




Spectrum sharing in Canada

WINNCOMM 2022

Spectrum sharing – lessons learned



Be a fast follower, ensure ecosystem availability, keep standards harmonized (as close as possible) with bigger markets

Spectrum sharing technology is not a one-size fits all solution

Various tools in the regulatory toolbox

Access licensing, non-competitive local licensing, database driven sharing

High quality data is crucial for efficient spectrum management

Improving data quality (adequate, accurate, up-to-date) is an ongoing task to minimize interference issues and optimize use of the band

Leveraging complementary datasets that inform spectrum policy and standards setting

1. Access licensing consultation proposals

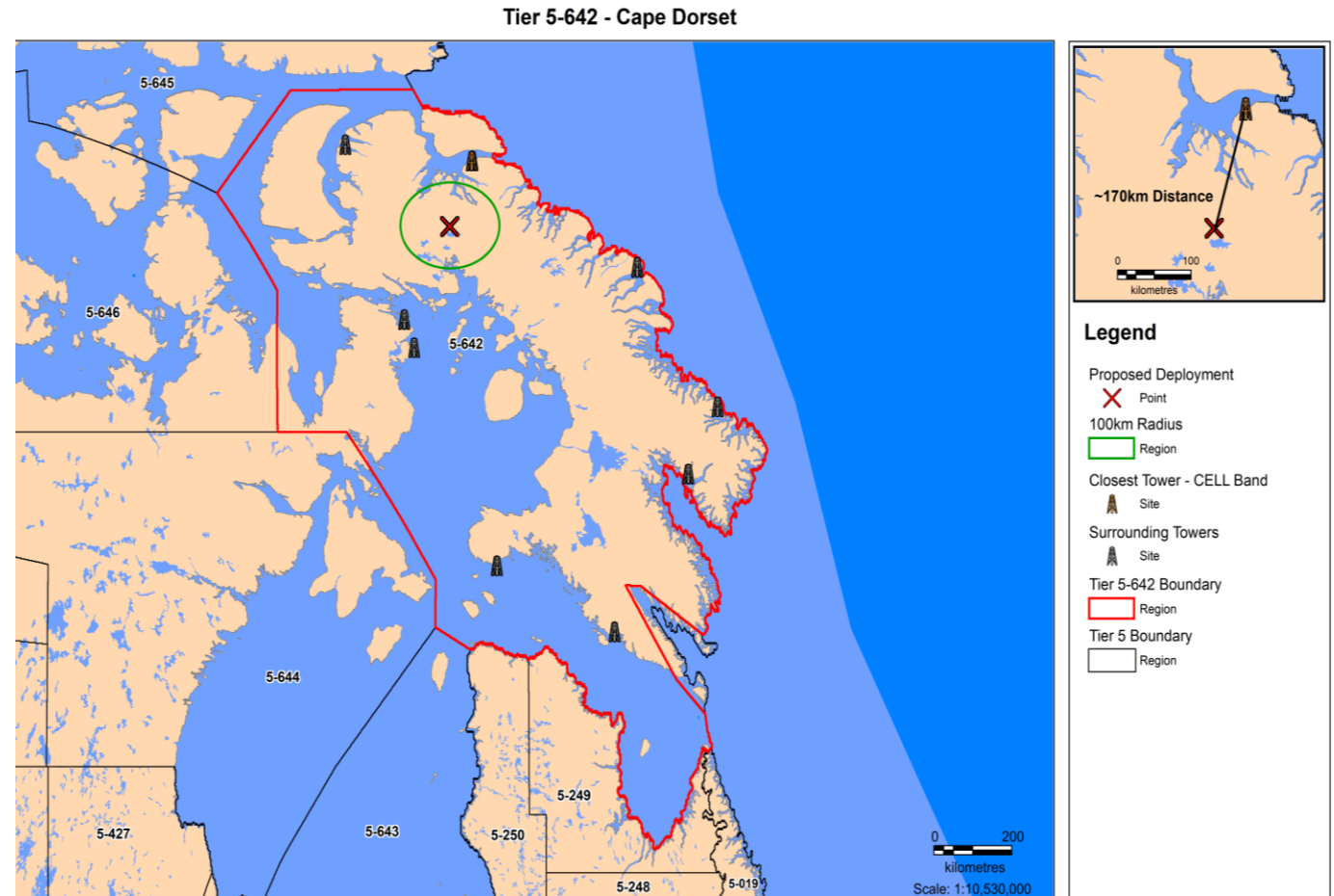


- **A supplementary licensing process** for unused spectrum in rural and remote areas
 - Available across a selection of bands, in parallel with existing licensing
 - Flex Use: Can be used for wireless broadband and/or private networks
 - Some already-licensed (but unused) spectrum will be available through this process
 - Will create additional incentive for licensees to use their spectrum – and if they don't, a way for others to gain access
- **Available in three bands** chosen to target needs and minimize impacts on existing users
 - Broadband and private networks in spectrum-licensed bands
 - Up to 170 MHz made available in 800 MHz Cellular and 1900 MHz PCS bands
 - Private networks in radio-licensed bands
 - 6 MHz available in 900 MHz
 - Designed to allow for expansion to other bands in the future

Opportunities to use spectrum that is already licenced

- **Unused spectrum example:**

- Request for spectrum at a mine in a remote area of Nunavut in Canada's North (~170 km from closest deployment)
- Over 100 MHz of unused spectrum
- Applicant tried the secondary market but was unsuccessful
- This is just one example – there are many more



Access Licensing consultation launched in August 2021 to address some of these concerns

2. Non-competitive local licensing consultation proposals

- Proposing non-competitive (i.e. not auctioned) local (NCL) licences that are available on a first-come, first-served basis
- Proposing local licensing and targeting multiple objectives:
 - simplicity and flexibility in licensing; low-barrier access to more and varied spectrum users (e.g. broadband and private networks)
- Spectrum Sharing Questions:
 - Rural vs Urban, Indoor vs Outdoor, short licence terms and deployment requirements, area and spectrum limits, sharing with existing licensees
- Automation of licensing to support large numbers of licences over small areas and for shorter periods
- The NCL licensing framework could be applied to multiple bands in the future – proposing two bands to start

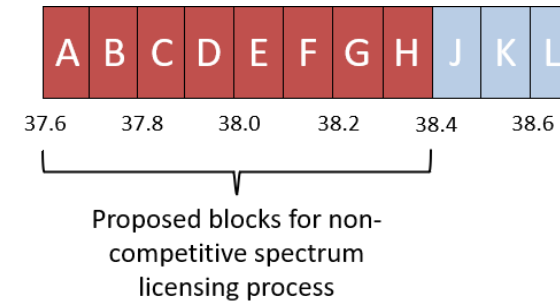
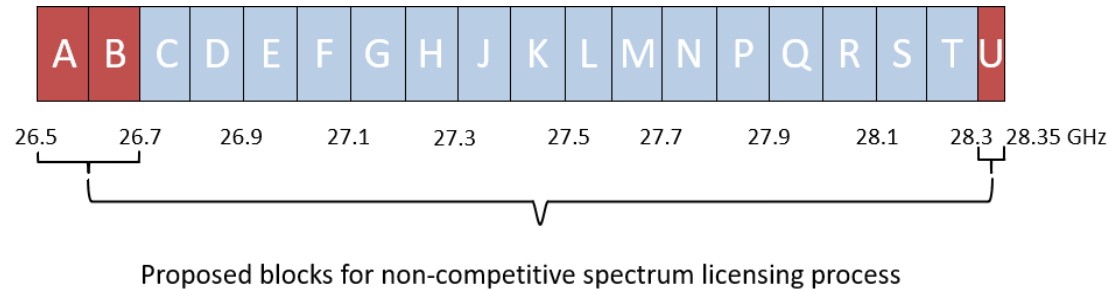
Proposed bands for initial NCL licensing



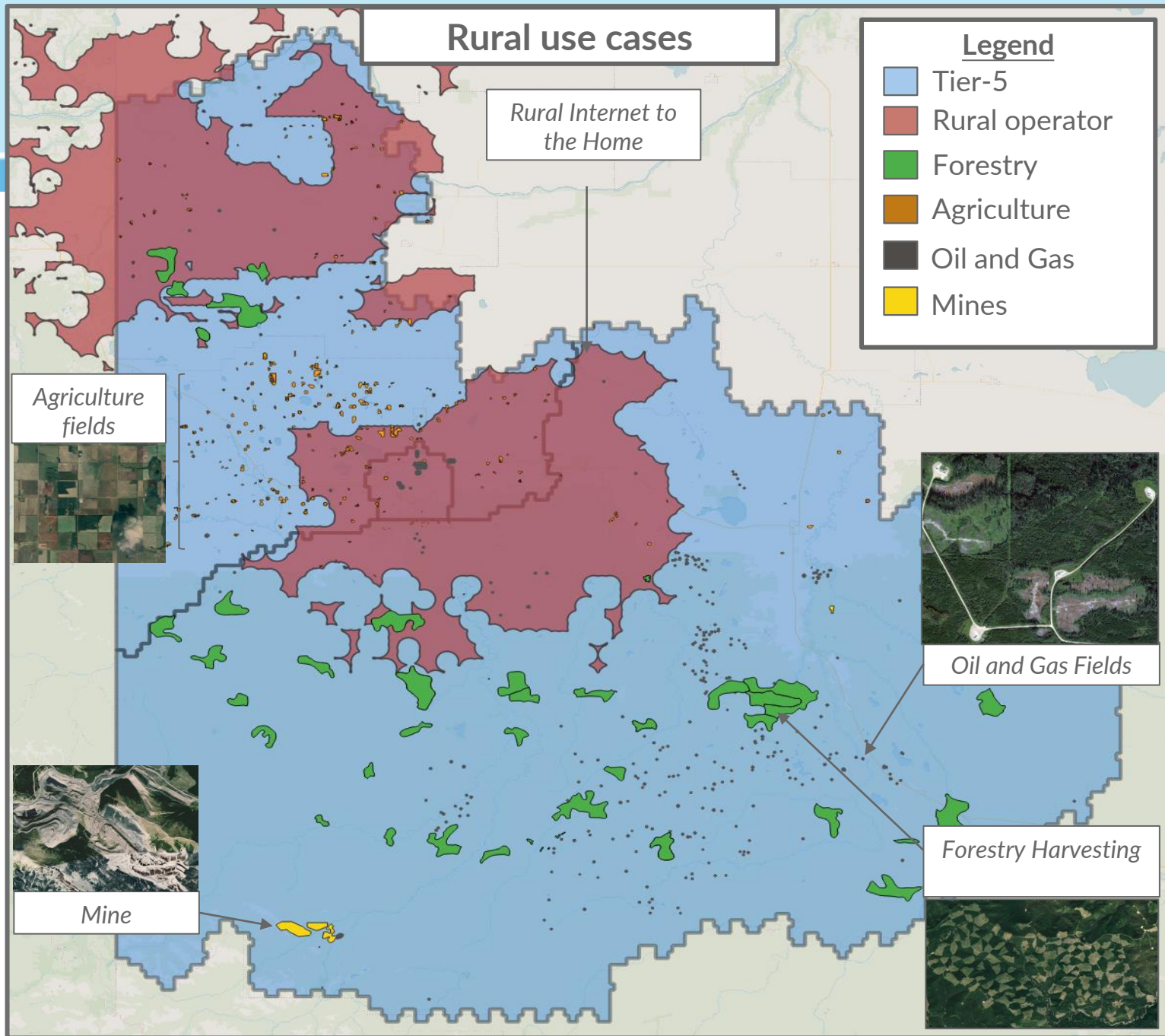
80 MHz in the 3900 MHz band:



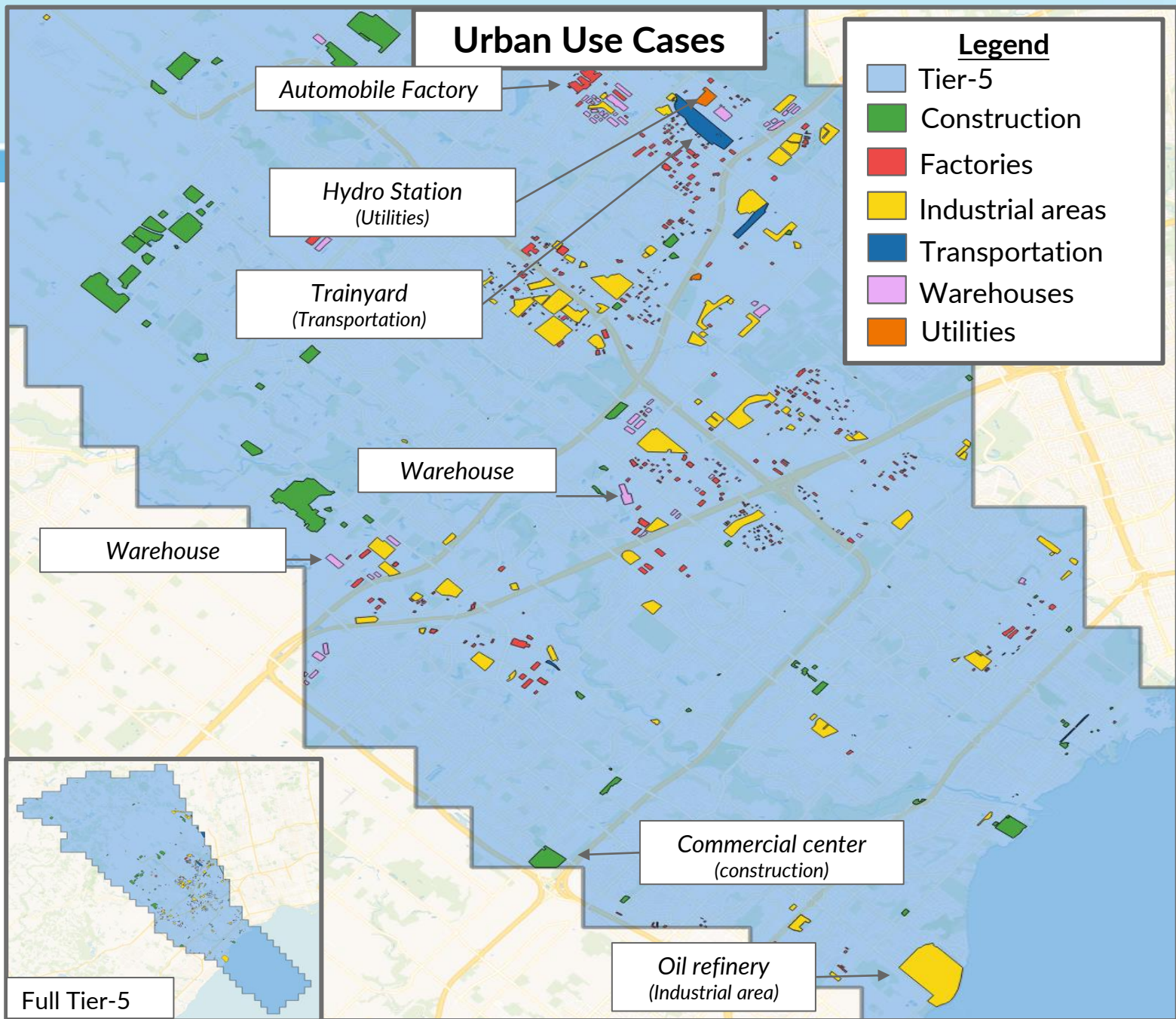
1.05 GHz in the mmWave bands (portions of 26 GHz, 28 GHz and 38 GHz):



Proposing to start with licensing 3900 MHz followed by the mmWave bands



- Possibly a mix of business cases
- Customized private use and community service needs
- Traditional mobile operators, fixed wireless access system operators, and private networks operators



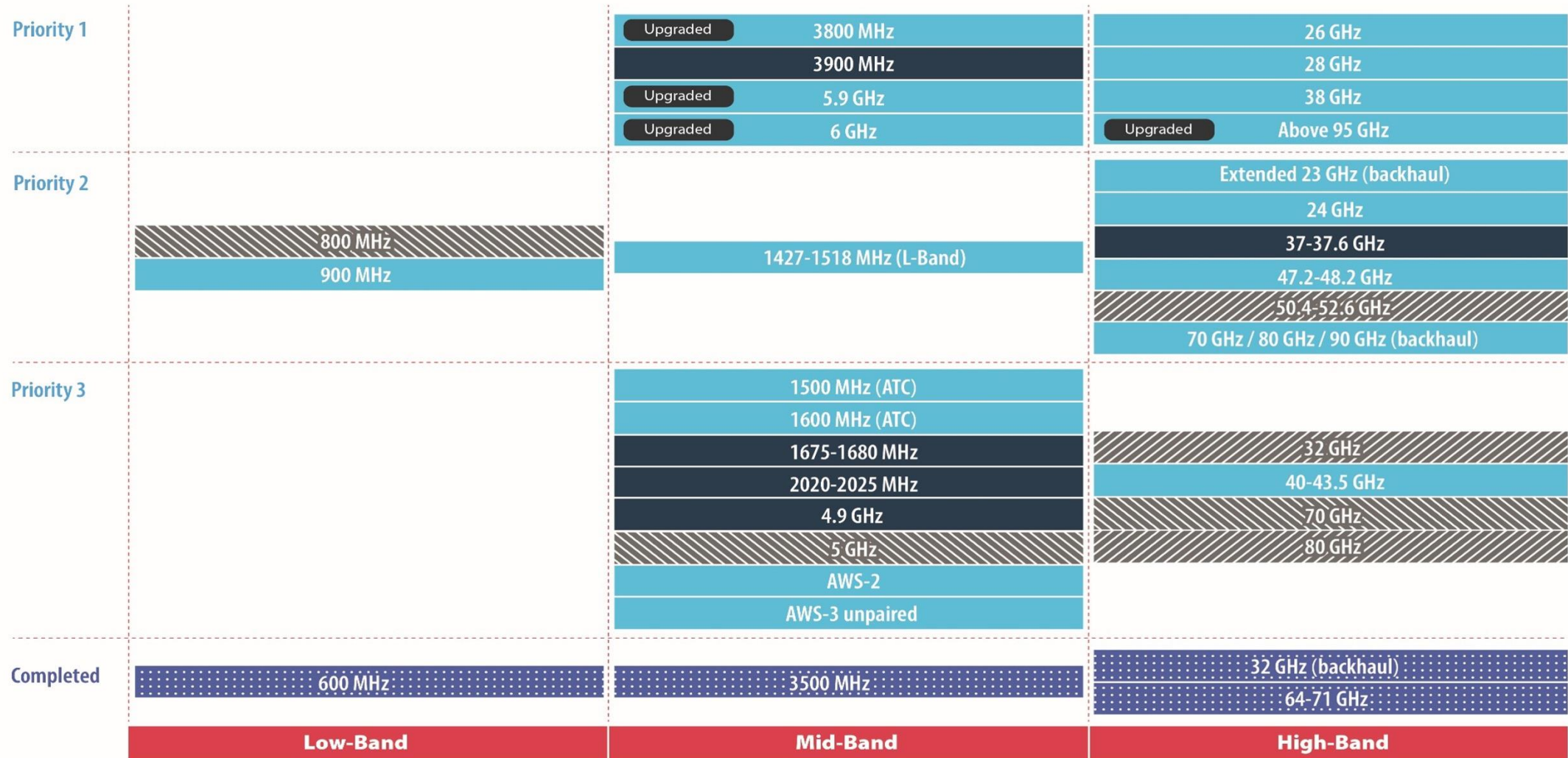
- High demand for services
- Expect to be well covered with 5G
- However, hearing demand for a mix of traditional mobile services and interest from other stakeholders for wireless private network services

3. Database-driven spectrum sharing



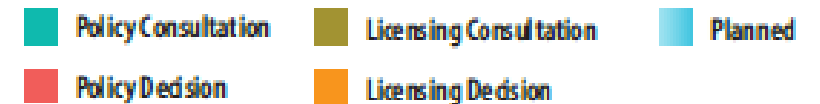
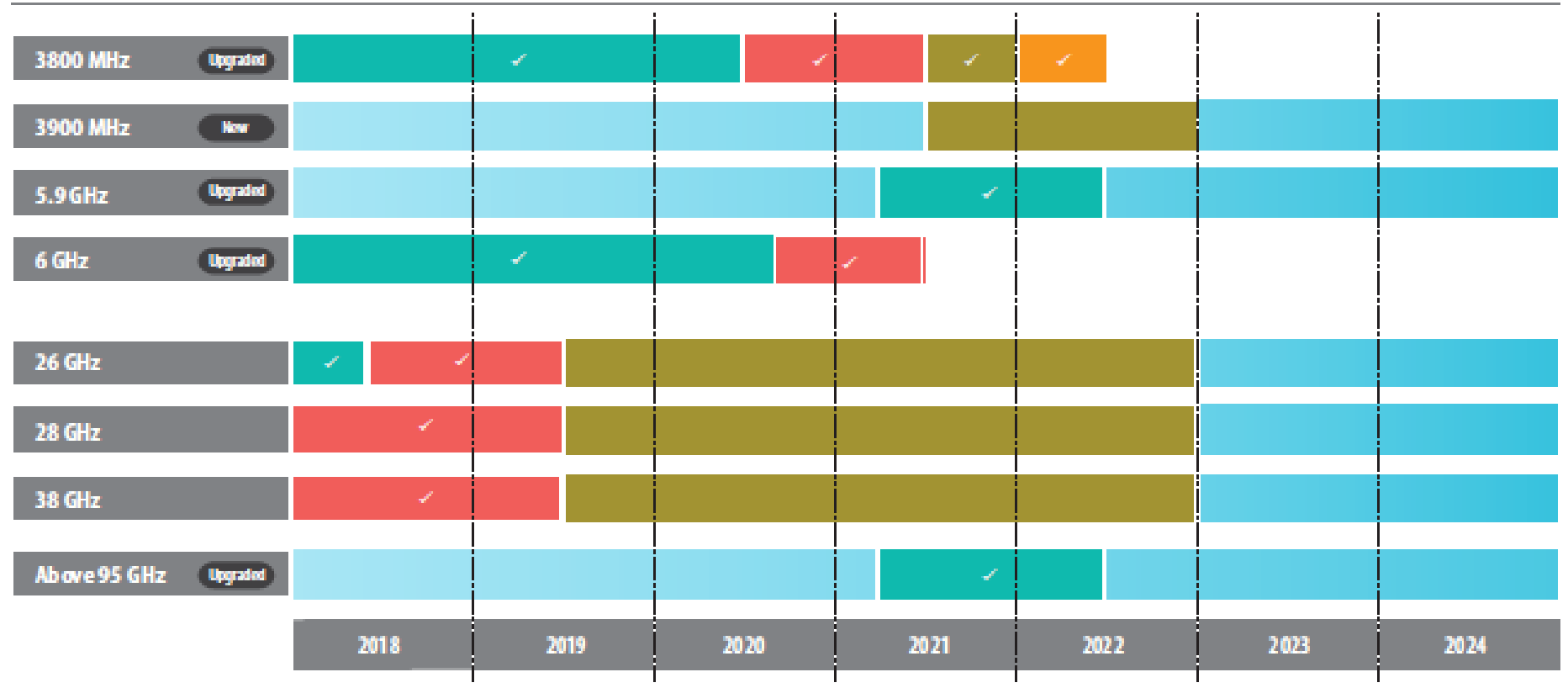
- Spectrum sharing primarily for licence-exempt spectrum use
- TVWS
 - RED Technologies, Phnx technologies
 - Over 150 stations deployed across Canada
- 6 GHz
 - 1200 MHz of spectrum for low-power indoor use
 - 247 low-power devices certified as of Dec 1 2022
 - 950 MHz of spectrum for standard power use with AFC systems
 - Standards due to be released in the near future
 - Database specifications (DBS-06 draft)
 - Radio system standard (RSS-248 Issue 2 draft)
 - Client Procedures Circular (CPC 4-1-01 draft)
 - AFC system designation to follow

Consultation on Spectrum Outlook 2022-2026 (Priorities)



Consultation on Spectrum Outlook 2022-2026 (Timelines)

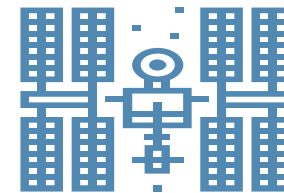
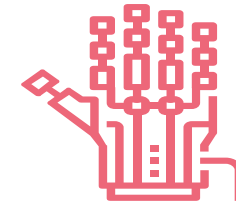
- Conventional spectrum licensing via auction
- **Non-competitive local licensing**
- Licence-exempt
- **Database-driven spectrum sharing**
- Conventional spectrum licensing via auction + **Non-competitive local licensing**
- Licence-exempt



Mix of spectrum sharing tools to improve access to spectrum in addition to conventional mechanisms (access licensing bands not shown here)

Summary

- Three mechanisms for spectrum sharing
 - More spectrum for database driven spectrum sharing
 - Introduction of access licensing
 - Introduction of non-competitive local licensing
- Greater use of data-centric approaches and automation for spectrum management





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