Document 1

Competitive Process				Non-Competitive Process					
Auction		Tender				Allocation		MSP- Like	
Cash		Cash		IRs	Combo	Open		Existing users only	
Analysis									
Pros	Cons	Pros	Cons	Pros	Cons	Pros	Cons	Pros	Cons
Market decides best use of spectrum Good spectrum utilisation Transparent Low administrative burden Open to all	Depending on reserve price could stifle "new entrants"/small players Potential for spectrum to go for small sums (could be mitigated through design) No explicit trade for policy objectives Might be hard for implementation conditions to be imposed	Market decides best use of spectrum Good spectrum utilisation Low administrative burden Final allocation a MBIE discretion Open to all	Non-transparent by design (can be mitigated) ... could stifle "new entrants"/small players Potential for spectrum to go for small sums (could be mitigated through design) No explicit trade for policy objectives	Ability to get policy outcomes explicitly Low up-front costs – "re-investment" Equality with MNO allocation Good spectrum utilisation Final allocation a MBIE discretion Open to all	Non-transparent Potential for spectrum to go for small sums (could be mitigated through design) Hard to pin-point value	Fast Not-high administrative burden Allocation at MBIE discretion Ability to get policy outcomes explicitly Ability to tailor cost depending on player	Not-very-transparent If we make a call there is a chance for challenge Potential for spectrum to be used more efficiently	Fastest Not-high administrative burden Allocation at MBIE discretion Ability to get policy outcomes explicitly	Not-transparent Other plays could be excluded If we make a call there is a chance for challenge Potential for spectrum to be used more efficiently
To note:		To note:		To note:		To note:		To note: Could consider "pre-allocation" to existing users ie. incumbents in 3.5 regional get a slot, then do another allocation process for the remaining slots in a defined area eg competitive cash auction		To note:	

Pros	Cons
Transparent Access to small players Low-cost	High administrative burden Potential for spectrum to go for small sums (could be mitigated through design) No explicit policy objectives

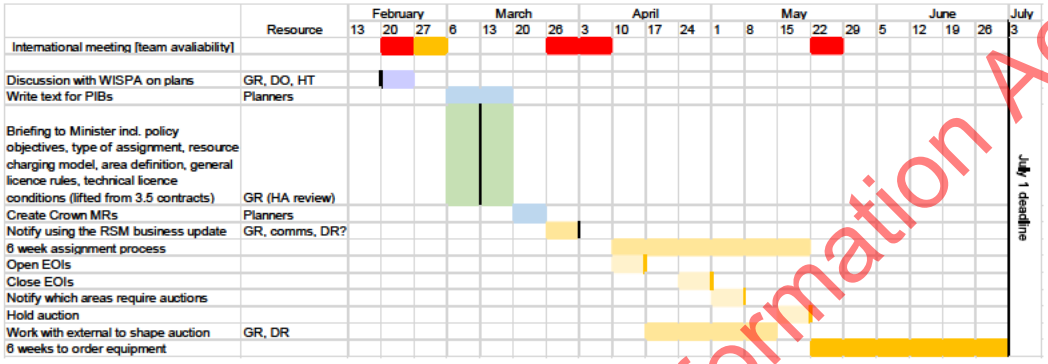
Other Decisions	
Length of licences	20 Years in line with MRs
	Some shorter period – allows replanning for new technology and or implementation requirements / build conditions
Resource charging	Front load this into the reserve/cost
	Yearly fee (increases admin needed)
Definition of regional boarders	TLAs (Auckland?)
	Limits on the number/types of TLAs you can
Resale	Are rights tradeable once built / implemented?

Document 2

3.30 – 3.34 GHz Regional Broadband Internal Decision Document

This document will set out decision making for the key deliverables required before 8 March briefing.

1. Timeline



	Resource
International meeting [team availability]	
Discussion with WISPA on plans	GR, DO, HT
Write text for PIBs	Planners
Briefing to Minister incl. policy objectives, type of assignment, resource charging model, area definition, general licence rules, technical licence conditions (lifted from 3.5 contracts)	GR (HA review)
Create Crown MRs	Planners
Notify using the RSM business update	GR, comms, DR?
6 week assignment process	
Open EOIs	
Close EOIs	
Notify which areas require auctions	
Hold auction	
Work with external to shape auction	GR, DR
6 weeks to order equipment	

2. Licencing method

This decision reflects how licences are created, by whom, and what is sold/assigned.

2.1. Options

2.1.1. Time limited area licencing [Preferred]

Offer the right for **an operator** to place licences within a particular area for a limited time. These licences would follow a particular set of licencing rules and would allow operators to secure multiple licences on an exclusive basis for a set period [suggested 6 months – 1 year]. Following this time, the area would be opened for other operators to licence.

This option best combines the area and point licencing methods to use spectrum most efficiently, while allowing operators the ability to "lock-in" the spectrum they are most interested in.

Requires development of:

- Licencing rules [held in PIBs 39, 59]
- Sample licence
- Licencing agreement

2.1.2. Area Licencing

Offer the right for **an operator** to place licences within a particular area for the full licence length.

This is the status quo for the 3.5 GHz band. Also, this option best acts as an area constrained management right, making the right more tradable and therefore valuable. Historically, operators have not used the spectrum across the full TLA, nor subleased the unused areas.

Summary of Comments on [Document 02] [Draft for review] Decisions for 3.30-3.34 GHz.pdf

Page: 1

Number: 1 Author: David Reynolds Date: 28/02/2023 1:48:00 pm
This is easily achieved using a short fixed term licence i.e. expiry date of xx months into the future

Number: 2 Author: Georgia Reynolds Date: 2/03/2023 1:24:00 pm
s 9(2)(h)

Requires development of:

- Boundary limits [for power]
- Sample licence
- Licencing agreement

2.1.3. Point licencing

Offer for sale particular licences [as **generated by either RSM or the operator**]. These would need to comply with a set of technical rules and would be granted individually.

Requires development of:

- Licencing rules [held in PIBs 39, 59]
- Sample licence
- Licencing agreement

2.2. Reasoning for preference

The preferred licencing method is "***Time limited area licencing***".

Against our policy objectives this option would best increase rural coverage / capacity through allowing for better sharing of spectrum. All options preform the same against the remaining criteria of fast delivery and process transparency.

Area/point – area is better for certainty, while point is better for re-use. Want to give operators the opportunity to retain service to existing customers.

It is critical to note this method has more complex deliverables required compared to area licencing. Meaning, to agree to move forward with this option as the preference, we must confirm these deliverables are achievable within the time frame.

Can deliverables be met by 27 March deadline?

If no what are our alternatives? [See section XXX]

Additionally, the long-term administrative burden (largely on the CSAM) for managing this spectrum is larger compared to area licencing. By selecting this method as the preference establishes our prioritisation of policy objective over administrative burden.

Can we accept the prioritisation of efficient spectrum use, meaning it will increase workloads? Are there mitigations we can take to reduce this or decrease existing loads?

3. Assignment method

Once a right/licence is constructed (see above for licencing method) the assignment method is the mechanism we will use to decide which interested party gains access.

3.1. Options

3.1.1. Auction [Preferred]

An auction process uses market mechanisms to determine which operator is awarded spectrum. The auction process would likely be conducted on Trade-me.

Requires development of:

Number: 1 Author: David Reynolds Date: 28/02/2023 1:59:00 pm
This may be resource intensive for and ARE defining licenced areas handled by multi-point receive protection locations defining polygons for licenced areas.
If we choose whole TLA's there could be options to download Shape(?) files from Stats NZ denoting the TLA boundaries.

Number: 2 Author: Georgia Reynolds Date: 2/03/2023 1:37:00 pm
ARE resource doesn't contribute to our ability to meet 27 March deadline (as I do not propose in this solution to sell pre-engineering licences) – but does feed into technical feasibility

Number: 3 Author: David Reynolds Date: 28/02/2023 2:02:00 pm
One saving grace is that as MSP potentially enters a moratorium period up to the end of the Management Right (31 December 2028), this should result in less workload for the CSAM managing MSP activities with no new licensing.

- Auction timeline
- Clarification on auction lots

3.1.2. EOIs followed by auction

Expressions of interest (EOIs) can be sought prior to an auction so we know what the demand is prior to an assignment method. This would allow the direct assignment of an area where only one party was interested. Additionally, this gives us the ability to better understand demand.

EOIs require time to complete and additional notification time. This increases the time required by up to 4 weeks.

Requires development of:

- Auction and EOI timeline
- Clarification on auction lots

3.1.3. First-in-time

First-in-time assigns the spectrum to the first operator who applies for it (if they met the pre-defined conditions).

This method would be best utilised where low-to-no demand exists for the rights as it is more suited to allowing operators to gain spectrum as it is needed rather than in a strategic context. This is the fastest allocation method as only a notification period is required.

3.2. Reasoning for preference

The preference for assignment method is "***Auction***" (at least for a first round competitive process)

All options meet our policy objective of transparency. Auctions, particularly Trade-me auctions are a very transparent and user-friendly assignment method. As the auctions are public the price paid is also public.

Auctions use market mechanisms to prioritise spectrum uses. This is preferable to first-in-time which relies on speed of application. Market mechanisms should more effectively ensure spectrum will be deployed and the use with the best return is most likely to receive the spectrum.

Auction **without** EOIs is preferable to auction **with** EOIs on the balance of timely delivery. Certainty of spectrum can be delivered to operators sooner if an auction is conducted without the EOI process.

Complications could arise if dependencies are required meaning some preferences may be dependent on other results. To confirm auction as our preference we must satisfy ourselves these dependency requirements are unlikely to arise.

Are there foreseeable dependency requirements that increase auction complexity?

4. Costing method

This section discusses the options around recovering value for the spectrum and any costs to do with the assignment process.

Number: 1 Author: David Reynolds Date: 28/02/2023 2:04:00 pm
Real demand for spectrum resulting from EOI's may reduce auction workload?

Number: 2 Author: Georgia Reynolds Date: 2/03/2023 1:38:00 pm
Reduces actual auction administration, however because of timelines all sites would need to be created by skylark anyway (areas with 1 interested party would

Number: 3 Author: David Reynolds Date: 28/02/2023 2:05:00 pm
My understanding is this could easily be achieved by Radio Licences rather than spectrum. Others may comment though around pros and cons of using Radio licences.

Number: 4 Author: Georgia Reynolds Date: 2/03/2023 2:34:00 pm
If we auction without EOIs do they have to register?
How do we avoid false bids? – Can we ask bidders to provide their RSM client ID?
Moving to first in first served after round

4.1. Options

4.1.1. Assignment costs recovered at award of spectrum and resource charge covered at licencing [Preferred]

The costs of running the assignment method (e.g. Auction costs) would be recovered in this assignment process while the actual value of the spectrum (resource charge) would be recovered at licencing.

E.g. An operator seeking licences in a TLA may pay the following rate for these licences:

At auction: $500 (reserve) + cost of winning the auction

At licencing: $5 000 per licence (resource charge) + $150 licence fee per licence

(Specific charges only an estimate)

4.1.2. Assignment costs and resource charge recovered at award of spectrum

The costs of running the assignment method (e.g. Auction costs) and the actual value of the spectrum (resource charge) would be recovered together at the assignment method.

E.g. An operator seeking licences in a TLA may pay the following rate for these licences:

At auction: $500 + $50 000 (reserve: cost of running + TLA based resource charge) + cost of winning the auction

At licencing: $150 licence fee per licence

(Specific charges only an estimate)

4.1.3. Assignment costs recovered at award of spectrum and resouce charge covered at licencing (only apply costs on a per area basis)

The costs of running the assignment method (e.g. Auction costs) would be recovered in this assignment process while the actual value of the spectrum (resource charge) would be recovered at licencing on a per area basis.

E.g. An operator seeking licences in a TLA may pay the following rate for these licences:

At auction: $500 (reserve) + cost of winning the auction

At licencing: $50 000 (resource charge for TLA) + $150 licence fee per licence

(Specific charges only an estimate)

4.2. Feedback

4.2.1. CSAM

[Any specific comments on operation and / or learnings from MSP?]

MSP uses Resource Charging on an annual basis, and this is very resource intensive. It's therefore good to see that this approach is not being suggested for 3.3 – 3.4 GHz, instead using a one-off resource charge.

Number: 1 Author: Georgia Reynolds Date: 2/03/2023 2:49:00 pm
Flat rate for urban/rural

Some stakeholders have considered current method of MSP resource charging unfair e.g. why should a licensee serving a small area of Auckland say, get charged for the entire population of Auckland? [MSP/regional Non-National consultation 2021]

4.3. Reasoning for preference

The preference for costing method is "***assignment costs recovered at award of spectrum and resource charge covered at licencing***".

This method best balances ensuring Crown value for money with minimising operational complexity.

Ensuring the reserve price for auction is tied only to the auction costs means that the value of winning the right to "first dibs" is not significantly impacted by the potential number of licences an operators wanted to deploy. This better incentivises operators to only licence the areas where they seek to deploy, better allowing for efficient spectrum use and taking pressure off the use-or-lose requirements.

The way the resource charge is collected is important as it can significantly impact the incentives on operators to over / underestimate licence size. If this charge is applied independent of number of licences (4.12 / 4.13) operators are incentivised to licence more.

If we chose another option: are we secure our lose-or-lose provisions could disincentivise over-licencing?

In addition to the method for applying the costs, we must also consider the intention behind these costs and how this would set reasonable resource charges.

What are the factors we can draw on to set reasonable resource charges?

5. General considerations / licence conditions

5.1. Eligibi ity requirements

'The Licensee will not, at any time, by itself or together with its Associates, hold or have Registered interests in the Other Management Rights or Controlling Interests in relation to such management rights.'

5.2. Eligibility requirements

'The Licensee will not, at any time, by itself or together with its Associates, hold or have Registered interests in the Other Management Rights or Controlling Interests in relation to such management rights.'

5.3. Use-or-lose

Will have use-or-lose focused on ensuring regional broadband delivery.

5.4. Transfers

Options for transfers largely depend on our approach to resource charging. If we are not getting market value for spectrum, allowing resale would attract speculators. However, allowing resale of spectrum better allows effective use. **Could allow resale only after**

Number: 1 Author: Georgia Reynolds Date: 3/03/2023 9:32:00 am
Dan – do you want these confirmed in the briefing?
Given these are the objectives: we intend to structure the licence conditions like XYZ.

Number: 2 Author: Georgia Reynolds Date: 2/03/2023 1:57:00 pm
MSP requires that there are no National MR holders in other bands (resource overhead for CSAM on licence application)

Number: 3 Author: Georgia Reynolds Date: 2/03/2023 1:53:00 pm
Use it or lose it for initial and ongoing periods (MSP requires stat decs affirming implementation at 2 year anniversary and intervals thereafter so more resource needed)
What factors are taken into account to determine successful implementation?
% population served in a TLA? (Previous 3.5 GHZ regional model)
Number of contracted client entities (end-users) (MSP requires licensee to declare this number, but it's subjective as to what is considered 'sufficient use'

Number: 4 Author: Georgia Reynolds Date: 2/03/2023 1:53:00 pm
After what period of time?
Requirements
MSP lic transfers require licences to be declared as implemented
Receiving party signs an agreement with the Crown
Licences transferred

implementation conditions are met. Or hand back to crown for redeployment (would we ever provide compensation?)

"Transfer licences with approval from RSM/MBIE"

5.5. Subleasing / Change of control

Depends on decision around licence method – if point licencing this is less of a concern.

6. Resource Charging

6.1. Bench-marking with previous holdings

6.1.1. MSP

I have referred to charges across a 10 year right (annual charge x 10) and without GST

	s 9(2)(b)(ii)		
Location	ALK	Urban (non-major)	Rural
Charge per 20 MHz	$101, 052	$55, 688	$9, 533
No. Base station	6	9	4
Charge per site	$16, 842	$6, 187	$2, 383

6.1.2. Extension of 3.5 rights

I have used the 3.5 GHz extension as a cost model for a 10 year right without GST, this is for unlimited licences in an area.

Major Centre	$26, 250
Other	$7, 275

If this were to be applied to the previous

	s 9(2)(b)(ii)		
~~Location~~	~~1x major location~~		~~2x other TLA~~
~~Charge~~	~~$~~	~~$~~	~~$~~
~~No. Base station~~	~~6~~	~~9~~	~~4~~
~~Charge per site~~	~~$26250~~	~~$6, 187~~	~~$72775~~

6.1.3. Costing of national 3.5 rights

Number: 1 Author: Georgia Reynolds Date: 2/03/2023 1:53:00 pm
Are we going to allow this?
s 9(2)(h)
See section above on how change of control is handled cleanly by using licence transfer

As part of the national rights design the spectrum was valued. Below uses this to set the value for 20 MHz of 3.5 GHz rights for 10 years.

There is a parity concern here as MNOs are allowed to pay this through network reinvestment.

National Cost
$4,329,600
National Cost/ Person
$0.8451958

If this costing model was applied to the 3 test cases based on TLA licences are in

	s 9(2)(b)(ii)		
Population	1, 415, 550	710, 301	23, 844
Charge	$ 1, 196, 417	$600, 343	$ 20,153
No. Base station	6	9	4
Charge per site	$199, 402	66,704.82	20, 153

Document 3

Reflections on 3.30 – 3.34 GHz

Outcomes

[Noting we are not done – keen to get a feeling for initial opinion on policy outcomes]

Given the above considerations, we recommend that the three main objectives for this assignment are:

a. Improving rural connectivity through connecting new areas or increasing capacity to already covered areas.

b. Timely availability of spectrum to regional broadband operators before 1 July 2023.

c. Transparency throughout the assignment process and decision making.

Did we achieve the policy goals set out for the assignment?

- Increase rural connectivity
  - We are seeing licences placed covering rural areas (hard to judge)
    - **DR wrote** – an RRF search of licences in MR 514 readily shows their location on a map (even with a public login). With the right permissions, the Receive Protection locations can also be viewed, and using RRF satellite view coverage into urban/rural areas can be seen
  - PG What about the "transition" from the previous 3.5 GHz regional licence holders?
  - **CAS** This probably has not significantly increased rural connectivity as the activity has been around urban centres. However, we have a framework for low cost access to spectrum which will give opportunities for rural connectivity through the first in time licensing approach from January
  - DO: We have delivered the bit we could control to enable rural connectivity but it is then down to the industry to deliver on the ultimate part of this policy goal.
- Timely delivery of spectrum
  - We chose to ignore this at times in favour of strong process
  - Spectrum was allocated by May and used by July
    - **DR wrote** – spectrum became available according to commencement of MR i.e. 1 July 2023. Spectrum can only be used once licences are engineered, confirmed by Rightholder, assessed by RSM, and a licence agreement is signed off – all of this takes time
    - Licensing took longer than anticipated
    - Focus on delivery of contract and auction within timeframes, but project planning could have usefully covered timeframes/glut around licensing processes more. We assumed that it would take a bit of time for AREs to get licences in, but not that it would take us a few weeks to process licences with a tighter review that we haven't previously done (HA)
    - **BD** One factor that was unusual and has caused a few delays for AREs and licensees has been the implementation of the new Register.
  - Scoping decision to focus on regional broadband only (not private networks)
  - Some TLAs not assigned early access due to bidder invalidity / unresponsiveness.
    - **DR wrote** – should we have been stricter around adhering to the timing we put in place for the milestones? For instance its only this week a letter to

one Operator was sent, detailing a cancellation event due to their unresponsiveness in returning agreements and not paying overdue invoices

- CAS – This was delivered just on time, ideally we should of had it in licensees hands in Q1 of 2023, of course acknowledging the pressures we were under. That said, new parties are starting off
- One issue with the short timeframes was having enough time to sort out the winkles in documentation and PIBs. These things take time to fine tune and sort out
- This was timely delivery done in almost impossible timeframes which is a remarkable achievement through a lot of hard work and long hours

- Transparent process
  - Only targeted consultation (allowed us industry feed-in but was opaque for newer entrants)
    - Received complaints on this – so from an external perspective maybe not met. DO: Yeah, I agree with this. I think we were ticked the box sufficiently to be reasonable but the industry wanted more. Given the time we had I think we did the best we could.
  - A public consultation would of allowed a more open process with better consideration of the different perspectives. However, this would have taken significantly longer as we would of had to wade through all the submissions and issues which in turn could of distorted the outcome we were looking to achieve
  - DO: Transparency of rule changes is another area – updating PIBs
  - DO: The webinar was an example where we were transparent
  - DO: I do still wonder about the balance of auction vs allowing incumbents with existing networks to continue. How strongly do we believe in market forces?!
  - Some sort of simple guide or webinar could of been useful before the auction to outline where to find all the information and how it was going to work
- Maximising spectral efficiency
  - Traded timeliness at times for this
  - Ensuring the register is accurate / frequencies are used
  -
- [...]

Project planning

[For reference]

Planned process timeline

	November 22	December 22	January 22	February 23	March 23	April 23	May 23	June 23	July 23
Dependencies					Finalisation of National contracts			Implementation plan for National rights	
General			1. Ministerial update						
TWG	2. Minutes from last meeting out?			3. Next meeting?					
Industry consultation				4. Ministerial agreement to consult 5. Consultation document available		Consultation launched			
Public communication of assignment approach					6. Ministerial decision here (following 3.41+ technical arrangements) 7. Public communication				
Implementation of approach TBC					*Is there time here to run a contestable process?*	8. MR/s established 9. Licensing rules	10. Licenses assigned and engineered	*TBC Transition approach?*	

Real process timeline

2018 – Band identified for regional broadband / mobile / private networks.

2021 Feb internal decision to propose to move non national services below 3.4 GHz

2021 July Consultation on 3.3 GHz proposal

2022 March – Cabinet decision to set spectrum aside for regional broadband and private networks.

2022 September – Cabinet decision to place this in 3.3-3.4 GHz

2022 November – TWG on coexistence with MNOs. Initial project planning (setting

2023 January – Project planning, setting objectives.

[*Briefing delayed - Change of Minister*]

2023 February – Costing model options developed, consultation with WISPA.

2023 March – First briefing (setting objectives, focusing on regional broadband, laying out assignment model options, requesting targeted consultation). Targeted consultation on price (including consultation on area definition used for 6-month auction and ongoing resource charge). Second briefing (decisions on preferred costing model, area definitions and dates for auction). RFQ for auctioneer.

2023 April – Web content updated, opening EOIs. Contracts developed with CT. PIB 39 and 59 updated. Notification of auction dates. Procurement of auctioneer

2023 May – Auction occurred. Notification of successful bidders. Closing out valid/invalid bids.

2023 June – Transition to BAU.

2023 July – First licences accepted.

2023 August – Webinar on topical issues.

Easy wins – what was worth the time spent or went faster than expected

- Consultation on price was incredibly useful.
- Auction itself – Skylark managed the bulk of the lots very efficiently with minimal input from us.
- Concept of 'exclusive rights' was novel and pulled together quite fast/late after other allocation methods considered. Landed well with users/operators
- Test of market on auctioneer services—even though we went with same operator, we examined what was in market and are more informed for future
- 'Live' engagement with Legal team. Having them running alongside throughout the whole process was helpful in being able to draw them in on an ad-hoc basis as we needed to.
-
- [...]

Items that took longer than expected (mitigations, if any)

- Decisions on preferred approaches (for both assignment and costing)
    - Earlier Ministerial decisions on priorities (probably should have been aiming for this in November 2022).

Summary of Comments on [Document 03] Reflections on 3.3 regional broadband allocation [MARKED UP].pdf

Page: 3

Number: 1 Author: reynold2 Date: 11/08/2023 9:37:00 am +12'00'
Was April 2023 when Section 4.8 Regional Broadband first added?

- Rushing Briefings meant appropriate IMSC consultation did not occur, which hurt working relationships.

- Contract development – thought this would be a simple exercise modifying the MSP or similar, took a lot of rushed manpower working with CT over 2-3 weeks.
  - Allow more time.
  - More consistent early engagement with legal to ensure we/they were setting off on the right track.
  - **DR wrote** – note that legal drafting may have introduced new concepts of handling askew from RadioCommunciations Act, e.g. the term 'Operator' isn't recognised in the Act. In hindsight using terminology only found in the Act or existing agreements may have been better.
  - Consider some of the more complex issues that haven't come up yet. E.g. alignment to s. 55.
- Confirmation of successful bidders – couldn't collect the right information (quickly) from TradeMe bidders.
  - Wouldn't suggest TradeMe as a platform if we have bidding requirements.
    - **DR wrote** – Agree. Some potential auction partners proposed an online registration system. In hindsight, using that approach may have worked better (registration details: auction user ID, email address, phone number, ***RSM Client number***, the latter being paramount)
    - We couldn't check and remove dodgy bidders in advance – only had an ex-post way to handle issues
  - Documentation of operational processes around confirmation of eligible bidders was helpful in taking a consistent approach.
- Granting of licences. More work than anticipated. AREs were not accurately following the PIBs, there were a few things we needed to adjust and we could have been tighter on notifying them. Thoughts for next time:
  - Have another person ready to help operationalise.
  - How do we assess when to say "no" to suggested changes and when to amend them?
  - Need to notify AREs straightaway when we change PIBs
  - Could we have foreseen the issues with the PIBs?
- Technical rules in PIBs: my impression (HA) was that the rule changes were more complex than anticipated in the project plan, which had implications on comms to users
- internally, the PIB 39 rules were claimed to be not clear enough and that they lacked certainty - was this true?
  - **DR wrote:** Feedback I had from an ARE was that they struggled to understand some of it
- Frantic 40+ person-hours spent on having a webinar, seen to be a fix for a perceived problem - what was the actual problem? was the webinar actually necessary? what should have been done previously to not have needed a webinar at all?
-

Unexpected hiccups that added time (mitigations, if any)

- Complaint about consultation resulted in rushed targeted consultation. (Also, multiple OIAs on this)
  - Allocate time for public consultation process.
- EOIs open without eligibility requirements led to all lots going to auction.

    - Apply eligibility requirements to all aspects of allocations if they will apply.
- Classifying bids as invalid.
    - Took significant legal input that wasn't accounted for (account for this in future)
- Commerce Act concerns on price fixing
    - Increase knowledge in industry.
- [...]

Scoping

Some initial scoping decisions were made that narrowed down these projects what worked and what didn't?

- Focus on regional broadband (setting aside private networks for now)
    - Largely allowed us to achieve the assignment within time frame.
- Timely delivery of spectrum

Transition to BAU

[Noting we are still in this part]

- Difficult from a resource perspective dealing with a large number of licence applications being submitted in a short timeframe:
    - **Operational tasks:** Understanding technical requirements & access to internal technical input from RSM Policy & Planning, Assessment, Stakeholder feedback/questions (mainly from ARE's), Feedback discussions within RSM Policy & Planning, updates to PIB 39, iterative licensing approach from ARE's to comply with latest RSM guidance
    - **Administrative tasks:** Tracking of progress, fielding of enquiries and subsequent responses, drafting of licence agreements, clarifying misinterpretations of contract, checking of financials to satisfy settlement conditions, following up with non-responsive Operators, dealing with OIA's & Ombudsman complaints
- Meanwhile, other operational BAU has been compromised on delivery timeframes

Learnings about the transition

- Identifying blockages early to manage them as a project team.
- Setting clear rules and being deliberate with any changes.
- Peer review of technical publications from RSM's Licensing team prior to publication
- s 9(2)(g)(i) (reading/returning contracts/rules etc.)
    - **DR wrote:** Most common problem was Operators signing implementation declaration (Appendix 1 of licence agreement) which is only needed by two-year anniversary date
    - Most common problem in Exclusive Rights Agreement was misinterpretation of handling non-exclusive rights holders having protection in a TLA which they have no exclusive rights
- s 9(2)(g)(i), which has been going on for decades in a short space of time
- Recognising when we are making a change to how our system operates or our role in the system so we can appropriately plan and communicate that change.
- Stakeholder landscape: providers vs AREs vs equipment manufacturers. AREs ended up occupying much of our time, but they were only one stakeholder group.

- [...]

With BAU in mind... what changes would you make to the project

- More comprehensive in-team consultation at the start of the process – try to break down what the implications are for operational team members explicitly.
- Feedback from ARE's has been that holding a licence crafting workshop several weeks before MR 514 commenced may have helped with ARE's understanding and exposed any limitations of the RRF (e.g. number of points specified in receive protection area definitions & upload of licences using API) - What about a webinar format?
- Project management – other branches in BRM have a specific PM function, where is the DCT one?
- In-team consultation re cross policy work implications (e.g. MSP – but sure there were other connections).
- [Any other scoping decisions?]
- Those writing operational policy need more skin in the game - they should do the BAU to understand the consequences of their policy, to understand the pain points, and to fix them
- Compared to the 3.5GHz review - what has been learnt, not learnt from this first review (see below)?
- Drawing a clear line from moving from a policy planning mindset where we are trying to help and solve problems to a more hardline operational mindset with yes / no decisions and standing behind our ruleset

Relevant Learnings from RSM's June 2023 3.5 GHz Review - have we learnt from these?

- Lean more heavily on the process—we can address our knowledge gaps by running a good process
- Be as rigorous as possible during the whole process and hold stakeholders to account on the information they present.
- Do not assume that technical issues can be solved by default; on the contrary, take the time needed to work through technical issues thoroughly before they feed into other parts of the spectrum management/allocation process.

- Spend much more time thinking about risks and formulating plans which are executable to mitigate or supress risks (to the extent possible).
- Pause to think
- More plan for a thorough process where possible, including contingencies. Don't plan for the abbreviated version from the start.
- Identify key 'big' milestones as there is inevitable slippage on the small stuff and when you are in the weeds it is easy to miss the overall picture of things.
- Escalation pathways to deploy when needed, and triggers for escalation (or regular check-ins)
- More discipline and scoping should have been employed early on.
- A more thorough risk analysis upfront – rather than relying on assumptions / opinions based on previous personal experiences
- Ruling out the need for technical input on coverage / roll out obligations / performance requirements which was at least 12 months (possibly 24 months and a few FTEs) of technical work then deciding that we would go down this route with 3 months to deliver, then having to find a 'solution'
- Focusing on taking time to maintain public information throughout process so as not to be slowed when OIAs/miscommunications occurred
- Skimping on project admin resource isn't a saving
- Lack of consistency in terms of having a plan and executing it. Too many changes in directions, reversion and U turns
- Don't assume a matter is trivial when it is being dealt with by another person or team, we may not be aware of the intricacies involved, which might be complex or very intertwined
- Don't assume that others can provide advice on or review a complex matter at short notice
- Plan on everything taking longer than initially expected
- Consider bounds of knowledge in our decision-making: how much we should anticipate unknown commercial plans. Lots we can't know, even if we are well-informed of market
- Cascading effect of other work being put off, delayed
- Kicking the can down the road on many projects
- Emotional impacts – disgruntlement, frustration, even anger
- Long hours for some, leave requests denied?
- Can spread resource thin
- Need to switch our mindset from adrenalin /delivery to BAU
- Scope to learn lots, great exposure to full cycle that might otherwise have taken a long time (e.g. working with ops)
- This has been the project a number of us have cut our teeth on so have learnt a lot
- Camaraderie of crisis
- High stress environment for an extended period
- Challenge critical assumptions – always
- Don't be too risk averse. Act on the balance of legal advice.
- Transparency and peer review, oversight is key, to be highly valued
- We need to LISTEN to each other, really listen, to draw on our collective experience, knowledge, insights, and thinking power
- Planning work program has suffered with impact on the key deliverables expected from the planners. A number of other projects have been delayed with other industry sectors are piling pressure on. Planners working >60 hour weeks.

Document 4

3.30-3.34 GHz licensing tracking

licensing update for period 9 Mar – 15 Mar

Total number of licences granted (current)	676 (467)
Total number of planned licences not yet granted	72
Current number of expected licences (sum of the 2 lines above) (current + planned)	748 (539)
Total number of licences with review commenced (note that this may include some re-engineered licences)	22
Total number of licences yet to begin processing	0
Total number of licences at agreement sign-off stage	57
Total number of licences awaiting annual licence fee payment	12
Number applied for this week	5
Number approved this week	22
How many rights holders have submitted licences (planned and approved)	20
How many rights holders have not yet submitted any licences	6
When were the licenses approved this week originally submitted to the CSAM work queue?	21/12/23 6/02/24 15/02/24 20/02/24

licensing update for period 2 Mar – 8 Mar

Total number of licences granted (current)	747 (424)
Total number of planned licences not yet granted	116
Current number of expected licences (sum of the 2 lines above) (current + planned)	863 (540)
Total number of licences with review commenced (note that this may include some re-engineered licences)	32
Total number of licences yet to begin processing	40
Total number of licences at agreement sign-off stage	80
Total number of licences awaiting annual licence fee payment	12
Number applied for this week	20
Number approved this week	60
How many rights holders have submitted licences (planned and approved)	20
How many rights holders have not yet submitted any licences	6
When were the licenses approved this week originally submitted to the CSAM work queue?	6/12/23 1/02/24

licensing update for period 24 Feb – 1 Mar

Total number of licences granted (current)	747 (424)
Total number of planned licences not yet granted	116
Current number of expected licences (sum of the 2 lines above) (current + planned)	863 (540)
Total number of licences with review commenced (note that this may include some re-engineered licences)	32
Total number of licences yet to begin processing	40
Total number of licences at agreement sign-off stage	80
Total number of licences awaiting annual licence fee payment	12
Number applied for this week	20
Number approved this week	60
How many rights holders have submitted licences (planned and approved)	20
How many rights holders have not yet submitted any licences	6
When were the licenses approved this week originally submitted to the CSAM work queue?	6/12/23 1/02/24

licensing update for period 17 Feb – 23 Feb

Total number of licences granted (current)	747 (424)
Total number of planned licences not yet granted	116
Current number of expected licences (sum of the 2 lines above) (current + planned)	863 (540)
Total number of licences with review commenced (note that this may include some re-engineered licences)	32
Total number of licences yet to begin processing	40
Total number of licences at agreement sign-off stage	80
Total number of licences awaiting annual licence fee payment	12
Number applied for this week	20
Number approved this week	60
How many rights holders have submitted licences (planned and approved)	20
How many rights holders have not yet submitted any licences	6
When were the licenses approved this week originally submitted to the CSAM work queue?	6/12/23 1/02/24

licensing update for period 10 Feb – 16 Feb

Total number of licences granted (current)	733 (379)

Total number of planned licences not yet granted	194
Current number of expected licences (sum of the 2 lines above) (current + planned)	927 (573)
Total number of licences with review commenced (note that this may include some re-engineered licences)	22
Total number of licences yet to begin processing	48
Total number of licences at agreement sign-off stage	108
Total number of licences awaiting annual licence fee payment	22
Number applied for this week	22
Number approved this week	0
How many rights holders have submitted licences (planned and approved)	21
How many rights holders have not yet submitted any licences	5
When were the licenses approved this week originally submitted to the CSAM work queue?	NA

licensing update for period 3 Feb – 9 Feb

Total number of licences granted	731
Total number of planned licences not yet granted	200
Current number of expected licences (sum of the 2 lines above)	931
Total number of licences with review commenced (note that this may include some re-engineered licences)	138
Total number of licences yet to begin processing	56
Number applied for this week	4
Number approved this week	6
How many rights holders have submitted licences (planned and approved)	21
How many rights holders have not yet submitted any licences	5
When were the licenses approved this week originally submitted to the CSAM work queue?	23/01/2024

licensing update for period 27 Jan – 2 Feb

Total number of licences granted	731*
Total number of planned licences not yet granted	200*
Current number of expected licences (sum of the 2 lines above)	931*
Total number of licences with review commenced (note that this may include some re-engineered licences)	174
Total number of licences yet to begin processing	88
Number applied for this week	68
Number approved this week	46
How many rights holders have submitted licences (planned and approved)	21
How many rights holders have not yet submitted any licences	5
When were the licenses approved this week originally submitted to the CSAM work queue?	30/01/2024 6/12/2023

	23/11/2023 16/11/2023 15/11/2023 14/11/2023 13/11/2023

* = as of 9 Feb

licensing update for period 20 Jan – 26 Jan

Total number of licences granted	665
Total number of planned licences not yet granted	264
Current number of expected licences (sum of the 2 lines above)	929
Total number of licences with review commenced (note that this may include some re-engineered licences)	74
Total number of licences yet to begin processing	126
Number applied for this week	8
Number approved this week	2
How many rights holders have submitted licences (planned and approved)	21
How many rights holders have not yet submitted any licences	5
When were the licenses approved this week originally submitted to the CSAM work queue?	16/01/2024

licensing update for period 13 Jan – 19 Jan

Total number of licences granted	666
Total number of planned licences not yet granted	270
Current number of expected licences (sum of the 2 lines above)	936
Total number of licences with review commenced (note that this may include some re-engineered licences)	68
Total number of licences yet to begin processing	186
Number applied for this week	2
Number approved this week	18
How many rights holders have submitted licences (planned and approved)	21
How many rights holders have not yet submitted any licences	5
When were the licenses approved this week originally submitted to the CSAM work queue?	16/01/2024 2/11/2023 3/11/2023 4/11/2023

licensing update for period 23 Dec – 12 Jan

Total number of licences granted	657
Total number of planned licences not yet granted	269
Current number of expected licences (sum of the 2 lines above)	926

Total number of licences with review commenced (note that this may include some re-engineered licences)	28
Total number of licences yet to begin processing	216
Number applied for this week	44
Number approved this week	80 Note that many of these were on Friday 22 Dec 2023
How many rights holders have submitted licences (planned and approved)	21
How many rights holders have not yet submitted any licences	5
When were the licenses approved this week originally submitted to the CSAM work queue?	10/11/2023 2/11/2023 1/11/2023 13/10/2023

licensing update for period 16 – 22 Dec

Total number of licences granted	661
Total number of planned licences not yet granted	300
Current number of expected licences (sum of the 2 lines above)	961
Total number of licences with review commenced (note that this may include some re-engineered licences)	56
Total number of licences yet to begin processing	194
Number applied for this week	46
Number approved this week	4
How many rights holders have submitted licences (planned and approved)	20
How many rights holders have not yet submitted any licences	6
When were the licenses approved this week originally submitted to the CSAM work queue?	5/12/2023

licensing update for period 9 – 15 Dec

Total number of licences granted	627
Total number of planned licences not yet granted	338
Current number of expected licences (sum of the 2 lines above)	965
Total number of licences with review commenced (note that this may include some re-engineered licences)	110
Total number of licences yet to begin processing	104
Number applied for this week	0
Number approved this week	0

How many rights holders have submitted licences (planned and approved)	20
How many rights holders have not yet submitted any licences	6
When were the licenses approved this week originally submitted to the CSAM work queue?	N/A

licensing update for period 2 – 8 Dec

Total number of licences granted	627
Total number of planned licences not yet granted	338
Current number of expected licences (sum of the 2 lines above)	965
Total number of licences with review commenced (note that this may include some re-engineered licences)	110
Total number of licences yet to begin processing	104
Number applied for this week	46
Number approved this week	0
How many rights holders have submitted licences (planned and approved)	20
How many rights holders have not yet submitted any licences	6
When were the licenses approved this week originally submitted to the CSAM work queue?	N/A

licensing update for period 25 Nov – 1 Dec

Total number of licences granted	535
Total number of planned licences not yet granted	262
Current number of expected licences (sum of the 2 lines above)	797
Total number of licences with review commenced (note that this may include some re-engineered licences)	80
Total number of licences yet to begin processing	148
Number applied for this week	6
Number approved this week	16
How many rights holders have submitted licences (planned and approved)	18
How many rights holders have not yet submitted any licences	8
When were the licenses approved this week originally submitted to the CSAM work queue?	17/10/23

To make this table

Before beginning this make sure you have an RRF login and permission to view planned licences.

Template:

Total number of licences granted	
Total number of planned licences not yet granted	
Current number of expected licences (sum of the 2 lines above)	
Total number of licences with review commenced (note that this may include some re-engineered licences)	
Total number of licences yet to begin processing	
Number applied for <u>this week</u>	
Number approved <u>this week</u>	
How many rights holders have submitted licences (planned and approved)	
How many rights holders have not yet submitted any licences	
When were the licenses approved this week originally submitted to the CSAM work queue?	

First search licences in RRF

Total number of licences granted

- Should "current" be selected?
- Click down to transmit under transmit/receive
- Click advance search
- Under management right number – type in 514
- **Answer is:** Total results found minus one (Ignore the one with the location ALL NEW ZEALAND)

Total number of planned licences not yet granted

- Licence status: planned
- Click down to transmit under transmit/receive
- Under management right number – type in 514
- **Answer is:** Total results found

Current number of expected licences (sum of the 2 lines above)

Next go to David's spreadsheet: **Applications rcvd in RRF & issues reported.xlsx**
https://mako.wd.govt.nz/otcs/llisapi.dll/link/142708940

Total number of licences with review commenced

- Add up # of licence applications in orange boxes (note that this may include some re-engineered licences).

Total number of licences yet to begin processing

- Control click on each red box of number of licence applications
- Answer is sum of these boxes
-

Number applied for <u>this week</u>

- Date of first application received on CSAM work queue – date within this weeks range.
- Highlight of number of no licence applications within range (sum will show in the bottom of the window right corner).

Number approved <u>this week</u>

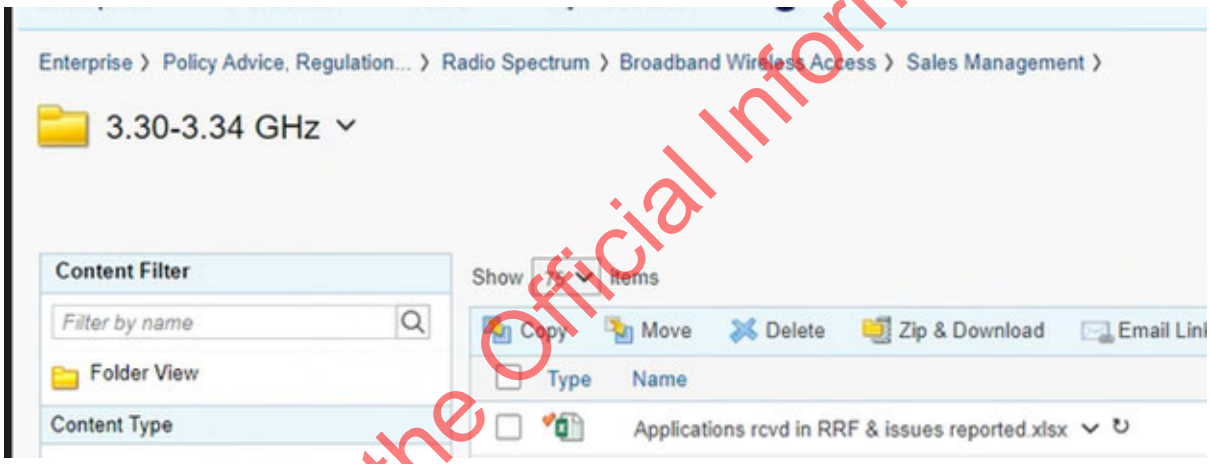
- Remarks in green – dates of this week
- Ones in blue have been approved but they are waiting for licensee to pay the fee. Include these but make note.

How many rights holders have submitted licences

- Search licences in RRF
- Click down to transmit under transmit/receive
- Licence status: click both current and planned
- Under management right number – type in 514
- Click search and order by licensee and show 1000 per page.
- Go down the list and count how many difference licensees there are

How many rights holders have not yet submitted any licences

- To find total number of total number of rights holders go to this folder and 3.30-3.34 GHz (wd.govt.nz) (Mako path also screenshotted below) and order by type so that folders are at the top. Count the number of folders (Should be 26).
- Minus total number of MR holders by the number that have submitted licences



Document 5

Lot#	Skylarc Ref	Trade Me Ref	Trade Me Title	Sale Price	Trade Me Buyer Name	Buyer Email	Alternative email	Buyer Entity Name	Buyer Entity Address	RSM ID	Paid	Column1	Column2	Column3	Column4	Column5	Column6
45.1	K143651	4103253804	Right to place licences in 3320 - 3340 MHz in Marlborough District	$4,505.00	acwireless	s 9(2)(a)											
45.2	L143652	4104906441	Right to place licences in 3300 - 3320 MHz in Marlborough District	$505.00	acwireless												
46.1	M143653	4103253939	Right to place licences in 3320 - 3340 MHz in Kaikoura District	$288.00	cantchris												
46.2	N143654	4103254187	Right to place licences in 3300 - 3320 MHz in Kaikoura District	$288.00	cantchris												
50.1	U143661	4104906215	Right to place licences in 3320 - 3340 MHz in Hurunui District	$2,900.00	cantchris												
50.2	V143662	4103253985	Right to place licences in 3300 - 3320 MHz in Hurunui District	$3 000.00	cantchris												
51.1	W143663	4103254260	Right to place licences in 3320 - 3340 MHz in Waimakariri District	$3 500.00	cantchris												
51.2	X143664	4103253967	Right to place licences in 3300 - 3320 MHz in Waimakariri District	$2,000.00	cantchris												
52.1	Y143665	4104906348	Right to place licences in 3320 - 3340 MHz in Christchurch City	$288.00	cantchris												
52.2	Z143666	4103254273	Right to place licences in 3300 - 3320 MHz in Christchurch City	$288.00	cantchris												
22.1	Q143605	4106365944	Right to place licences in 3320 - 3340 MHz in Hastings District	$288.00	saft												
22.2	R143606	4106365685	Right to place licences in 3300 - 3320 MHz in Hastings District	$288.00	saft												
23.1	S143607	4104906252	Right to place licences in 3320 - 3340 MHz in Napier City	$288.00	saft												
23.2	T143608	4106365828	Right to place licences in 3300 - 3320 MHz in Napier City	$288.00	saft												
24.1	U143609	4103254208	Right to place licences in 3320 - 3340 MHz in Central Hawke's Bay Di	$288.00	saft												
24.2	V143610	4106365646	Right to place licences in 3300 - 3320 MHz in Central Hawke's Bay Di	$288.00	saft												
4.1	Q143569	4106365835	Right to place licences in 3320 - 3340 MHz in Thames-Coromandel D	$288.00	myfullflavour												
13.1	Y143587	4103255904	Right to place licences in 3320 - 3340 MHz in Taupo District	$298.00	myfullflavour												
13.2	Z143588	4104906489	Right to place licences in 3300 - 3320 MHz in Taupo District	$288.00	myfullflavour												
16.1	E143593	4104906320	Right to place licences in 3320 - 3340 MHz in Rotorua District	$1,010.00	myfullflavour												
16.2	F143594	4104906356	Right to place licences in 3300 - 3320 MHz in Rotorua District	$1,010.00	myfullflavour												
19.1	K143599	4104906475	Right to place licences in 3320 - 3340 MHz in Opotiki District	$288.00	myfullflavour												
19.2	L143600	4103255957	Right to place licences in 3300 - 3320 MHz in Opotiki District	$305.00	myfullflavour												
64.2	X143690	4104906367	Right to place licences in 3300 - 3320 MHz in Southland District	$288.00	myfullflavour												
65.1	Y143691	4103254401	Right to place licences in 3320 - 3340 MHz in Gore District	$288.00	myfullflavour												
65.2	Z143692	4103255823	Right to place licences in 3300 - 3320 MHz in Gore District	$288.00	myfullflavour												
66.1	A143693	4104906313	Right to place licences in 3320 - 3340 MHz in Invercargill City	$288.00	myfullflavour												
20.1	M143601	4103254266	Right to place licences in 3320 - 3340 MHz in Gisborne District	$288.00	rwbgisborne												
20.2	N143602	4104906423	Right to place licences in 3300 - 3320 MHz in Gisborne District	$288.00	rwbgisborne												
21.1	O143603	4103655663	Right to place licences in 3320 - 3340 MHz in Wairoa District	$288.00	rwbgisborne												
21.2	P143604	4104906380	Right to place licences in 3300 - 3320 MHz in Wairoa District	$288.00	rwbgisborne												
28.1	C143617	4106365717	Right to place licences in 3320 - 3340 MHz in Ruapehu District	$288.00	james12												
28.2	D143618	4103253927	Right to place licences in 3300 - 3320 MHz in Ruapehu District	$288.00	james12												
29.1	E143619	4103655864	Right to place licences in 3320 - 3340 MHz in Whanganui District	$405.00	james12												
29.2	F143620	4103254005	Right to place licences in 3300 - 3320 MHz in Whanganui District	$288.00	james12												
30.1	G143621	4104906302	Right to place licences in 3320 - 3340 MHz in Rangitikei District	$288.00	james12												
30.2	H143622	4103655890	Right to place licences in 3300 - 3320 MHz in Rangitikei District	$288.00	james12												
31.1	I143623	4104906506	Right to place licences in 3320 - 3340 MHz in Manawatu District	$288.00	james12												
31.2	J143624	4103655655	Right to place licences in 3300 - 3320 MHz in Manawatu District	$288.00	james12												
32.1	K143625	4104906416	Right to place licences in 3320 - 3340 MHz in Palmerston North City	$288.00	james12												
32.2	L143626	4103254253	Right to place licences in 3300 - 3320 MHz in Palmerston North City	$288.00	james12												
33.1	M143627	4104906533	Right to place licences in 3320 - 3340 MHz in Tararua District	$288.00	james12												
33.2	N143628	4103655711	Right to place licences in 3300 - 3320 MHz in Tararua District	$288.00	james12												
34.1	O143629	4104906387	Right to place licences in 3320 - 3340 MHz in Horowhenua District	$288.00	james12												
34.2	P143630	4103253688	Right to place licences in 3300 - 3320 MHz in Horowhenua District	$293.00	james12												
43.1	G143647	4103253705	Right to place licences in 3320 - 3340 MHz in Tasman District	$4,510.00	chrism2												
43.2	H143648	4103254373	Right to place licences in 3300 - 3320 MHz in Tasman District	$4 510.00	chrism2												
44.1	I143649	4104906288	Right to place licences in 3320 - 3340 MHz in Nelson City	$5,100.00	chrism2												
44.2	J143650	4103254201	Right to place licences in 3300 - 3320 MHz in Nelson City	$4 510.00	chrism2												
61.2	R143684	4106365854	Right to place licences in 3300 - 3320 MHz in Queenstown-Lakes Dist	$12,616.00	liam5696												
5.1	I143571	4103254293	Right to place licences in 3320 - 3340 MHz in Hauraki District	$293.00	spectrum_bidder												
5.2	J143572	4104906281	Right to place licences in 3320 - 3340 MHz in Hauraki District	$1,023.00	spectrum_bidder												
7.1	M143575	4103253951	Right to place licences in 3320 - 3340 MHz in Matamata-Piako Distric	$1,010.00	spectrum_bidder												
7.2	N143576	4104906514	Right to place licences in 3300 - 3320 MHz in Matamata-Piako Distric	$1 310.00	spectrum_bidder												
8.1	Q143577	4104906502	Right to place licences in 3320 - 3340 MHz in Hamilton City	$2,010.00	spectrum_bidder												
8.2	R143578	4106365875	Right to place licences in 3300 - 3320 MHz in Hamilton City	$305.00	spectrum_bidder												
9.1	Q143579	4106365819	Right to place licences in 3320 - 3340 MHz in Waipa District	$303.00	spectrum_bidder												
9.2	R143580	4104906222	Right to place licences in 3300 - 3320 MHz in Waipa District	$1,020.00	spectrum_bidder												
10.1	S143581	4106365845	Right to place licences in 3320 - 3340 MHz in Otorohanga District	$1,510.01	spectrum_bidder												
10.2	T143582	4106365910	Right to place licences in 3300 - 3320 MHz in Otorohanga District	$1,015.00	spectrum_bidder												
11.1	U143583	4103254238	Right to place licences in 3320 - 3340 MHz in South Waikato District	$2,620.00	spectrum_bidder												
11.2	V143584	4103254329	Right to place licences in 3300 - 3320 MHz in South Waikato District	$2,520.00	spectrum_bidder												
14.1	A143589	4103655733	Right to place licences in 3320 - 3340 MHz in Western Bay of Plenty D	$5 000.00	spectrum_bidder												
14.2	B143590	4106365838	Right to place licences in 3300 - 3320 MHz in Western Bay of Plenty D	$5,000.00	spectrum_bidder												
15.1	C143591	4103254223	Right to place licences in 3320 - 3340 MHz in Tauranga City	$600.00	spectrum_bidder												
15.2	D143592	4104906446	Right to place licences in 3300 - 3320 MHz in Tauranga City	$520.00	spectrum_bidder												
17.1	G143595	4106365800	Right to place licences in 3320 - 3340 MHz in Whakatane District	$5,250.00	spectrum_bidder												
17.2	H143596	4104906207	Right to place licences in 3300 - 3320 MHz in Whakatane District	$3,030.00	spectrum_bidder												
18.1	I143597	4104906460	Right to place licences in 3320 - 3340 MHz in Kawerau District	$288.00	spectrum_bidder												
18.2	J143598	4104906237	Right to place licences in 3300 - 3320 MHz in Kawerau District	$288.00	spectrum_bidder												
61.1	Q143683	4103253955	Right to place licences in 3320 - 3340 MHz in Queenstown-Lakes Dist	$1,275.00	stan												
39.2	Z143640	4103254448	Right to place licences in 3300 - 3320 MHz in Wellington City		NOT SOLD												
4.2	M143570	4104893275	Right to place licences in 3300 - 3320 MHz in Thames-Coromandel D	$506.00	b-c-l												
6.2	L143574	4106365916	Right to place licences in 3300 - 3320 MHz in Waikato District	$7 250.00	b-c-l												
35.1	Q143631	4106365804	Right to place licences in 3320 - 3340 MHz in Kapiti Coast District	$400.00	b-c-l												
25.1	W143611	4103254287	Right to place licences in 3320 - 3340 MHz in New Plymouth District	$288.00	fishym4n												
25.2	X143612	4104906335	Right to place licences in 3300 - 3320 MHz in New Plymouth District	$298.00	fishym4n												
26.1	Y143613	4103253683	Right to place licences in 3320 - 3340 MHz in Stratford District	$288.00	fishym4n												
26.2	Z143614	4104906452	Right to place licences in 3300 - 3320 MHz in Stratford District	$298.00	fishym4n												
27.1	A143615	4103254444	Right to place licences in 3320 - 3340 MHz in South Taranaki District	$288.00	fishym4n												
27.2	B143616	4106365703	Right to place licences in 3300 - 3320 MHz in South Taranaki District	$305.00	fishym4n												
56.1	G143673	4104906437	Right to place licences in 3320 - 3340 MHz in Mackenzie District	$681.00	timaru2009												
56.2	H143674	4106365788	Right to place licences in 3300 - 3320 MHz in Mackenzie District	$298.00	timaru2009												
57.2	I143676	4106365770	Right to place licences in 3300 - 3320 MHz in Waimate District	$10,050.00	timaru2009												
3.2	F143568	4106365752	Right to place licences in 3300 - 3320 MHz in Kaipara District	$1,011.00	rx7system												
67.1	C143695	4106365739	Right to place licences in 3320 - 3340 MHz in Auckland	$6,550.00	rx7system												
67.2	D143696	4104906229	Right to place licences in 3300 - 3320 MHz in Auckland	$9,000.00	rx7system												
39.1	Y143639	4104906482	Right to place licences in 3320 - 3340 MHz in Wellington City	$1 061.00	telco2ltd												
1.1	A143563	4103244086	Right to place licences in 3320 - 3340 MHz in Far North District	$288.00	ubergroup												
1.2	B143564	4103657727	Right to place licences in 3300 - 3320 MHz in Far North District	$410.00	ubergroup												
2.1	C143565	4103656939	Right to place licences in 3320 - 3340 MHz in Whangarei District	$288.00	ubergroup												
2.2	D143566	4103254464	Right to place licences in 3300 - 3320 MHz in Whangarei District	$288.00	ubergroup												
3.1	E143567	4103254243	Right to place licences in 3320 - 3340 MHz in Kaipara District	$288.00	ubergroup												
53.1	A143667	4103657782	Right to place licences in 3320 - 3340 MHz in Selwyn District	$288.00	tqteam												
53.2	B143668	4103253727	Right to place licences in 3300 - 3320 MHz in Selwyn District	$288.00	tqteam												
54.1	C143669	4103655897	Right to place licences in 3320 - 3340 MHz in Ashburton District	$288.00	tqteam												
54.2	D143670	4103655774	Right to place licences in 3300 - 3320 MHz in Ashburton District	$288.00	tqteam												
55.1	E143671	4104906493	Right to place licences in 3320 - 3340 MHz in Timaru District	$5,105.63	tqteam												
55.2	F143672	4103253716	Right to place licences in 3300 - 3320 MHz in Timaru District	$8 107.13	tqteam												
57.1	I143675	4103254281	Right to place licences in 3320 - 3340 MHz in Waimate District	$6,300.28	tqteam												
59.1	M143679	4103253697	Right to place licences in 3320 - 3340 MHz in Waitaki District	$288.00	gwh01												
59.2	N143680	4103254440	Right to place licences in 3300 - 3320 MHz in Waitaki District	$288.00	gwh01												
60.1	O143681	4103253979	Right to place licences in 3320 - 3340 MHz in Central Otago District	$288.00	gwh01												
60.2	P143682	4103254195	Right to place licences in 3300 - 3320 MHz in Central Otago District	$288.00	gwh01												
62.1	S143685	4103253975	Right to place licences in 3320 - 3340 MHz in Dunedin City	$288.00	gwh01												
62.2	T143686	4104906268	Right to place licences in 3300 - 3320 MHz in Dunedin City	$288.00	gwh01												
63.1	U143687	4103253995	Right to place licences in 3320 - 3340 MHz in Clutha District	$288.00	gwh01												
63.2	V143688	4104906296	Right to place licences in 3300 - 3320 MHz in Clutha District	$288.00	gwh01												
64.1	W143689	4106365761	Right to place licences in 3320 - 3340 MHz in Southland District	$293.00	velocitynet.co.												
66.2	B143694	4103655922	Right to place licences in 3300 - 3320 MHz in Invercargill City	$293.00	velocitynet.co.												
6.1	K143573	4104906544	Right to place licences in 3320 - 3340 MHz in Waikato District	$5,050.00	geekotronic												
48.2	R143658	4103253943	Right to place licences in 3300 - 3320 MHz in Grey District	$293.00	ilkp												
49.1	S143659	4106365882	Right to place licences in 3320 - 3340 MHz in Westland District	$288.00	ilkp												
49.2	T143660	4103254190	Right to place licences in 3300 - 3320 MHz in Westland District	$288.00	ilkp												
12.1	W143585	4106365673	Right to place licences in 3320 - 3340 MHz in Waitomo District	$288.00	tkt2c												
12.2	X143586	4106365694	Right to place licences in 3300 - 3320 MHz in Waitomo District	$505.00	tkt2c												
40.1	A143641	4104906400	Right to place licences in 3320 - 3340 MHz in Masterton District	$288.00	hi.steaks												
40.2	B143642	4104906373	Right to place licences in 3300 - 3320 MHz in Masterton District	$288.00	hi.steaks												
41.1	C143643	4106365953	Right to place licences in 3320 - 3340 MHz in Carterton District	$288.00	hi.steaks												
41.2	D143644	4106365746	Right to place licences in 3300 - 3320 MHz in Carterton District	$288.00	hi.steaks												
42.1	E143645	4106365795	Right to place licences in 3320 - 3340 MHz in South Wairarapa Distric	$288.00	hi.steaks												
42.2	F143646	4106365808	Right to place licences in 3300 - 3320 MHz in South Wairarapa Distric	$288.00	hi.steaks												
35.2	R143632	4104906265	Right to place licences in 3300 - 3320 MHz in Kapiti Coast District	$288.00	moroz3												
36.1	S143633	4103254409	Right to place licences in 3320 - 3340 MHz in Porirua City	$288.00	moroz3												
36.2	T143634	4103254232	Right to place licences in 3300 - 3320 MHz in Porirua City	$288.00	moroz3												
37.1	U143635	4103254213	Right to place licences in 3320 - 3340 MHz in Upper Hutt City	$288.00	moroz3												
37.2	V143636	4103253928	Right to place licences in 3300 - 3320 MHz in Upper Hutt City	$288.00	moroz3												
38.1	W143637	4104906328	Right to place licences in 3320 - 3340 MHz in Lower Hutt City	$288.00	moroz3												
38.2	X143638	4104906566	Right to place licences in 3300 - 3320 MHz in Lower Hutt City	$288.00	moroz3												
47.1	Q143655	4104906523	Right to place licences in 3320 - 3340 MHz in Buller District	$288.00	wishful9												
47.2	R143656	4106365932	Right to place licences in 3300 - 3320 MHz in Buller District	$288.00	wishful9												
48.1	Q143657	4106365814	Right to place licences in 3320 - 3340 MHz in Grey District	$415.00	wishful9												

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Document 6

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

BRIEFING

Decisions on 3.3-3.4 GHz non-national spectrum assignment

Date:	10 March 2023	**Priority:**	High
Security classification:	In Confidence	**Tracking number:**	2223-2369

Action sought

	Action sought	Deadline
Hon Ginny Andersen **Minister for the Digital Economy and Communications**	**Agree** to allocate radio frequencies in the 3.30 - 3.34 GHz range to regional broadband **Agree** to set objectives for the regional broadband assignment with an emphasis on lifting rural and remote connectivity **Agree** to use licence conditions to prioritise rural connectivity objectives **Agree** the assignment methodology **Direct** officials to conduct targeted consultation on the pricing model for 3.30 - 3.34 GHz spectrum **Direct** officials to undertake the assignment of 3.30 - 3.34 GHz	13 March 2023

Contact for telephone discussion (if required)

Name	Position	Telephone		1st contact
Daniel O'Grady	Manager, Radio Spectrum Policy and Planning	+64 4-901 2295	s 9(2)(a)	✓
Georgia Reynolds	Graduate Policy Advisor, Radio Spectrum	+64 4-897 5175		

The following departments/agencies have been consulted

Minister's office to complete:

- ☐ Approved
- ☐ Noted
- ☐ Seen
- ☐ See Minister's Notes
- ☐ Declined
- ☐ Needs change
- ☐ Overtaken by Events
- ☐ Withdrawn

Comments

Is there an estimate on what the additional uptake/ coverage of rural broadband would be if proposed model progresses?

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

BRIEFING

Decisions on 3.3-3.4 GHz non-national spectrum assignment

Date:	10 March 2023	**Priority:**	High
Security classification:	In Confidence	**Tracking number:**	2223-2369

Purpose

To seek decisions on the assignment of 3.3 - 3.4 GHz spectrum to regional and private networks.

Recommended action

The Ministry of Business, Innovation and Employment recommends that you:

a **Note** that in March 2022, Cabinet agreed to make available the 3.3-3.8 range of spectrum to four groups including regional operators and private networks [CAB-22-MIN-0080.03]

Noted

b **Note** that in September 2022, Cabinet agreed to extend access for existing users of the 3.41 – 3.8 GHz band until 30 June 2023, including for regional wireless broadband networks currently using this spectrum

Noted

c **Note** that by 1 July 2023 the existing regional wireless broadband networks with current access to 3.5 GHz spectrum will need to move to alternative spectrum if they are to continue to offer service to their customers

Noted

d **Agree** that MBIE establish a Crown Management Right for 3.3 - 3.4 GHz (a total of 100 MHz) to manage licences for regional broadband and other non-national uses such as private networks

Agree / Disagree

e **Agree** to assign the radio spectrum between 3.30 - 3.34 GHz (a total of 40 MHz) to regional wireless broadband providers

Agree / Disagree

f **Agree** that the main policy objective for the 3.30 - 3.34 GHz non-national broadband assignment is to increase rural and remote broadband through increasing capacity and / or coverage

Agree / Disagree

g **Agree** to use licence conditions to target 3.30 - 3.34 GHz for regional broadband

Agree / Disagree

h **Agree** to the following assignment structure for 3.30 - 3.34 GHz:

- Time-limited area licencing as the assignment mechanism
- An auction mechanism to award time-limited licencing rights within an area
- Territorial Local Authorities (TLA) as the area definition

Agree / Disagree

i **Agree** to officials conducting a targeted consultation on this assignment, primarily to seek feedback on the pricing model

Agree / Disagree

j **Agree** to officials holding an auction for the 3.30 – 3.34 GHz band and undertaking the necessary activities for this assignment to occur, such as the development of an auction catalogue and the establishment of required technical conditions

Agree / Disagree

k **Agree** to publicly notify this auction in the Radio Spectrum Management Business Update newsletter and on the Radio Spectrum Management website.

Agree / Disagree

Daniel O'Grady
Manager, Radio Spectrum Policy and Planning
MBIE

10 / 03 / 2023

Hon Ginny Andersen
Minister for the Digital Economy and Communications

12 / 3 / 23

Background

1. In December 2018, Cabinet agreed to allocate spectrum between 3.41 GHz and 3.80 GHz for national 5G networks as 20-year management rights and to regional broadband services including regional Wireless Internet Service Providers (WISPs) [DEV-18-MIN-0311].

2. Cabinet then agreed in March 2022 to add the 3.3 - 3.41 GHz range of spectrum to the 3.41 – 3.8 GHz range already agreed to in December 2018, making a total of 500 MHz available to accommodate the following four groups:

   a. Group one: 5G operators comprising the existing three Mobile Network Operators (MNOs) requiring national management rights

   b. Group two: Māori, requiring national management rights

   c. Group three: regional operators (for example, WISPs) requiring local rights only

   d. Group four: private networks requiring local rights only

3. Current management rights covering spectrum between 3.3 – 3.8 GHz (3.5 GHz) are set to expire at the end of June 2023. MBIE has been progressing work providing spectrum to the aforementioned groups (a-d) to ensure spectrum is made available to them at the start of July 2023.

4. In March 2022, Cabinet also agreed to allocate 100 MHz between 3.3 – 3.4 GHz to regional and private network uses. MBIE undertook a consultation for this plan in August 2021 and discussion remains ongoing with the industry, including stakeholder engagements and a technical working group in September 2022.

Regional broadband and private networks in 3.3 – 3.4 GHz

5. There are two groups identified by Cabinet for the 3.3 – 3.4 GHz spectrum: regional broadband and private networks. Both groups utilise spectrum within defined local areas, generally not requiring access to spectrum across large areas. Therefore, a non-national spectrum assignment would benefit both groups.

6. Regional broadband is a fixed-wireless internet connection that uses non-national spectrum. Non-national spectrum is spectrum that operators can access within a particular geographic reg on only e.g. a regional broadband operator may only provide service in a specific valley. Existing regional broadband networks are deployed using 3.5 GHz spectrum[1], Managed Spectrum Park (MSP) spectrum holdings in 2.6 GHz, or generally authorised spectrum (e.g. frecuency bands available to Wi-Fi without individual licences). Regional broadband operators are often referred to as Wireless Internet Service Providers (WISPs), some of which are represented through the Wireless Internet Service Providers Association of New Zealand (WISPA-NZ).

7. Private networks allow enterprises to use spectrum in a large range of ways. A private network is a 4G / 5G network usually designed for a particular company or entity. These can be contained to one location (such as a factory or campus) but can also be deployed at larger scales. Currently, New Zealand does not have any spectrum specifically allocated to private networks and internationally, there are a growing number of countries making spectrum available. Demand for private networks and when these will be deployed in New Zealand is currently unclear although MBIE has had a number of queries from the industry ask ng if there is spectrum available.

[1] The Management Rights related to this spectrum are set to expire 1 July 2023

8. Regional broadband and private networks have different requirements for the spectrum they seek. Both these requirements can be addressed within the 3.3 – 3.4 GHz band.

First assignment: 3.30 - 3.34 GHz for regional broadband

9. On 1 July 2023, a number of entities (Mobile Network Operators, Dense Air, Interim Māori Spectrum Commission (IMSC)) will receive national management rights for spectrum between 3.4 – 3.8 GHz to facilitate the provision of services (e.g. 5G). The spectrum between 3.4 – 3.8 GHz must therefore be clear by 1 July 2023.

10. Currently, there are five regional broadband operators utilising frequencies within the 3.4 - 3.8 GHz spectrum range. These existing operators are in Taupo, North Canterbury, Auckland, Gisborne and the Queenstown Lakes District. Some of these operators serve rural areas that are without other means of accessing the internet. We do not know how many customers these operators serve but they have over 60 licences between them. If each licence served 20 customers (a conservative, higher end estimate), then it is possible that these operators serve up to 1200 customers between them.

11. Alternative spectrum needs to be made available for these regional broadband operators to move to, to allow the opportunity for their services to continue to be provided to these areas. This spectrum will also provide new opportunities to other regional broadband providers that may currently have limited access to spectrum.

12. In line with Cabinet's decisions, spectrum between the frequency range of 3.3 – 3.4 GHz will be used on a non-national basis for regional broadband and private network uses.

We recommend that the Crown assigns 3.30 – 3.34 GHz to regional broadband before opening spectrum up to private networks

13. We recommend prioritising the process for assigning spectrum for regional networks before considering an assignment for private networks. Assigning spectrum to regional networks is more urgent than providing for private networks because it allows an option for continuity of service by existing regional broadband operators with 3.5 GHz spectrum as well as providing opportunities for other regional broadband providers without 3.5 GHz spectrum access. Additionally, to maintain service for their customers, these operators will need to move to other spectrum as licences expire on 30 June 2023 and incoming national management rights holders (MNOs, Dense Air, IMSC) will transition to this spectrum from 1 July 2023 onwards.

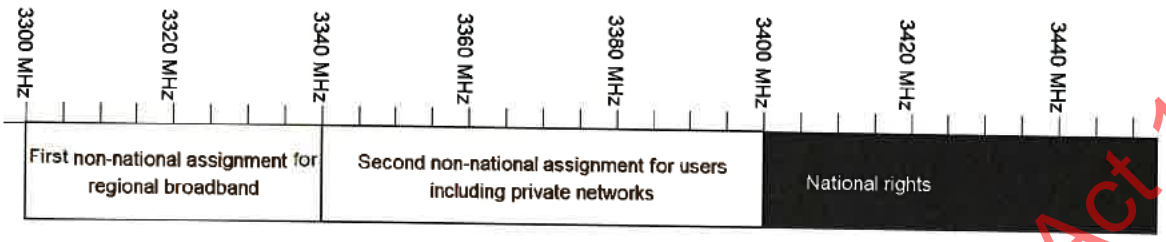
14. The ability for existing users to take up new spectrum without interrupting service for customers only exists if spectrum is assigned sufficiently prior to 1 July 2023. These users have told us they require two months to source and deploy new equipment to use in the 3.3 – 3.4 GHz range. Allowing for this is largely driving the timeline for the assignment.

15. Based on our understanding of demand for non-national spectrum for regional broadband, 40 MHz of spectrum is expected to meet existing demand. This understanding is based on our analysis and discussions with stakeholders regarding the bandwidth required to meet current foreseeable use cases with the desired technology / equipment for this band.

16. We recommend placing regional broadband at the lower part of the 3.3 – 3.4 GHz band identified for both regional broadband and private networks – i.e. the range between 3.30 – 3.34 GHz. This frequency location will best manage technical compatibility issues with the different use cases and national use above 3.4 GHz. Separating the different use cases based on frequency is one way to mitigate interference between uses.

17. Private networks utilise a similar structure to the national networks being deployed above 3.4 GHz so are better placed between regional broadband and national networks for technical compatibility and efficient band planning.

Figure 1: Proposed frequency ranges for non-national use



We recommend considering further use and assignment of the remaining 3.34 - 3.40 GHz, including use for private networks, once 3.30-3.34 GHz has been assigned to regional networks

18. Providing spectrum for private network users in a future assignment ensures swifter delivery for regional broadband. In addition, the delayed assignment of private networks allows more time for consultation with potential private network users to better assess the demand for spectrum and technical needs.

Assignment methodology and conditions

19. Policy decisions are required to enable MBIE to progress work on a detailed assignment methodology and create conditions for users within the 3.30 – 3.34 GHz. This stage will be key to ensuring providers utilising spectrum offer services in line with the Government's objectives elsewhere related to digital and communications policy. MBIE has discussed these policy objectives and key assignment options with the IMSC through the policy development process.

20. Due to time constraints, the assignment process will have to occur substantially faster than some previous assignments.

Key policy objectives for assignment

We recommend aligning the 3.30 – 3.34 GHz assignment policy objectives with the national 3.5 GHz allocation objective to improve rural and remote connectivity.

21. Non-national spectrum is a critical tool for regional broadband providers (including WISPs) to deliver broadband to rural and remote customers. Improving rural and remote connectivity can be achieved through either connecting new areas or increasing capacity to already covered areas.

22. Timely delivery of spectrum is key for both existing users of 3.5 GHz and potential new entrants. Ensuring spectrum can be delivered before 1 July 2023 is key to allowing an opportunity for continuity of spectrum access for existing regional broadband users as well as providing opportunities for new users.

23. Timely assignment of spectrum allows for regional broadband operators to source the equipment required for operation in the new band. Based on discussions with WISPA and equipment manufacturers (Telrad and Cambian) we understand that there is equipment available in the New Zealand market currently, although the lead-time for this assignment is shorter than some WISPs would prefer.

24. Throughout the assignment process, prioritising transparency in our decision making and choice of assignment methodology should be an objective. Transparency can be achieved through public notification of the process and the use of an open assignment process.

25. Given the above considerations, we recommend that the three main objectives for this assignment are:

    a. Improving rural connectivity through connecting new areas or increasing capacity to already covered areas.

    b. Timely availability of spectrum to regional broadband operators before 1 July 2023.

    c. Transparency throughout the assignment process and decision making.

Licence conditions can be used to target the assignment to regional broadband

26. There are a variety of general and technical licence conditions that we can use to meet the policy objectives and define this spectrum's intended use as being for regional broadband. Key licence considerations for your consideration are:

    a. Eligibility requirements (who can access the spectrum).).

    b. Use-or-lose requirements (what we are asking operators to do to retain access to the spectrum).

    c. Change of control (what we are allowing an operator to do with the right).

Assignment participants should be limited to those without access to national spectrum

27. In order to further the objective of improving rural connectivity, we recommend that national rights holders, and their associates, should not be able to seek access to this non-national spectrum. This would effectively exclude the mobile network operators from accessing this spectrum, leaving it available for the types of smaller operators who typically provide fixed wireless broadband services to small, remote communities. There is over 800 MHz currently accessible through exclusive national rights (e.g. used by the three MNOs) compared to only 70 MHz through non-national licence rights (in the 2.6 and 3.5 GHz bands used by a large variety of different users).

28. This approach of excluding national rights holders from also holding regionally-allocated spectrum is consistent with the Managed Spectrum Park (MSP) and existing regional broadband allocations held by WISPs in the 3.5GHz band. National rights holders will already be able to provide services in these areas through their exclusive national spectrum holdings (e.g. 700 MHz, 850 / 950 MHz, 1800 MHz, 2100 MHz, 2600 MHz and 3500 MHz).

Use-or-lose conditions ensure spectrum is utilised and minimises spectrum speculation

29. Use-or-lose conditions are common in spectrum licence assignments. If the spectrum is not used to the standard or in the time specified, the spectrum licence right may be cancelled. It could then be re-assigned at a later time. A use-or-lose condition can be used in the 3.30 - 3.34 GHz band to target its use for regional broadband.

30. For this non-national assignment, we recommend a use-or-lose condition that requires deployment of a non-national broadband service to a minimum number of connections within two years.

31. For MSP, statutory declarations are used to ensure the minimum number of connections are met. For 3.30 – 3.34 GHz we recommend seeking statutory declarations once, two years following the award of a licence.

Change of control should only be allowed following successful implementation

32. Alongside use-or-lose conditions, change of control conditions are another mitigation for spectrum speculation. Spectrum speculation is a known risk where someone may invest in spectrum to hoard or resell it. It is our recommendation to only allow transfer of licences to parties other than the Crown once the implementation requirement had been met, with potential exceptions for situations such as when a regional broadband operator is sold. Based on previous assignments, these would be uncommon and could be facilitated on an as-needed basis.

Two 20 MHz channels is the recommended band plan

33. 20 MHz is the minimum channel size useful to deploy a regional broadband service. Two 20 MHz channels in any one geographical area allows for either: two operators each using 20 MHz; or one operator using 40 MHz to achieve greater capacity. Two 20 MHz channels is recommended as it best allows for multiple operators to gain access to the spectrum. Through a competitive assignment process, if an operator seeks 40 MHz, they can compete for both channels.

We propose to offer up-to 10-year licences that would expire on or before 30 June 2033

34. An up-to 10-year licence period best reflects the fast-changing market for WISPs while balancing the business needs for certainty.

35. Additionally, a key feature of the national 3.5 GHz Management Rights will be a technical review of the band at the 10-year period, half-way through the 20-year national Management Rights. Lining the licencing period up with full band technical review gives sufficient certainty to operators while allowing for the review to occur.

The technical licence conditions from 3.3 – 3.4 GHz are the same as those in the wider 3.5 GHz band

36. The same technical licence conditions will be enforced across the full 3.3 - 3.8 GHz band maximising continued compatibility between regional and national networks. Additionally, it allows regional operators to use 4G equipment now as well as providing an opportunity to transition to 5G in the future. This decision was a key discussion point at the November 2022 Technical Working Group with targeted stakeholders and this recommendation is informed by that consultation.

37. The key difference for regional broadband operators is that, if they are using a non-5G technology, there must be a physical (spatial / geographic) and frequency separation from the national networks. To avoid interference, there are ongoing discussion on the frequency separation required for technical compatibility our initial analysis shows that there is no additional benefit in frequency separations greater than 20 MHz. The frequency separation is achieved through the frequency location of available spectrum being placed at the bottom of the band (3.30 – 3.34 GHz provides 60 MHz of frequency separation from national networks, thus providing ample frequency separation. In the second stage of the non-national assignment, this 60 MHz will be used by other use cases such as private networks but may also include further assignments to regional broadband). The physical (spatial / geographic) separation will need to be managed through licencing and the rules we set out.

Recommendation for assignment structure

38. For any spectrum assignment there are many options for assignment methodology (i.e. the process of determining which businesses can use which frequencies). Four options were considered by officials for this non-national assignment:

    a. **Option 1:** Time-limited area licencing: auctioning a right to place licences within an area for 6 months, following which other entrants would be able to licence where no interference (to existing licences) would be caused. [MBIE's preference]

    b. **Option 2:** First-in-time point licencing: point licences (explained below) would be awarded on a first-in-first-served basis.

    c. **Option 3:** Auctioning area licences: the right to licence in each regional area would be auctioned.

    d. **Option 4:** First-in-time area licences: assigning the right to licence in each regional area at a set resource charge through a first-in-first-served basis.

MBIE recommends Option 1: Time-limited area licencing

39. Licencing methods are the way in which the right to place a licence in the register of radio frequencies is managed. Time-limited area licencing is a hybrid between two common licencing methods for radio spectrum. These two common approaches are:

    - Point licencing: where an operator seeks the right to broadcast from a specific point. It is commonly used for radio broadcasting rights and within the MSP. Technical conditions and coverage modelling is used to minimise interference between different operators. Point licencing is challenging to assign competitively where a licence cannot be pre-engineered. One of the reasons point licencing is used for broadcasting is the ability to pre-engineer the licences required. Pre-engineering cannot be done for 3.30 – 3.34 GHz as operators would each likely want to place different licences (both in terms of physical location and technical requirements).
    - Area rights: where an operator has the right to add point licences anywhere within a given area so long as it doesn't interfere with other users (in other protected areas or in other bands). Area rights are similar to the national rights held by MNOs but limited to a particular geographic area. Area rights are what the incumbent 3.5 GHz regional operators have. One downside of area rights is that it only allows one operator exclusive access to an area and thus limits spectrum reuse. This licencing method precludes other operators from accessing this spectrum, even where it would have no impact on the main user. Area licencing does not best utilise the available spectrum and does not maximise the delivery of broadband to rural and remote communities.

40. Time-limited area licencing is a hybrid option of these two approaches. The operator who wins the auction, wins the ability to place point licences freely within an area (like with area rights) for a limited time. Following that time, the area would be opened to other operators, who can add additional point licences as required.

41. Time-limited area licencing has not previously been used in New Zealand but is intended to maximise the benefits of the two approaches above while minimising the potential for inefficient or ineffective use of spectrum. We consider that this approach will support access by multiple parties to spectrum within a defined geographic area, even if initial access it provided competitively.

A competitive process best delivers on the objectives of rural connectivity and transparency.

42. First-in-time methods have been successfully used for both international and domestic spectrum allocations and are best suited where there is an expectation that competition for spectrum is low (excess supply of spectrum for the demand).

43. Through discussions with WISPA, MBIE expects that there will be multiple operators seeking spectrum access in some (although not all) areas. Thus, options 2 and 4 are not preferred by MBIE due to their reliance on first-in-time assignment. This preference for a competitive approach is because a competitive mechanism ensures that spectrum goes to the party willing to pay the most for it, rather than the party that is fastest to successfully seek access (which in a competitive area could come down to the party that 'clicks through' fastest).

44. An auction approach will identify the party who is most willing to pay for access. This is a proxy for the party that considers they will obtain the most value from it and who is therefore likely to put it to the most efficient use to the greatest number of customers. A competitive mechanism is preferred by officials.

45. Both Option 1 and Option 3 utilise competitive process to award spectrum. However, Option 1: Time-limited area licencing, best ensures efficient spectrum use by opening unlicenced spectrum to new operators. Option 1 is MBIE's preference.

We recommend Territorial Local Authorities (TLAs) be used for time-limited area licencing

46. Previous non-national spectrum assignments have used bespoke area definitions (as in MSP) or Territorial Local Authorities (TLAs) (as in existing 3.5 GHz rights). The key trade-offs for this discussion are:

    a. Increasing spectrum re-use: smaller area definitions allow more spectrum reuse as only areas where spectrum will be used need be acquired by operators.

    b. Managing coexistence: there is a functional minimal licence area determined by the technical characteristics of this spectrum.

47. An example of a smaller area definition is the Community and Local Board or StatsNZ Statistical Area 3 definitions. Whereas an example of a larger area definition is TLA area definitions. TLA definitions are currently used for the existing non-national 3.5 GHz rights set to expire soon.

48. Prior feedback on area definitions from regional users in the context of a 2021 consultation on the rules of MSP highlighted that some users consider that larger areas (i.e. TLAs) are not sufficiently granular to allow operators to only pay for the spectrum that they will use to service their customers, and also that these boundaries do not reflect the impact of terrain on radio transmissions.

49. However, setting the area too small creates impracticalities on interference management as radio waves do not stop at defined boarders. The smaller the area, the greater the likelihood that there will be interference management cases that require intervention by radio spectrum management officials.

50. We recommend using TLA definitions for the 3.30 – 3.34 GHz assignment, on the basis of the feedback regarding MSP and the practical operational impacts mentioned above. We believe this is the best option as the limitations of TLA-based areas will disappear once the assignment approach shifts to point-based licensing, once the initial 6-month exclusive period lapses.

Resource charging should incentivize spectrum sharing

51. We recommend splitting the price paid by an operator for access to spectrum into two components:

    a. Auction price: to win the right to place a licence; and

    b. Resource charge: to reflect the value of the spectrum.

52. The intent of the auction in this assignment is to determine which party wins the first time-limited right to place licences in a particular regional area. Given this, we consider that the reserve price should be minimal and used only to determine first access.

53. A resource charge is the charge an operator pays that reflects the value for the use of spectrum. There are two points in the assignment process for Option 1 where a resource charge can be extracted: 1) at the auction and 2) as the operator places licences.

54. We recommend the spectrum resource charge should be paid at the point of licencing. A charge per licence best allows us to incentivise operators to place the minimum number of licences they require. Encouraging operators to place only the minimum number of licences they may require increases the opportunity for other operators to access the spectrum.

55. The pricing model for determining the resource charge needs to reflect a number of factors, including:

    - The estimated total value of the spectrum (based off the estimated value of National spectrum in the 3.4 - 3.8 GHz range)
    - The cost of alternative non-national spectrum (MSP, previous 3.5 GHz non-national)
    - Accessibility of spectrum pricing for our targeted users
    - Crown value for money

56. Due to the need for certainty of operations, operators will be able to seek up-to 10-year licences in the 3.30 – 3.34 GHz band (licences expiring on or before 30 June 2033). We currently consider that the resource charge for the full length of the licence should be paid up-front. This is in line with the previous assignment of regional licences in the 3.5 GHz band but contrasts to MSP which charges annually. The preference for a single up-front charge is due to the considerable ongoing administrative burden associated with annual charges.

We recommend targeted consultation on the pricing model

57. Setting the pricing model correctly is a key factor in ensuring uptake and regional broadband deployment. Given this, we propose to undertake a brief targeted consultation on the pricing model.

58. Subject to your agreement, we will provide a proposed pricing model based on the above factors to a group of targeted stakeholders for feedback. The stakeholders engaged will include:

    - Current 3.5 GHz WISP operators
    - Known WISP operators with licences in other bands
    - Other relevant parties, likely including a sub-set of participants in previous consultations.

59. The targeted consultation would focus on the pricing model. However, to provide a complete understanding the approach we are taking the targeted consultation would also need to explain other elements of the intended assignment such as the auction approach.

60. We will undertake this short targeted consultation as soon as we receive your approval. Once we have obtained stakeholder feedback we will provide you with a recommended pricing model.

Timeline for assignment

61. Following your direction, officials will continue the design and announcement of the assignment process. The milestones for this are:

    a. March: Hold further targeted consultation with a primary focus on pricing model

    b. March: Create Crown Management Right

    c. April: Announcement of assignment process in the RSM business update and on the RSM website. This announcement will:

        i. Explain the process for assignment

        ii. Announce the date for the auction

        iii. Open expressions of interest / registration for bidding

        iv. Contain the auction catalogue, sample licence agreements and licencing rules

    d. May: Hold auction

    e. May – June: Operators awarded spectrum access can begin licencing in 3.30 – 3.34 GHz

    f. July: Incumbent users must be out of existing 3.5 GHz rights, operators able to use 3.30 – 3.34 GHz spectrum

Potential risks and issues

The key risk on this assignment is our ability to deliver within a very short timeframe.

62. The timeline of the assignment is tight. While some minor slippage is manageable, factors that could cause the assignment to be incomplete by 1 July 2023 include:

- Resourcing constraints from policy, technical and legal teams. The current timeline is possible but were there to be increased resource need from the 3.5 GHz national management rights project it would take resource away from the 3.30 – 3.34 GHz regional assignment. We are currently engaging external legal support but any slippage on delivery of the required legal, technical or policy inputs could result in the assignment not being delivered in time for existing operators to move to the 3.30 – 3.34 GHz spectrum before 1 July 2023 to ensure continuity of service to existing customers.

- Delay in making decisions and announcements on the assignment process. The drop-dead date for a process announcement is 21 April 2023. If an announcement is not made by this point the auction will not be able to be completed by 5 May 2023. An auction after 5 May 2023 would likely affect the ability of operators to deploy equipment into the new spectrum by 1 July 2023.

63. As this assignment is running on a shortened timeframe, there are a variety of risks that could arise including:

- inability to deliver an auction on or before 5 May, and
- negative feedback from stakeholders who were unable to input into the process, or input to the extent they would want.

64. Were the assignment to be incomplete by 1 July, WISPs with customers currently served using 3.5 GHz spectrum would have to disconnect these customers.

65. We have engaged the public and stakeholders throughout the process. This engagement has been through an initial public consultation in August 2021, targeted technical consultation on the co-existence requirements for the band, discussion with WISPA (an industry association) on the assignment shape and the proposed targeted consultation on the costing model.

66. MBIE is currently engaging with a party who has raised concerns regarding the lack of public process in making critical decisions on this band. While a full public consultation for determining technical and policy decisions of this nature is not common, such a consultation would be open to as-yet unknown new entrants and therefore reach a stakeholder group that is difficult to otherwise consult. Had time allowed, a second public consultation on 3.3 – 3.4 GHz could have allowed us to engage this group. This second public consultation was not pursued due to the short timeframes required in order to allow opportunity for continuity of service for customers served using existing 3.5 GHz rights.

The next greatest risk comes from incorrectly setting the cost an operator pays for access to spectrum

67. Under the proposed approach, an operator will pay a resource charge, and, if they participate, an auction price for access to the spectrum.

68. Incorrectly setting the price of this spectrum (40 MHz from 3.30 – 3.34 GHz) at either resource charging or auction is a risk that could arise if no consultation is carried out.

69. If the price is set too high and very few, but not zero, operators took up rights it would leave significant spectrum unused. It could then be controversial to adjust the pricing model after some operators had already paid. This difficulty with adjusting pricing could impact long-term rural / remote broadband deployments by regional broadband operators.

70. The potential long-term impact of the pricing model highlights the importance of setting and testing the costing model. While MBIE can partially mitigate the risk of disproportionate pricing through benchmarking against other available spectrum we still consider consultation necessary.

71. The targeted consultation proposed above reduces the risks associated with incorrectly setting the costing for the spectrum and improves process rigor. However, in the timeline we are working to, this targeted consultation will need to be brief.

Other options for assignment process and timing

72. A few other options were considered to mitigate some of the risks of the current process.

73. One such option is transitioning existing 3.5 GHz users to 3.30 - 3.34 GHz ahead of an open assignment process. This would best reduce the risk of customers being disconnected due to unavailability of spectrum. Additionally, the early transition of incumbents addresses our key timeline concerns by removing the 1 July deadline which would allow for public consultation on the wider assignment of 3.3 - 3.4 GHz. However, during the 3.5 GHz extension process where existing users extended their rights in October 2022, some users opted not to renew. They may have sought renewal had they known existing operators would be given preference in a future assignment.

74. Another option is to consider alternative temporary spectrum for existing 3.5 GHz users, likely from between 3.40 – 4.42 GHz. Successful coexistence would require physical and / or frequency separation between regional broadband operators and 5G networks. Significant work would be required to determine if this solution is viable. Additionally, we would need to approach the existing users to determine if their existing equipment can function using alternative spectrum.

75. Taking all this into consideration, we recommend continuing ahead with a competitive assignment method by 1 July 2023, noting these risks, and incorporating a targeted consultation on the pricing model.

Document 7

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

BRIEFING

Update to 3.30 – 3.34 GHz regional broadband spectrum assignment

Date:	24 March 2023	**Priority:**	High
Security classification:	In Confidence	**Tracking number:**	2223-3164

Action sought		
	Action sought	**Deadline**
Hon Ginny Andersen **Minister for the Digital Economy and Communications**	**Note** the feedback received through targeted consultation. **Agree** to the revised assignment method. **Agree** to the proposed pricing method. **Agree** for MBIE to undertake the proposed 3.30 – 3.34 GHz spectrum assignment.	27 March 2023

Contact for telephone discussion (if required)				
Name	**Position**	**Telephone**		**1st contact**
Daniel O'Grady	Manager, Radio Spectrum Policy and Planning	04 901 2295	s 9(2)(a)	✓
Georgia Reynolds	Graduate Policy Advisor, Radio Spectrum	04 897 5175		

The following departments/agencies have been consulted

Minister's office to complete:

- ☐ Approved
- ☐ Noted
- ☐ Seen
- ☐ See Minister's Notes
- ☐ Declined
- ☐ Needs change
- ☐ Overtaken by Events
- ☐ Withdrawn

Comments

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

BRIEFING

Update to 3.30 – 3.34 GHz regional broadband spectrum assignment

Date:	24 March 2023	**Priority:**	High
Security classification:	In Confidence	**Tracking number:**	2223-3164

Purpose

The purpose of this advice is to:

- update you on the outcome of targeted consultation on the 3.30-3.34GHz regional broadband spectrum assignment, which is targeted for wireless internet service providers;
- provide advice on, and seek your agreement to, the proposed pricing model for this band of spectrum; and
- seek your agreement to undertake an assignment process, varied slightly from the previously agreed approach by the addition of an expression of interest process.

Executive Summary

This briefing provides you with further advice on the assignment and pricing approach for 3.30-3.34 and follows previous advice [briefing 2223-2369] where you made initial decisions on this matter.

Following your agreement in earlier advice, MBIE has undertaken a targeted consultation on the pricing model. This targeted consultation closed midday on 22 March 2023, and we received 16 written submissions. These submissions were largely made by existing wireless internet service providers (WISPs), many of whom would be prospective licensees.

Respondents also submitted on the overall assignment methodology proposed and were positive about the concept of a two-stage process, where the Crown would first offer an initial six month right for a provider to place licences within a geographical area, after which the area would be opened up for further licences by other providers on a first-in-time basis. However, submitters were negative about the use of an auction mechanism to determine which provider gets the six month right. An alternative prioritisation approach was proposed, to avoid the need for auctions. We recommend keeping the auction process but only using it where there are multiple providers interested in a geographical area.

Respondents indicated a preference that the 'area' in an area-licensing approach be at the StatsNZ Community and Local Board area rather than larger Territorial Local Authority (TLA) area to provide for maximum participation by WISPs. We have previously advised you that setting this area too small creates impracticalities in interference management, and we consider this still remains the case.

On resource charging, feedback from stakeholders on this model of pricing has focused on general disagreement with using a nationally consistent per-person price derived from a national valuation, on the basis that the sub-national value of the spectrum is lower than the national value.

An alternative pricing model was proposed by industry but MBIE considers that a single price, charged across New Zealand, based on the valuation of nation Management Rights, is administratively efficient and fit for purpose.

Recommended action

The Ministry of Business, Innovation and Employment recommends that you:

a **Note** that you have previously agreed that a Crown Management Right for 3.3-3.4 GHz be established, with an initial assignment for regional wireless internet service providers (WISPs) to be made between 3.30-3.34 GHz. The objective of this initial assignment is to increase the capacity and/or coverage of rural and remote broadband [briefing 2223-2369 refers].

Noted

Two stage assignment process

b **Note** that you have previously agreed that a two-stage assignment process be used, whereby a time-limited licencing by Territorial Local Authority (TLA) area approach (awarded via auction) is followed by a 'first-in' approach for further licenses to be added by other parties.

Noted

c **Agree** that officials collect Expressions of Interest (EOIs) prior to the auction in the previously agreed two-stage assignment process. EOIs would be used to identify areas where there is no competing demand for the two 20 MHz channels available. Where there is no demand, the sole access-seeker would be provided with the right to license within that area for six-months. Where there are competing demands, an auction would still occur.

Agree / Disagree

Resource charging approach

d **Agree** to the following pricing approach:

i. a set annual license fee of $150 including GST (prescribed in regulations) per license

ii. the cost associated with winning the time-limited area licensing at auction set out in recommendation c (if relevant).

iii. a resource charge per license for each 20MHz band, per Community and Local Board Area, charged annually, comprised of:

a. the population count for the Community and Local Board. This would be the most recent StatsNZ population count.

b. a per-person cost (per annum, per 20 MHz) that will be indexed annually.

c. each license would attract 20% of the resource charge reached by multiplying the two elements above. Once five licenses had been placed by a single provider in a Community and Local Board area, that provider would not be charged further resource charges.

Agree / Disagree

e **Note** that the timeframes for this assignment process remain very tight, and we will continue to update you on progress.

Noted

f **Note** that subject to your decisions above, officials will publicly notify the assignment process set out in this briefing and the previous briefing 2223-2369 in the Radio Spectrum Management Business Update newsletter and on the Radio Spectrum Management website and will undertake the necessary activities for the assignment to occur

Noted

Daniel O'Grady
Manager, Radio Spectrum Policy and Planning
Building, Resources and Markets (BRM), MBIE

24 / 03 / 2023

Hon Ginny Andersen
Minister for the Digital Economy and Communications

26 / 3 / 23

Background

1. This briefing follows the 10 March 2023, briefing *2223-2369 Decisions on 3.3-3.4 GHz non-national spectrum assignment,* in which you agreed to first undertake an assignment of 40 MHz from 3.30 – 3.34 GHz for regional broadband ahead of any assignment to private networks or other non-national users.

2. You agreed that the focus of this initial assignment should be to increase rural and remote broadband through increasing capacity and / or coverage.

3. Additionally, you made decisions on the assignment methodology including:

   - Time-limited area licencing as the assignment mechanism which offers a WISP the ability to place licences within a particular area for a set period.
   - Using an auction mechanism to award time-limited licencing rights within an area.
   - TLAs as the area that we auction, and WISP operators can licence within.

Targeted consultation

4. Following the March 10 briefing, a targeted consultation on the model used to price the 3.30 – 3.34 GHz spectrum was sent to stakeholders that have shown an interest in this band. This described, at a high level, the assignment process suggested and MBIE's proposed pricing model. A copy of this engagement is at **Annex One**.

5. Parties engaged included current WISP operators in the band, known WISP operators with licenses in the Managed Spectrum Park, and participants in an earlier Technical Working Group. The industry association for WISPs, WISPA-NZ, was also contacted, and was invited to share MBIE's engagement material with their membership.

6. In response to MBIE's engagement, 16 responses were received. These responses were largely from members of WISPA-NZ. While there was a degree of variation between responses, there was general uniformity in the issues raised. The feedback received on key issues, and MBIE's response to this feedback, is set out below.

Targeted engagement has allowed us to further develop the pricing approach and other elements of this assignment

7. Our targeted engagement set out the broad structure of the assignment (our proposal for two 20 MHz channels; the 10 year period of the Management Right; the two-stage assignment process; the focus on base stations providing wide-area macro coverage) and sought feedback on our proposed pricing model.

8. Respondents provided feedback on both the pricing model and the broad structure of the assignment. We have considered the feedback provided, and have made some adjustments to the proposed pricing approach in response to the feedback received.

Structure of assignment, objectives, and proposed uses

9. While MBIE did not explicitly seek feedback on the structure of the assignment, the policy objectives, or the proposed uses, a number of respondents addressed these points.

10. There was general support for the focus on regional broadband for wireless internet providers who operate at a regional (non-national) level. Most respondents were wireless internet service providers.

11. There was also general support for the expectation that licenses would take the form of base stations providing wide-area macro coverage.

12. Feedback on the configuration of the assignment as two 20 MHz channels was mixed. Some respondents did not address this point, or saw opportunity for two providers to operate in a single area with one 20 MHz channel each. Other respondents considered that a 20 MHz channel, or even two 20 MHz channels held by the same provider, would be insufficient to meet demand or provide a level of service expected by consumers.

13. MBIE has considered this feedback, and recommends proceeding with the configuration of two 20 MHz channels at this point. There is a relationship between the amount of spectrum being used by a provider and the level of service (such as data rates) that customers will experience. However:

- This spectrum assignment is not the only spectrum available to WISPs, with many also operating in the Managed Spectrum Park[1] or through General User Radio Licenses.
- There may be scope to expand the availability of spectrum to WISPs in the remainder of the 3.3-3.4 GHz range following this initial assignment as part of work to consider other potential users such as private networks. Here, spectrum sharing feasibility between private networks operating in localized areas and WISPs is to be further investigated.
- MBIE considers that providing two channels is helpful in enabling access to this band for more than one provider in a given area, which would not be possible with a configuration of one 40 MHz channel. In areas with a single provider, there would not be a barrier to them securing both channels.

Respondents were supportive of the two-stage assignment process, but were not supportive of a universal auction approach at the TLA-level for the first stage

14. The two stages proposed for the assignment process are:

- A time-limited period of six months during which a provider would be able to place licenses within a given (TLA) area exclusively. MBIE had proposed that this would be awarded through auction.
- Once this six month right expires, further licenses will be permitted on a 'first-in' basis.

15. Respondents were supportive of the concept of the time-limited exclusive licensing, but were not supportive of the auction approach, or of the area-sizing of this process being at the Territorial Local Authority area level.

An auction process was not preferred by stakeholders for determining initial access

16. WISPA-NZ indicated in their submission that they did not consider their members would be likely to participate in an auction, and a number of respondents indicated the same. Reasons given were the risk of high-costs and uncertainty. Respondents also raised the difference in approach to allocations made for National Management Rights, preferring an 'investment approach' be used for WISPs, along the lines of the approach being taken to the 3.5GHz band (noting that the stringent conditions that are part of the 3.5 GHz national Management Right allocation are not currently known publicly).

17. Responders to the targeted consultation proposed an alternative 'prioritisation model', where MBIE would select a successful WISP operator to obtain/receive access based on varying criteria, including:

- Existing spectrum access (in some cases prioritising those with existing spectrum, in some cases opening it to those without existing spectrum).

[1] Managed Spectrum Park has been on hold to new licenses since 2021. MBIE are currently developing advice to you on rule updates, with a view to allowing for the Managed Spectrum Park to be re-opened.

- Incumbent users with 3.5 GHz spectrum access.
- Types of service being delivered.
- Perceived ability to roll out broadband.

18. Some respondents also proposed that WISPA-NZ administer this process, or an alternative assignment process. This proposal as-made would allow only WISPA-NZ members access to the initial licensing period.

19. We consider that prioritising some users over others, including prioritising incumbent holders of expiring 3.5 GHz licenses over all others, would create a disproportionate impact on the market by potentially limiting access to this spectrum to only those who have previously held it. There would also be issues with transparency and fairness to prospective licensees that were not reached in the targeted consultation.

20. That said, in light of this feedback, we recommend using an expressions of interest (EOI) process which would only be followed by an auction where there is insufficient spectrum available to meet demand. This means that if only one WISP operator was interested in a particular TLA, as not infrequently occurs in rural areas, that right would not need to be auctioned and could instead be assigned to that operator.

Respondents preferred a more granular approach to sizing areas

21. A number of respondents indicated a preference to decrease the size of the area offered for the initial 6-month period from TLA to Community and Local Board Area. This is because many WISPs only operate within one Community and Local Board area. Respondents argued that decreasing the area size would likely allow more WISPs the certainty offered through the initial 6-month prioritised access.

22. In our initial advice to you, we considered the tension between using sufficiently small area definitions to allow WISPs to target the communities they service, with the need to use sufficiently large areas to accommodate the spread of radio waves and practically manage interference.

23. We have considered the feasibility of offering 6-month initial access at the smaller Community and Local board level. However, as the size of the areas offered get smaller the likelihood of licence conflicts (i.e. interference) increases. Many Community and Local Board areas, particularly in urban areas, are small and radio waves do not stop at geographic boundaries.

24. We recommend maintaining TLA definitions for the 'exclusive right to licence' period. TLA definitions have been used previously for the 3.5 GHz non-national rights. We know from this that we are better able to manage conflicts as they arise for areas of this size. We accept larger areas may decrease the ability for many WISP operators to access spectrum within the first 6-months, however, spectrum opening on a first-in-time basis after this point mitigates the long-term impact.

Feedback on the charging and pricing model was largely focused on the use of a flat-rate derived from a valuation of the national Management Rights

25. Revenue raised through resource charging is returned to the Crown, except for the annual license fee which is used to fund the regulatory regime.

26. We consulted on a pricing model comprised of the following features:

- a set annual license fee of $150 including GST (prescribed in regulations)

- the cost associated with winning the time-limited area licensing in auction (which we now proposed only be used where there is insufficient supply in an area to meet demand, as identified through an EOI process).

- a resource charge per license, which would be based on the population of the relevant Community and Local Board, and a per-person cost derived from a national valuation of the 3.5 GHz band, over 20 Mhz.

27. MBIE also consulted on the following features:

- Using an assumption that five towers will be put in a single area, the resource charge per license would be 20% of the amount which would be associated with the relevant Community and Local Board. Once a single provider has placed five licenses in an area, the resource charge would be capped. This was well-received by respondents and has been retained in the proposed pricing approach.

- Charging for the full 10-year resource fee up-front. Respondents noted that because many of the WISPs are small operators, 10-year resources charges would be large compared to typical cashflows and may impede the ability of WISPs to build infrastructure to use the spectrum. Based on this, MBIE now suggests charging on an annual basis, with the resource charge to be indexed to inflation over time.

- A minimum-resource charge to mitigate against the need to collect very small fees. Respondents were overwhelmingly negative about the concept of a minimum resource fee. While the lowest resource charge disclosed as part of engagement was 'less than $100', using the proposed pricing approach a number of very small areas have very low resource fees. For example, the Rātana community has the lowest annual fee of approximately $6. To mitigate against the need to collect un-economic fees, MBIE will further consider options, such as setting a minimum annual price for the generation of invoicing, or charging an administration fee. We will consider the need to ensure that there is no perception that Crown resources will be given away freely.

Respondents seek a tiered pricing structure that differentiates between urban and rural prices

28. A number of respondents have proposed pricing models based on the World Bank's degrees of urbanisation. This would classify areas based on population density and three different levels of resource charge would apply.

29. In a New Zealand context, StatsNZ uses the Urban-Rural classification system, which considers contiguous clusters of areas and features including population density and overall resident population. This classification system does not align with the Community and Local Board areas that respondents have received positively.

30. We recommend that a single resource price be used across all locations. While we wish to encourage uptake in rural areas of this spectrum, we consider other settings of the assignment process will support this, including the revised proposal to only auction spectrum where there is insufficient demand, providing for annual resource fee payment, and shifting to a more granular population for pricing to be based on than has been used previously (from TLA to Community and Local Board area).

31. A single resource price will support this assignment to be administered efficiently and clearly, particularly in the absence of an accepted classification approach to Community and Local Board areas.

Respondents disagree that the valuation of national Management Rights be used as the basis for the value of this spectrum

32. MBIE received an independent valuation of 20-year Management Rights in the 3.5 GHz band in 2021. This valuation was used to benchmark the value received from MNOs and Dense

Air in the administrative allocation process currently underway, and MBIE had proposed to use this same valuation for the assignment of sub-national rights. As this valuation has not been made public, a range of $0.08-0.09 per person, per year, for a 20 MHz channel, was provided in the engagement material. The rate based on the valuation would be $0.085 per person, per year, for a 20 MHz channel.

33. WISPs have argued that the spectrum use-cases of national 5G networks and regional broadband delivered through 4G-like systems are different and that the valuation of the spectrum should reflect this.

34. We do not recommend decoupling the resource charge for non-national spectrum from the national valuation. While we acknowledge that the value of the spectrum may vary, there is no strong basis to consider whether it is more or less valuable at a regional level than a national level.

35. In developing this pricing model, we have also considered the model already in-place in the Managed Spectrum Park, which we consider to be priced at a very accessible level. The pricing models are structured differently, in that the Managed Spectrum Park model charges an annual fee per base-station and uses TLA populations rather than the smaller Community and Local Board area populations we propose be used here.

36. The resource component of Managed Spectrum Park is cheaper than we are proposing be used in this assignment (costing approximately a third of the proposal for this spectrum). However, the flat-rate management charge of $200 per transmitter, to a maximum of five transmitters, used in the Managed Spectrum Park increases the cost per license substantially. The resource charge is also not capped in Managed Spectrum Park, in contrast to our proposal to cap resource charges after five licenses have been placed in a Community and Local Board area.

37. Some respondents (including WISPA-NZ) have raised that the presence of Ultra-Fast Broadband (UFB) or 5G alternatives in some of the Community and Local Board areas should be reflected in the resource price charged. This would see the population that can access alternative services (such as UFB) be excluded from the population that is used to calculate a resource charge. We do not consider this is either administratively feasible or a reasonable approach to take, as it would see the resource charge of urban areas be substantially lower than more remote areas.

Other matters raised through engagement

38. A number of respondents raised the risk of 'spectrum speculation'. While not discussed in the engagement material provided by MBIE publicly, we are alert to the potential presence of spectrum speculators. We have previously provided you with advice (in the March 10 briefing) that measures such as 'use or lose' conditions and limited change of control provisions should be applied to these spectrum assignments to reduce the likelihood of spectrum speculation. We intend to include these measures in License Agreements and rules.

Potential risks and issues

Timeline and the ability to deliver this assignment process remains the largest risk

39. The accelerated timeline for this assignment process continues to be the largest risk although we are progressing according to plan. There is minimal opportunity for slip within this process. Any delays in confirming the outcome of the assignment process would delay the ability for WISP operators to purchase the equipment required to operate in the 3.30 – 3.34 GHz range.

40. Risks previously identified remain, including:

- inability to deliver an auction on or before 5 May, with the additional step now proposed of an EOI process before an auction; and
- negative feedback or complaint from stakeholders who were unable to input into the process, or input to the extent they would want.

41. Were the assignment to be delayed, WISPs with customers currently served using 3.5 GHz spectrum might have to disconnect these customers without having had an opportunity to access further spectrum (due to mobile network operators and Dense Air obtaining the rights to 3.5 GHz spectrum from 1 July 2023). There is no guarantee that these WISPs would be successful in the approach proposed, but we consider it is important that they have the opportunity to seek further spectrum.

MBIE have taken steps to mitigate the identified process risks

42. To mitigate resource constraints internally we are engaging external support where appropriate.

43. We have engaged the public and stakeholders as much as possible throughout this constrained process. This engagement has been through an initial public consultation in August 2021, targeted technical consultation on the co-existence requirements for the band, discussion with WISPA-NZ on the assignment shape, and the recently concluded targeted consultation on the costing model (where feedback was also received on the assignment shape).

44. We are aware that a complaint has been made to the Ombudsman regarding this process, and will engage with the Ombudsman and complainant as required.

Perverse incentives leading to unintended licencing results

45. By using Community and Local Board areas for pricing there is an opportunity for perverse incentives to arise where operators licence within a low-population area but direct their service to a high population area. For example, using a "cheap" licence on the edge of Wellington while pointing it to serve a high-density urban population they have not paid for.

46. While this is a risk, the consequence is an operator receiving cheaper spectrum than they should. The impact of this would be minimal and is a consequence we recommend accepting.

Next steps

47. Subject to your agreement:

- We will continue to develop the necessary documentation to prepare for the assignment (including License Agreements, technical rules etc).
- The proposed assignment method will be made public through the Radio Spectrum Management Business Update and website.
- MBIE will engage an external auction provider to manage the auction process.

Annex

Annex one: Examples of Community and Local Board areas with proposed prices

Annex one: Examples of Community and Local Board areas with proposed prices

Territorial authority (TLA)	Community	2022 Population	Approximate annual cost low estimate ($)	Approximate annual cost high estimate ($)
Auckland	07616 Howick local board area	152500	2,400	2,800
Auckland	07602 Hibiscus and Bays local board area	113400	1,800	2,100
Auckland	07619 Manurewa local board area	107700	1,700	2,000
Auckland	07612 Albert-Eden local board area	98000	1,500	1,800
Auckland	07621 Franklin local board area	83600	1,300	1,600
Christchurch city	06004 Waipuna Halswell-Hornby-Riccarton community	78900	1,200	1,500
Christchurch city	06006 Te Pataka o Rakaihautu Banks Peninsula comm	9330	100	200
Hamilton city	01699 Area outside community	179900	2,800	3,300
Hastings district	03099 Area outside community	77500	1,200	1,400
Queenstown-Lakes district	07001 Wanaka-Upper Clutha community	16800	200	400
Rotorua district	02499 Area outside community	63500	1,000	1,200
Southland district	07306 Stewart Island/Rakiura community	440	less than 100	100
Taupo district	02199 Area outside community	41400	600	800
Waikato district	01304 Raglan community	6230	100	200
Waimakariri district	05902 Rangiora-Ashley community	27600	400	500
Waimakariri district	05904 Kaiapoi-Tuahiwi community	16250	200	300
Wairoa district	02999 Area outside community	9190	100	200
Wellington city	04799 Area outside community	197000	3,100	3,600
Wellington city	04702 Tawa community	15150	200	300
Western Bay of Plenty district	02201 Katikati community	12700	200	300
Whanganui district	03701 Whanganui Rural community	6110	less than 100	200