

Proposals for operation of the Managed Spectrum Park in the 2.5 GHz band

Discussion Paper

Radio Spectrum Policy and Planning
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Foreword

In November last year I announced a set of decisions concerning the use and allocation of radio spectrum in the 2.3 GHz and 2.5 GHz bands. These announcements followed consideration of responses to a discussion paper issued in August 2007.

Most of the spectrum was allocated for auction of nationwide management rights for broadband wireless and advanced mobile cellular uses. One nationwide lot of 25 MHz was set aside to be offered to Maori and one lot of 45 MHz was reserved for a managed spectrum park.

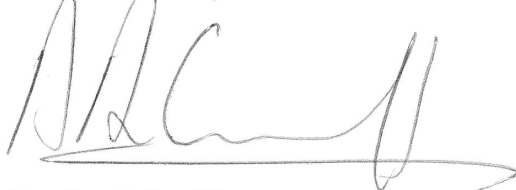
The managed spectrum park is a new concept. It is intended for local and regional services, and seeks to encourage a flexible, cooperative, low cost and self-managed approach to allocation and use.

The August 2007 discussion paper suggested several options for operating the park. Most submissions favoured an approach which provided for maximum technological flexibility and neutrality.

Accordingly this paper sets out detailed proposals on the operation of the managed spectrum park. I encourage interested parties to make submissions on the proposals so that all views can be properly considered, with a view to getting the park up and running as early as possible next year.

I see the managed spectrum park making a valuable contribution to the Government's Digital Strategy, and in particular to the overall objective of making broadband services available to all New Zealanders.

I look forward to your submissions on this exciting new concept.



Hon David Cunliffe
Minister for Communications and Information Technology

A: Introduction

1. Managed spectrum parks (MSPs) are intended to allow access to a number of users in a common band of spectrum on a shared and, as far as possible, self-managed basis. Ideally, they encourage efficient use of spectrum, innovation and flexibility and provide for low-cost compliance and administration over time.
2. In August 2007 the Ministry of Economic Development released a discussion paper on the auction of radio frequencies in the 2.3 GHz and 2.5 GHz bands¹ that included a discussion about MSPs.
3. The Government subsequently allocated 45 MHz in the 2.5 GHz band for a MSP to allow for the provision of local and regional broadband services, including provision of services to Maori.
4. The discussion paper put forward three options for the management and operation of a MSP. They were:
 - Option One: open access under General User licensing;
 - Option Two: an application and selection process based on Ministry-specified user numbers and engineering; and
 - Option Three: a selection process based on expressions of interest with user-defined engineering and licence specifications.
5. No submitters supported Option One because of concerns about quality of service. Some submitters supported the certainty provided by Option Two. A slight majority of submitters favoured Option Three on the grounds that it provided for more technology neutrality and flexibility than Option Two. A more detailed summary of submissions is provided in [Appendix One](#).
6. After taking submissions into account, and in particular after considering the preference for technology neutrality and flexibility, the Minister for Communications and Information Technology decided that work should be undertaken on designing detailed rules for the third option. Cabinet decisions noted that detailed work on allocation and usage rules, including a resource rental, would be undertaken in 2008.²
7. The key components of the third option are as follows:
 - The MSP is available only for local and regional services covering a maximum of 10 contiguous TLA³ areas.

¹ <http://www.rsm.govt.nz/cms/policy-and-planning/spectrum-auctions/2-3-2-5-ghz-auction/radio-frequency-auction-2-3-ghz-and-2-5-ghz-bands-discussion-paper>

² <http://www.rsm.govt.nz/cms/policy-and-planning/current-projects/radiocommunications/spectrum-allocations-for-broadband-wireless-access/cabinet-paper-2>

³ Territorial Local Authorities. Refer <http://www.lgnz.co.nz/lq-sector/maps/> or <http://www.nowhere.com.au/StatsNZ/Locator/Default.aspx>

- Users determine the specifications of licences thereby providing for technology neutrality and flexibility.
 - Where the demand for licences in an area is such that quality of service is potentially compromised, a period is set for applicants to coordinate and agree on revised specifications. If they cannot do so, the Ministry draws lots to progressively eliminate applications, until the remainder can be accommodated.
 - Licences have a six-year term with a right of renewal on certain conditions.
 - Use-or-lose provisions apply.
 - A resource rental is charged for use of the MSP.
8. A summary [flow diagram](#) for this approach appears on page 8.
9. This paper develops proposed details for the above assignment process under the following headings:
- MSP bandwidth specifications
 - Eligibility criteria
 - Applications for licences
 - Initial processing of applications
 - What happens if it is likely that an ARE (approved radio engineer) certificate can be issued
 - What happens if it is likely to be difficult to issue an ARE certificate
 - What happens if affected applicants are unable to submit ARE certificates
 - 'Use or lose' provisions
 - Duration of licences
 - Termination of licences
 - What happens to unused or freed-up spectrum
 - Rightholders wishing to expand services and new entrants
 - MSP charges and fees
 - Licence terms and conditions
 - Transition issues
 - Ministry webpage for the MSP
 - Indicative timetable.

10. By and large this paper focuses on the development of detailed proposals and does not repeat the discussions and consideration of policy issues in the August 2007 discussion paper. However, some design options have arisen which were not fully covered in the August 2007 paper. These are covered in boxes throughout the text.

B: Submissions

11. The Ministry seeks comment from interested parties on the proposals in this paper. Comments should reference the relevant sections or paragraphs or boxes in this paper. Where submitters do not agree with proposals, alternative suggestions would be helpful.
12. Submissions are invited by **18 July 2008**. Comments should be sent to radiospectrum@med.govt.nz.
13. Following consideration of submissions, detailed allocation and operational rules are expected to be developed. An indicative timetable is provided in section [S](#).

Posting and release of submissions

14. The Ministry may post all or parts of any written submission on its website at www.med.govt.nz. The Ministry will consider you to have consented to posting by making a submission, unless you clearly specify otherwise in your submission.
15. In any case, submissions are likely to be released if requested under the Official Information Act 1982. Please advise if you have any objection to the release of any information contained in your submission, and in particular, which part(s) you consider should be withheld, together with the reason(s) for withholding the information. The Ministry will take into account all such objections when responding to requests for copies and information on submissions.

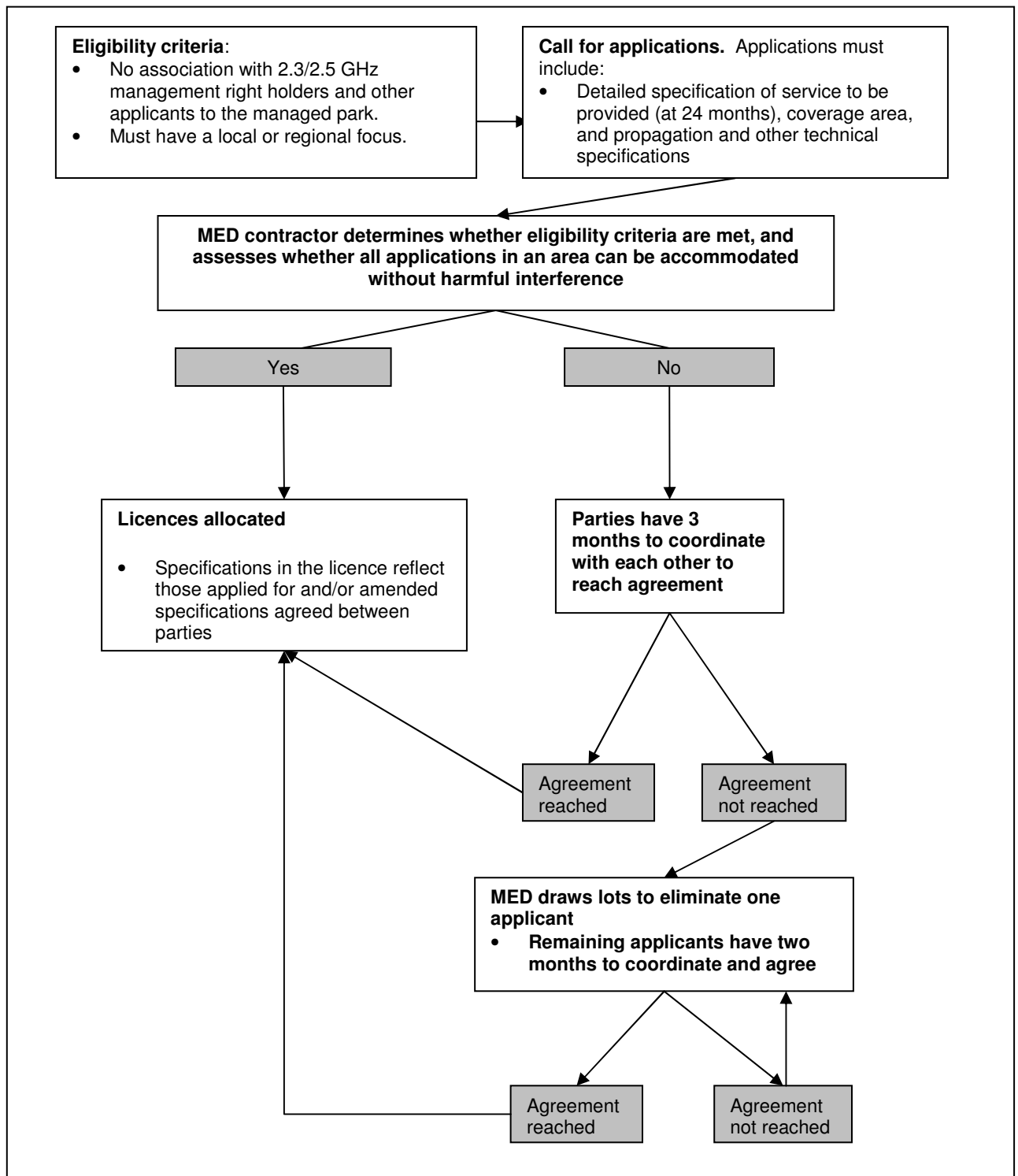
Privacy

16. The Privacy Act 1993 establishes certain principles with respect to the collection, use, and disclosure of information about individuals by various agencies including the Ministry. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in conjunction with the matters covered by this document. Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

Glossary

Rightholder	The holder of a spectrum licence pursuant to the Radiocommunications Act 1989
ARE	An approved radio engineer under the Radiocommunications Act 1989. A list of AREs is available on www.rsm.govt.nz
MSP	Managed Spectrum Park

Flow Diagram One: Initial allocation of licences to use the MSP



C: MSP bandwidth specification

17. The spectrum allocated for the managed spectrum park is 45 MHz in the 2.5 GHz band. It is located at 2575-2620 MHz.
18. A guardband needs to be provided at the lower boundary of the MSP to provide protection from interference from and to the adjacent management right. (Managers of management rights in the 2.3 GHz and 2.5 GHz bands are required to provide for guardbands of 5 MHz at the lower boundary of their rights.⁴)
19. Thus the effective bandwidth available for MSP services is 40 MHz, at 2580 to 2620 MHz.

⁴ Specifically, the managers are not permitted to create any licences within 5MHz of the lower boundary where the maximum power of emissions exceed 5 dBW (e.i.r.p.) unless an agreement with the manager immediately adjacent to that lower boundary.

D: Eligibility criteria for MSP

20. The following eligibility criteria are proposed:
- a. Holders of nationwide management rights in 2.3 GHz and 2.5 GHz spectrum and associated parties⁵ are not eligible to participate in the managed spectrum park.
 - b. Applicants may not be an associated party with any other applicant to (and subsequent to the initial round, rightholders in) the MSP. Sharing facilities on an arms-length basis with other rightholders in the MSP will *not* be a contravention of the associated party rules.
 - c. Rightholders may only provide services in one region or area, which is defined as up to 10 contiguous city and district council areas.
 - d. An applicant may only submit one application in the initial allocation round.
 - e. The Ministry may, on an exceptions basis, approve applications for licences which do not meet the terms of a. to c. where the Ministry is satisfied that allocation would promote the objective of providing rural, local or regional services to consumers that would not otherwise be offered. Such applications may only be considered after the initial round of applications and related processes (including granting of licences) has concluded and to the extent that unused spectrum is available.
21. Rightholders may be required to declare their compliance with the above criteria from time to time. Where rightholders fail or are unable to make such a declaration they may request an exemption under (e) in the preceding paragraph. Where they do not make such a request, or where that request is declined by the Ministry, the Ministry must cancel the rightholder licences in the MSP.
22. Note that there is no time limit on the above eligibility criteria: i.e. they will continue to apply over time.

⁵ The definition of associated parties will be specified in the detailed rules for the MSP, but are likely to be based on the definitions in the auction rules for the 2.3 GHz and 2.5 GHz band or the allocation of the 3.5 GHz band. See <http://www.rsm.govt.nz/cms/policy-and-planning/spectrum-auctions/radio-spectrum-auction-no-10-local-fm-licences/eligibility-criteria#reference1>

Box One. Should there be a limit on the bandwidth an applicant may seek?

1. The effective bandwidth available for the MSP is 40 MHz. The issue arises as to whether an applicant may apply for all of this, or should be limited to a lesser amount, such as 15MHz or 20MHz (50% of available bandwidth). Pros and cons are summarised below.

2. Restriction to say 15 MHz or 20 MHz

Pros

- Maximises the number of users (compared to no restriction) and reduces the risk of gaming (applying for more bandwidth than required to improve ones negotiating position).

Cons

- Likely to restrict type of services (because some services are likely to require more than 20 MHz).
- May not make optimal or full use of available bandwidth (e.g. in secondary centres or rural areas where there may be only one interested party):
[Potentially it would be possible to run a two stage process to minimise this issue, e.g. an initial application, followed by a further application round if supply of bandwidth exceeds demand. However, this would considerably complicate application processes, and means that applicants would need to develop two plans covering restricted and unrestricted access to the bandwidth.]

No restriction

Pros

- Likely to result in more extensive use of spectrum in terms of bandwidth used and range of services.
- Most compatible with MSP concepts (allowing flexibility, innovation and encouraging parties to cooperate and self-regulate).

Cons

- Risk that applicants will seek maximum bandwidth to improve their negotiating position if there is more than one applicant in a region. However it is not clear that this will be a significant issue in practice since:
 - Applying for more bandwidth than required will increase the likelihood of lots being drawn to eliminate applicants, which increases the risk for an applicant of missing out completely.
 - Applicants will be encouraged to only seek the bandwidth they require by the requirements to pay resource rentals and to meet 'use or lose' requirements.

4. On balance therefore the Ministry proposes no restriction (other than geographical restrictions) on the quantity of bandwidth applicants may seek.

E: Applications for licences

23. Applications for licences must be submitted to the Ministry by a date set by the Ministry.
24. Applications must include the following information:
 - a. The name, address and contact details of the applicant
 - b. The contents of the spectrum licences sought by the applicant, including the details required to complete Form 7 of the Radiocommunications Regulations 2001 for those licences. These details must match the technical specifications of the service proposed by the applicant as at *24 months after any licence has been granted*. The following minimum details are required for each spectrum licence:
 - (i) Proposed service and technology
 - (ii) Characteristic frequency
 - (iii) Frequency band (lower and upper bands)
 - (iv) Maximum power (in relation to horizontal radiation pattern – degrees)
 - (v) Location of transmitter (for a fixed base or central hub of a point to multipoint or mobile service, or for each part of a point to point service). This must be specified as a location, not an area
 - (vi) Site name and height
 - (vii) Antenna polarisation
 - (viii) Antenna height
25. A declaration that the applicant has read and understands the terms and conditions of the licences will also be required.

F: Initial processing of applications

26. The Ministry proposes to commission a contractor with (inter alia) suitable ARE (approved radio engineer) resources to undertake the initial processing and consideration of applications.
27. The Ministry will tender for a contractor after applications have been received. This is because the work involved, and therefore the costs, will be highly dependent on the number of applications. (See also section [Q](#) on charges.)
28. Processing and consideration will comprise:
 - a. Confirmation that the applicant is eligible to be granted a licence to use the MSP
 - b. Confirmation that the application is complete and complies with the requirements for an application. Note that:
 - the Ministry/contractor need not consider any application which does not meet the application requirements
 - the Ministry/contractor may, but is not obliged to, seek further information from the applicant to complete any application
 - c. A *high-level* assessment to determine which of the following categories, in the ARE contractors' opinion, each application falls into:
 - i. Category One: It is likely that an ARE certificate could be issued to an applicant *assuming that licences were also issued to all other applicants, or*
 - ii. Category Two: It is likely that an ARE certificate could not be issued *assuming that licences were also issued to all other applicants*. For example, there may be difficulties because of the risk of interference from other applicants (if they were to be issued licences) in the same region or regions. In the case of Category Two, the contractor would identify groups of affected applicants and, at a high-level, the potential interference issue(s) faced by the group.
29. The contractor's allocation of applications into Category One and Category Two and into affected applicant groups will be a one-off assessment, which triggers the processes discussed below. There will be no rights of appeal or reconsideration of that initial allocation.

G: What happens where it is likely that an ARE certificate could be issued (Category One)

30. Where the contractor considers that an ARE certificate is likely to be able to be issued (even if licences were issued to all other applicants), the contractor will proceed to undertake the engineering work required to complete the details of the spectrum licence for the purposes of Form 7 of the Radiocommunications Regulations and issue an ARE certificate.
31. Where an ARE certificate is provided, the Ministry will confirm that the applicant still wants the licence, and, if so confirmed, proceed to settlement of the licence. Following settlement and signing of any documents required by the Ministry (such as a licence agreement), the applicant will become the rightholder of the licence. The grant of the licence will be subject to terms and conditions, such as those described in section [P](#).
32. If, following the detailed engineering assessment, the contractor determines that it is not in fact possible to issue an ARE certificate, the contractor:
 - May recommend to the applicant how it should amend its application to enable an ARE certificate to be issued; or
 - In all other cases (including if the applicant declines to amend its application to enable an ARE certificate to be issued), the application would be placed in Category Two.⁶

⁶ This will require the contractor to process applications in Category One quickly to enable early advice to be given if required to other applicants in Category Two that an additional applicant (or applicants) has been added to Category Two.

H: What happens where it likely to be difficult to issue ARE certificates (Category Two)

33. Where the contractor considers it is likely that an ARE certificate could not be issued (assuming all other applicants were issued licences), the contractor will advise all affected applicants to that effect. The notification will:
- identify potential interference issues on a regional basis; and
 - identify the applicants in a region or regions affected by particular interference issues (called ‘affected applicant group’).
34. Affected applicant groups will have up to three months from the date the notification is sent to agree on how to manage the potential interference issues, such that ARE certificates can be (and are) issued for all members of the affected applicant group. They may do this in any way they wish, including by modifying or withdrawing applications.
35. In seeking and obtaining ARE certificates, an affected applicant may:
- Agree to use the same ARE as every other member of the group. This may be the Ministry’s contracted ARE or any other ARE. In either case, the costs involved must be met directly by the affected applicants (that is, they are not covered by the initial application charge: see section [Q](#)).
 - Use its own ARE, but in this case any ARE certificate must be endorsed by the AREs of *all* affected applicants in the group. (Again, all costs must be met directly by applicants.)
36. In all cases, *all* affected applicants in the group (excluding those withdrawing their applications) must jointly (that is, at the same time) submit details of requested spectrum licences for the purposes of Form 7 of the Radiocommunications Regulations together with ARE certificates.
37. Where all affected applicants in the group (excluding those withdrawing their applications) submit details of the spectrum licences and ARE certificates, the Ministry will, if satisfied that all licences are in registrable form, invite the applicants to proceed to settlement of the licences. Following settlement and signing of any documents required by the Ministry (such as a licence agreement), the applicant will become the rightholder of the licence. The grant of the licence will be subject to terms and conditions, such as those described in section [P](#).

I: What happens if affected applicants are unable to submit licence details and ARE certificates

38. Where not all affected applicants in the group (excluding those withdrawing their applications) submit details of requested spectrum licences and ARE certificates to the satisfaction of the Ministry, the Ministry will draw lots at the end of the three month period to eliminate one applicant in the group.⁷
39. The remaining affected applicants in the group will have up to two months to submit licence details and ARE certificates (in the same manner specified in the previous section).
40. Where it is still not possible for all remaining applicants to submit ARE certificates, another process of drawing lots will be undertaken to eliminate a further applicant.
41. This process will be repeated until all applicants in the group (who have not withdrawn) submit licence details and ARE certificates.
42. Where there are a large number of applicants relative to available spectrum, the Ministry may eliminate more than one applicant when drawing lots, provided that it gives notice to affected applicants of its intention to do so.

⁷ The processes for drawing lots will be based on those developed for the 3.5GHz round one allocation:
<http://www.rsm.govt.nz/cms/policy-and-planning/spectrum-auctions/fixed-wireless-access/archived-documents/updates/update-16-june-2006/>

J: 'Use or lose' provisions

43. The following 'use or lose' provisions will apply from two years after licences are granted. They are largely based on regulations 15B, 15C and 15D of the Radiocommunications Regulations 2001.⁸
44. If the Ministry is satisfied that a spectrum licence is not in sufficient use it may:
- a. amend (or replace) the licence so that the licence provides the rights to transmit and receive no harmful interference (as appropriate) that reflects the actual service operating under the licence; or
 - b. cancel the licence.
45. The Ministry will consider one or more of the following when determining whether a spectrum licence is in sufficient use:
- a. The use of the licence in light of the licence's terms, conditions, and restrictions (for example, the actual power of transmissions as compared with the maximum power specified on the licence)
 - b. the amount and pattern of use of the licence compared to licences that authorise—
 - (i) similar types of transmission, or
 - (ii) the use of similar types of transmitting equipment
 - c. whether the rightholder is able to provide the same or equivalent service as the service that may be provided under the licence via—
 - (i) another radio licence or spectrum licence held by the rightholder; or
 - (ii) a telecommunications network available to the rightholder.
 - d. any other relevant considerations.
 - e. any special circumstances justifying the continuation of the licence.
46. Each rightholder must make a statutory declaration to the Ministry every two years following the initial grant of a licence, as to whether the licence is in sufficient use, in terms of the considerations specified in the previous paragraph.
47. The Ministry may from time to time request information or declarations from the rightholder in relation to use of the licence, and, if so, the rightholder must provide the information or declarations within 20 working days.

⁸ <http://www.brookersonline.co.nz/databases/modus/lawpart/regs/REG-NZL-PUB-Y.2001-240~BDY~REGG.172~REG.15C?si=57359&tid=22582214>

48. A rightholder's failure to provide information or declarations will be treated as meaning that the licence is not in sufficient use.
49. Where the Ministry intends to amend (or replace) or cancel a licence, the Ministry will provide a notice to the applicant of the details of the action it intends to take and provide an opportunity for the rightholder to comment. The Ministry may also from time to time specify any requirements the rightholder must meet within a specified time to avoid the specific change notified coming into effect (for example, to limit the change to an amendment rather than cancellation or no change at all) during this period.
50. Where a rightholder satisfies the Ministry that it has met any requirements specified by the Ministry prior to the change coming into effect, the Ministry will take the alternative action it advised to the rightholder.

K: Duration of licences

51. Licences will be granted for a term of six years⁹, subject to rightholders meeting 'use or lose' requirements and compliance with all laws and terms and conditions on which the licences are held. Eligible rightholders will be offered the opportunity, 18 months prior to the expiry of a licence, to renew the licence for a further term (likely to be six years).
52. The Ministry may, however, give notice that licences will not be renewed or that renewals will be for a shorter term, provided that the minimum effective period of notice must be five years.

⁹ The reason for six years (instead of the normal five) is to allow for the two-yearly 'use or lose' process. If a licence was renewed at five years, the notice of renewal would need to be given before the second 'use or lose' declaration had been made.

L: Termination of licences

53. The Ministry may, with immediate effect, cancel a spectrum licence on any of the following grounds by notice in writing to the rightholder:
- a. rightholder breaching a term, condition, or restriction of the licence
 - b. a rightholder failing to pay any fee payable under the regulations (in whole or in part)
 - c. a rightholder failing to pay any charge under any agreement with the Ministry (for example a resource charge)
 - d. a rightholder breaching an agreement with the Crown relating to the use of the licence
 - e. a rightholder using a licence for a purpose other than the purpose for which it was granted
 - f. to prevent harmful interference
 - g. to protect national security
 - h. to enable New Zealand to comply with an international agreement.

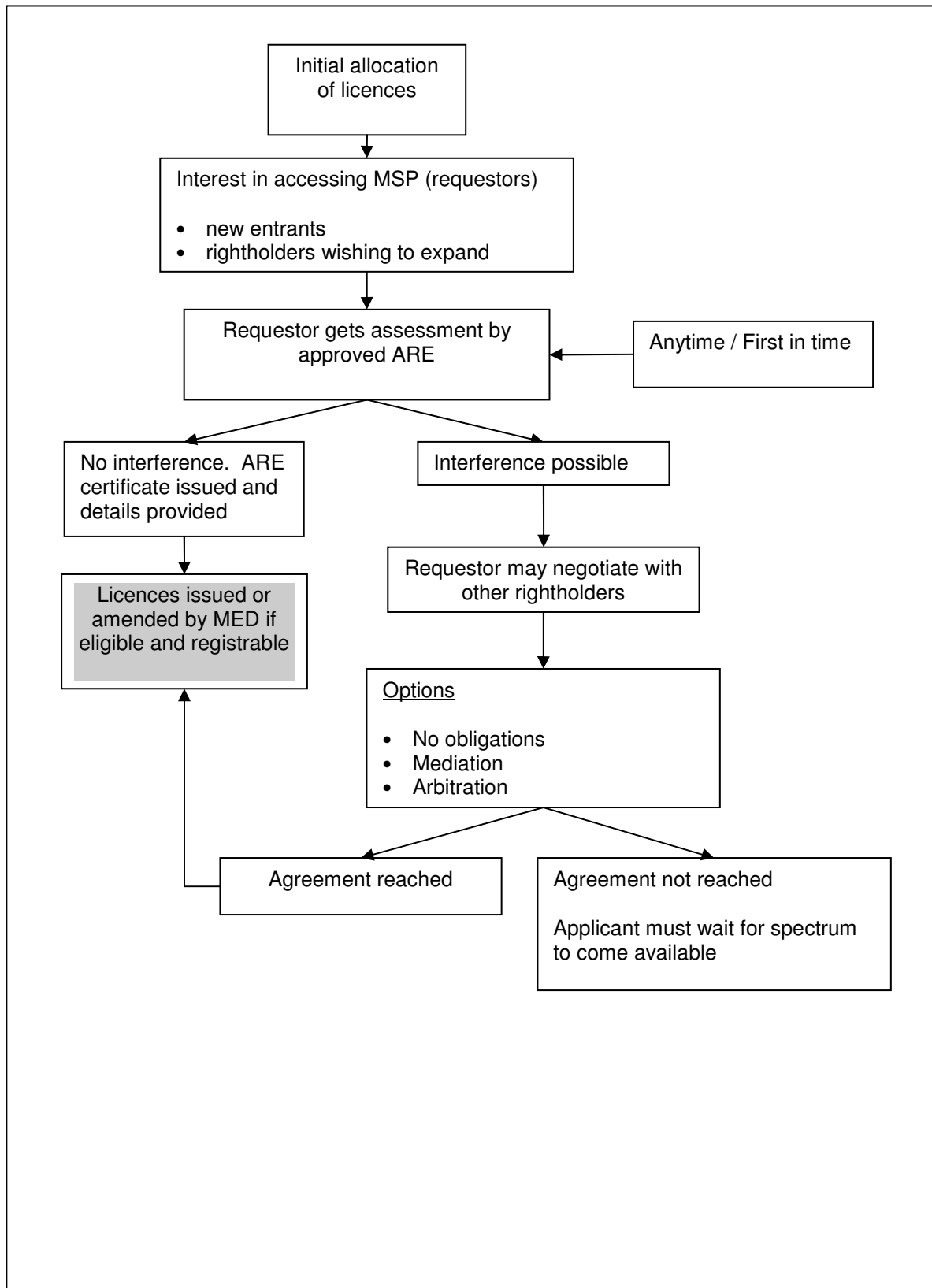
M: What happens to unused or freed-up spectrum

54. The MSP may not be fully allocated in the initial allocation process, and spectrum may be freed up voluntarily and through termination or application of use or lose. Details of registered licences are searchable and publicly available through the Register of Radio Frequencies, and AREs should be able to provide advice as to the availability of spectrum for licensing.
55. In addition, the Ministry will give notice on its MSP webpage (see section [R](#)) where spectrum has been freed up either voluntarily or pursuant to the above sections. The relinquished spectrum is then potentially available for rightholders wishing to extend their services or for new entrants.
56. Where the Ministry considers it likely that demand for relinquished spectrum may exceed supply, the Ministry may invite expressions of interest from interested parties and put in place the processes for allocation of licences.

N: Rightholders wishing to expand their services and new entrants

57. The following processes and arrangements are proposed for rightholders wishing to extend their operations and for new entrants. The term “requestor” is used as a short-hand for both cases. Note, for the avoidance of doubt, that the eligibility criteria and restrictions continue to apply.
58. Where a requestor considers that no harmful interference to rightholders will be caused by its entry, it may seek an ARE certificate from an approved ARE for its proposed licence. An approved ARE is one agreed to in advance by the Ministry. The criterion the Ministry will use for approving a proposed ARE is that the ARE is experienced in providing ARE certificates for the type of operations proposed.
59. Where details of the proposed spectrum licence and an ARE certificate are provided, and the Ministry is satisfied that the applicant is eligible for the licence and it is in registrable form, the Ministry will confirm that the applicant may proceed to settlement of the licence. Following settlement and signing of any documents required by the Ministry (such as a licence agreement), the applicant will become the rightholder of the licence. The grant of the licence will be subject to terms and conditions, such as those described in [section P](#).
60. Where an approved ARE is not able to issue an ARE certificate because interference is possible, the requestor may seek to negotiate with relevant rightholders to persuade them to modify their licences to remove the risk of interference.
61. The issue arises as to what rights, if any, the requestor has if those negotiations are not successful. The options are:
 - No rights (right to negotiate only)
 - Right to require mediation
 - Right to require arbitration.
62. Box Two (below) provides discussion on the options, and comment is invited on which option is preferred.
63. Where there is a successful outcome (from the perspective of the requestor), the process in paragraph 59 will apply.
64. Where a successful outcome is not achieved, the requestor will need to wait until sufficient spectrum is released by rightholders either voluntarily or under the ‘use or lose’ provisions or it can successfully achieve a negotiated outcome.
65. A [flow diagram](#) for this process is provided on the following page.

Flow Diagram Two: Process for rightholders wishing to expand or new entrants (“requestors”)



Box Two. What are the rights and obligations of "requestors" vis-à-vis existing rightholders?

This box considers options and issues relating to the rights (if any) of a "requestor" where the spectrum it wants to use is already allocated to rightholders. The term "requestor" covers existing rightholders wishing to expand their operations beyond the scope of their licences and new entrants.

The situation will arise where:

- A requestor wants to provide service but cannot do so because the spectrum it requires is allocated to rightholders
- The requestor considers that the allocated spectrum is not being used or not being sufficiently used by rightholders
- The requestor considers that existing licences could be amended to free up spectrum for the entrant without loss of service by or unreasonable expense to the rightholder(s).

Key considerations are as follows:

- A. It is important not to undermine the rights and security of tenure of rightholders such that
 - The 'bankability' (ability to finance) of operations is adversely affected
 - The services they offer are adversely affected
- B. It is also important to ensure that the MSP is efficiently used over time. (This means that first-in-time rightholders not using spectrum allocated to them should not be able, subject to A above, to unreasonably veto requestors.)

The options relating to the rights of requestors are as follows:

(i) No rights

Under this option, the entrant may seek to negotiate with rightholders (to persuade them to modify their licences) but rightholders have no obligation to agree to negotiate or to reach agreement.

In the absence of agreement, the entrant would need to wait until spectrum was freed up as a result of rightholders relinquishing their licences or any loss or amendment of licences consequent on the 'use or lose' provisions, or until it reaches agreement.

This option would likely be favoured by those that consider that security of rights is the most important consideration for the delivery of services.

(ii) Right to require mediation

Under this option, the entrant would have the right, if negotiation was unsuccessful, to require one or more rightholders to enter into good faith mediation with the entrant, using the provisions of the Arbitration Act 1996. The objective of the mediation would be to help the parties to reach agreement, but the mediator may not seek to impose an agreement.

The entrant would have the right to take court action to compel a rightholder to enter into

good-faith mediation. The Ministry would not be involved.

This option is likely to be favoured by those putting more emphasis on the 'spirit' of MSPs (to encourage self-regulation and cooperative use of spectrum).

(iii) Right to require binding arbitration

Under this option, the requestor would have the right, if negotiation was unsuccessful, to require one or more rightholders to enter into binding arbitration using the provisions of the Arbitration Act 1996. The arbitration provisions would be similar to s108 and 109 of the Radiocommunications Act. (The Chief Executive of the Ministry may be involved since he/she may be directed to amend a licence). This option would require careful specification. In particular, the arbitrator would only be able to require modification of a licence where, to the satisfaction of the arbitrator:

- Spectrum was not being sufficiently used by a rightholder, or spectrum could be used more efficiently by a rightholder (eg through mitigation techniques)
- An amendment to the licence would not adversely affect existing services by rightholder or involve a rightholder incurring significant out-of-pocket expense (unless this is fully met by the requestor).

This option is most likely to be favoured by those placing greater weight on efficient use of MSP spectrum over time.

O: Managed spectrum park charges and fees

66. Fees and charges will comprise:
- a. An annual administration fee under Schedule 6 of the Radiocommunications Regulations 2001. This covers the general administration of the Radiocommunications Act (register, EMC & operational compliance, IT, planning, etc). The fee category will be “Miscellaneous Services (radio and spectrum licences)” which is \$300 per licence per year.
 - b. Charges by the Crown (acting by and through MED) as owner of the managed spectrum park. The rest of this section covers these charges. It is proposed that they comprise:
 - An application charge
 - An annual park management charge
 - A resource rental
67. The Ministry will seek to ensure that annual billing combines the annual administration fee and the manager’s charges in the one annual (itemised) invoice.

Application charge

68. The application charge is intended to be sufficient to recover the Ministry’s internal and external costs for managing and processing applications, and in particular the costs for the work done by the ARE contractor.
69. It will be not be possible to finalise an application charge until a contractor has been commissioned by the Ministry. As noted earlier, this will not take place until after applications have been received.
70. Accordingly it is proposed that applications must be accompanied by an initial deposit of \$5,000 to cover the application charge.
71. The Ministry will subsequently refund any excess recovery on a pro-rata basis (subject to the paragraph below) if the fixed price contract with the contractor plus the Ministry’s own costs are less than the application charge. Unsuccessful applicants will receive any partial refund (of any over-recovered amount) as soon as practicable after the costs are finally determined. Note that unsuccessful applicants will *not* receive a full refund, since the Ministry will have incurred processing and ARE contractor costs irrespective of whether an application is successful. Any excess recovery for successful applicants will be retained pending settlement (covering first year charges and fees).

72. Depending on the fixed price contract with the ARE contractor, it is possible that there will be a different price applying to applicants falling into Category One (where detailed engineering will be undertaken with the objective of issuing an ARE certificate) and applicants falling into Category Two where only a high level assessment is undertaken.
73. In addition to the contractor, the Ministry's costs will include:
- Tendering for, commissioning and liaising with the contractor
 - Preparation of a database and webpage
 - Administration of initial allocation procedures (including lot drawing)
 - Issuing licences (where an ARE certificate has been issued)
 - Legal costs.
74. These costs (ie Ministry costs excluding the ARE contractor) are estimated at \$15,000.
75. Once the initial application process is concluded, charges will need to be determined for subsequent applications for new licences or to modify existing licences. It is expected that these will be relatively modest.

Annual park management charge

76. This charge relates to the cost of managing the MSP managed spectrum park. This charge is intended to include the cost to the Ministry of:
- Maintaining a database and webpage for the MSP
 - Administering 'use or lose' requirements
 - Responding to enquiries.
77. It is proposed to set the charge initially at \$200 per base station transmitter, with a maximum of \$1,000. The Ministry may revise the charge periodically.

Annual resource rental

78. Government policy is to charge an annual resource rental for use of the MSP. The reasons for this are as follows:
- It recognises the value of right to use spectrum (which would otherwise be auctioned) and the lost value (foreclosed opportunity) to other potential users
 - It minimises "unfair" competition in a local area or region (including major metropolitan centres like Auckland) between those who have paid for a nationwide management right and those operating in a region using the MSP who would potentially face lower spectrum costs

- It ensures that applicants are serious and provides a disincentive to gaming
- It encourages rightholders to use rights or to relinquish them (which frees up spectrum for new entrants and other rightholders).

79. Ideally a resource rental would reflect:

- the extent to which there is scarcity (in some regions there may be plenty of available spectrum relative to demand)
- the local or regional nature of use of MSPs compared to nationwide rights
- the extent of geographical coverage and quantity of spectrum used.

80. However, it is very difficult to design and implement a sophisticated resource rental, particularly where the scope of operations changes over time. The Ministry is of the view that there is considerable merit in a simple rule that is easy to understand and implement, and that minimises scope for argument. This is particularly the case since the quantum of resource rental is likely to be relatively small (reflecting that nation-wide management rights did not sell for high prices).

81. A further issue is the frequency of payment of a resource rental. Should it be a one-off upfront lump sum payment (as for management rights) or an annual payment or something in-between (for example, at each renewal of the six-yearly right)? Considerations are:

- There is some merit in putting management rights holders and licence holders on the same footing, but this is not axiomatic as there are differences between the rights.¹⁰
- An annual payment reduces upfront costs to MSP rightholders, which may be relatively small operators.
- An annual payment encourages early relinquishment of unused spectrum (a one-off upfront payment does not do this as it is a sunk cost which does not affect future decisions).
- An annual payment is more administratively complex.

82. On balance, the Ministry considers that an annual payment is most appropriate for MSP rightholders.

¹⁰ For example, MSP rightholders are subject to 'use or lose' provisions every two years, whereas MR managers are subject to only one 'use or lose' test (with one two year extension). Also, MR holders can trade to associated persons after a few years, whereas the associated person rule remains in place for MSP rightholders.

83. On the basis of the above considerations the Ministry proposes the following formula for calculating resource rentals for the initial term of the licences:

$$\text{Resource rental (per MHz)} = a / b \times c / 20 \times d$$

where

a = the population in the most recent census of each TLA (district or city council) in which the rightholder has one or more transmitting stations

b = the population of New Zealand in the most recent census

c = \$20,346, being the average price per MHz paid in auction No 9 (for 2.3GHz and 2.5 GHz spectrum) for a 20 year right

d = percentage increase in the CPI since 1 January 2008.

84. An estimate of the charges (excluding d) per MHz relating to each TLA is attached as [Appendix Two](#). Columns assuming rightholders have 20 MHz and 35 MHz are included.
85. It is proposed to publish a resource rental schedule on the Ministry's MSP webpage. It will be updated following each census.
86. The Ministry may amend the basis for specifying the resource rental. However, the Ministry will consult on any proposed changes and will give at least five years notice of any changes.

Timing of payment

87. The annual management charge and resource rental must be paid annually in advance:
- a. At settlement for the spectrum licence.
 - b. Annually thereafter at the anniversary of the licence (or at any more convenient annual date set by the Ministry).

P: Licence terms and conditions

88. Indicative terms and conditions of licences are as follows:

Terms and conditions of licences

Holders of MSP licences must:

- Meet the terms and conditions of their licences
- Undertake to comply with MSP rules, including:
 - Payment of annual fees and charges
 - Compliance with 'use or lose' requirements, including providing statutory declarations
- Register the location and specifications of base sites with the Registrar of Radio Frequencies.

Rightholders operating in contravention of their licence provisions or any person operating without a licence will be subject to compliance and enforcement procedures under the Radiocommunications Act.

Interference to rightholders within the MSP by other rightholders must be managed by the rightholders, including through using the mandatory arbitration provisions of the Radiocommunications Act 1989.

Licences may be traded provided that eligibility (including conditions relating to associations) and use or lose requirements continue to be met.

The Ministry may add other terms and conditions to licences to meet the objectives of the MSP.

The Ministry may terminate licences where:

- The terms and conditions of licences are breached
- A false statutory declaration has been provided
- Fees and charges are not paid.

Q: MSP transition issues

89. The spectrum to be used as a MSP is also to be used by other pre-existing services for a few years. This is to allow existing users time to purchase new equipment and transfer their services to other frequency bands. The licence for this use is held by the Ministry which will enter into agreements with the various parties under s.55 of the Radiocommunications Act. The licence authorises transmission, but does not give any assurance of protection against harmful interference (i.e. it is a licence issued under s.48(1)(b) of the Act). The Ministry will limit individual users to existing power levels and areas of use where applicable, notwithstanding that the actual licence may prescribe a higher power. The current licence is recorded on the Register of Radio Frequencies (Licence ID 117699).
90. This transitional use is for itinerant television linking purposes which does not operate from fixed or predetermined locations. There are three distinct types of use as follows:
91. **Television cameras:** These are used typically over short distances (around 100 m), in studios, at short term events (rugby, horse racing etc) or for news gathering. The agreements will allow a low power use (0.3 watt) and will be used by the New Zealand Racing Board (at racing/trotting tracks) and Television New Zealand. In addition some use will be by ICAM (for race car camera relays) and Imagezone (events in Auckland and Central Otago). The agreements will expire once new equipment is purchased and deployed which is anticipated by December 2010.
92. **Itinerant links:** These are typically used over longer distances (up to 20 to 30 km) from an event venue to another location (for example the local television broadcast site or a fixed network linking site) for onward transmission to a television studio. These links would typically use directional transmit and receive antenna. The licence authorises a power level of 37 dBW but conditions require any use of radiated powers above 10 dBW (10 watts) to be achieved by a directional antenna of not less than 1.2 m in diameter. The licence will be used by Kordia, Television New Zealand, Telecom, Allied Press (Dunedin), Mainland Television (Nelson), and Acres Electronics (Central Otago). The individual agreements will cease once each user has discontinued their use, but in any event by December 2012.
93. **Helicopter based links:** These are typically used to transmit video material filmed in flight to a ground based receiver. The licence will be used by Helicam Aviation, Kordia and ICAM. It is understood that there are only a few helicopters which use the licence, generally for news or event coverage. A helicopter transmitter typically has a power of 10 watts (and a switchable low power option of 2 watts) and an antenna with 6 dbi gain, giving an eirp of 16 dbW. The individual agreements would finish once the relevant helicopter(s) have been fitted with and certified for new frequencies and in any event by December 2012.

94. In addition to the above licence within the MSP, there are two other licences recorded on the Register which have a Reference Frequency outside the frequency limits of the MSP, but which have emission bandwidths that extend within the frequency limits of the MSP. These licences are recorded on the management rights for both the MSP and the adjacent spectrum. Both these licences authorise up to 5 dBW (3 watts) and expire in December 2010. Use of these licences will be for general use throughout New Zealand until 30 June 2009 and thereafter for low power television cameras to the parties outlined above until December 2010.

Comment

95. The transition arrangements outlined above are to provide a transition path for existing users, on a progressively diminishing basis, over the initial few years of the MSP. As with any technical compatibility issue, there will need to be consideration by applicants to and rightholders in the MSP of the extent that transmission under these transition licences might degrade reception of other services using the MSP.
96. The Ministry notes that the television camera use is of low power, and used over short distances, generally within a controlled area such as a racecourse or television studio. As such it would be unlikely to degrade an adequately engineered service in the MSP. The itinerant links and helicopter use are only in use for relatively short periods, and with directional transmit antenna which will minimise, but not eliminate, the potential for interference to MSP use.

R: Ministry to develop a MSP webpage

97. The Ministry intends to develop a webpage on MSPs. The webpage will contain:
 - a. The rules and documentation for access to the MSP
 - b. Copies of applications for MSP licences
 - c. Details of licences in the MSP
 - d. Notices relating to the MSP.
98. The Ministry intends to maintain a register of parties interested in MSPs and will notify those parties by email of any changes in the webpage.

S: Indicative timetable

99. The following is an indicative timetable for the MSP. It assumes that consideration of submissions on this discussion document results in fine-tuning of the rules, but does not require major re-design. If major re-design is required, a revised timetable will be developed at that time.

Design	
• Submissions on discussion document	mid July 2008
• decisions and announcements	end August 2008
Drafting	
• preparation and review	end September 2008
Implementation	
• invite applications	early October 2008
• applications close	mid January 2008
• Ministry appoints ARE contractor	late January 2009
• applicants advised of outcome of high level analysis by ARE contractor	March 2009
• first licences issues	April 2009

Appendix One: Summary of submissions on the allocation procedures and usage rules for a Managed Spectrum Park

Allocation/management options

The August 2007 discussion paper¹¹ put forward three options:

- Option One: Open access with general user licence (p40)
- Option Two: application process with Ministry-specified user numbers and engineering (p41-2)
- Option Three: expressions of interest with user-defined engineering and licence specifications (p45-50)

One alternative option¹² was suggested, but was not regarded as attractive by the Ministry.

Option One: Open access with general user licence (p40)

Telecom Vodafone Internet NZ Qualcomm	Opposed (generally strongly) <ul style="list-style-type: none"> ○ No quality of service (not provide assurance of no interference) ○ Qualcomm: it is not possible to finance a network without clear rights and protection from interference ○ Vodafone: unrealistic to expect effective local coordination (insufficient technical expertise is available and will be competing local interests) Note: no support for Option One
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Option Two: application process with Ministry-specified user numbers and engineering (p41-2)

Kordia Scorch Environ't BOP	Support. Like certainty of MED engineering. Ensures efficient spectrum use and quality of service. Less complicated than option 3.
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¹¹ <http://www.rsm.govt.nz/cms/policy-and-planning/spectrum-auctions/2-3-2-5-ghz-auction/radio-frequency-auction-2-3-ghz-and-2-5-ghz-bands-discussion-paper>

¹² Kordia: Proposed an alternative option (based on population density):

- Rural: allocate general user licences for BWA services (but exclude CMAR)
- Provincial (all cities and towns outside Auckland, Christchurch, Wellington, Dunedin, Hamilton, Tauranga): use MSP licences for BWA (in effect option 2)
- Metropolitan: only allow provision of BWA services by nationwide service providers (to prevent low cost local service providers undermining commercial viability of nationwide MR holders).

Option Three: expressions of interest with user-defined engineering and licence specifications (p45-50)

Internet NZ Vodafone Linkit Netsmart Smartlinx 3 Teamtalk	Support, because it provides for technology neutrality and flexibility, which are seen as key attributes of a MSP. <ul style="list-style-type: none"> ○ Netsmart: Requirement for own engineering will discourage speculators. Applicants should be required to demonstrate ability to deploy in 12 months.
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The Ministry concluded that the key issue to be considered by the Minister was whether or not the MSP should be reserved for WiMAX. If yes, the likely most practical regime would be option two. If a more technology neutral regime was preferred, including allowing for rural services such as CMAR, the preferred approach was option three.

On balance the Ministry recommended option 3 subject to further consultations on detailed rules. The Minister of Communications agreed with this recommendation.

Resource rentals

The discussion paper asked whether resource rentals should be charged (reflecting auction prices for commercial spectrum) in addition to application and processing charges. Submissions were as follows:

Submitter	Comment
Telecom Vodafone Kordia	Yes. Resource charge is essential to prevent commercial MSP users getting an unfair advantage (risk of reducing viability of nationwide service providers)
Internet NZ Linkit Scorch	No. Oppose resource charge <ul style="list-style-type: none"> ○ Difficult to work out (Internet NZ) ○ Need to minimise barriers to entry (Linkit)

The Ministry recommended that a resource rental be charged. The Minister agreed with this recommendation and Cabinet noted this outcome.

Appendix Two: Indicative Resource Charges

MSP Population Based Resource Charge					
<i>North Island</i>					
<u>TLA</u>	<u>Pop 2006</u>	<u>% NZ</u>	<u>\$/MHz/Year</u>	<u>20MHz/Year</u>	<u>35MHz/Year</u>
Far North District	55,845	1.39%	\$14	\$280	\$490
Whangarei District	74,463	1.85%	\$19	\$380	\$665
Kaipara District	18,132	0.45%	\$5	\$100	\$175
Rodney District	89,562	2.22%	\$23	\$460	\$805
North Shore City	205,608	5.11%	\$52	\$1,040	\$1,820
Waitakere City	186,444	4.63%	\$47	\$940	\$1,645
Auckland City	404,658	10.05%	\$102	\$2,040	\$3,570
Manukau City	328,968	8.17%	\$83	\$1,660	\$2,905
Papakura District	45,183	1.12%	\$11	\$220	\$385
Franklin District	58,932	1.46%	\$15	\$300	\$525
Thames-Coromandel District	25,938	0.64%	\$7	\$140	\$245
Hauraki District	17,193	0.43%	\$4	\$80	\$140
Waikato District	43,959	1.09%	\$11	\$220	\$385
Matamata-Piako District	30,480	0.76%	\$8	\$160	\$280
Hamilton City	129,249	3.21%	\$33	\$660	\$1,155
Waipa District	42,501	1.06%	\$11	\$220	\$385
Otorohanga District	9,075	0.23%	\$2	\$40	\$70
South Waikato District	22,641	0.56%	\$6	\$120	\$210
Waitomo District	9,438	0.23%	\$2	\$40	\$70
Taupo District	32,421	0.80%	\$8	\$160	\$280
Western Bay of Plenty District	42,078	1.04%	\$11	\$220	\$385
Tauranga City	103,635	2.57%	\$26	\$520	\$910
Rotorua District	65,901	1.64%	\$17	\$340	\$595
Whakatane District	33,300	0.83%	\$8	\$160	\$280
Kawerau District	6,921	0.17%	\$2	\$40	\$70

MSP Population Based Resource Charge

Opotiki District	8,976	0.22%	\$2	\$40	\$70
Gisborne District	44,463	1.10%	\$11	\$220	\$385
Wairoa District	8,481	0.21%	\$2	\$40	\$70
Hastings District	70,842	1.76%	\$18	\$360	\$630
Napier City	55,359	1.37%	\$14	\$280	\$490
Central Hawke's Bay District	12,957	0.32%	\$3	\$60	\$105
New Plymouth District	68,898	1.71%	\$17	\$340	\$595
Stratford District	8,892	0.22%	\$2	\$40	\$70
South Taranaki District	26,484	0.66%	\$7	\$140	\$245
Ruapehu District	13,572	0.34%	\$3	\$60	\$105
Wanganui District	42,639	1.06%	\$11	\$220	\$385
Rangitikei District	14,712	0.37%	\$4	\$80	\$140
Manawatu District	28,254	0.70%	\$7	\$140	\$245
Palmerston North City	75,543	1.88%	\$19	\$380	\$665
Tararua District	17,634	0.44%	\$4	\$80	\$140
Horowhenua District	29,865	0.74%	\$8	\$160	\$280
Kapiti Coast District	46,197	1.15%	\$12	\$240	\$420
Porirua City	48,546	1.21%	\$12	\$240	\$420
Upper Hutt City	38,415	0.95%	\$10	\$200	\$350
Lower Hutt City	97,701	2.43%	\$25	\$500	\$875
Wellington City	179,466	4.46%	\$45	\$900	\$1,575
Masterton District	22,623	0.56%	\$6	\$120	\$210
Carterton District	7,098	0.18%	\$2	\$40	\$70
South Wairarapa District	8,889	0.22%	\$2	\$40	\$70

South Island

TLA

Tasman District	44,628	1.11%	\$11	\$220	\$385
Nelson City	42,888	1.06%	\$11	\$220	\$385

MSP Population Based Resource Charge

Marlborough District	42,549	1.06%	\$11	\$220	\$385
Kaikoura District	3,621	0.09%	\$1	\$20	\$35
Buller District	9,702	0.24%	\$2	\$40	\$70
Grey District	13,221	0.33%	\$3	\$60	\$105
Westland District	8,403	0.21%	\$2	\$40	\$70
Hurunui District	10,476	0.26%	\$3	\$60	\$105
Waimakariri District	42,834	1.06%	\$11	\$220	\$385
Christchurch City	348,435	8.65%	\$88	\$1,760	\$3,080
Selwyn District	33,666	0.84%	\$9	\$180	\$315
Ashburton District	27,372	0.68%	\$7	\$140	\$245
Timaru District	42,870	1.06%	\$11	\$220	\$385
Mackenzie District	3,801	0.09%	\$1	\$20	\$35
Waimate District	7,206	0.18%	\$2	\$40	\$70
Chatham Islands Territory	609	0.02%	\$0	\$0	\$0
Waitaki District	20,223	0.50%	\$5	\$100	\$175
Central Otago District	16,647	0.41%	\$4	\$80	\$140
Queenstown-Lakes District	22,959	0.57%	\$6	\$120	\$210
Dunedin City	118,683	2.95%	\$30	\$600	\$1,050
Clutha District	16,839	0.42%	\$4	\$80	\$140
Southland District	28,440	0.71%	\$7	\$140	\$245
Gore District	12,108	0.30%	\$3	\$60	\$105
Invercargill City	50,325	1.25%	\$13	\$260	\$455
NZ Population	4,027,536				