



# **Mobile Black Spot Program Advisory Report**

**10 June 2020**

**siteXcell**  
TELCO PROPERTY EXPERTS

## **Requirement for Mobile Black Spot Funding and Installations**

**Prepared for Hawkesbury City Council (NSW)**

**By**

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## Disclaimer

This Report is based on the Information and has been prepared in consultation with the Client and/or Owner. The purpose of this Report is to provide industry insight to assist the Owner's Representative in its future engagement with the Mobile Black Spot Program (MBSP). siteXcell has not verified the Information and no warranty is given as to its accuracy nor is any warranty given or implied that the issues identified in this Report are the only issues relevant to the negotiation of tenure arrangements in respect of the Premises. This Report relates only to the matters specifically referred to in the Report. Any estimates and recommendations referred to in this Report are based facts and circumstances existing at the date of this Report and cannot, by implication, be deemed to apply to any changes either within the property market or the telecommunications industry. The recommendations made are based solely on siteXcell's interpretation of the facts and circumstance in existence at the date of this Report. This Report is not to be taken as giving any legal, accounting, financial or actuarial advice and such, advice is to be sought from appropriate third parties. This Report has been prepared for the Client on a specific and agreed basis and is not to be relied upon for any other purpose or by any other party.



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## Terms and Definitions

In this Report, unless the context clearly indicates otherwise, the following terms and definitions apply:

Term	Definition
ACMA	Australian Communications and Media Authority
Act	Telecommunications Act 1997 (Cth)
Black Spot Program/MBSP	Round 5A of the Mobile Black Spot Program, as directed by the Australian Government
Carrier(s)	Mobile, fibre and wireless broadband communications telecommunications Carrier(s)
Client/Owner	Hawkesbury City Council Local Government Area
Government	Australian Government Department of Infrastructure, Transport, Regional Development and Communications
EME	Electromagnetic emissions
Facilities	The existing mobile communications installations located in the LGA
Information	The information, correspondence, documents, drawings and other materials, supplied by or on behalf of the Client and/or Owner, as detailed in Schedule 1.
LGA	Local Government Area
Optus	Optus Mobile Pty Ltd a Licensed mobile Carrier
Report	This Advisory Report prepared by siteXcell
RFNSA	Radio Frequency National Site Archives
siteXcell, our, we or us	Total Site Solutions Pty Ltd (ABN 46 112 332 359) (trading as siteXcell®)
Telstra	Telstra Mobile Pty Ltd a Licensed mobile Carrier
Vodafone	Vodafone Network, Vodafone Hutchinson Australia and all other affiliated Vodafone entities a Licensed mobile Carrier
WH&S	Work Health and Safety (previously known as OH&S)

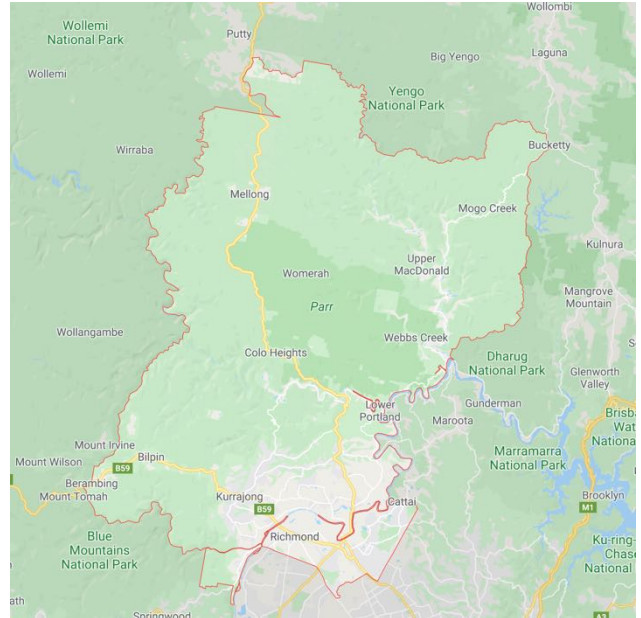




## Purpose of the Report

We have been engaged by Hawkesbury City Council ("the Client") in relation to a planned Mobile Black Spot Program submission by the Client requesting significant improvements in mobile coverage in the LGA. The Client has sought advice from siteXcell in respect of the specific requirements and technical aspects to assist the Client in providing detailed input, which will demonstrate to the Federal Government the urgent need for additional mobile telecommunication sites to be funded and constructed in the Hawkesbury City Council LGA.

In assessing the Client's circumstances in relation to this matter, we have relied on the direction and information provided by the Client, and the relevant information from the Government's various websites on the Mobile Black Spot Program, as well as other sources of information and siteXcell's experience in the telecommunications industry.



## Key Design Principles of Round 5A of the MBSP

Per the Australian Government's MBSP Discussion Paper, the following are the stated design parameters of the program. The italicised font is taken directly from the Discussion Paper, and our response for each is in plain font.

*It is proposed that Round 5A will divide the available funding into three components, addressing the following three priority areas:*

- a. high priority natural disaster-prone areas including those affected or prone to bushfire;*
- b. new technology solutions in areas where low population densities have discouraged applications under earlier rounds;*
- c. major regional and remote transport corridors.*

*It is proposed Round 5A will reserve a portion of the available funding for each target type and include specific criteria to reflect the specific challenges of each type. For example, additional funding per solution could be made available for solutions in very remote areas.*

*In this way, the Government aims to use Round 5A to test three different approaches to allocating MBSP funding.*

**a. High priority natural disaster-prone areas including those affected or prone to bushfire:**

The 2019 / 2020 bushfires have again demonstrated the valuable role mobile services can play during the response and recovery to a disaster event. It is proposed that the first component of Round 5A will allocate funding to areas that are highly prone to natural disasters, with a focus on macro cell base stations.

As is illustrated repeatedly in this report the Hawkesbury LGA was significantly damaged by the recent bushfires.

*Key design points*

- **Eligible areas**—Round 5A will seek to improve coverage in natural disaster-prone areas including:
  - bushfire prone or affected areas
  - flood prone areas
  - emergency disaster coordination zones
  - rural and regional emergency service premises
  - evacuation and assembly points

The Hawkesbury LGA is not only affected by bushfires but is also highly impacted by floods on a regular basis, including in early 2020 shortly after the bush fires receded.

**b. New technology solutions in areas where lot population densities have discouraged applications under earlier rounds:**

*Key design points*

- **Eligible areas**— Round 1 and 2 of the MBSP reserved funding and awarded points to solutions that addressed coverage issues in remote and very remote areas. This worked well to encourage solutions that focused on less populated and higher cost areas.

*It is proposed that Round 5A would use the same approach when identifying remote and very remote areas to be targeted.*

The key design parameters provided for higher levels of funding to solutions that deliver services to low population areas, which of course the majority of the Hawksbury LGA qualifies.

**c. Major regional and remote transport corridors:**

*It is proposed that a third component of Round 5A will reserve funding to target coverage along major regional and remote transport corridors, including to communities along these corridors.*

Regarding regional and remote transport corridors, it is recognised that the LGA also qualifies for critically needed mobile black spot coverage with **major transportation lifelines** in the LGA, as explained further in this report.

## Existing Hawkesbury City Council LGA Circumstances

The Hawkesbury City Council LGA submits that the LGA qualifies for a substantial amount of funding for new mobile telecommunication installations per the eligibility requirements relating to the specified design parameters as stated for the MBSP, which includes:

### A. Bushfire Prone Areas-

It is recognised that the LGA suffered a significant amount of damage, including the destruction of wildlife and bushland in the recent 2019/2020 bushfires that raged for weeks and engulfed much of the LGA. Some of the more significant statistics of the damage caused by the bushfires are:

Over 500,000 hectares of bushland burned across the LGA. 71% of the LGA is National Parklands

24 Homes destroyed and an additional 13 damaged

65 outbuildings destroyed and a further 30 damaged

540 rural landholders and LGA constituents were impacted by the fires

To further illustrate the extent of the fires across the LGA, see **Schedule 3** of this submission.

### See Schedule 1 - Hawkesbury City Council Submission to the Royal Commission

### and Schedule 2 - NSW Bushfire Inquiry Submission by Hawkesbury City Council

These submissions highlight the issues and delays in emergency response caused by inferior telecommunications.

### B. Flood Prone Areas

As occurred after the 2019/2020 bushfires, the LGA suffered extensive flooding in early 2020, the extent of which is illustrated in **Schedule 4** of this report. Five rivers feed into the Hawkesbury basin and due to the natural choke points, leads to increased flooding in the LGA.

### C. Major Transport Lifelines

A key design point listed in the MBSP is the requirement to reserve funding for targeted coverage along major regional and remote transportation corridors, including to the communities living along these corridors. The LGA has a major transport lifeline in the Bells



Line of Road, running west from Richmond, which is the only major road and access in the LGA connecting the Blue Mountains. In fact, it is only one of two roads providing a transport lifeline from and to the Blue Mountains, the other being the M4.

**Schedule 5** of this report illustrates those major transport lifelines and the small number of mobile sites currently installed on those roads, as well as the high risk natural disaster areas.

There is a second critical lifeline which runs north from Wilberforce, namely Putty Road. This transport route is the only road in the LGA which runs through the fire prone areas to the north of the LGA.



## Proposed Assessment Criteria of the MBSP

The Round 5A Discussion Paper listed Proposed Assessment Criteria as follows for each funded solution:

Criteria 1- New Coverage Outcomes

Criteria 2- Coverage benefit

Criteria 3- Overall value for money, which included the degree of coverage provided to an area prone to natural disasters

Whilst 74 blackspots in the LGA have been identified over the years, we have attempted to list those sites we believe (without the benefit of RF modelling) are critical to community wellbeing and those which will achieve the overall best value for money that the MBSP is committed to achieving, particularly given this area is extremely prone to natural disasters.

As shown in **Schedule 6**, we have listed what we believe would be a necessary short list of sites that require funding and installations by priority. The priority of these sites was established by considering the following parameters in our analysis:

- Existing registered mobile sites - determining if the existing site of any carrier would reasonably be capable of coverage in a reported blackspot.
- Existing locations of funded sites
- Overlap of blackspots identified over time
- Determination of lifeline routes and mobile coverage

Our review shows that there are 20 listed black spots sites within areas significantly affected by fires that urgently require mobile coverage.

The current unfunded sites are shown on the LGA map to give a general view of the location and need for these sites in **Schedule 6**.

Obviously, this list does not include all blackspots as reported over the years, and we would not represent that it all encompassing, however we feel that this is the absolute minimum required by the LGA to be able to attempt to effectively operate for the continued benefit and well-being of the people, bushland, dwellings, stock and wildlife that enjoy the beauty of this area whilst surviving and battling natural disasters.

## Timing of Funding and Construction of Mobile Black Spot Sites

The Client reports that there are 7 sites listed in **Schedule 7** that have been funded but have yet to be built, extending back to the Round 1 MBSP successful funding. Included in Schedule 6 is the following two sites funded in Round 5 of the MBSP that have yet to be constructed . They are listed as:

- Central Colo MBSP5-NSW-003      Telstra NSW    Small Cell
- Colo MBSP5-NSW-004            Telstra NSW    Small Cell

These sites are urgently required to be constructed and commissioned by the Carriers for the LGA, and it would be a reasonable request that any future designated and funded sites require that they be constructed within 12 months of funding being approved by the Australian Federal Government. Given that these two sites are small cells with limited equipment coverage that can be installed relatively inexpensively on existing or inexpensive structures, it is concerning that these sites are not operational.

In fact, if Carriers would consult with Hawksbury Council whilst engaging in the MBSP, Council could be open to the option of substituting designated macrocells for a number of small cells, assuming of course that the mobile coverage provided by macrocells is matched by the multiple small cell option.

We have been informed that the Carriers may at times encounter difficulties with the site acquisition and/or construction of particularly macrocells relating to this program. Again, the Hawksbury Council should be prepared to assist with issues stemming from negotiations with private landowners. It is expected that the Carriers will work with landowners to achieve a balanced and fair approach to rentals and lease agreements in dealings with their land. We have been informed by other clients that Carriers have at times struggled to acquire sites as a result of their internal requirements offering landowners very low gross rentals (without covering rates and land taxes)and leases with conditions that are heavily weighted favour of the Carrier and contain highly onerous provisions, which many owners have found understandably unacceptable. A Council would expect that with the extensive government assistance of up to \$500,000 per site, that Carriers would work with the community to achieve the result that the Australian Federal Government is attempting to achieve.

## Executive Summary and Key Recommendations

Based on our analysis contained in this Report we confirm the following:

- The Hawkesbury City Council LGA has experienced an extensive area of devastation and a number of significant natural disasters impacting the LGA including bush fires and flooding occurring in the past 6 months alone, as demonstrated in this report.
- Nearly two thirds of the LGA was directly impacted by the 2019/2020 bush fires, the severity of which, as the LGA has argued in the NSW Bush Fire Authority submission and to the Royal Commission, could have been mitigated if sufficient communications coverage had been available to emergency services and the landowners in the area.
- Infrastructure NSW stated in 2017 that the Hawkesbury-Nepean Valley has a high flood hazard, with both historical and geological evidence of rapid widespread flooding across the Valley. There is also a high level of flood exposure as the floodplain is located in the Western Sydney region, an area with a large and growing population. It is one of Australia's most significant and diverse economies, with a stated annual gross regional product of about \$104 billion in 2013/14. Expanding urban development across the Valley means that flood exposure will increase in the future to a wider population. Climate change may further increase this flood risk as it has the potential to increase the severity and frequency of the flood hazard in the Valley. The Insurance Council of Australia considers this Valley to have the highest single flood exposure in New South Wales, if not Australia.
- The LGA has commissioned a technical review to ensure that the requested sites will be viewed as a genuine and immediate need, as well as being in compliance with the requirements of the MBSP Round 5A Discussion Paper, by not including redundant or sites which may result in overlapping coverage situations.
- Hawksbury Council has advised that it feels strongly that the extent and regularity of the natural disasters satisfies the requirements of the Australian Government MBSP Round 5A Discussion Paper's Key Design Points and Assessment Criteria, including the need to address natural disaster areas, low population areas and transport lifelines.
- Hawksbury Council advises that it has reviewed the priority of listed Black Spot sites to obtain maximum value from the MBSP program and has provided justification for the listed Priority One sites. The mountainous topography of the roads and population centres requiring coverage limits base station reach. Therefore, multiple sites are required to achieve a reasonable coverage solution. Hawksbury Council has requested that the priority one sites be considered above all other recorded Black Spot sites with intent to



obtain critical communication in these areas. Hawkesbury City Council are willing to work with the Program to further highlight population centres urgently requiring coverage and consider opportunities to host Black Spot sites on Council land and Infrastructure to expedite acquisition and construction.

- Hawkesbury Council requests that the seven (7) previously approved and funded MBSP sites be constructed as a matter of urgency, and that the twenty (20) Priority 1 sites listed in this report be acquired and constructed inside the next 12 months.
- An indication of the existing mobile base station coverage is provided in **Schedule 8**. This clearly shows appropriate mobile phone coverage of the Hawkesbury Council's southern region where the majority of the LGA's population exists. However, the remaining areas of the LGA are the most vulnerable to fire attack, and where commercial business cases for Carriers to construct base station sites would typically not balance with the importance of coverage at a community level. It is therefore critical that these areas benefit from the Federal Government's Mobile Blackspot Program.





## **Schedule 1- Hawkesbury City Council Submission to the Royal Commission**

## Submission Number: NND.001.01191

### Submission Of: Jeff Organ

#### Your Details

Email address: jeff.organ@hawkesbury.nsw.gov.au

Phone: 0408435034

Preferred means of contact: Email

What is your submission based on? I am making this submission based on my professional knowledge, qualifications or experience or on behalf of a group or organisation

What is your area of professional expertise?

If you are lodging your submission on behalf of a group or organisation, what is the name of the group or organisation? Hawkesbury City Council

#### Your Submission

In your experience, what areas of the bushfire emergency response worked well?

- Local knowledge of brigade personnel in the Hawkesbury Rural Fire Service was instrumental in their success in defending many dwellings in the district
- The coordination of out of area resources by the Hawkesbury RFS; specifically out of area RFS, international and ADF resources
- Community engagement protocols; reinforcing State and Local level combat agency information via multiple communication channels

The value of hazard reduction, that has been undertaken over many years in accordance with strategic plans prepared and implemented by local and state agencies/land managers, was demonstrated through the ability of brigades to provide containment and protect large numbers of dwellings and other buildings, despite the massive scale of the Gospers Mountain fire

In your experience, what areas of the bushfire emergency response didn't work well?

- Telecommunications affects emergency response capacity and has been a longstanding issue within the Hawkesbury Local Government Area and requires a national response.

Due to the size and terrain of the Hawkesbury LGA mobile phone coverage is limited in many areas. During the fire event landlines were also affected by fire and tree damage to overhead cabling. Difficulties were also experienced with telephone exchange power supply.

Enhanced line maintenance and clearance by the telecommunication providers would improve the communications as would expansion of the mobile phone network. This would provide a sound basis for future GPS vehicle location and tracking systems.

In your experience, what needs to change to improve arrangements for preparation, mitigation, response and recovery coordination for national natural disaster arrangements in Australia?

- The focus of the disaster arrangements is primarily focussed on response –what is required is a funded, coordinated and prioritised approach to planning and preparation. For example, planned maintenance of fire trails is required; rather than resourcing and mobilising heavy plant to establish degraded routes during the fire emergency.
- A key focus for the future must be on developing fire response capacity through planning, infrastructure provision and ongoing training as well as continuity planning for emergency and other agency personnel.
- There is a need for enhanced and ongoing resilience and planning campaigns within the broader community for emergency response in general, with the goal of having an informed community able to respond to and adapt to the circumstances of any particular event. This is highly relevant where the community may only experience fire disasters on an intermittent basis and the community memory fades or remains solely focussed on the circumstances of previous events. What the behaviour of these fires demonstrates is the variability of the events and the need to be adaptable to the circumstances. This should be supported through the funding of permanent disaster management and community resilience personnel for either a local or restricted regional area to provide the necessary continuity and response capability for and between events, noting that disasters are not solely restricted to fires. This was highlighted by the impacts of extreme storms and riverine flooding in the Hawkesbury area immediately following the fires which compounded the impacts on the community, the environment and recovery
- Enhanced communications networks are required with use of designated media including national and local radio broadcasts being utilised to provide consistent messaging. This may involve the timely reallocation of shared community radio frequencies to be used to transmit warnings in affected areas
- The trend towards land use of peri urban areas which adjoin bushland and National Parks, such as the Hawkesbury LGA, for equestrian and other large animal/stock has highlighted the need to consider evacuation and the impact of this on firefighting response. Funding to establish appropriate infrastructure to manage the relocation and temporary housing of large animals, particularly horses, is highly desirable. The use of Hawkesbury Showground, which provided this capability during the fire event, highlighted the need to have suitable accommodation, security and animal welfare response at an early stage of a fire event. Whilst this was a generally satisfactory outcome, it did highlight the need for a coordinated "people and animal" response to ensure welfare is addressed where return to home may be delayed for considerable time. It also highlighted the limited availability of such facilities should other occupations or activities be running concurrently.
- There is a need to ensure that fire fighting activities are supported by the provision of contemporary and suitably sized facilities to manage, coordinate and provide logistical support for fire fighting operational management. The scale and duration of the Gospers Mountain fire brought into sharp focus the need the Hawkesbury Fire Control Centre for a new purpose built facility to enable it to combat and coordinate future firefighting more effectively.

The current inadequate facility required the installation of demountable buildings to accommodate the additional logistical and planning support teams. This involved the annexation of the adjoining public school playground for over three months.

It is highly desirable that a future facility incorporate an Emergency Operations Centre on site, operating semi autonomously from the Incident Management Team. This would reduce the demand on the provision of an RFS Liaison Officer as well as provide enhanced intelligence and data sharing for supporting a coordinated emergency response.



## **Schedule 2- NSW Bushfire Inquiry Submission by Hawkesbury City Council**

## **NSW Bushfire Inquiry Submission – Hawkesbury City Council**

This submission to the NSW Inquiry is restricted in its intent to matters associated with the Gospers Mountain Fire in NSW and its relevance to the Hawkesbury City Council area. It is also limited to broad issues affecting the community and Council in its ability to manage the emergency and its outcomes. Specific responses from other combat and response agencies are considered to be principally addressed by those bodies where detailed knowledge of issues outside of Council's expertise is held.

### **1.1 Causes and Contributing Factors**

Whilst the cause of the fire is attributable to a single source lightning strike, the behaviour was considered to be highly influenced by the extreme weather conditions of low moisture, high temperatures and wind shifts.

These factors combined with geography in a manner which saw the fire expand onto multiple fronts which in turn meant that the fire was expanding regardless of wind directions i.e. favourable conditions on one front meant unfavourable conditions elsewhere.

### **1.2 Preparation and Planning**

Significant and targeted hazard reduction has occurred in accordance with the Bushfire Risk Management Plan over a number of years. Whilst implementation of planned burns has, in part, been partly limited in some recent years due to adverse conditions in winter months, the effects of completed hazard reduction activities in protecting properties in this fire has been demonstrated within the Hawkesbury Fire Control District.

This is not to say that further planning and preparation is not warranted.

Increased State funding for maintenance of fire trails on an annual, prioritised basis would enable critical planning and resourcing to be applied to other critical priorities rather than resourcing and mobilising heavy plant to establish degraded routes in the face of fire activity.

Whilst brigades have water storage capability at their stations, as well as at key fire containment points, funding to provide enhanced storage at stations as well as potentially on key fire trails would be highly advantageous in reducing resupply chain times.

As a result of the prevailing drought conditions many property owners sought to refill their own bulk containers (IBCs) at a limited number of filling points, often long distances from their property. Improved access/rapid refill should be considered should these circumstances combine again. This should be weighed against the utility and desirability of encouraging property owners to effectively combat catastrophic fire conditions. Establishment of dedicated filling points for RFS bulk water tankers (for use in emergencies only) would address conflict and priority.

There was a clear need demonstrated during the event that the Hawkesbury Fire Control Centre requires a new purpose-built facility to enable it to combat and coordinate future firefighting most effectively. The current inadequate facility required the installation of demountable buildings to accommodate the additional logistical and planning support teams. This involved the annexation of the adjoining public-school playground for over three months. It is highly desirable that a future facility incorporate an Emergency Operations Centre on site, but operating semi autonomously from the Incident Management Team. This would reduce the demand on Liaison Officer provision as well as provide enhanced intelligence and data sharing for supporting emergency responses.

### **1.3 Response to Bushfires**



Whilst the scale and duration of this fire was by any measure extreme, it must be stated that despite hundreds of thousands of hectares of bushland being burnt, the RFS' ability to defend many dwellings must be considered a major success and achievement.

In achieving this the local knowledge of brigade personnel was instrumental, along with the out of area resourcing made available.

Improved coordination of road closures was identified as a matter for review. The increased reliance on private traffic control contractors combined with often limited mobile phone communications in remote areas and changing fire ground activity meant that access was, at times uncoordinated, with local resident access being denied for longer than necessary.

Improved protocols for the use of Live Traffic as the principal source of up to date traffic closures (and reopenings) should be developed and be agnostic to whether a road is a Local or State road.

Telecommunications has been a longstanding issue within the Hawkesbury Local Government Area and affects the emergency response capacity. Due to size and terrain mobile phone coverage is limited in many areas. During the fire event landlines were also affected by fire and tree damage to overhead cabling. Difficulties were also experienced with telephone exchange power supply.

Enhanced line maintenance and clearance by the telecommunication providers would improve the communications as would expansion of the mobile phone network. This would provide a sound basis for future GPS vehicle location and tracking systems.

The variable nature of bush fire impacts as well as other emergency situations such that improved facility capability to manage community needs and support.

Enhancements to existing community centres such as the North Richmond Community Centre would enable the rapid establishment of Disaster Welfare points where initial triage/assessment of needs can be undertaken.

Similarly funding to establish appropriate infrastructure to manage the relocation of housing of large animals, particularly horses, is highly desirable.

The use of Hawkesbury Showground, which provided this capability during the fire event, highlighted the need to have suitable accommodation, security and animal welfare response at an early stage of a fire event.

In relation to the Recovery Phase, there have been delays in providing clean up actions and resources.

Whilst it is understandable that damage assessment capacity was stretched across the State, and that there is a need to ensure the accountability for public expenditure under the Commonwealth / State funding arrangements, more timely and closer engagement with Council would address a number of aspects.

This includes the need to ensure that the scope of cleanup and dangerous tree removal is resolved early.

Many property owners have only just been advised of approval / rejection of clean up eligibility. Early advice on scope / eligibility would have enabled early entry by Council to remove tree hazards not ultimately covered by the restricted clean up scope.

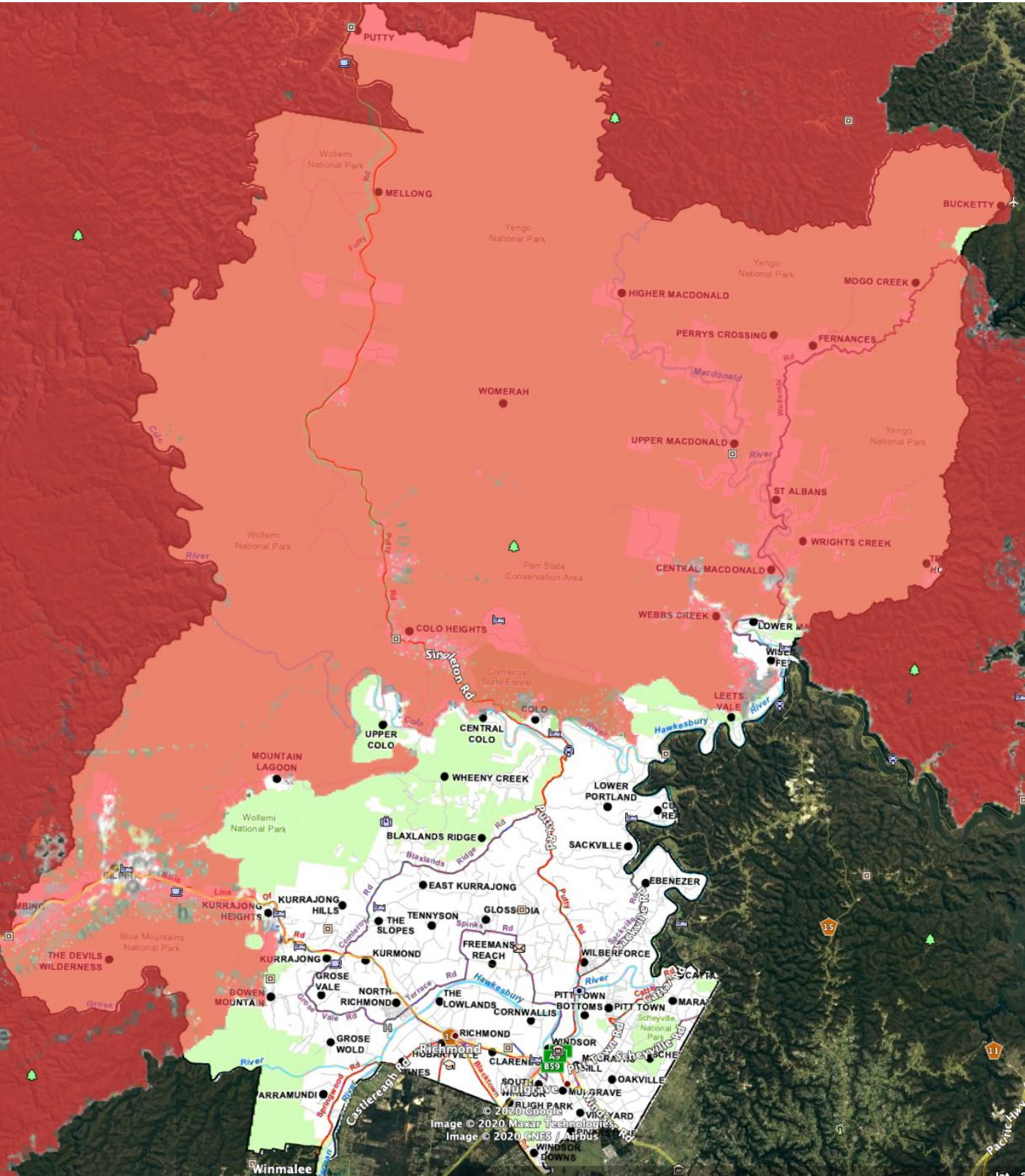
A key focus for the future must be on developing resilience through planning, infrastructure provision and ongoing training and continuity planning for emergency and other agency personnel.

There is a need for enhanced and ongoing resilience and planning campaigns within the community for emergency response in general, with the goal of having an informed community able to respond to and adapt to the circumstances of any particular event.



## **Schedule 3 – Extent of the 2019/2020 Bushfires in Hawkesbury**

# Bushfires in the Hawkesbury City Council – New Year's Eve 2019



\* Based on Rural Fire Service Advice – Fire Spread – 31 December 2019



# **Schedule 4 - Flood Extent Zones – Macdonald, Colo and Hawkesbury River**

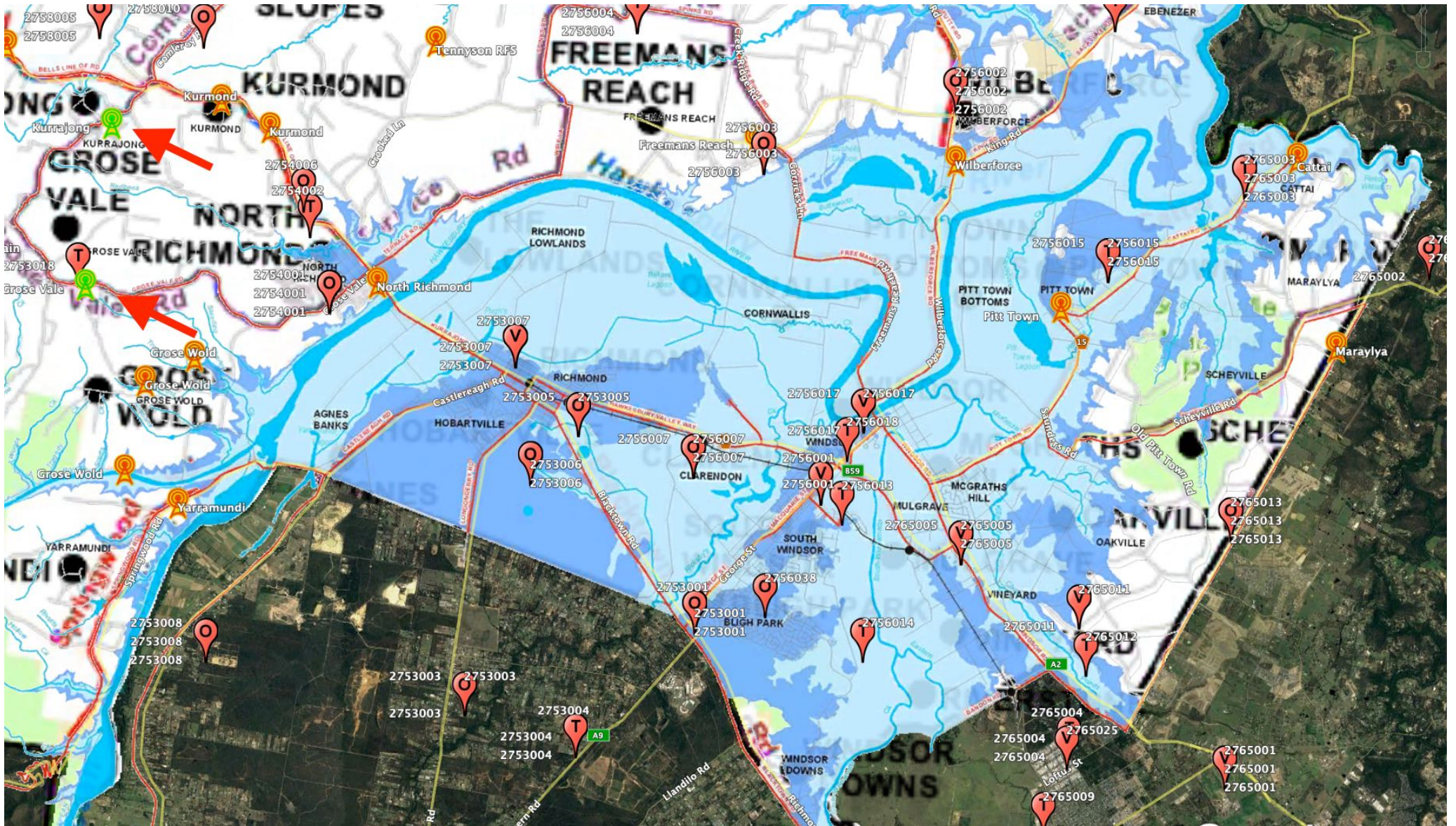


# Flood Extent Zones – Macdonald, Colo and Hawkesbury Rivers, North Hawkesbury





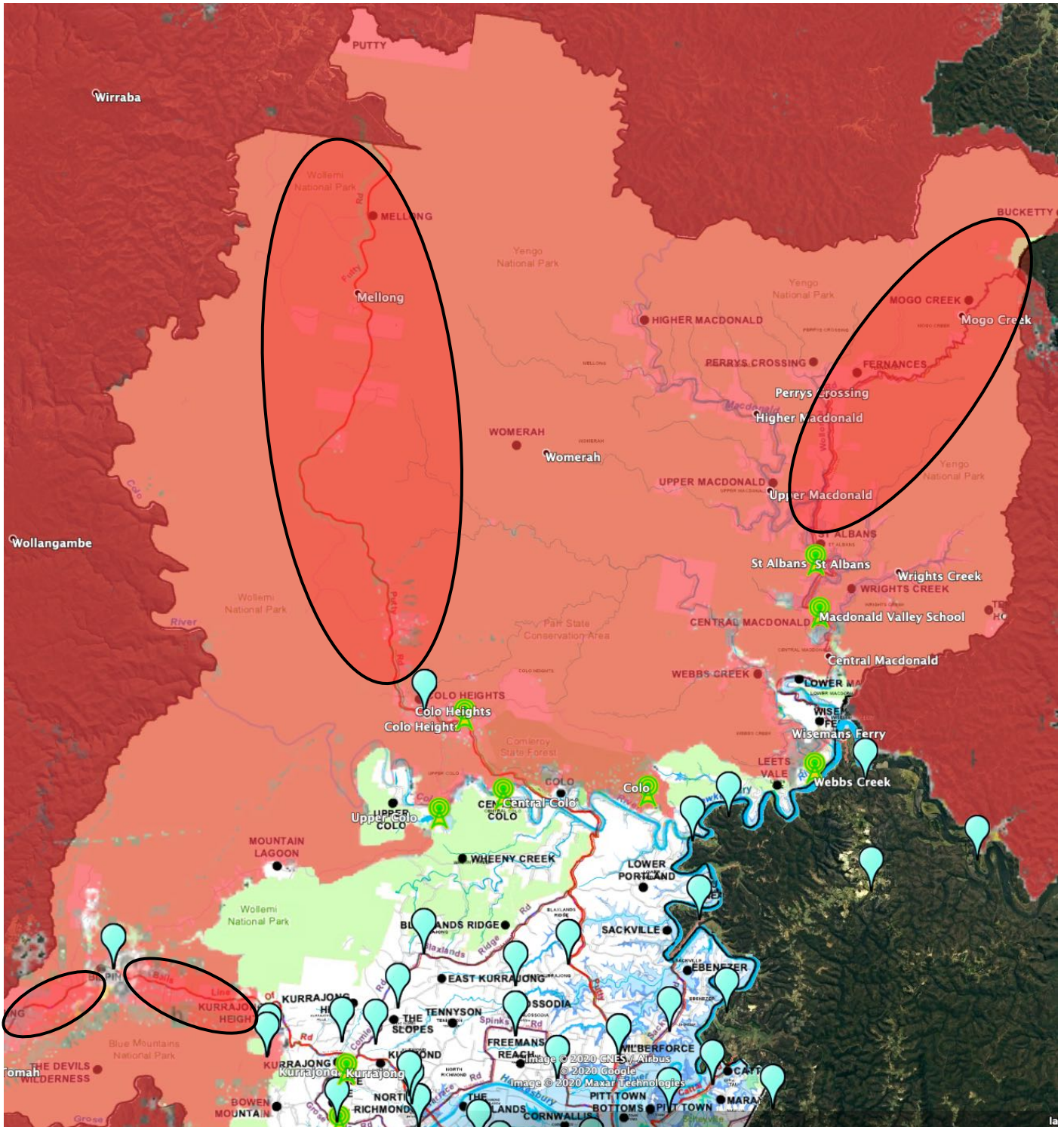
## Flood Extent Zones – Hawkesbury River, South Hawkesbury







## **Schedule 5 – Major Lifeline Road Networks affected by Fire**



Major lifeline roads with no current or approved mobile coverage.



Existing Mobile Phone installations



Approved Blackspot Site





## **Schedule 6 – List of Unfunded Black Spot Sites by Priority**

## UNFUNDED BLACKSPOT SITES IN THE HAWKESBURY REGION BY PRIORITY

Latitude	Longitude	MSPS DB of Reported Sites / Round ID	Blackspot Register Name	Funding Status	Construction Status	Priority	Mobile Carrier Coverage
<b>PRIORITY ONE SITES</b>							
-33.517154	150.484886	NSW-2021	Bells Line of Road	Unfunded	N/A	1	Large allotments along Bells Line Road. No existing mobile coverage of the area.
-33.53248161	150.4450216	NSW-0121	Berambing	Unfunded	N/A	1	Large allotments along Bells Line Road. No existing mobile coverage of the area.
-33.200398	150.996065	NSW-2400	Fernances	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.34292855	150.9777645	NSW-0373	Central Macdonald	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.214931	150.934574	NSW-2552	Higher Macdonald	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.24748999	150.976592	NSW-0954	MacDonald Valley	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.145775	150.685345	NSW-2757	Mellong	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.302942	150.98086	NSW-3099	Settlers Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.341183	150.980843	NSW-3100	Settlers Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.34333194	150.9758953	NSW-1459	St Albans Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.18374138	150.9211226	NSW-1540	Thompson Creek	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.25499898	150.9423599	NSW-1625	Upper Macdonald	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.242454	150.940355	NSW-3271	Upper Macdonald Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.27793	150.960973	NSW-3272	Upper Macdonald Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.230333	150.944858	NSW-3273	Upper Macdonald Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.341446	150.915067	NSW-3330	Webbs Creek Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.19050158	151.0463484	NSW-1755	Wollombi Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.200837	150.995514	NSW-3377	Wollombi Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.26798	150.969412	NSW-3378	Wollombi Road	Unfunded	N/A	1	No existing mobile coverage of the area.
-33.299645	151.022364	NSW-3394	Wrights Creek	Unfunded	N/A	1	No existing mobile coverage of the area.

## UNFUNDED BLACKSPOT SITES IN THE HAWKESBURY REGION BY PRIORITY

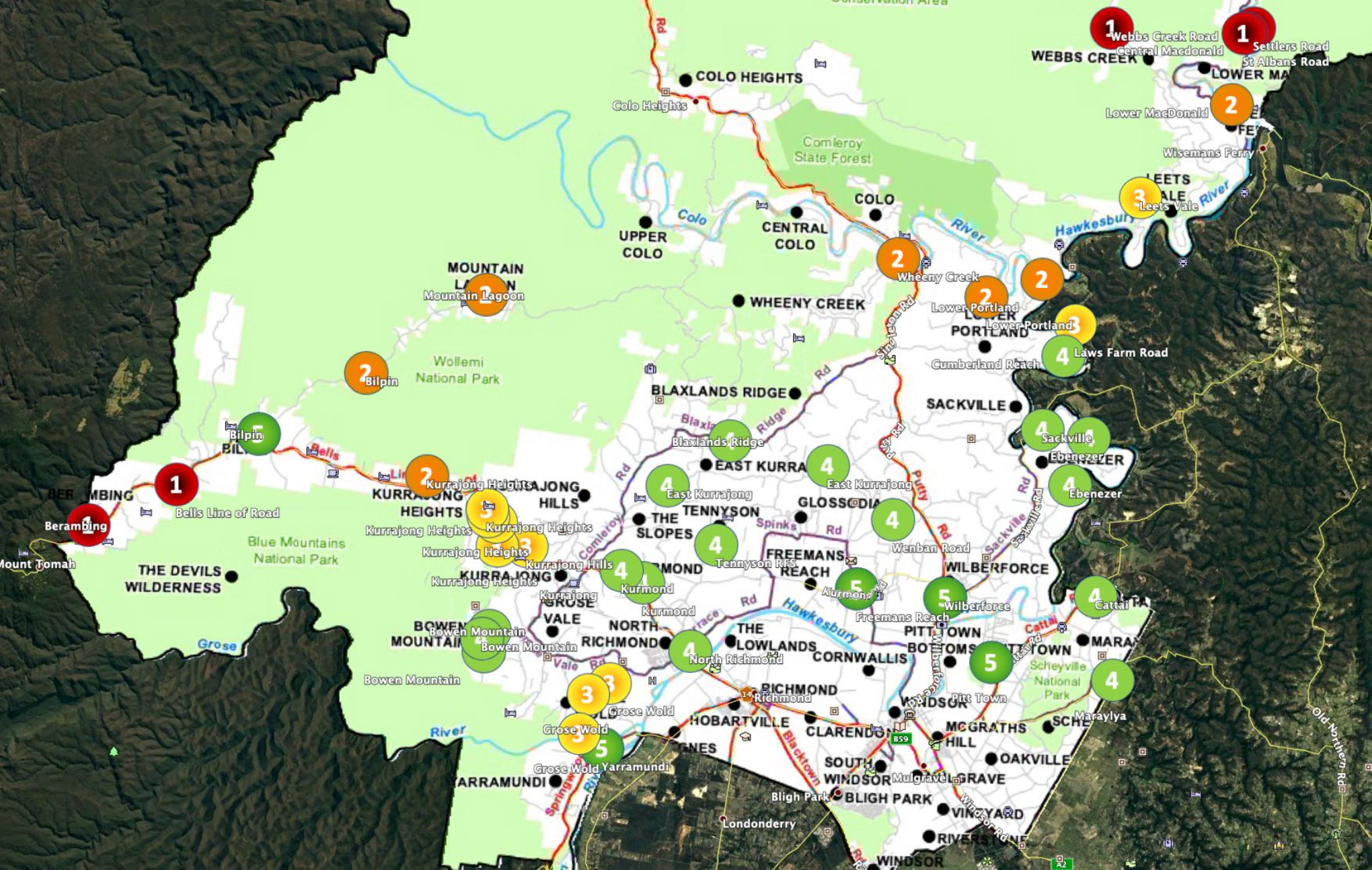
Latitude	Longitude	MPSP DB of Reported Sites / Round ID	Blackspot Register Name	Funding Status	Construction Status	Priority	Mobile Carrier Coverage
<b>PRIORITY TWO SITES</b>							
-33.47463	150.57189	NSW-3460	Bilpin	Unfunded	N/A	2	Several residences on Mountain Lagoon Road. No existing mobile coverage of the area.
-33.5142	150.59934	NSW-3690	Kurrajong Heights	Unfunded	N/A	2	The ridge along Burrellow Road restricts coverage from Telstra(Kurrajong South), Optus and Vodafone (Kurrajong Heights) sites around the Bells Line of Road leading West.
-33.3707127	150.9708617	NSW-0944	Lower MacDonald	Unfunded	N/A	2	Partial coverage from Telstra Simpson Hill Site 4.5 klm South.
-33.43832723	150.8833149	NSW-0946	Lower Portland	Unfunded	N/A	2	Partial coverage from TelstraGlossodia Site across river.
-33.4452	150.85741	NSW-3712	Lower Portland	Unfunded	N/A	2	No existing mobile coverage of the area.
-33.44473	150.626955	NSW-2841	Mountain Lagoon	Unfunded	N/A	2	No existing mobile coverage of the area.
-33.316023	150.961269	NSW-3139	St Albans Road	Unfunded	N/A	2	No existing mobile coverage of the area. May achieve some coverage from Macdonald Valley School once constructed.
-33.430461	150.8165796	NSW-1714	Wheeny Creek	Unfunded	N/A	2	No existing mobile coverage of the area.
<b>PRIORITY THREE SITES</b>							
-33.61362	150.66885	NSW-3636	Grose Wold	Unfunded	N/A	3	Telstra Grose Vale site 2.5 klms north, incidental coverage due to topography
-33.59853	150.67306	NSW-3637	Grose Wold	Unfunded	N/A	3	Telstra Grose Vale site 2.5 klms north, incidental coverage due to topography
-33.59431	150.68314	NSW-3638	Grose Wold	Unfunded	N/A	3	Telstra Grose Vale site 2.5 klms north, incidental coverage due to topography
-33.5413662	150.6448659	NSW-0865	Kurrajong Hills	Unfunded	N/A	3	The ridge along Burrellow Road restricts coverage from Telstra(Kurrajong South), Optus and Vodafone (Kurrajong Heights) sites around the Warks Hill Rd area. Optus Kurrajong site 2 km east provides some coverage.
-33.455848	150.89846	NSW-2675	Laws Farm Road	Unfunded	N/A	3	Telstra Sackville Reach Exchange site provides moderate coverage of Laws Farm Road.
-33.40691095	150.9281371	NSW-0899	Leets Vale	Unfunded	N/A	3	Telstra Lower Portland Cliftonville Rd Site provide moderate coverage of Leets Vale near river. Northern area suffers from topography.
-33.53196443	150.6308451	NSW-0864	Kurrajong Heights	Unfunded	N/A	3	The ridge along Burrellow Road restricts coverage from Telstra(Kurrajong South), Optus and Vodafone (Kurrajong Heights) sites around the Warks Hill Rd area.
-33.52983	150.62732	NSW-3691	Kurrajong Heights	Unfunded	N/A	3	The ridge along Burrellow Road restricts coverage from Telstra(Kurrajong South), Optus and Vodafone (Kurrajong Heights) sites around the Warks Hill Rd area.
-33.52694	150.62687	NSW-3692	Kurrajong Heights	Unfunded	N/A	3	The ridge along Burrellow Road restricts coverage from Telstra(Kurrajong South), Optus and Vodafone (Kurrajong Heights) sites around the Warks Hill Rd area.
-33.54114	150.63139	NSW-3693	Kurrajong Heights	Unfunded	N/A	3	The ridge along Burrellow Road restricts coverage from Telstra(Kurrajong South), Optus and Vodafone (Kurrajong Heights) sites around the Warks Hill Rd area.

## UNFUNDED BLACKSPOT SITES IN THE HAWKESBURY REGION BY PRIORITY

Latitude	Longitude	MPSP DB of Reported Sites / Round ID	Blackspot Register Name	Funding Status	Construction Status	Priority	Mobile Carrier Coverage
<b>PRIORITY FOUR SITES</b>							
-33.50082632	150.7388678	NSW-0164	Blaxlands Ridge	Unfunded	N/A	4	Telstra Blaxlands Ridge site 2758013 2.3 km West Telstra East Kurrajong site 3.4 klms East
-33.573557	150.627983	NSW-2103	Bowen Mountain	Unfunded	N/A	4	Lieutenant Bowen Drive, Bowen Mountain 3.5 K West of Telstra Grose Vale site. Coverage should be available.
-33.58155	150.62538	NSW-3481	Bowen Mountain	Unfunded	N/A	4	Lieutenant Bowen Drive, Bowen Mountain 3.5 K West of Telstra Grose Vale site. Coverage should be available.
-33.57657	150.62457	NSW-3482	Bowen Mountain	Unfunded	N/A	4	Lieutenant Bowen Drive, Bowen Mountain 3.5 K West of Telstra Grose Vale site. Coverage should be available.
-33.56078836	150.9082843	NSW-0364	Cattai	Unfunded	N/A	4	Optus and Vodafone Cattai and Telstra Maraylya Cattai Ridge site 1.5 km South West
-33.46797	150.892923	NSW-2309	Cumberland Reach	Unfunded	N/A	4	Telstra Sackville Reach Exchange site provides moderate coverage of Cumberlands Reach.
-33.51803199	150.7099988	NSW-0543	East Kurrajong	Unfunded	N/A	4	Telstra East Kurrajong site 1 km East
-33.51041	150.78409	NSW-3584	East Kurrajong	Unfunded	N/A	4	Optus The Slopes site - East Kurrajong Road
-33.499526	150.904958	NSW-2370	Ebenezer	Unfunded	N/A	4	Ebenezer 420-448 Sackville Rd Site 3.5 km South provides some coverage. Telstra Sackville Reach Exchange site provides moderate coverage of Sackville and Ebenezer.
-33.51782	150.89631	NSW-3587	Ebenezer	Unfunded	N/A	4	Ebenezer 420-448 Sackville Rd Site 3.5 km South provides some coverage. Telstra Sackville Reach Exchange site provides moderate coverage of Sackville and Ebenezer.
-33.550726	150.688719	NSW-2648	Kurmond	Unfunded	N/A	4	Optus and Telstra sites within 2.5 klms
-33.5555	150.69864	NSW-3685	Kurmond	Unfunded	N/A	4	Optus and Telstra sites within 2.5 klms
-33.5929222	150.9161794	NSW-0976	Maraylya	Unfunded	N/A	4	Optus and Vodafone Cattai Ridge and Telstra Maraylya site 2.5 km North East
-33.58189	150.72048	NSW-3785	North Richmond	Unfunded	N/A	4	Telstra, Optus and Vodafone North Richmond site within 1.5 km.
-33.4964579	150.8834694	NSW-1392	Sackville	Unfunded	N/A	4	Telstra Sackville Reach Exchange site provides moderate coverage of Sackville and Ebenezer.
-33.54088	150.73246	NSW-3856	Tennyson RFS	Unfunded	N/A	4	Telstra, Optus and Vodafone Glossodia site within 4 klms.
-33.531155	150.81432	NSW-3340	Wenban Road	Unfunded	N/A	4	Telstra East Kurrajong Koorang Road site 3.5 km North Telstra Optus and Vodafone Wilberforce site 3 km South East
<b>PRIORITY FIVE SITES</b>							
-33.49788021	150.5226091	NSW-0143	Bilpin	Unfunded	N/A	5	Telstra, Optus and Vodafone Bilpin site provides coverage to Bilpin centre.
-33.55784	150.79761	NSW-3600	Freemans Reach	Unfunded	N/A	5	Optus, Telstra and Vodafone Freemans Reach site 1 km South serves general area.
-33.586175	150.859954	NSW-2997	Pitt Town	Unfunded	N/A	5	Telstra, Optus and Vodafone Pitt Town site within 1 km.
-33.561321	150.838525	NSW-3358	Wilberforce	Unfunded	N/A	5	Telstra Optus and Vodafone Wilberforce site 1 km North
-33.61933774	150.6797253	NSW-1801	Yarramundi	Unfunded	N/A	5	Telstra(Agnus Banks), Optus & Vodafone (Castlereigh) site 3 km south with flat terrain.

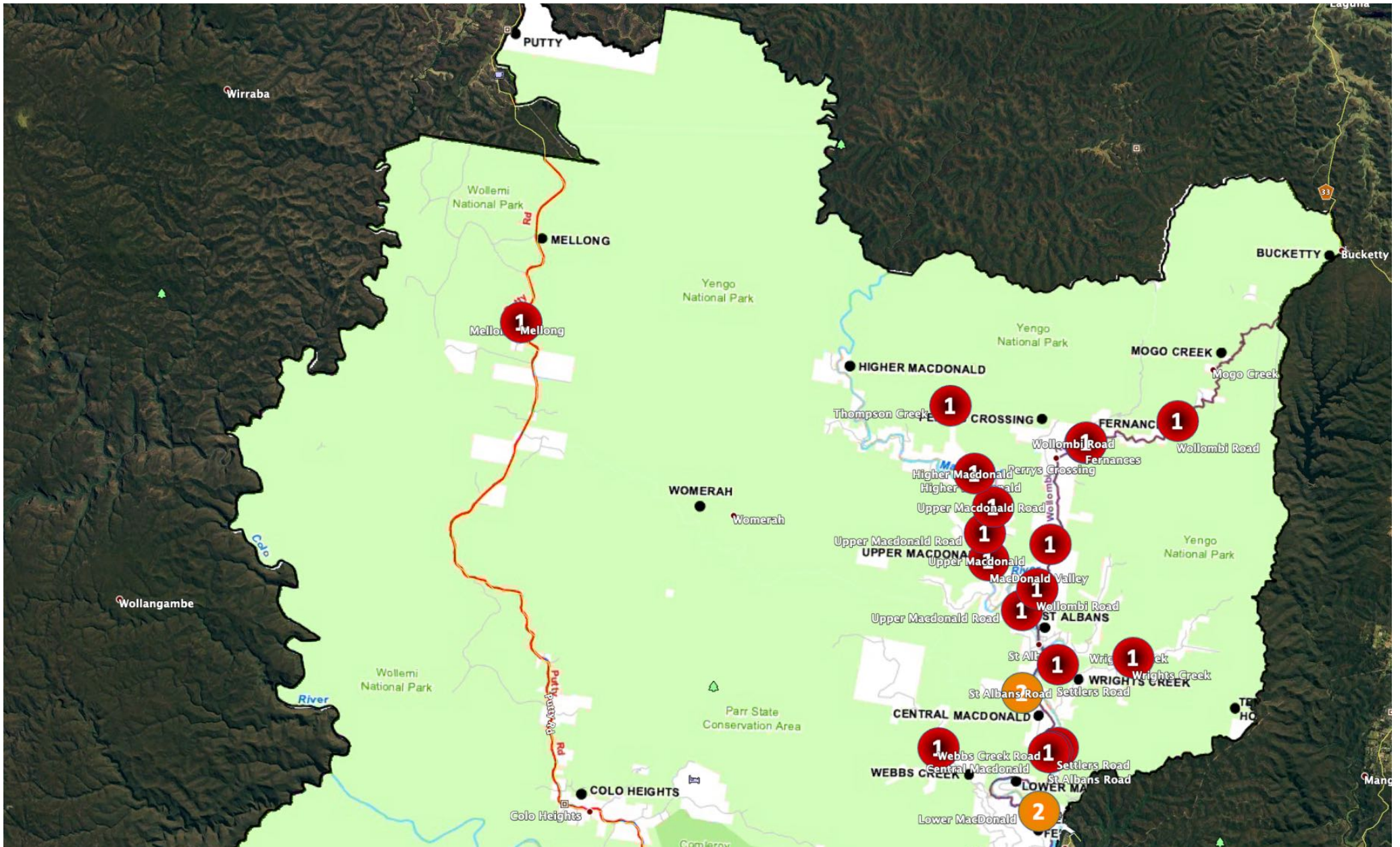


# Hawkesbury City Council – Southern Region – Unfunded Blackspot Priorities

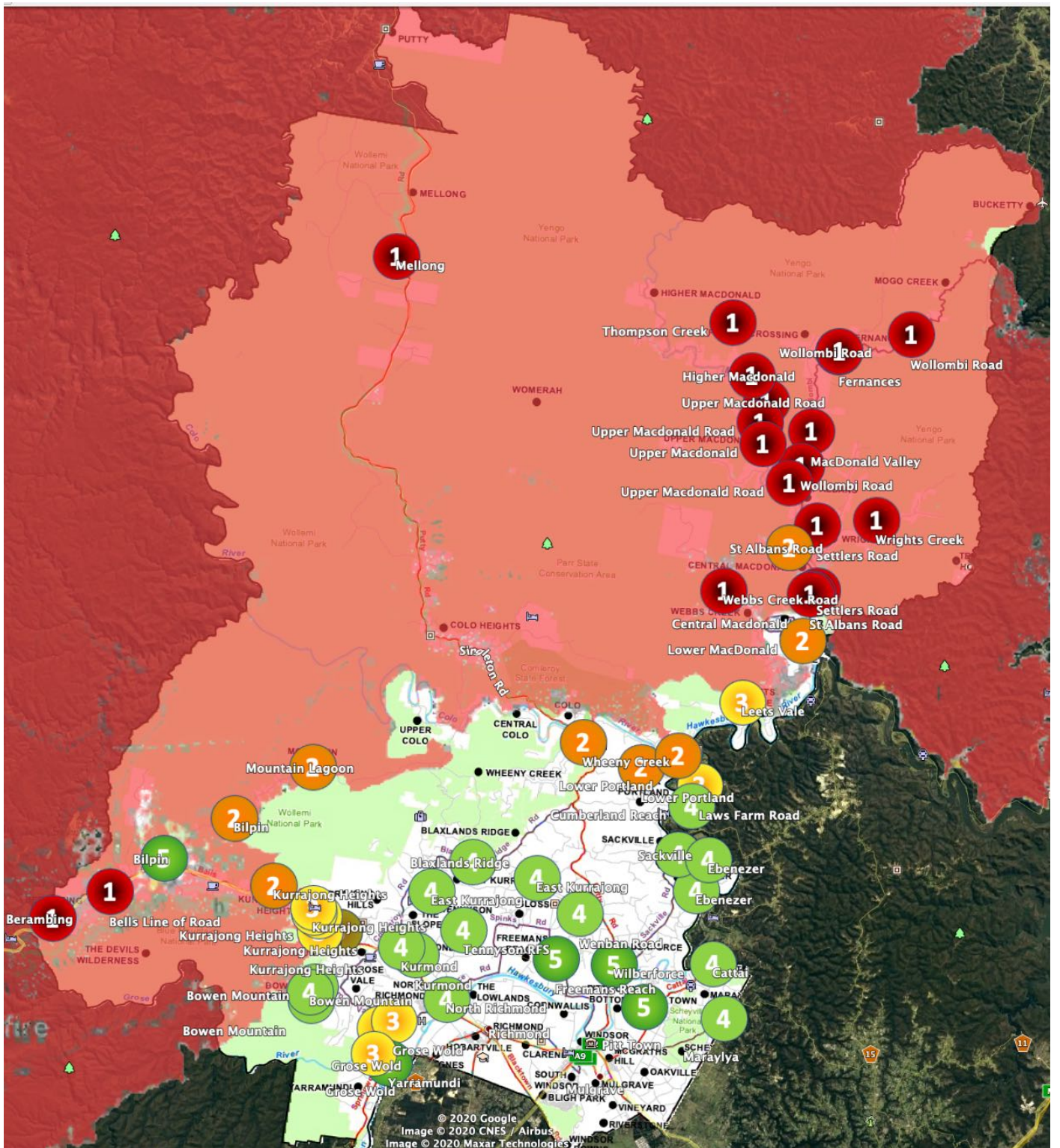




# Hawkesbury City Council – Northern Region – Unfunded Blackspot Priorities









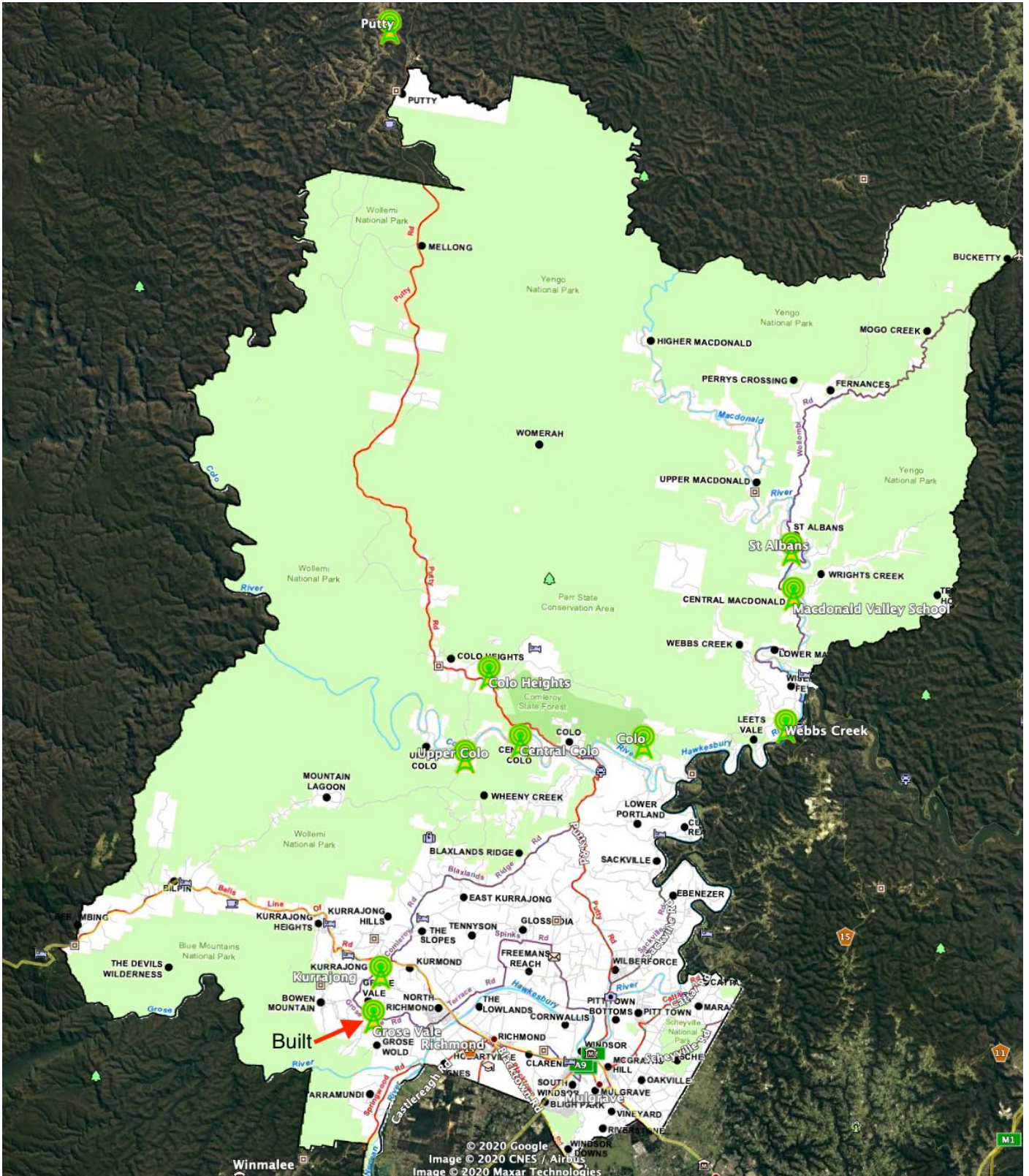
## Schedule 7 – Approved Black Spot Sites



## APPROVED BLACKSPOT SITES IN THE HAWKESBURY REGION

Latitude	Longitude	MSP DB of Reported Sites /	Blackspot Register Name	Funding Status	Construction Status	Priority	Mobile Carrier Coverage
-33.3694	150.74668	MBSP-NSW-036	Colo Heights	Round One	No evidence of build	6	Telstra and Optus towers 2.5 kms west of Colo Heights Blackspot bullseye. Both constructed prior to Blackspot program. Topography limits coverage to the east.
-33.58216	150.660882	MBSPL-NSW-14	Grose Vale	Round PL	Construction Complete	6	25m Telstra monopole constructed at 663 Grose Vale Road.
-33.55474954	150.6663142	MBSP-NSW-073	Kurrajong	Round One	No evidence of build	6	Telstra RT Tower 2 km West, North-West of Kurrajong centre. Telstra Grose Vale site obstructed by ridge on Grose Vale Road towards Kurrajong.
-33.29239256	150.9703552	MBSP2-NSW-028	St Albans	Round Two	No evidence of build	6	No existing mobile coverage of the area.
-33.421288	150.728887	MBSP4-NSW-047	Upper Colo	Round Four	No evidence of build	6	No existing mobile coverage of the area.
-33.402048	150.96667	MBSP-NSW-134	Webbs Creek	Round One	No evidence of build	6	Telstra RT Tower 3 Km East on Simpsons Hill, provides limited coverage of Weebs Creek due to topography.
-33.411619	150.769763	MBSP5-NSW-003	Central Colo	Round Five	No evidence of build	6	Closest Telstra site 6 kms away. Coverage obstructed by topography of area.
-33.412166	150.860971	MBSP5-NSW-004	Colo	Round Five	No evidence of build	6	No existing mobile coverage of the area.
-32.9698604	150.6731215	MBSP5-NSW-018	Putty	Round Five	No evidence of build	6	Telstra occupy a Transgrid 35 Tower 2.5 km from approved Blackspot bullseye. Old 3G site only.
-33.320139	150.97207	MBSP4-NSW-024	Macdonald Valley School	Round Four	Construction of Telstra site commenced	6	No existing mobile coverage of the area.

# Approved Blackspot Sites - Hawkesbury City Council

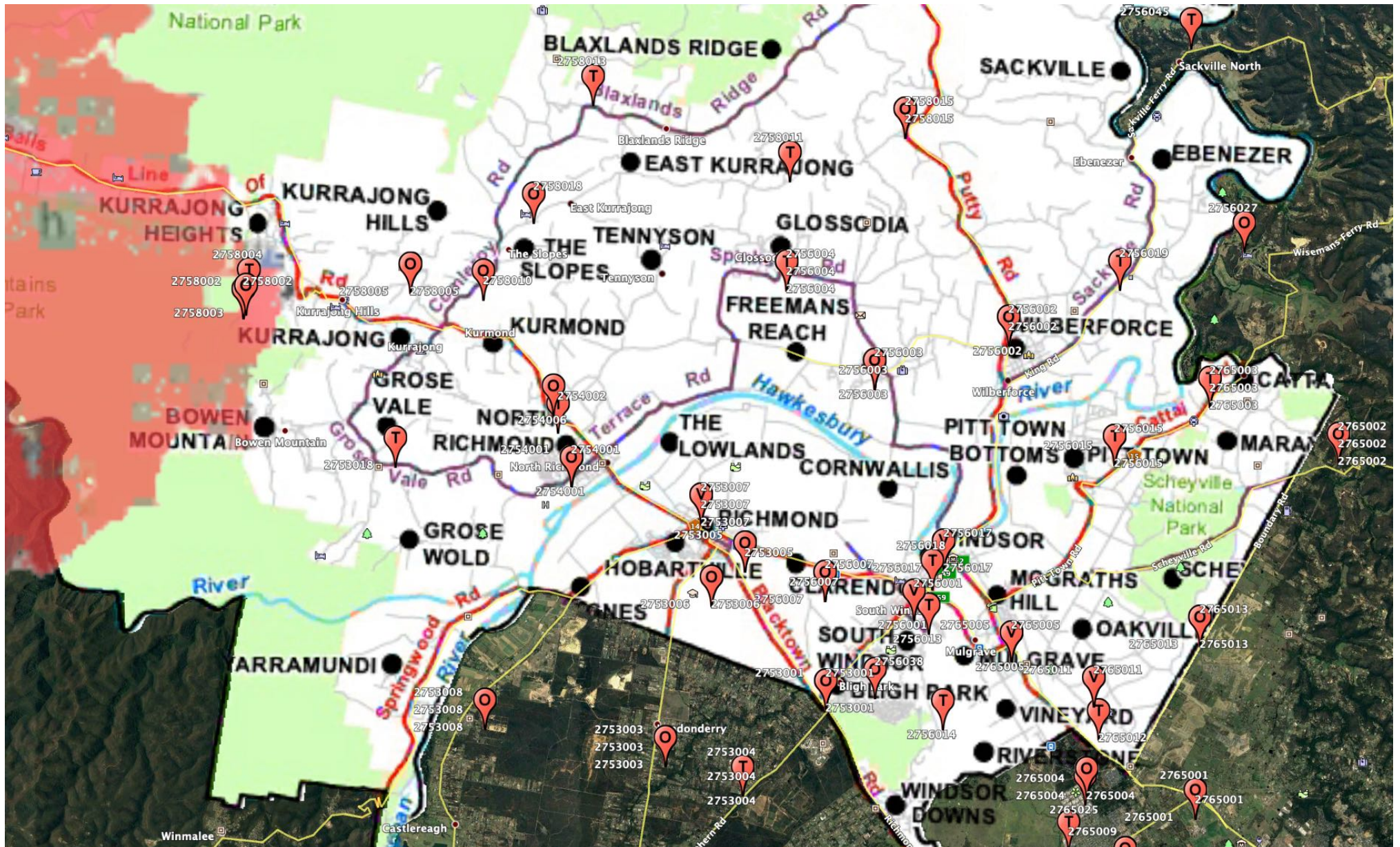




## **Schedule 8 – Existing Telecommunications Sites in Hawkesbury**



# Hawkesbury City Council – Hawkesbury River – Mobile Base Station Locations





## Hawkesbury City Council – Northern Region – Mobile Base Station Locations





### Hawkesbury City Council – Western Region – Mobile Base Station Locations

