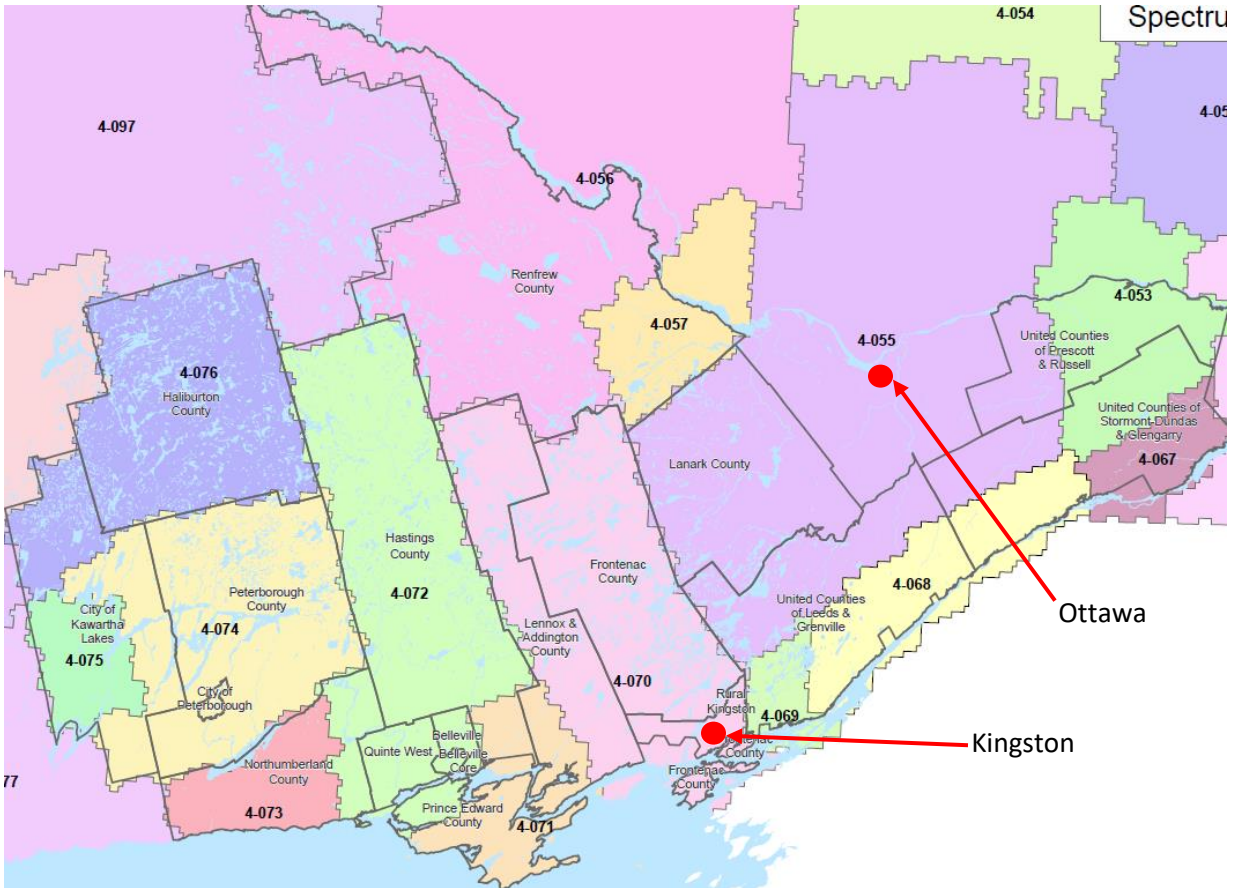


Figure 1: Tier 4 Service areas in Eastern Ontario

41. If any licensing or transition plan decision is made based on the proximity to a large or medium sized urban area (>30,000) EORN strongly recommends that the Tier 4 area be subdivided to separate the urban from the rural areas. In our area this is particularly critical with areas like 4-055 and 4-070, and 4-072.
42. With the current proposal of a two-year protection period for areas that include a large (>100,000) or medium (>30,000) urban center, if and where spectrum is clawed back, potentially up to 27,900 actual subscribers may only have a two-year protection period, and potentially 6 months if they are deemed to be in the large urban area and its 10km boundary.
43. Given that ISED is not expected to change the Service Areas (Tier 4) associated with this Spectrum, EORN recommends that the protection period for all areas outside the large urban area and an associated 10km buffer, be consistent at three years. More specifically:
 - In 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 the large urban population centres and the 10 km buffer zone surrounding those centres
 - a minimum protection period of 3 years for all other sites
 - In Tier 4 service areas that include a population centre of less than 30,000 people, a minimum protection period of 3 years
44. As mention earlier, EORN is suggesting that ISED consider that Tier 4 service areas that include both a rural and a population centre larger than 30,000 be subdivided to allow licensees only interested in the urban areas to focus on that part of the service area. This may mean that official notice may not be required for some significant time, allowing incumbent licensees a longer transition plan. It also allows the smaller carriers to access this subdivided spectrum to provide service to the rural areas.
45. EORN is also requesting clarification of the definition of the physical boundary of what deems a large urban center. The large urban population centers in our region (Ottawa and Kingston) have large rural areas with low population densities that in some areas are only served by wireless providers. While the legal boundary of the city, is an easy definition to use, we think a more appropriate guideline might be based on population density per square kilometre. For simplicity this could be the Statistics Canada definition of 400 persons or more per square kilometre⁶. This is also relevant when reviewing the Separated City of say Quinte West, and the single tier municipalities of say City of Kawartha Lakes. Both municipalities have a population size of over 30,000, but there is not a single community of that size or associated density. Both are largely rural areas.

6.11 Technical and cross-border considerations for the 3500 MHz band

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.

46. EORN supports ISED intent to work with the FCC on a new cross-border arrangement that would protect new Canadian and U.S. flexible use services in the areas near the Canada–U.S. border.

7. The 3800 MHz band (3650–4200 MHz)

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.

47. Many of the smaller and midsize, and even national wireless service providers in Eastern Ontario use 3650 MHz spectrum to provide fixed wireless broadband to rural users. As with the other

⁶ Statistics Canada definition of Population Centre <http://www12.statcan.gc.ca/census-recensement/2016/ref/dict/geo049a-eng.cfm>

3500 spectrum, we are concerned about any proposal that would impact the subscribers of these rural service providers. Most of these smaller wisps cannot afford to participate in any auction process and would possibly be forced out of the fixed wireless business if the spectrum was taken from them. While small they still provide internet service to rural residents and contribute to the economic development in the community.

48. Many of the smaller and midsize wireless service providers while providing the internet service critical to the economy of a rural environment, also contribute directly to the lifeblood of a community through well paid customer support and administrative jobs, as well as to the jobs created by the infrastructure that these companies build and maintain.
49. Before any spectrum is taken away from rural providers, there must be a reasonable alternative available, that is both economically and technically viable, otherwise our rural communities run the risk of not only losing the internet service they are dependent on, but also the jobs provided by the companies directly.
50. The database access model for management of the 3650-3700 MHz spectrum, should be reviewed carefully to ensure its scalability and usability in the Canadian environment and also ensure the usability of it by smaller carriers.

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