

**Innovation, Science and  
Economic Development Canada**

**Spectrum Management and Telecommunications**

**Canada Gazette, Part 1, November 2018**

**Notice No. DGSO-002-18**

***Consultation on a New Set of Service Areas for  
Spectrum Licensing***

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**Comments**

**of**

**Xplornet Communications Inc.**

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**February 19, 2019**

## **INTRODUCTION AND EXECUTIVE SUMMARY**

1. Xplornet Communications Inc. (“Xplornet”) welcomes the opportunity to provide its comments with respect to the *Consultation on a New Set of Service Areas for Spectrum Licensing* (“Consultation”) currently being undertaken by Innovation, Science and Economic Development Canada (“ISED”).
2. Xplornet supports the creation of a new set of tier 5 licensing areas for Canada. Licensing certain types of spectrum using tier 4 licensing areas has disadvantaged many Canadians and failed to best promote the objective of the Spectrum Policy Framework for Canada (“SPFC”) to maximize the economic and social benefits that Canadians derive from the use of radio frequency spectrum resources.
3. Tier 4 licensing has specifically disadvantaged Canadians living in the many low-population-density, rural areas that are immediately adjacent to major urban centres. Smaller, rural-focused providers, like Xplornet, who use spectrum to provide fixed-wireless broadband connections have been prevented from obtaining the necessary spectrum to serve these Canadians. Because these low-population-density areas are licensed in the same area as the nearby urban core, it is impossible for rural-focused providers to gain access to the spectrum to serve the residents of the adjacent low-density areas. Service providers who hold the spectrum for these areas have generally focused on serving the urban core with mobile wireless services and not on serving residents in surrounding areas with fixed connections. This has limited the broadband service offerings available to many Canadians in these rural areas.
4. In creating a new set of tier 5 licensing areas, ISED has the opportunity to separate the licensing of high-population-density urban cores from adjacent low-population-density areas. By doing this, spectrum resources can be used to better meet the needs of all Canadians.
5. Xplornet believes that ISED’s proposed Option 2 for defining boundaries of new tier 5 licensing areas is an appropriate base. However, Xplornet recommends that certain modifications be made to Option 2 as proposed in order to better promote the objective of the SPFC. Specifically, Xplornet recommends that separate tier 5 licensing areas should only be created for large population centres (populations of over 100,000 people) and medium population centres (populations of 30,000 to 99,999). Xplornet does not believe that the issues associated with tier 4 licensing areas are present with respect to small population centres. As a result, the additional complexities associated with creating separate licensing areas for small population centres are not warranted.

## **A NEW SET OF TIER 5 LICENSING AREAS WILL PROMOTE THE OBJECTIVE OF THE SPFC**

6. Xplornet supports ISED's initiative to create a new set of tier 5 licensing areas to more equitably administer Canada's spectrum resources. Xplornet believes that the introduction of smaller licensing areas will allow ISED to better advance the objective of the SPFC to maximize the economic and social benefits that Canadians derive from finite spectrum resources.
7. To-date, the smallest licensing areas maintained by ISED for the allocation of spectrum have been those of its tier 4 licence areas. However, the licensing of certain types of spectrum on a tier 4 basis has not maximized the use of spectrum for rural and urban Canadians, particularly in rural areas that border on large urban centres.
8. Xplornet relies on spectrum to provide its customers with fixed-wireless broadband services.<sup>1</sup> Xplornet was founded almost 15 years ago with a simple mission: to make fast, affordable, high-speed broadband services available to rural Canadians across the country. Since then, we have established ourselves as a facilities-based, competitive provider with a vast national network. Xplornet's LTE fixed-wireless network extends across every province and is complemented by broad coverage via state-of-the-art high-throughput satellites. Today, we are offering rural and remote Canadians home Internet packages with speeds of 25 Mbps and are proud to connect more than 350,000 rural and remote homes and businesses across every province and territory. We are currently investing to expand our network and to enhance our service offerings for Canadians. Over the coming months, we will be introducing new service packages providing speeds of 50 Mbps broadly across the country, and we will deliver 5G services in rural Canada on the same timeline as urban Canada.
9. Fixed-wireless solutions are a technology of choice globally for serving areas that have a lower population density. While wired fibre or cable infrastructure is generally used to provide broadband services in urban areas, where consumers are in close proximity to each other, these networks are often not well suited for areas with lower population densities. The cost per customer of installing fibre or cable facilities rapidly increases as the population becomes more dispersed in rural areas, making it impossible to build a workable business case based on affordable rates for service.
10. In addition to its cost advantage in lower-density areas, fixed-wireless technology is less susceptible to potential disruption than ground or aerial technology, which can be damaged by machinery or severe weather (such as wind and ice storms) in rural and remote regions.

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<sup>1</sup> Xplornet's service offerings that rely on spectrum are not limited to fixed wireless broadband. For example, Xplornet provides mobile wireless services in Manitoba through its Xplore Mobile brand.

11. Xplornet estimates that fixed-wireless services are the best-fit technology to serve over two million Canadian households and small businesses in rural and remote regions, making fixed-wireless services one of Canada's most important consumer wireless applications. Indeed, already today, our own LTE fixed-wireless network carries as much traffic every month as Bell Mobility's entire mobile wireless network, which supports almost 9 million subscribers.<sup>2</sup> It is essential for ISED to ensure that its spectrum policies enable both mobile wireless and fixed-wireless solutions as required to meet the needs of urban and rural Canadians.
12. When it comes to serving rural Canadians, there is often a misconception about where rural Canada actually is, as low-population-density areas are often erroneously associated only with remote areas of the country. In Canada, the vast majority of our major urban centres are immediately surrounded by low-population-density, rural environments. For example, Hamilton, Ontario, is a major urban centre with a population of 536,917;<sup>3</sup> yet, as illustrated in Figure 1, below, Hamilton is immediately surrounded by a low-population-density rural area. A similar illustration could be provided for other areas in the Greater Toronto Area, as well as for most other Canadian cities, including St. John's, Halifax, Quebec City, Montreal, Ottawa, Winnipeg, Saskatoon, Calgary and Edmonton.

**Figure 1: Low-population-density areas are immediately adjacent to many major centres: Hamilton, ON**

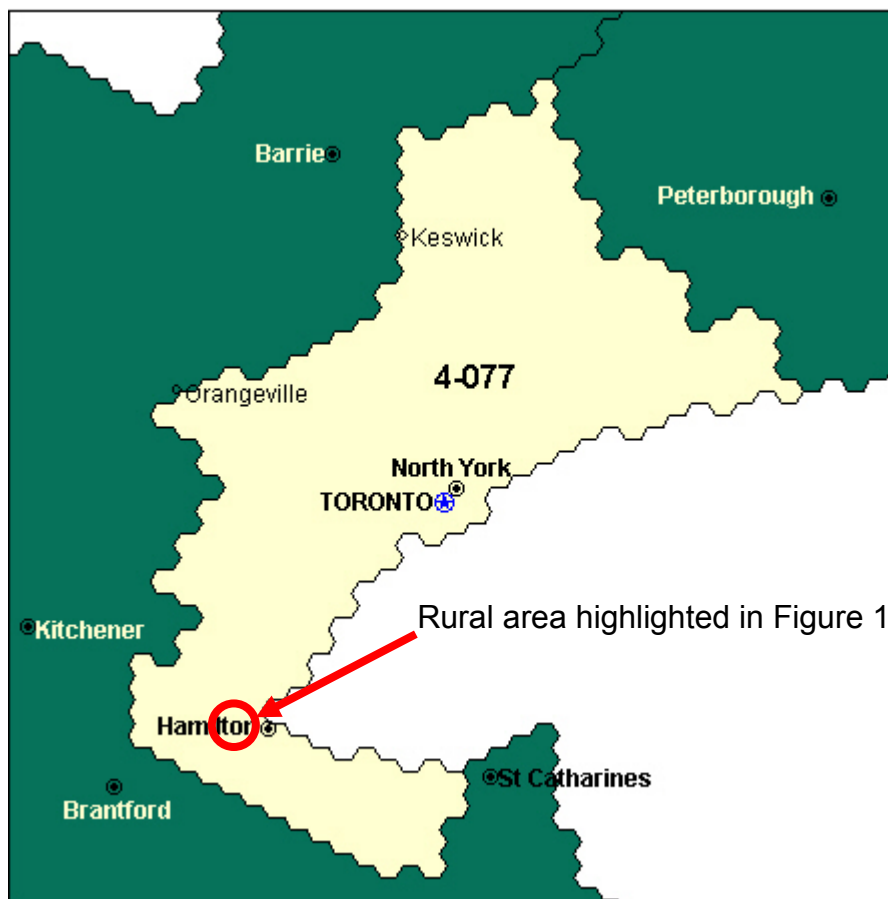


<sup>2</sup> Based on average monthly consumer usage data for fixed broadband (166 GB/month) and mobile wireless (1.6 GB/month) set out in Infographic 5.2 and Infographic 6.8 of the CRTC's 2018 Communications Monitoring Report.

<sup>3</sup> Statistics Canada Census Profile, 2016 Census.

13. These rural areas do not have the densities to support the construction of fibre or cable infrastructure. Yet, fixed-wireless service is not well supported by tier 4 licensing. As can be seen in Figure 2 below, the tier 4 licensing area associated with the low-population-density area just outside of Hamilton (highlighted in Figure 1 above) encompasses the entire Greater Toronto Area.

**Figure 2: Tier 4 licensing area encompassing the rural area in Figure 1**



14. Because low-population-density areas adjacent to urban centres are licensed in the same territory as the major urban centre, smaller providers like Xplornet, who focus on serving rural, low-density populations using spectrum, are not able to obtain the spectrum necessary to serve these households. These licensing areas will be purchased by providers requiring spectrum to serve the urban centres themselves. These providers, however, are generally using the spectrum to provide urban customers with mobile wireless services, and the spectrum is not used to provide fixed-wireless services to rural customers. Rural residents end up disadvantaged and unable to properly benefit from Canada's spectrum resources.
15. Much emphasis has been placed on ensuring that all Canadians have access to broadband services to participate in the digital economy. In 2016, the Canadian Radio-television and Telecommunications Commission ("CRTC" or "Commission") formally recognized the vital role the Internet plays in the lives of Canadians. In

TRP 2016-496<sup>4</sup>, the Commission explicitly declared broadband services to be a basic telecommunication service and established a universal service objective designed to ensure that “Canadians, in urban areas as well as in rural and remote areas, have access to voice services and broadband Internet access services, on both fixed and mobile wireless networks.”<sup>5</sup> The Commission described that it would consider the universal service objective to be achieved when Canadians can access speeds of at least 50 Mbps download and 10 Mbps upload (“50/10 service”).<sup>6</sup> ISED has supported the Commission’s universal service objective.

16. While Canadians in large urban centres generally have access to Internet services that meet or exceed the Commission’s universal service objective, many Canadians in areas with lower population densities – including areas adjacent to major centres – continue to be without such services.
17. The federal government has committed significant public funds to help promote the deployment of new infrastructure in rural and remote areas. Since 2009, ISED has undertaken three major initiatives to support broadband deployment to rural and remote areas of the country: (1) in 2009, ISED committed \$225 million through its Broadband Canada program; (2) in 2014, ISED committed \$305 million<sup>7</sup> through its Connecting Canadians program; and (3) in 2016, ISED committed an additional \$500 million through its Connect to Innovate program. In 2016, the Commission additionally announced it would create a \$750 million fund to support the deployment of broadband facilities to areas of the country without access to Internet services meeting its universal service objective. These initiatives are in addition to provincial and municipal programs to support broadband.
18. While subsidy programs of this nature can help address broadband connectivity, they only represent part of a collaborative solution. Recent estimates from ISED are that it may cost at least \$6.5 billion to bring 50/10 service to all areas of the country<sup>8</sup> – an amount that far exceeds the subsidy resources that have been committed to-date.
19. Spectrum policy must also play an important role in bringing broadband services to Canadians. By ensuring that rural areas of the country have access to the spectrum needed to support fixed and mobile services, advanced services can be delivered to Canadians without the need for subsidies.
20. The present Consultation represents an important opportunity to help Canadians living in low-density areas – and particularly Canadians living in low-density areas adjacent to urban centres – to obtain the services that they require and to help promote the government’s broadband priorities without the need for further

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<sup>4</sup> Telecom Regulatory Policy CRTC 2016-496, *Modern telecommunications services – The path forward for Canada’s digital economy*.

<sup>5</sup> TRP 2016-496, paragraph 37.

<sup>6</sup> *Ibid.*, paragraph 80.

<sup>7</sup> \$65 million was later transferred to the Connect to Innovate program.

<sup>8</sup> *2018 Fall Reports of the Auditor General of Canada to the Parliament of Canada, Report 1 – Connectivity in Rural and Remote Areas*, page 10.

subsidies. By defining a new set of tier 5 licensing areas that separates lower-density areas adjacent to urban centres from the urban centres themselves, ISED can better ensure that spectrum is maximized to better meet the needs of Canadians in rural and urban areas.

21. In the following paragraphs, we provide our views on how a new set of tier 5 licensing areas can be best defined to accomplish this goal.

## **RESPONSES TO CONSULTATION QUESTIONS**

### ***Question 1: Design principles***

***Q1A: ISED is seeking comments on the proposed design principles when providing responses, including supporting arguments for or against the proposed principles.***

***Q1B: ISED is seeking any suggestions on additional design principles that should be considered***

22. ISED is proposing six design principles to guide the creation of a new set of tier 5 licensing areas:

- 1) Recognize geographic differences: consider the unique characteristics of urban and rural areas in Canada;
- 2) Foster demand: areas should have either a population base or some economic value to support commercial viability;
- 3) Maintain technological and competitive neutrality: not favouring or discriminating against one technology or group of stakeholders over another;
- 4) Ensure boundaries are in low population areas to minimize potential interference issues;
- 5) Ensure areas nest within the existing Tier 4 service areas to maintain continuity with ISED's existing licensing structure; and
- 6) Use ISED's existing grid cells as constituent building blocks.

23. Xplornet generally supports these design principles.

24. A new set of tier 5 licensing areas must recognize the unique characteristics of urban and rural areas of Canada (i.e., areas with high population densities and areas with lower population densities) in order to ensure that spectrum is better used to serve the needs of all Canadians. As discussed above, tier 4 licensing has particularly failed to meet the needs of Canadians in low-population-density areas that are adjacent to urban centres. When urban centres are licensed together with surrounding rural areas, the rural areas have not fully benefitted from the spectrum. The spectrum has been licensed to providers seeking to provide mobile wireless services to urban residents, and not to provide rural Canadians with fixed-wireless access. This has left rural residents unable to fully benefit from Canada's spectrum resources. Creating service areas that separate high-

population-density and low-population-density areas will better meet the needs of both urban and rural users.

25. The creation of new licensing areas should not be guided by specific technologies or favour specific stakeholders. It should simply recognize that there are differences in the role that spectrum may perform in lower-population-density areas versus higher-population-density areas, and recognize that different service providers are focusing on serving in different regions. There are many smaller providers across Canada that focus on serving areas with lower population densities that simply do not have the scale and resources – nor is it their business model – to compete for spectrum to serve urban centres. A new tier 5 should enable smaller providers to also gain access to spectrum near urban centres. To-date, tier 4 licensing has unfairly disadvantaged smaller players, like Xplornet, as well as rural Canadians, by granting access to spectrum to serve low-population-density areas near major urban centres to providers with a focus on serving core urban markets.
26. With respect to interference issues, Xplornet submits that ISED must take care to consider interference matters in creating new tier 5 licensing areas; however, interference considerations must also be balanced against best meeting the needs of Canadians in low-population-density areas adjacent to urban centres. For example, with reference to the example of Hamilton, Ontario, provided in Figure 1 above, if ISED were to solely consider matters of interference, it may choose to draw the boundary of a new tier 5 area well outside the high-population-density urban centre of Hamilton. However, by pushing the licence area boundary into the low-density surrounding area, the new tier 5 licence area would continue to replicate the same problems associated with the tier 4 licence area that need to be solved. Residents of lower-density areas adjacent to the urban centre that continue to fall within the licence area associated with the urban core will continue not to be served by Canada's spectrum policy. Licence area boundaries therefore need to be drawn as tightly to urban centres as interference management will allow. Only by drawing boundaries in this manner can ISED ensure that the new tier 5 licensing areas meet the needs of Canadians and the objective of the SPFC to the maximum degree possible.
27. Xplornet agrees that the creation of a new tier 5 should be integrated and coherent with ISED's existing service areas to the greatest extent possible. Xplornet agrees that new tier 5 boundaries should be created in a manner that nests within existing tier 4 boundaries and uses ISED's existing grid cells as building blocks.
28. Xplornet submits that ISED should consider two additional principles in designing a new set of tier 5 licence areas, as set out in Figure 3 below:



**Figure 3: Additional design principles that should be considered by ISED**

- 1) Foster the deployment of contiguous networks to the greatest degree possible; and**
- 2) Avoid unnecessary administrative burden.**

29. The contiguous deployment of spectrum across geographic areas allows spectrum to be leveraged in the most efficient and effective manner to serve the needs of Canadians. While smaller, tier 5, licence areas are clearly required in order to serve Canadians in low-population-density areas adjacent to urban centres, in designing a new set of tier 5 licence areas, ISED should be careful not to introduce an unnecessary level of granularity into spectrum licensing. Unnecessary divisions of tier 4 licence areas will harm the efficient and effective deployment of spectrum resources by impacting the contiguous deployment of frequencies by carriers.

30. Furthermore, ISED should also be mindful not to introduce unnecessary administrative burden into its spectrum licensing practices. While new tier 5 divisions are necessary near urban areas, creating a more granular level of licensing in areas of the country where tier 4 licensing is not failing to meet the needs of Canadians will introduce administrative burden without any corresponding benefits. Such a result would run against the Enabling Guidelines of the SPFC. SPFC, Enabling Guideline (f) specifically states that:

“Spectrum management practice, including licensing methods, should minimize administrative burden and be responsive to changing technology and market place demands.”

***Question 2: Option 1 – Boundaries based on Statistics Canada 2016 census subdivisions***

***Q2A: ISED is seeking comments on the suitability of Option 1 in addressing the proposed design principles***

31. ISED has put forward two proposals for how a new set of tier 5 licensing areas could be defined. The first proposal – Option 1 – draws on boundaries of Statistics Canada’s 2016 census subdivisions (“CSDs”).

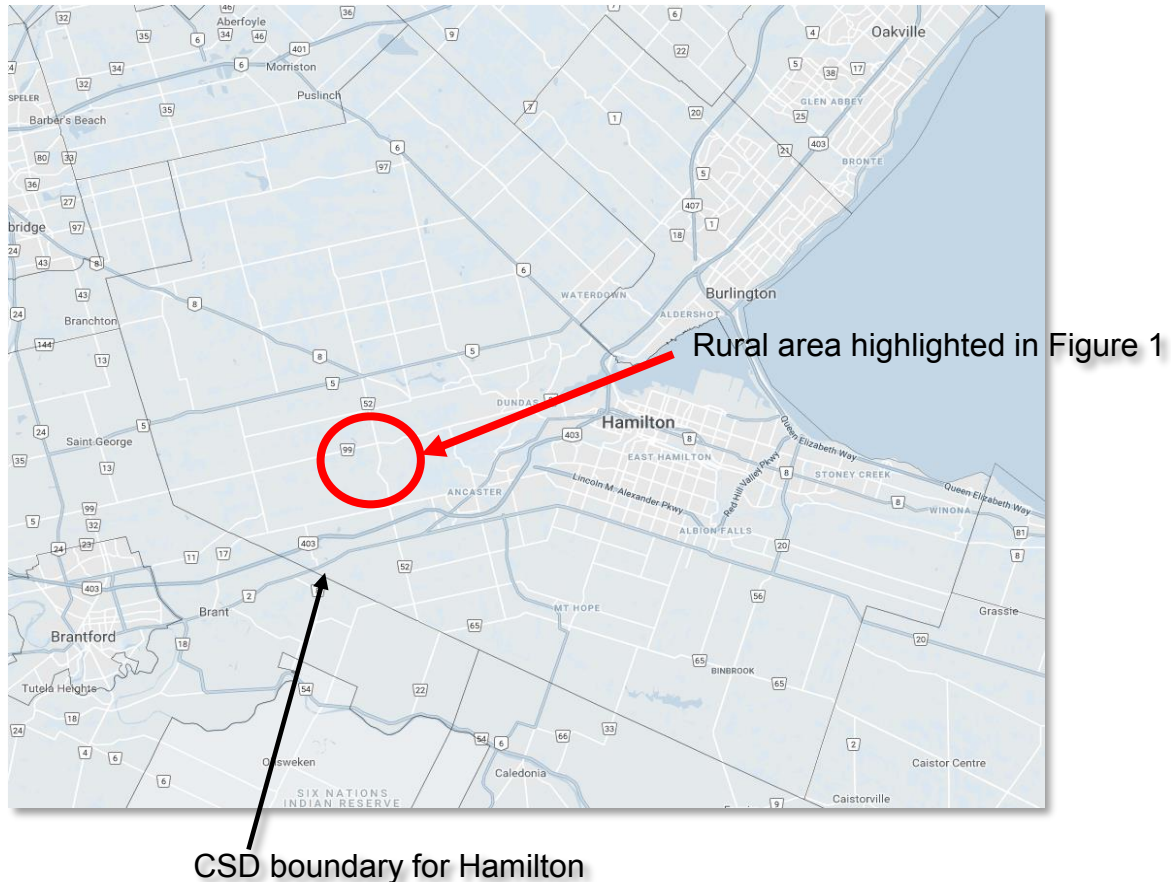
32. Xplornet does not believe that Option 1 is a suitable method for establishing new tier 5 licence areas, as the purpose for which census area boundaries were defined does not align with the design principles of new tier 5 areas.

33. The reason that tier 4 licence areas are not serving the needs of Canadians, and why a new tier 5 needs to be created, is because tier 4 licence areas are licensing both high-population-density urban cores together with low-population-density

areas adjacent to those urban cores. This was discussed above and illustrated in Figures 1 and 2. High- and low-population-density areas have unique spectrum requirements and should be licensed separately to ensure that Canadians in these different geographic regions can receive maximum benefits from spectrum resources.

34. As demonstrated in Figure 4, below, the way in which Statistics Canada's census boundaries have been drawn does not address this concern. Under Option 1, the low-density rural area highlighted in Figure 1 above remains within the same licensing area as the urban core of Hamilton. Accordingly, adopting Option 1 would continue to replicate the problems associated with tier 4 licensing that the present proceeding is seeking to solve.

**Figure 4: The low-density rural area adjacent to Hamilton continues to be within the CSD boundary of downtown Hamilton under Option 1**



**Q2B: ISED is seeking comments on whether adjacent urban CSDs should be combined into a single service area.**

**Q2C: ISED is seeking comments on whether there should be a minimum or maximum size for the service areas and if very small CSDs should be amalgamated into the larger surrounding or adjacent CSD.**

35. Although Xplornet does not support the use of Option 1, we agree that if Option 1 were to be pursued, certain modifications would be necessary to better serve the design principles noted above.

36. Indeed, urban areas are broken into many smaller CSDs. Licensing these on a separate basis would not provide additional benefits to Canadians. In fact, this would run against the SPFC by: 1) reducing the effective and efficient contiguous deployment of spectrum, and 2) introducing unnecessary administrative burden into ISED's licensing processes.

37. Xplornet submits that, in urban areas, adjacent CSDs with high population densities should be grouped and licensed together as a single unit. The important consideration is to license high-population-density and low-density areas on a separate basis.

38. To this same end, there should be no minimum or maximum size of a licensing area. Tier 5 divisions should only be implemented where necessary to ensure Canadians in low-population-density areas are able to benefit from spectrum resources.

**Q2D: ISED is seeking comments to gauge if this option is suitable for northern and rural areas**

39. Xplornet does not support the use of Option 1, as it does not properly consider the important differences of urban and rural geographies.

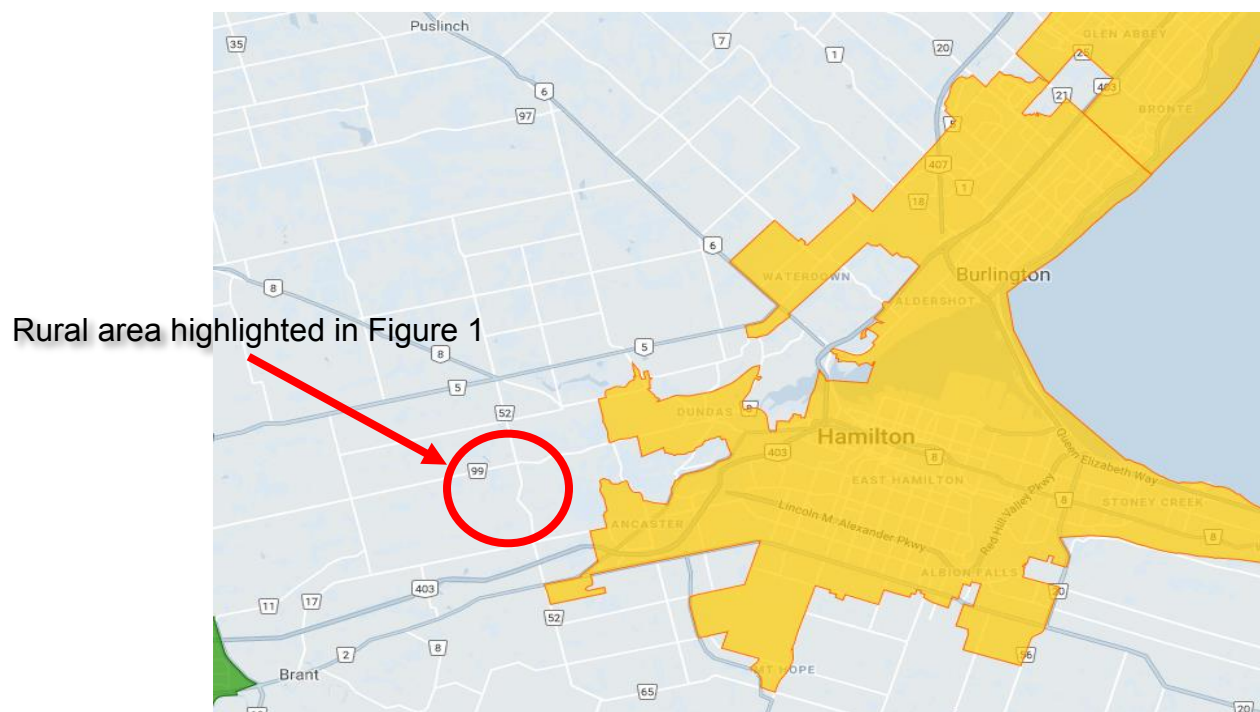
**Question 3: Option 2 – Boundaries based on population centres**

**Q3A: ISED is seeking comments on the suitability of Option 2 in addressing the proposed design principles**

40. Xplornet supports the use of Option 2 as a base for creating a new set of tier 5 licensing areas. In Option 2, boundaries for licence areas have been drawn to define specific population centres. Option 2 defines three different size population areas: 1) large centres, which include population centres of over 100,000 people; 2) medium centres, which include population centres ranging from 30,000 to 99,999 people; and small centres, covering population centres ranging from 2,000 to 29,999 people. Remaining areas of the tier 4 licence area are licensed together as a remaining "other" area.

41. Xplornet believes that defining licence areas in this manner – with certain modifications as described below – is effective in furthering the design principles.
42. Indeed, as illustrated in Figure 5, below, Option 2 is effective in separating the high-population-density areas of the Hamilton core from the immediately adjacent low-population-density areas. In our view, this achieves the primary function that a new tier 5 needs to address:

**Figure 5: Option 2 effectively separates low-population-density areas adjacent to major centres: Hamilton, ON**



**Q3B: ISED is seeking comments on the proposed minimum population for small population centre service areas. A rationale should be provided if a different population is proposed.**

43. In Xplornet's view, in creating a new set of tier 5 licensing areas, ISED should strive to balance two competing objectives: 1) to separate adjacent low- and high-density areas to ensure Canadians in unique geographic contexts can properly benefit from spectrum resources; and 2) to foster the efficient, contiguous deployment of networks and minimize administrative burden by not unnecessarily dividing tier 4 licence areas.
44. To this end, Xplornet submits that separate tier 5 licence areas are likely not required for small population centres (i.e., areas with populations less than 30,000) to license these centres separately from adjacent low-population-density areas. In

our view, removing this level of separation from a tier 5 structure would better balance competing spectrum priorities.

45. We believe that the benefits of licensing small population centres as separate areas will provide few benefits to Canadians. Small population centres and surrounding areas are generally not treated in a different manner by service providers in terms of network deployment, nor do we believe that small population centres are creating barriers that unduly favour large players in bidding for licences for such spectrum. For example, while the high value of spectrum associated with serving downtown Toronto definitely limits the ability of smaller, rural-focused providers who would use spectrum in the same licence area to serve rural residents on the outskirts of the city to obtain spectrum for this purpose, we do not believe that value distortions of this nature are having similar impacts with respect to areas adjacent to small population centres.
46. While there are likely few benefits to be gained from licensing small population centres on a separate basis, doing so has the potential to impair the effective management and deployment of spectrum. Specifically, licensing small population centres on a separate basis may: 1) reduce the efficient use of spectrum by preventing service providers from deploying networks in a contiguous manner; 2) introduce additional complexity into network deployments through the need to navigate interference issues at licence area boundaries; and 3) increase the administrative burden associated with ISED's spectrum management processes.
47. For these reasons, we recommend that Option 2 be modified to only isolate large and medium population centres. All areas that nest within an existing tier 4 licence area that are not part of a large or medium population centre should be licensed as a single "other" area.

**Q3C: ISED is seeking comments on whether the "other" service areas (remainder areas in each Tier 4) should be licensed differently (e.g. on a shared or first-come, first-served basis).**

48. Xplornet believes that "other" service areas should be licenced in the same manner as all other tier 5 licence areas. Consistent with ISED's design principles, "other" areas will offer a population base to support commercial viability, and accordingly, these areas do not warrant special treatment.

**Q3D: ISED is seeking comments on whether this option is suitable for northern or rural areas.**

49. As proposed in the Consultation, Xplornet believes that Option 2 introduces an unnecessary level of complexity for licensing many rural areas of the country that has the potential to impair the efficient deployment of spectrum resources. We have recommended that only large and medium population centres should be licensed as separate licence areas in order to ensure a new tier 5 fulfills its objectives while mitigating these negative impacts. With these modifications, we believe that Option 2 is suitable for rural Canada.

**Q3E: ISED is seeking comments on whether population centres, which have adjacent boundaries, should be amalgamated to form a single service area.**

50. Xplornet believes that adjacent areas with similar population densities should be licensed as a single service area. This would continue to serve the objectives of a new tier 5, while reducing complexity and fostering the efficient, contiguous deployment of networks.

**Question 4: Alternative proposals**

**ISED invites interested parties to submit alternative proposals for smaller service areas. All alternative service area proposals must be applicable to all of Canada and promote the federal government's policy objectives.**

**Submissions should include a rationale for the proposal, an explanation of how it satisfies ISED's policy objectives and how it meets each of the proposed design principles, and any other relevant information. One of more maps should also be included, preferably including one which covers all of Canada. Maps should be in a format that is readily accessible by ISED (e.g. in ArcGIS or MapInfo format, or publically available on the Internet with a link provided). Submissions should adhere to the requirements listed above in order to allow other stakeholders sufficient information to provide informed comments.**

51. As described above, Xplornet believes that, with certain modifications, ISED's proposed Option 2 represents an effective model for establishing a new set of tier 5 licensing areas that could serve the interests of both rural and urban Canadians. Accordingly, we are not proposing an alternative map for ISED's consideration.

**CONCLUSION**

52. Xplornet supports the creation of a new set of tier 5 licensing areas for Canada. Licensing certain types of spectrum using tier 4 licensing areas has disadvantaged many Canadians and failed to best promote the objective of the SPFC to maximize the economic and social benefits that Canadians derive from the use of radio frequency spectrum resources.

53. In creating a new set of tier 5 licensing areas, ISED has the opportunity to address the issues associated with tier 4 licensing in order to ensure that spectrum resources can be used to better meet the needs of all Canadians.

54. Xplornet believes that ISED's proposed Option 2 for defining boundaries of new tier 5 licensing areas is an appropriate base. However, Xplornet recommends that certain modifications be made to Option 2 as proposed in order to better promote the objective of the SPFC. Specifically, Xplornet recommends that separate tier 5 licensing areas should only be created for large population centres (populations of over 100,000 people) and medium population centres (populations of 30,000 to 99,999). Xplornet does not believe that the issues associated with tier 4 licensing areas are present with respect to small population centres. As a result, the

additional complexities associated with creating licensing areas for small population centres are not warranted.

55. We thank ISED for the opportunity to provide these comments.

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