



Government
Services

Victorian Government submission to the Australian Communications and Media Authority's - *Expiring spectrum licences: stage 2*

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FOR PUBLICATION

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Introduction

This submission responds to the Australian Communications and Media Authority's (ACMA) consultation paper *Expiring spectrum licences: stage 2 – Information gathering, and views on uses of frequency bands and alternative licensing conditions*. The paper is principally focussed on information gathering and forms part of ACMA's stage 2 of the expiring spectrum licence (ESL) process for spectrum licences expiring between June 2028 and October 2032.

The Victorian Government relies on guaranteed and affordable access to radiofrequency spectrum to deliver services critical for Victorian citizens and businesses. The state's transport, emergency management, justice, health, education, and environmental management sectors use spectrum-dependent communications networks to function safely and effectively.

This submission is a Victorian Government submission that addresses cross-agency considerations that emerge through this consultation process. This submission has been produced with input from relevant Victorian Government stakeholders including the Department of Government Services, the Department of Transport and Planning, VicTrack, the Department of Justice and Community Safety and the Department of Treasury and Finance.

In particular, the submission addresses ACMA's request for information in the context of the Victorian Government's spectrum licence used for the safe operation of public transport rail. This includes responses to the public interest criteria, approaches to examining use under existing spectrum licences and views on uses of spectrum bands.

Victoria's submission also addresses Victoria's broader considerations around resilience and temporary disaster response (including Public Safety Mobile Broadband) and the feasibility of applying alternative licensing conditions to licences.

Noting that the pricing of spectrum will be a stronger focus of ESL Stage 3, Victoria continues to hold the position of its ESL Stage 1 submission that spectrum used for state government service delivery should be provided at reasonable cost. Victoria considers that a 'cost recovery methodology' be applied for the Department of Transport and Planning to renew VicTrack's existing 1800 MHz licences, and any future allocations that support PSMB or other critical government communications services.

Information requested from incumbent licensees.

The Victorian Government requires access to spectrum for a range of critical services, including transport, emergency management and environmental management. As the incumbent licensee to an existing 2 x 15 MHz allocation in the 1800 MHz band, the Victorian Rail Corporation's (VicTrack) licences must be renewed if Victoria's state rail network is to continue operations.

VicTrack's spectrum licences in the 1800 MHz band are used for rail safety communications services, critical to the safe and efficient operation of Victoria's metropolitan transport network. Without access to this spectrum, this vital train communications network would not be able to function, critically compromising train services.

Victoria supports the principle of a public interest criteria to inform ACMA's decision making regarding expiring licences, noting the intent to encourage licensees to demonstrate how they will maximise use of their spectrum allocations. However, Victoria again highlights that the finalised criteria do not sufficiently recognise state government uses and needs of spectrum for essential service delivery.

Victoria's below responses to the public interest criteria reflect the specific public sector critical service delivery context in which the VicTrack expiring spectrum licences operate. This context and use is distinctly different to other commercial use cases and Victoria encourages ACMA to recognise the public benefit outcomes that renewing VicTrack's 1800 MHz licence would deliver.

Public interest criterion 1: facilitates efficiency:

Victoria supports the efficient use of spectrum and the principle that where practicable, spectrum licensees should use spectrum to its fullest capacity and continue to explore efficiencies.

Current use of 1800 MHz spectrum for metropolitan rail services

VicTrack holds two licences in the 1800 MHz band on behalf of the Victorian Government. These licences are detailed in Table 1 below.

Table 1: Victorian Rail Track Corporation's spectrum licences in the 1800 MHz band

Licence Number	Spectrum	Bandwidth	Geographical boundary	Scope of licence
9460484	1770-1775, 1865-1870	2 x 5 MHz	Metropolitan Melbourne	Nil
9460485	1775-1785, 1870-1880	2 x 10 MHz	Metropolitan Melbourne	The licence only authorises the operation of radiocommunications devices for the purpose of the provision of rail safety and control communications

The two licences are used for rail safety and control communications through the Digital Train Radio System (DTRS) that support metropolitan rail services. These services support an annual patronage of 99.5 million¹. The metropolitan rail operator, Metro Trains Melbourne (MTM) have included availability of the DTRS as a component of their Safety Management System (SMS) co-regulated with the Office of the National Rail Safety Regulator (ONRSR). As such, MTM cannot operate train services if the DTRS is unavailable.

The DTRS uses part of the spectrum covered by the licences directly for:

- Voice communications between train drivers and operational staff including safety critical Railway Emergency Calls
- Data communications of:
 - train location information used to make key decisions relating to delivery of train services to the timetable,
 - status of signalling equipment in locations where it is prohibitively expensive to deliver wired telecommunications infrastructure on the railway.

The DTRS depends on the remainder of the spectrum covered by the two licences for use as guard bands to mitigate interference from Mobile Network Operators (MNO) as they deploy high-power sites near rail corridors.

The DTRS is based on the Global System for Mobile Communications – Railway (GSM-R) standard and EIRENE-MORANE specifications which are used in 38 countries². Key suppliers of GSM-R and EIRENE MORANE equipment have guaranteed support to railways until 2035.

The geographical boundary of the two spectrum licences includes the current metropolitan railway lines and key railway facilities. It also includes a future expansion of the metropolitan railway line to the outer suburban growth area of Wallan.

For these current 1800 MHz licences, the Victorian Government has no third party or sharing arrangements.

Future use of 1800 MHz spectrum for metropolitan rail services and potentially other Victorian rail services

¹ Department of Transport, Annual Report 2021-22, page 160 - [DoT-Annual-Report-2021-22-v1.pdf \(content.vic.gov.au\)](#)

² As highlighted in the [Global Railway Review](#) (September 2017), the GSM-R system is based on [GSM](#) and EIRENE (European Integrated Radio Enhanced Network) – MORANE specifications (Mobile Radio for Railways Networks). This standard for GSM-R is the result of over 10 years of collaboration between EU railway companies and is maintained by the UIC ([International Union of Railways](#)). As the international [wireless](#) communications standard for [railway](#) communication and applications, GSM-R is our common communication platform and for use as a Train Control System.

Victoria expects to transition to the Future Railway Mobile Communication System (FRMCS) in line with other Australian and international railways. The FRMCS is under development by the International Union of Railways (UIC)³.

FRMCS is expected to continue delivering existing services provided by DTRS, with additional supporting data communications to support the next generation of train control systems including Communication-Based Train Control (CBTC) and European Train Control System (ETCS).

FRMCS is expected to include innovative functionality, such as remote condition monitoring and high-bandwidth applications such as critical video for passenger and staff safety.

It is anticipated that FRMCS will use 5G standards with functionality incorporated for rail as part of the FRMCS project run by the UIC in coordination with the 3rd Generation Partnership Project (3GPP).

It is expected that the transition to 5G technology will mitigate interference from high-power MNO sites adjacent to railway land, however guard bands will still be required during the transition from the current DTRS to the FRMCS. Testing and analysis will need to be completed to confirm any possible future reduction in guard bands once fully transitioned to the FRMCS. The Victorian Government plans to explore opportunities related to FRMCS including use of the 1900-1910 MHz band alongside the existing 1800 MHz spectrum licences and voice and data communications for regional trains, light rail, bus, and emergency services, which may be enabled by third party or sharing arrangements.

FRMCS may need coverage augmentation for additions or extensions to the metropolitan train network, mitigating coverage impacts from high-power MNO sites and private developments adjacent to railway land, as well as increasing coverage overlap to support reliability targets for future ETCS deployments.

There will be a period of transition between the DTRS and the future system where it is likely Victoria will need to operate both radio systems in parallel.

In addition, the Victorian Government's *Big Build*⁴ includes the Suburban Rail Loop, a 90km rail line linking every major train service from the Frankston Line to the Werribee Line. Subject to procurement outcomes and timing, pricing and technical constraints, the Suburban Rail Loop will need access to 1800 MHz and/or 1900 MHz spectrum.

Public interest criterion 2: promotes investment and innovation:

³ As noted on the International Union of Railways' (UIC) [website](#) (September 2023), Future Railway Mobile Communication System (FRMCS) is the future worldwide telecommunication system designed by UIC, in close cooperation with the different stakeholders from the rail sector, as the successor of GSM-R but also as a key enabler for rail transport digitalisation.

⁴ <https://www.budget.vic.gov.au/our-big-build>

Victoria supports the allocation of spectrum to licensees with current or planned investment that will improve outcomes for end users.

Victoria has invested heavily in the DTRS, and dependent upon the outcome of this expiring licence process, anticipates further investment in FRMCS to support future transport needs using the latest global standards and technology for rail safety communications.

The 2024/25 Victorian State Budget includes \$214 million to maintain DTRS and plan for future upgrades.⁵ This funding builds on the original investment of approximately \$200 million, support costs from 2015 to 2027 approximating \$200 million, and projects to address obsolescence from 2016 to 2024 approximating \$300 million.

This investment is part of the Victorian Government's *Big Build*⁶ strategy, delivering major transport projects including the Metro Tunnel, Level Crossing Removal Program, Suburban Rail Loop, West Gate Tunnel and North East Link, that will transform the way Victorians travel⁷.

Additional investments in the DTRS have been included in Victoria's *Big Build* and these include installation of additional repeaters and base stations for changes to the railway network.

Future investment in the use of 1800 MHz spectrum for metropolitan rail services

As noted above, there is funding allocated in the 2024/25 Victorian State Budget for planning future rail transport upgrades. Next steps include planning to transition from DTRS to the FRMCS standards on 5G technology. The key inputs in planning for this transition will include an options analysis on how the spectrum can be used to facilitate more essential government services (e.g. other transport and emergency management uses) while balancing costs.

Additionally, as Victoria's *Big Build* continues, further investments will be made to maintain and extend the coverage of the DTRS.

Innovation

The Victorian Government plans to leverage innovations from the FRMCS project and the supplier market.

The FRMCS project is coordinating with 3GPP to embed rail requirements in 5G standards and specifications with the aim to increase the supplier market from which railways can procure equipment.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.*

The FRMCS project is also exploring additional use cases that include services for other transport modes and emergency services, remote condition monitoring, and critical video.

Public interest criterion 3: enhances competition:

As highlighted in the Victorian Government's response to ACMA's consultation on the Approach to Expiring Spectrum Licences (ESL Stage 1), Victoria recognises the need to maximise spectrum use to support economic development and innovation. However, this objective must be balanced with spectrum allocations required for state government service delivery.

Victoria would highlight that it may enhance competition in the rail communications market through the adoption of FRMCS. As noted above (in Public interest criterion 2), the FRMCS project is coordinating with 3GPP to embed rail requirements in 5G standards, with the aim of increasing the supplier market from which railways can procure equipment. The Victorian Government aims to promote and enhance competition in the market through its procurement processes, when securing the best value for money vendor to deliver FRMCS rail equipment.

Public interest criterion 4: balances public benefits and impacts:

The 1800 MHz spectrum enables critical services

Victoria's metropolitan rail network is not a substitutable service. Without access to either of the two 1800 MHz band licences, Victoria would not be able to operate the DTRS communications network, and train services would be critically compromised. For example, without access to the 1800 MHz band, significant change to the MTM SMS and significant investment in a new radio system would be required. This would result in rail services stopping, as MTM cannot operate train services if the DTRS is unavailable. .

Additionally, transport is considered critical infrastructure under the Security of Critical Infrastructure Act 2018 (Critical Infrastructure Act). There is a clear need to consider how spectrum allocations can ensure that public entities are not disadvantaged in meeting their national obligations under the Critical Infrastructure Act, alongside other national legislative or regulatory requirements.

The affordable long-term reallocation of the 1800 MHz band is critical to the ongoing safe and efficient operation of Victoria's transport network. It will ensure the operation of a critical government service, safeguarding public safety and providing for the mobility of goods and people.

Passengers rely on rail for a range of social and economic purposes. In 2019, the rail industry contributed around \$30 billion to the Australian economy and employed more than 165,000 workers⁸.

VicTrack's current rail telecommunications system is essential to the safe and efficient delivery of these services, as well as enabling support functions such as journey information and ticketing.

Access to a safe and efficient rail system promotes tourism and interconnectivity across the country to drive economic growth. It also ensures that Victorians, including vulnerable citizens, can travel to access essential healthcare and education services.

Public interest criterion 5: supports relevant policy objectives and priorities (including regional, rural, and remote connectivity, investment and competition):

Victoria supports the policy objectives of the Commonwealth Government's Ministerial Policy Statement (MPS⁹), that supports regional, rural, and remote connectivity, investment and competition. The Victorian Government has made direct contributions to regional, rural, and remote connectivity and investment through policy and program activities, including through the over \$500 million Connecting Victoria program. This program has made substantial investment in telecommunications infrastructure, enabling economic growth, digital inclusion and improving the overall liveability of communities.

Victoria also supports that the MPS recognises that the 1800 MHz rail communication spectrum serves a distinctly different use case from other commercial spectrum uses.

More generally, Victoria highlights that public transport delivers a range of benefits that align with national policy priorities including economic development, social inclusion, and environmental outcomes.

Approaches to examining use under existing spectrum licences:

⁸ Australasian Railway Association, November 2020, Value of Rail 2020 The rail industry's contribution to a strong economy and vibrant communities - <https://ara.net.au/wp-content/uploads/REPORT-ValueofRail2020-1.pdf>

⁹ Federal Register of Legislation, Radiocommunications (Ministerial Policy Statement – Expiring Spectrum Licences) Instrument 2024 - [Federal Register of Legislation – Radiocommunications \(Ministerial Policy Statement – Expiring Spectrum Licences\) Instrument 2024](#).

Victoria agrees with ACMA's assessment, that coverage maps are of limited value for examining spectrum use in the context of rail operators and rail communications networks.

Victoria also reiterates its positions from the Stage 1 ESL process, including that fluctuations in use may necessarily occur across essential service use cases. Examples include surge operations, system redundancy (including during network transition) or temporary back-up systems. As such, ACMA is encouraged to adopt a flexible and nuanced approach to examining "efficient" use particularly in the context of essential service use cases. ACMA should also ensure that assessment of the benefits provided by essential service uses consider both the direct and indirect benefits.

Views on uses of frequency bands

Victoria notes that ACMA's consultation paper indicates that ETCS is becoming increasingly out of date, however Victoria disagrees with this assessment. . While the GSM-R standards are approaching obsolescence, ETCS remains mandatory for all EU-funded projects that include new or upgraded signalling and it is the intention of the Victorian Government to transition from conventional signalling systems to ETCS.

ACMA has asked about suitable timeframes for access to the 1900 MHz band. As the FRMCS project is still underway, definitive timeframes are not yet known. Victoria also notes that the European Union is targeting the retention of their 900 MHz spectrum in addition to their 1900 MHz spectrum to support FRMCS. Considering this, the Victorian Government may require more than the 10 MHz in the 1900 MHz spectrum to operate the FRMCS.

While the current expectation is that FRMCS compatible equipment will be available globally on 1800 MHz and that both 1900-1910 and 1800 MHz will be able to be used in the future, Victoria proposes to support future rail safety communications using FRMCS in both these frequency bands. As such, the Victorian Government seeks renewal of the licences for the existing 2 x 15 MHz allocation in the 1800 MHz band, through this expiring spectrum licence process. For the 1900 MHz band, the Victorian Government expects to further investigate future spectrum requirements once the necessary inputs are more certain and would welcome the opportunity to engage with ACMA on this at the appropriate time, during the future 1800 MHz licence period.

Resilience and temporary disaster responses.

Temporary emergency mobile roaming capability:

Victoria encourages ACMA to consider making allocation decisions that would strengthen the feasibility and facilitate the delivery of a temporary emergency mobile roaming capability when issuing licences to mobile network operators (MNOs).

Victoria notes that the implementation of temporary emergency roaming is currently being investigated by the telecommunications industry and Commonwealth Government. ACMA should give consideration to minimising any additional spectrum related costs that are associated with the delivery model proposed, given the significant public benefit that will likely come from keeping more communities connected during emergency events.

Victoria has been an early and consistent advocate for reforms that could introduce a temporary emergency roaming capability to address the risk communities face when connectivity is lost during emergency events.

The rationale for temporary emergency roaming has been emphasised by Victoria's recent experience with natural disaster events including bushfires, storms and flooding. These events resulted in significant loss of services across impacted areas, disrupting community access to emergency information and communications for extended periods of time.

Temporary emergency roaming would have minimised loss of connectivity where another network was still operational, not only allowing access to Triple Zero, but also communication with family, friends and other government services.

Temporary emergency roaming and spectrum used for public transport rail.

Victoria proposes that radio systems deployed for the provision of rail safety and control communications are exempt from any future requirement for temporary emergency mobile roaming capability. This would closely align with the exemption for transport authorities in the *Telecommunication (Emergency Call Service) Determination 2019* made under *Part 8 of the Telecommunications (Consumer Protection and Service Standards) Act 1999*.

Rail operators rely on rail communications networks having uninterrupted access to spectrum to deliver services safely and effectively, and not doing so compromises the delivery of mission critical services. While Victoria supports multiple networks being available for temporary emergency roaming, this is currently not feasible for rail communications networks. Should temporary emergency roaming become technically feasible and not interfere with the delivery of mission critical services, Victoria could reconsider the use of rail communication networks for this purpose.

This is consistent with Victoria's response to Public Interest Criterion 2, which indicates the Victorian Government will undertake an options analysis on how the spectrum can be used to facilitate more essential government services.

Public Safety Mobile Broadband (PSMB):

PSMB is a critical opportunity to improve regional telecommunications and better align government spending to improve emergency management communications and public safety. That said, a key dependency for PSMB is access to dedicated spectrum.

The 2020 *Royal Commission into National Natural Disaster Arrangements - Report*¹⁰ highlights that PSMB would provide "significant benefits to emergency responders in states and territories and should be prioritised". This included 'Recommendation 6.4 Delivery of a Public Safety Mobile Broadband Capability' that "Australian, state and territory governments should expedite the delivery of a Public Safety Mobile Broadband capability". Victoria notes from the *Royal Commission into National Natural Disaster Arrangements recommendations implementation status*¹¹ that the Commonwealth Government has since responded to the recommendation and the PSMB Strategic Review Final Report¹² by committing funding to establish a central taskforce which is currently driving the delivery of a national PSMB capability.

The implementation of PSMB in Australia will be the most significant advancement in public safety communications in decades. It will ensure Victorians are kept safe by facilitating emergency service access to current technology platforms, to improve operational efficiency and effectiveness. In addition, PSMB will enable significant advancements in interoperable communications across emergency management agencies at both the state and national level.

A critical enabler of deriving this significant public benefit from PSMB is dedicated spectrum. Victoria notes that the Commonwealth Government has offered access to spectrum in Band 27 in 809-814MHz. However, this band would not be suitable due to its small bandwidth and near non-existent global transmission infrastructure and device ecosystem for that band.

Given previous lost opportunities to secure appropriate spectrum, going forward Victoria, in line with New South Wales, recommend Band 5 spectrum in the 850MHz range as a well-positioned alternative band to support public safety and emergency

¹⁰ Commonwealth of Australia, October 2020, *2020 Royal Commission into National Natural Disaster Arrangements - Report* - <https://www.royalcommission.gov.au/natural-disasters/report>

¹¹ National Emergency Management Agency, October 2023, *Royal Commission into National Natural Disaster Arrangements recommendations implementation status* - [https://nema.gov.au/sites/default/files/inline-files/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20recommendations%20imple mentation%20status.pdf](https://nema.gov.au/sites/default/files/inline-files/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20recommendations%20implementation%20status.pdf)

¹² Department of Infrastructure, Transport, Regional Development, Communications and the Arts, May 2023, Release of the Public Safety Mobile Broadband Review and the Government Response - <https://www.infrastructure.gov.au/department/media/news/release-public-safety-mobile-broadband-review-and-government-response>

management activities. Allocating this band for public safety use rather than being re-licensed to the market could support Commonwealth, state and territory governments during commercial negotiations to secure a better value for money outcome for PSMB.

Victoria, in line with its submission to ESL Stage 1, recommends that ACMA price spectrum used by states to support the delivery of critical government services (including emergency management and public transport) in a way that does not seek to generate revenue from state governments and resultingly divert funds away from other critical services.

Alternative licensing conditions

Promotion of coverage and competition in the mobile market.

Victoria supports the Commonwealth and ACMA's intention to explore alternative licensing conditions that could incentivise more efficient use of spectrum. This could include rollout obligations and use it or lose it/share it requirements.

More efficient use of spectrum could positively impact digital inclusion outcomes. The Victorian Government recognises digital inclusion as a critical enabler for Victorians to participate in modern society. This includes the ability to connect with community, find work, participate in study, use government services and access information during emergencies. The *2022 Victorian Government Digital Inclusion Statement*¹³ identifies four priorities to enhance digital inclusion in Victoria: access, affordability, digital ability and digital safety.

Rollout obligations have the potential to promote coverage and competition in regional areas where spectrum may be underutilised. In turn, this could improve accessibility and affordability for digital services in these areas and improve digital inclusion outcomes.

Licence obligations could require providers to deliver a certain service type to a certain percentage of population or geography. Use it or lose it/share it requirements could complement rollout obligations by discouraging spectrum hoarding and promoting a more efficient use of spectrum. If not utilised in line with licence requirements, mobile providers could be required to share or give up their licence, allowing an alternative infrastructure provider to utilise spectrum and provide more coverage and choice for customers in underutilised areas.

Victoria, in line with New South Wales, encourages ACMA to consider the feasibility of allocating place-based and geographically prescribed spectrum licences. This could reduce the barriers to entry into the regional mobile telecommunications market by making spectrum licences more attainable, and support expansion of coverage and competition in regional areas.

Victoria has also been an advocate for initiatives (including through its Connecting Victoria Program) that could promote further implementation of multi-carrier outcomes that improve coverage in underserved areas. Multi-carrier solutions, such as neutral hosting arrangements offers multiple providers with the ability to share a third party owned piece of infrastructure in order to more cost-effectively provide coverage in less economically viable locations. As a result, rollout obligations may encourage further uptake of various multi-carrier solutions to help

¹³ <https://www.vic.gov.au/victorian-government-digital-inclusion-statement>

¹⁴ DGS Report Template DGS Report Template DGS Report Template Victorian Government Submission to ACMA ESL Stage 2 Process

providers efficiently meet their coverage obligations and deliver better connectivity outcomes for regional Victoria.

Implications of alternative licensing conditions on licences issued for rail.

Victoria understands that the 1800 MHz band licences held for provision of rail safety and control communications are exempt from the Ministerial Policy Statement. Whilst Victoria supports the consideration of alternative licensing conditions for commercial use cases, it is recommended that spectrum used for public transport rail, an essential government service, is exempt from any such conditions.

Alternative licensing conditions are intended to promote competition by preventing spectrum hoarding and promoting coverage in areas where spectrum has traditionally been underutilised. Spectrum utilised for public transport rail is a separate use case, used to facilitate delivery of a public good rather than deliver commercial returns.

Victoria also notes that the uncertainty around timing of ACMA decisions and any subsequent implementation of alternative licencing conditions is constraining planning activities for the transition to a new radio system using FRMCS standards on 5G technology. As such, confirmation of exemption from potential alternative licence conditions would be welcomed.