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# **Draft instruments for the 850/900 MHz band auction**

**Response to ACMA Consultation Paper**

**28 May 2021**

**[PIVOTEL.COM.AU](https://www.pivotel.com.au)**

## CONTEXTUAL STATEMENT

- Pivotel is well placed to comment on spectrum matters impacting regional and remote Australia through its experience and focus on the provision of tailored voice, messaging and data solutions to these communities since 2003.
- Pivotel operates a mobile and satellite telecommunications network pursuant to a carrier licence issued by the Australian Communications and Media Authority in accordance with the Telecommunications Act 1997 (Cth) (Telco Act) and operates ground infrastructure in Australia, making it the fourth public mobile carrier in the country.
- Pivotel's 4G LTE mobile network solution, ecoSphere®, is designed to provide terrestrial wireless services to rural and remote Australians. Whilst ecoSphere® is a cost effective and innovative approach to providing connectivity in regional and remote areas, the largest obstacle is access to suitable spectrum. The radio base stations deployed by Pivotel use mainly 2,100MHz apparatus licences, this results in the need to deploy a higher number of sites to cover an equivalent area with lower propagation characteristics, than what could be delivered using low band (i.e. sub 1GHz) spectrum.
- Pivotel, and other smaller providers, are effectively locked out from accessing the most suitable spectrum for covering large regional and remote areas, resulting in higher costs and a lower level of service for end users in these areas.
- Whilst Pivotel has had a commercial spectrum sharing arrangement in place with Vodafone / TPG for a number of years, this has proven to be practically ineffective due to perceived potential interference issues and has resulted in only one opportunity for spectrum access in a very remote scenario.
- The 850MHz extension and 900 MHz spectrum allocation process is an ideal opportunity to provide a means for providers like Pivotel, to provide certainty of spectrum access to build cellular networks, enhancing competition and productivity outcomes in regional and remote areas.
- As a mobile operator focussed purely on regional and remote Australia, we observe that rural community communication needs are constantly evolving and expanding, and despite years of federal and state government subsidies and funding, a substantial proportion of users remain underserved by incumbent operators.
- Pivotel advocates for equitable spectrum allocation methodologies that allow niche industry participants to serve these markets with targeted and cost effective connectivity solutions, which can only be enabled through access to suitable spectrum, specifically low band, sub 1GHz, spectrum.

## COMMENTS IN RESPONSE TO DRAFT MARKETING PLAN

### Background

Pivotel welcomes the opportunity to comment on the ACMA's consultation paper 'Draft instruments for the 850/900 MHz band auction - Consultation Paper'.

Low band spectrum has vastly superior propagation characteristics compared to mid and high band spectrum. By way of example, low band spectrum provides 2-3 times the coverage compared to medium band spectrum, such as 1,800MHz and/or 2,100MHz, which is available under an apparatus licence in regional and remote parts of Australia.

Low band spectrum is particularly advantageous in regional areas where capacity demand is lower and where achieving maximum coverage is the primary objective.

Under the current policy and regulatory regime, small cell / private LTE providers such as Pivotel are forced to use scarce 2100MHz (or less so 1,800MHz) spectrum, which places them at a distinct cost disadvantage as they are required to provide 2-3 times the amount of infrastructure required to cover the same area compared to low band.

The historical approach to spectrum allocation has resulted in small rural communities having vastly inferior digital connectivity and being forced to accept sub-standard connectivity which ultimately has a high social and economic impact.

Greater access to digital connectivity can sustain and transform rural and remote communities and industries. Through access to low band spectrum and the use of innovative compact cell technology and a unique network architecture, alternative solutions such as Pivotel ecoSphere®, can cost effectively deliver wide area coverage to remote communities, agriculture and pastoral properties using high speed terrestrial backhaul.

Digital connectivity can benefit regional and remote communities in the following ways:

- Access to high-speed broadband and mobile services in areas that are currently lacking adequate connectivity, helping to bridge the 'digital divide' between the city and the bush;
- Improved health and safety through the provision of 4G mobile network access;
- Economic growth through improved productivity and adoption of new technologies for farm efficiency;
- Improved workforce capability relating to access to digital technology and connectivity;
- Reliable Internet connectivity for telehealth and education to retain skills and youth in the region;
- Communications for emergency services during natural disaster events.
- Broadband data, video, tracking and monitoring connections for on-site, remote assets and personnel, to maximise safety and operational efficiency - saving time and money;
- The tools to enable agricultural businesses to use smart farming technologies improving productivity and output which is a key element in making businesses internationally competitive.

As a result of the current national spectrum licencing regime, vast areas of Australia are populated by 'highly localised digital have nots', characterised by rural and remote users living outside of town fringes and in remote settlements, that have limited, or no terrestrial broadband or mobile coverage, and are typically in the NBN satellite footprint area. Pivotel's desired use of low band spectrum is entirely for use with 4G/5G services servicing these users, such that coverage can be maximised using less infrastructure, and thereby improving the commercial viability of network deployment. The business case for these networks is often challenging as evidenced by the fact that the incumbent MNOs have failed to address this need due to the relatively low population densities of these areas.

Applicants to Federal Government programs, such as the Mobile Black Spot Program (MBSP) and Regional Connectivity Programs (RCP), are also penalised under the cost over coverage formula, as a result of not having access to low band spectrum placing additional barriers to building infrastructure in regional and remote areas.

### **Specific Issues for Comment (note: comments only on pertinent items below)**

#### **Licence term and commencement**

Whilst acknowledging tenure and certainty are very important considerations in allocating spectrum, Pivotel is of the view that 20 years is an extremely long period of time to issue a licence. Technological developments are happening at breakneck speed and it is impossible to determine if the current technological environment and spectrum use will still be appropriate in greater than 10 years' time. Pivotel recommends licences be issued for a 10 to 15 year period with a view to reviewing and re-auctioning based on the application of spectrum and use at that point time. We believe this timeframe provides a more appropriate balance between 'investment security' and retaining the flexibility to determine the most viable and valuable use of this limited spectrum in the future.

#### **Frequency lot configuration**

In principle, Pivotel strongly believes that different approaches for allocating spectrum should apply to metropolitan and regional areas, and that all low band spectrum should be considered collectively.

It is Pivotel's view that the method by which spectrum is allocated in regional and remote Australia will have a direct impact on network operator investment decisions. We consider that any form of nationwide allocation of spectrum lots, will result in all regional spectrum being allocated to the three major incumbent MNOs, resulting in minimal to zero further investment to extend coverage in remote and regional areas beyond their existing footprints (with or without government subsidies). The allocation of low band spectrum on a nationwide basis, with 'ownership' restricted to the existing incumbents, will retard the entry of new players offering innovative ways to provide new coverage.

This rationale is based on the current regime that has been in place since 1993, whereby all lots have inevitably been taken up by the major MNOs, tying up strategically valuable spectrum in areas where there has been little to no intent shown to use the spectrum. Additionally there has been no successful arrangements to share or sub-licence spectrum with new entrants. This is evidenced by the fact that, even today, only around one third of Australia's land mass enjoys mobile coverage, the

bulk of which is provided by Telstra, either directly, or with the help of Government funding such as the Mobile Blackspot Program.

Pivotal's view is that much finer granularity with regard to the size of geographic lots should be applied, with the more remote areas of Australia not included in the auction at all. By 'reserving' spectrum in areas where there is little to no coverage today, despite real ongoing demand, we believe the framework will exist to support the entry and growth of new network operators targeting the under-served regions. This is likely to be even more prevalent with the emergence of new satellite backhaul options, combined with continued strong government and community interest to support new coverage through co-contributions. In addition to the reservation of spectrum, finer granularity on the geographic spectrum lots that are offered will allow new network operators with existing business plans to target specific regional locations to participate in the upcoming auction.

It is Pivotal's view that auctioning spectrum for an Australia wide regional lot is sub-optimal, as regional and remote network builds typically take place on a case by case basis where the specific area business case viability needs to be determined, based on a number of factors including spectrum availability, levels of co-contribution and access to backhaul. A supportive framework that provides access to spectrum once the business case has been established will allow a progressive build out of new regional and remote coverage over time, on a continuous timeline, and with the benefit of local community 'pull' demand.

Such a progressive rollout of regional and remote service would benefit greatly from the allocation of spectrum using existing Apparatus or AWL mechanisms to operators wishing to provide services in regions outside of the spectrum licensed areas, which is also consistent with the 'place based' approach adopted recently in the Federal Governments Regional Connectivity Program.

The ACMA has previously put forward the view that smaller geographic lots for low band spectrum are problematic because of "spill-over" from one geographic region to the next and the need to establish radio buffer zones. Pivotal does not support this view; the European continent is criss-crossed with hard national boundaries and the national MNOs have successfully engineered abutting networks using low band spectrum for the last 30 years without apparent problems. Some careful radio engineering near network boundaries is required, but it is quite feasible.

Pivotal acknowledges the above approach has not been endorsed at a policy level and that the next best possible approach is to split spectrum into regional/remote and metro lots.

Splitting of the 850MHz expansion into regional (incl remote) and metro lots is a good step in the right direction, however the current proposal remains extremely challenging for operators like Pivotal and continues to disenfranchise the under-served remote areas (see below under 'Lot configuration: geography').

Pivotal notes that only 10 MHz of paired FDD spectrum is proposed to be licenced in the 850 MHz expansion band in geographic lot allocations between regional and metro. 10MHz is the minimum requirement for long range, medium speed services, for a single carrier. It is therefore highly likely that one party, most likely an incumbent provider attracted by the large regional towns included in the regional lot of the current geographic lot configuration, will be the successful bidder. Should an incumbent provider outbid smaller providers focussed purely on the under-served regions, there will be no resulting change to the current situation with incumbents being the sole custodians of low band spectrum nationally.

Pivotal would therefore like to propose that the 10MHz of paired 850MHz expansion band spectrum be set aside for non-incumbents only. Pivotal considers that an allocation of 2 x 20 MHz of low band

spectrum is sufficient to meet incumbent operator current and forecast demands now and into the future in regional and remote Australia. This is on the basis that mid band spectrum is also available to incumbent operators to help address any 'hot spots' within the coverage area.

The table below shows the total allocation of current low band spectrum in regional and remote Australia which clearly shows incumbent operators have sufficient spectrum to service regional areas. Thus it's strongly advocated that the 850 MHz expansion band be excluded from any auction in the regional zone and only auction the metro zone 850 MHz expansion band, which as described below, Pivotel has proposed to make larger capturing a larger geographic and population footprint..

MNO	700 MHz	850 MHz	900 MHz	Total
Optus	2 x 10	0	2 x 8.3	2 x 18.3
Telstra	2 x 20	2 x 15	2 x 8.3	2 x 43.8
TPG Telecom	2 x 15	2 x 5	2 x 8.2	2 x 28.2

#### **Lot configuration: geography**

Pivotel notes the proposal to offer the 850 MHz expansion band in one single regional geographic area and one single metropolitan geographic area, and to offer the 900 MHz band and downshift spectrum in one nation-wide geographic area, as described in the draft marketing plan.

Additionally in preparing the 850MHz lot boundaries the ACMA considered population data, terrain factors, likely use cases and finding the right balance between small and large metropolitan areas using adjacent spectrum in alternative spectrum bands.

Whilst Pivotel acknowledges and appreciates the rationale for the proposed geographic boundaries there are some inherent issues with the current proposal.

The proposed regional lot configuration includes large regional centres (e.g. Coffs Harbour, Townsville, Albury/Wodonga etc). These large regional towns are already well covered by incumbents and are of little interest to new, specialist LTE providers seeking to provide new coverage to regional and remote users outside of existing coverage areas.

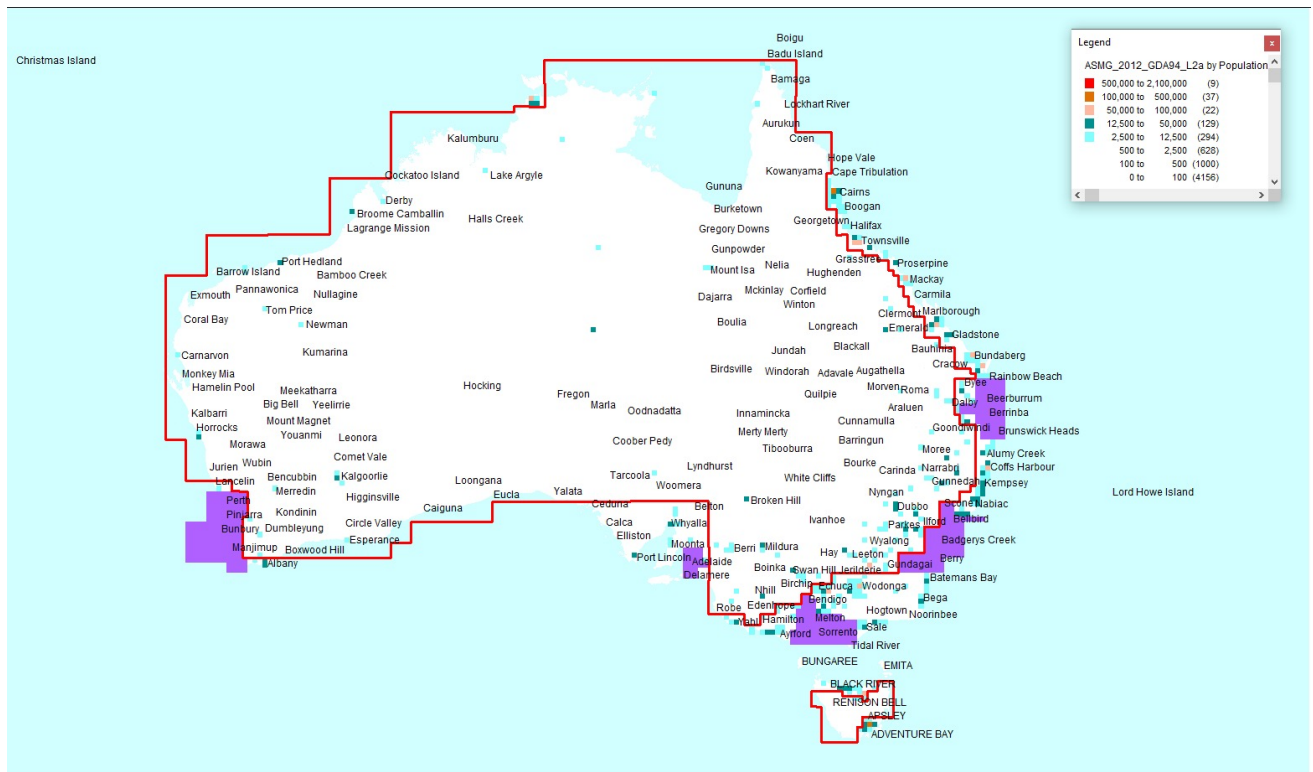
The inclusion of these larger regional towns would have the likely effect of excluding smaller providers, focussed on niche solutions for the 'digital have nots', from the auction process, as they would be forced to pay for more valuable spectrum in these higher population centres for which they have no requirement.

There is also a higher likelihood the inclusion of the larger regional towns will make the regional lot more enticing to incumbent operators resulting in them outbidding smaller providers for this reason alone.

With this in mind, Pivotel has performed extensive mapping and modelling to try and determine a more appropriate regional and metro zoning with a resultant larger metro area as shown on the map below. This modelling took into account the same factors as the ACMA, such as population and terrain data, as well as existing and proposed spectrum boundaries in order to minimise the impact of any 'spill over' effect and radio buffer zones.

Pivotel has also been in discussions with other like-minded parties to explore the potential for a consortium to bid for a single regional 850MHz lot along the lines suggested by Pivotel in this submission, should the ACMA be willing to consider this approach.

More detailed state maps are included in the Appendix and Google Earth (KMZ) files are available on request.



Whilst this proposal is indicative and subject to further refinement, the over-riding principle is to exclude the major towns from the regional lot as far as possible and drawing the boundaries according to natural topographical boundaries and population densities.

### **Payment terms**

Pivotal supports the ability to pay for the spectrum licence in instalments which is aligned with the actual usage of the asset over an extended period of time.

### **Early access arrangements**

Pivotal supports the view that winning bidders will be able to deploy early access radiocommunications transmitters in vacated or already vacant spectrum, provided that those transmitters do not cause interference to radiocommunications of incumbent apparatus licences in the 850 MHz expansion band and 900 MHz band.

Pivotal is however definitely not supportive of the calculation of the applicable annual licence tax rate of \$0.1445/MHz (paired)/pop for regional areas. Based on the estimated population coverage under Pivotal's revised regional zone, the proposed tax rate would generate an 10MHz annual licence tax of approximately \$2.3m per annum based on an area that covers around 1.6m of the population. Under the ACMA's draft regional geographic area this figure would be approximately \$6.7m per annum based on an estimated population of 4.67m of the population.

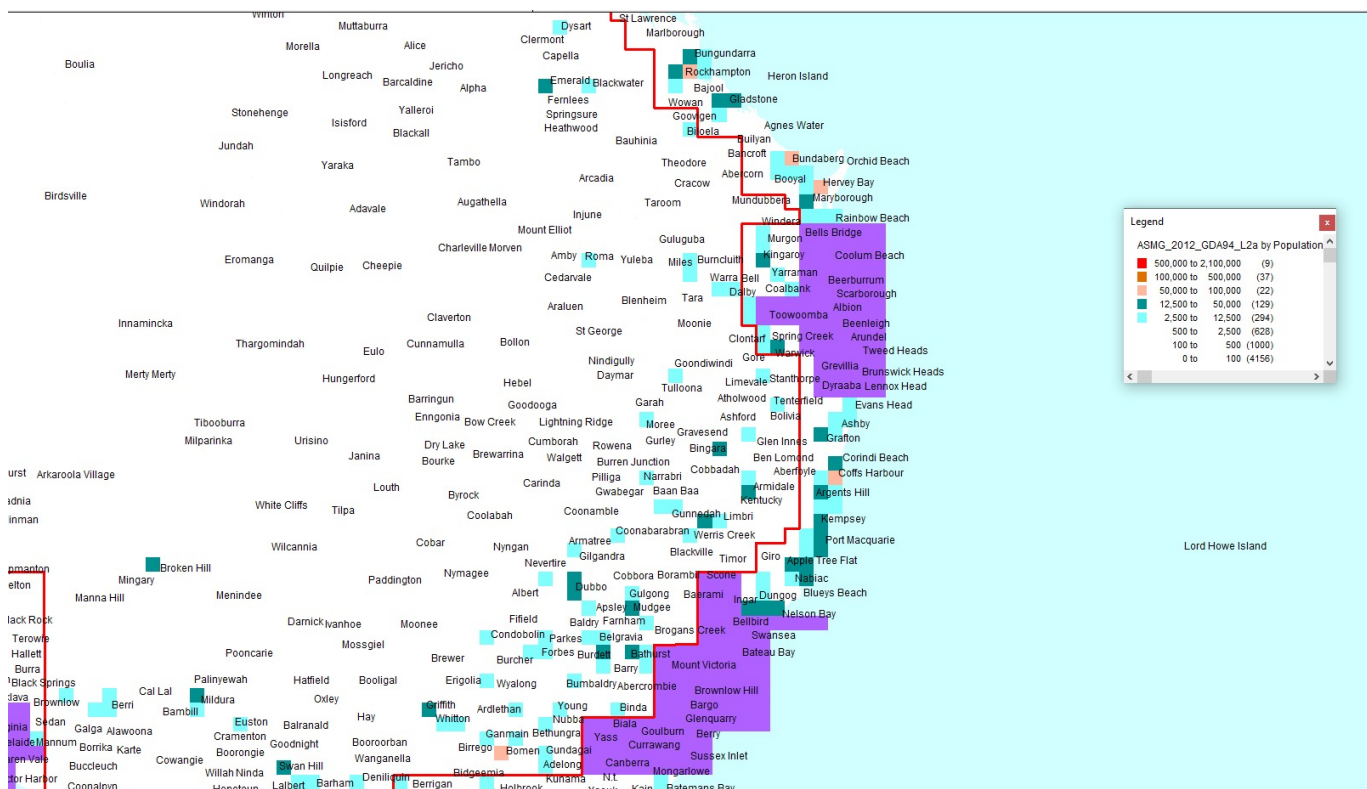
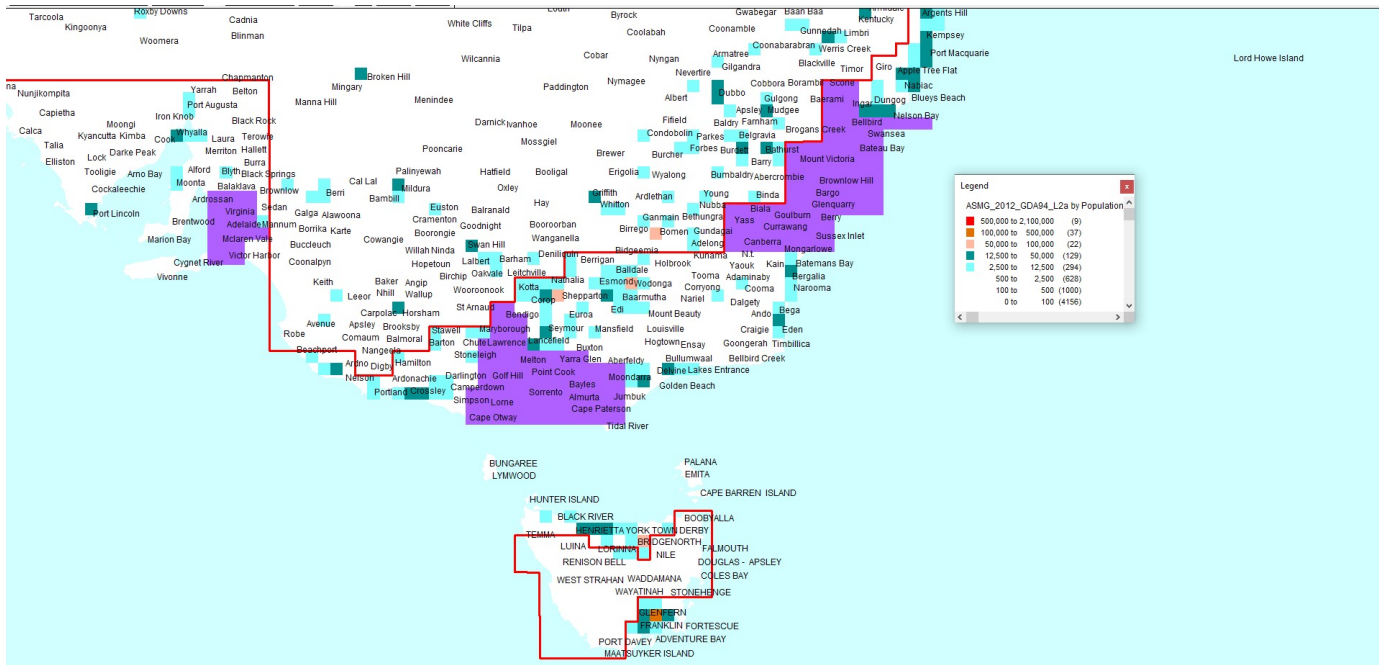
The estimated licence tax rates calculated above would render any business case uneconomic and would be a major barrier to smaller providers entering this market.

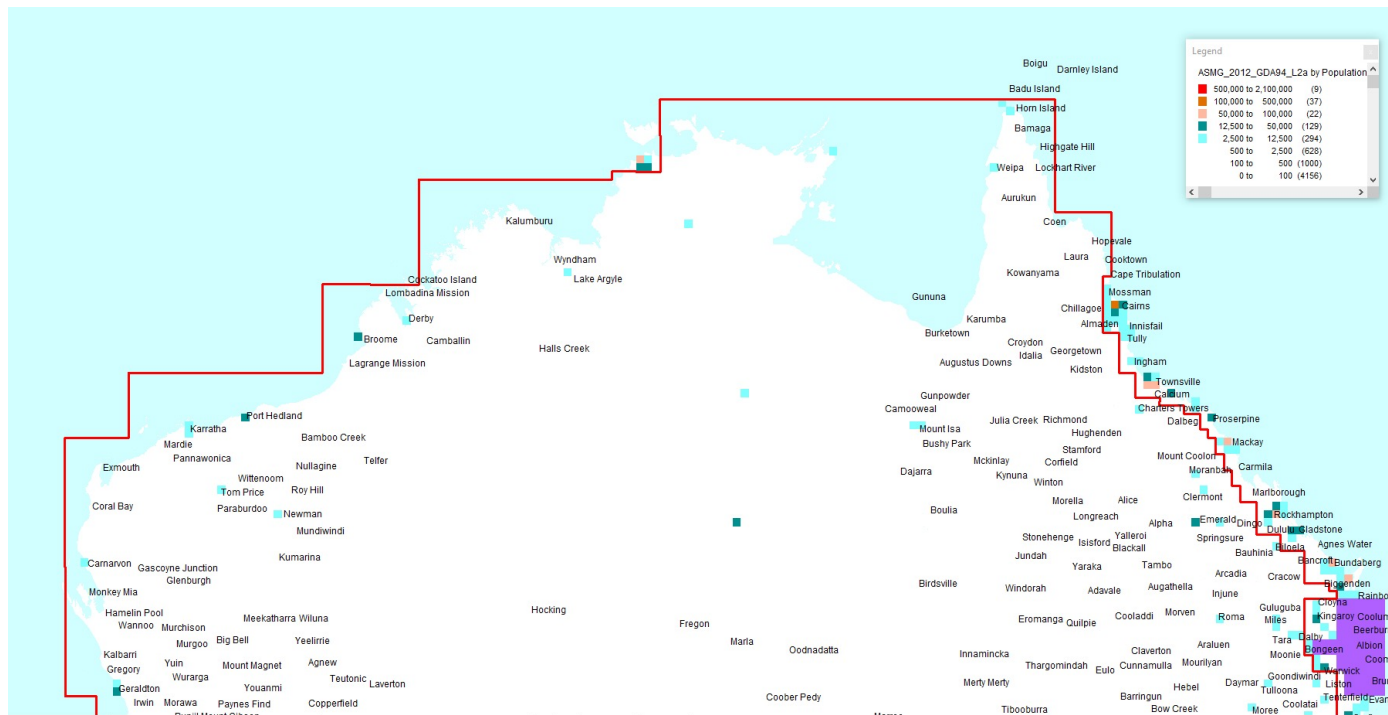
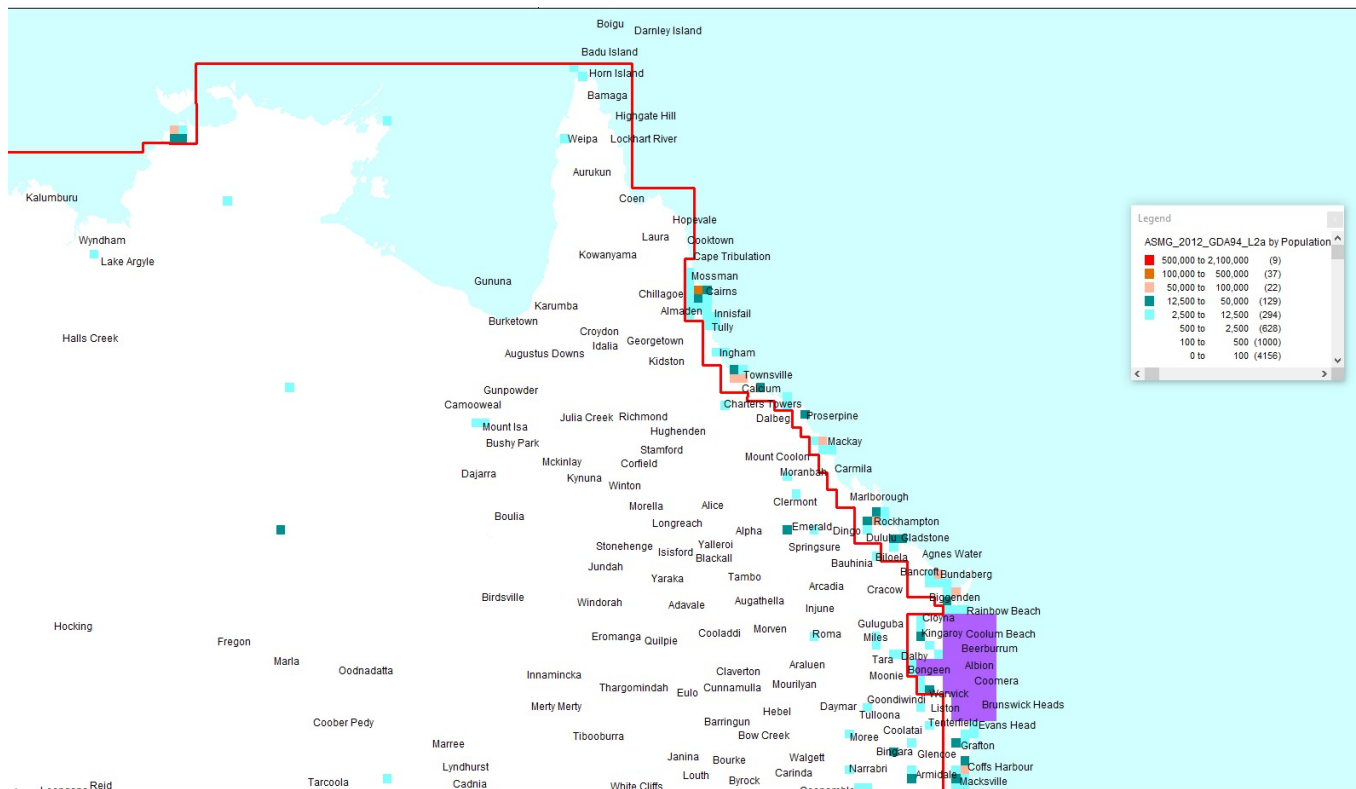
Pivotal is firmly of the view that spectrum in these more remote and fringe areas should be made available with a minimal financial impost in order to encourage investment in areas with sparse population densities, challenging terrain and more costly backhaul. The business case for building out networks in these areas can be very marginal and it would be far more effective to make spectrum readily available in these areas with little to no incremental cost, in order to support investment and provide digital connectivity solutions, delivering economic and social benefits for people living in these areas.

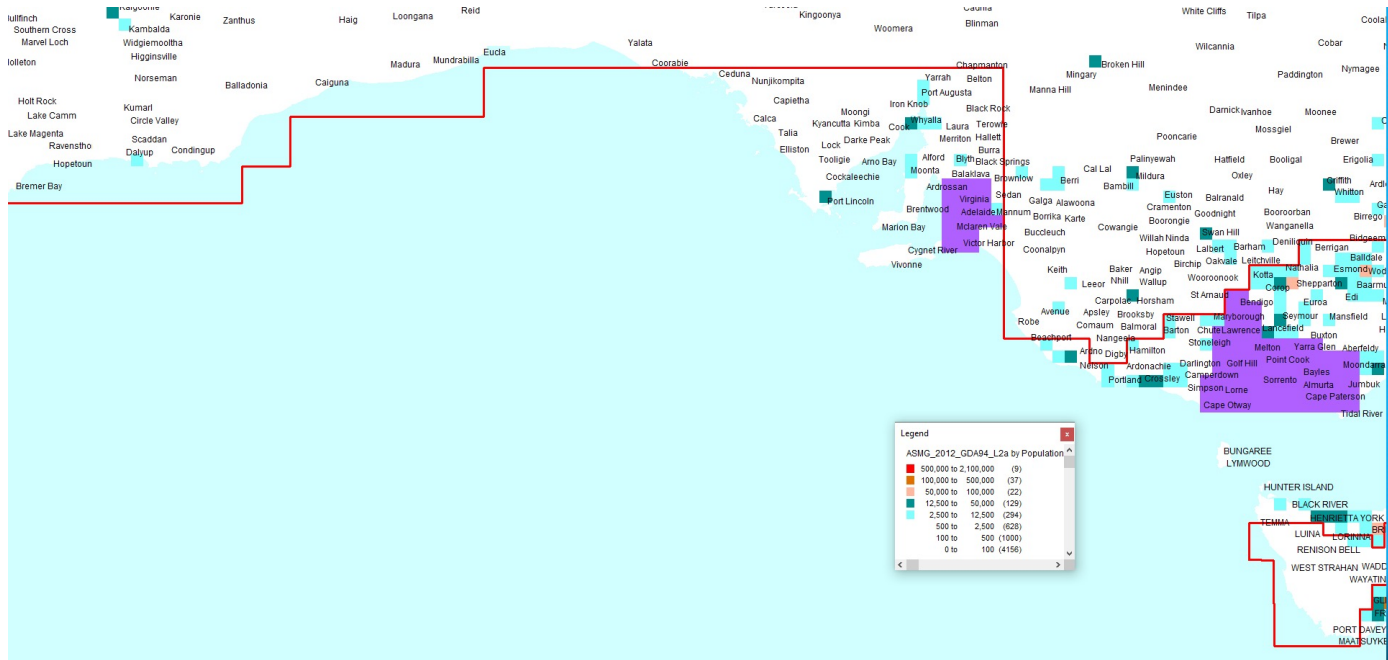
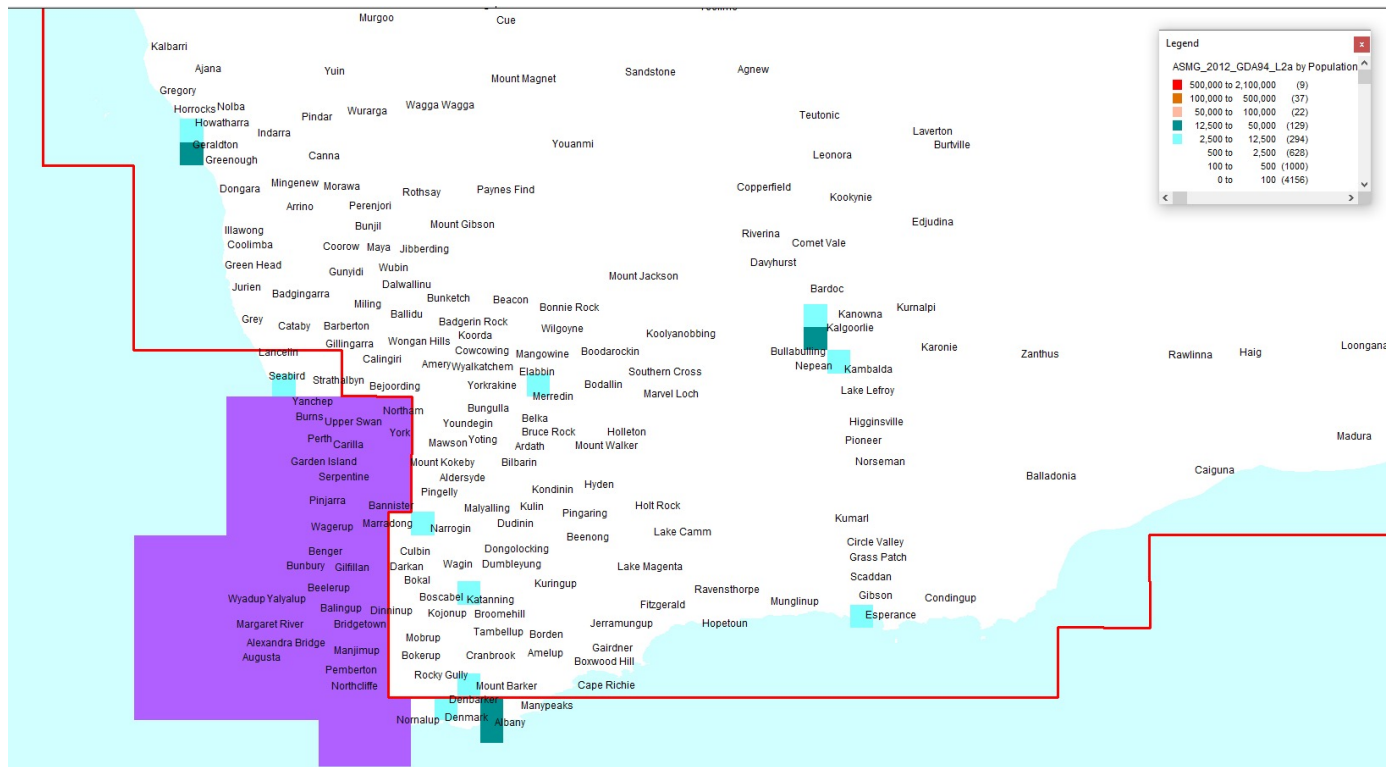


## Appendix

### Detailed Maps of proposed Metro – Regional 850MHz expansion band geographic areas







## Australia wide topographical map – Regional 850MHz expansion band geographic areas

