Improving the telecommunications powers and immunities framework

- Submission by Solcomm Pty Ltd-

Contents

1 FOREWORD

Solcomm Pty Ltd is a professional engineering organisation specialised in wireless communications and operational technologies. We are based in Perth, Western Australia.

For many years we have been involved in design and deployment of radio communications. We have built and upgraded to date in excess of 250 mobile sites for the carriers, including Telstra, Optus, Vodafone/VHA and the NBN. Our vast experience in radio design has afforded us very unique views on cellular deployments, in particular those involving sensitive sites and complex Council Development Approvals.

We are also passionate about sustainability. We advocate that visually pleasing solutions, where people and technology can harmoniously coexist, are required to support the expansion of mobile broadband and the deployments of 5G.

Planning cellular deployments in urban environments is a complex task, demanding a balance between engineering, community and property owner requirements.

4G / 5G cells areas are getting smaller, meaning more cells and issues around placement and visual impact.

All too often, it is providing a solution to the community and property owners that becomes the most challenging and time consuming.

Having recognised a significant opportunity and to address the above issues, Solcomm has in cooperation with its Italian partner Calzavara introduced to Australia a set of innovative products and solutions.

We are currently working on a 4G/5G multi-carrier installation in Brisbane (completion due 2021) that will be a showcase of innovation in the carrier infrastructure space and an Australian first.

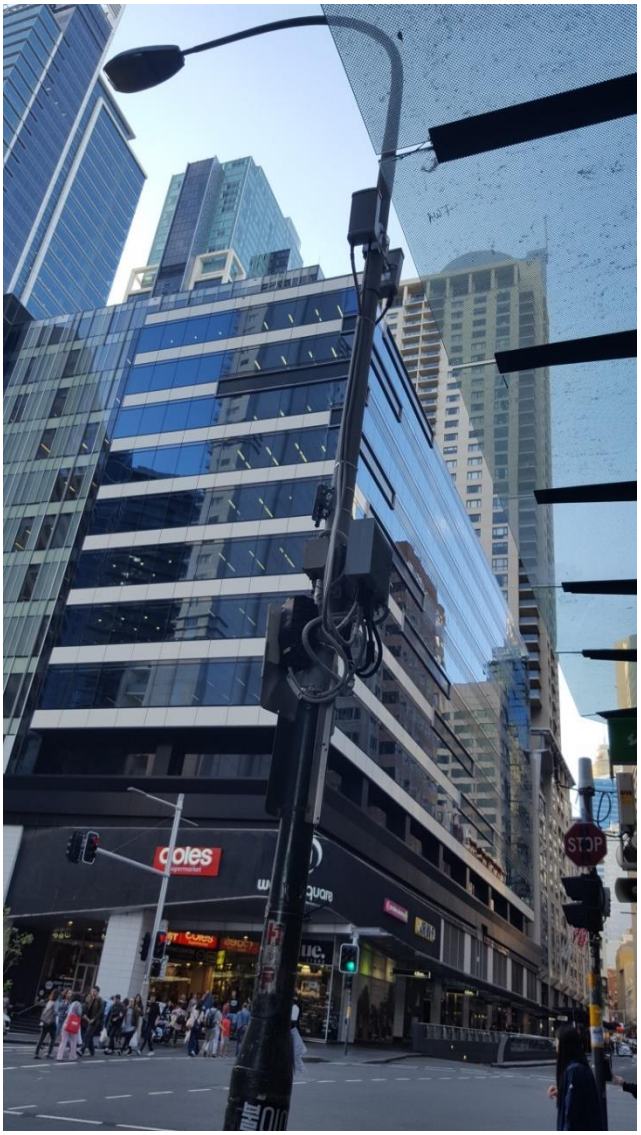
The above solutions provide the deployment teams with a game changing set of alternatives to present to property owners and communities.

These solutions will allow telco towers to move from unsightly "antenna holders" to seamlessly meld with the surrounding environment, add to public aesthetics, even enhance urban functionality and act as public art.

Whilst the Low-Impact Facilities Determination should help circumvent obstacles to mobile deployments, it unfortunately creates in some instances legal voids.

Streamlining the complex Australian regulatory framework is paramount to ease 5G deployments, in particular for provision of dense cellular coverage in urban or high-traffic areas.

Relaxing regulations, with no further concerted action, will in our opinion not be able to achieve the required balance between technical requirements and community expectations.

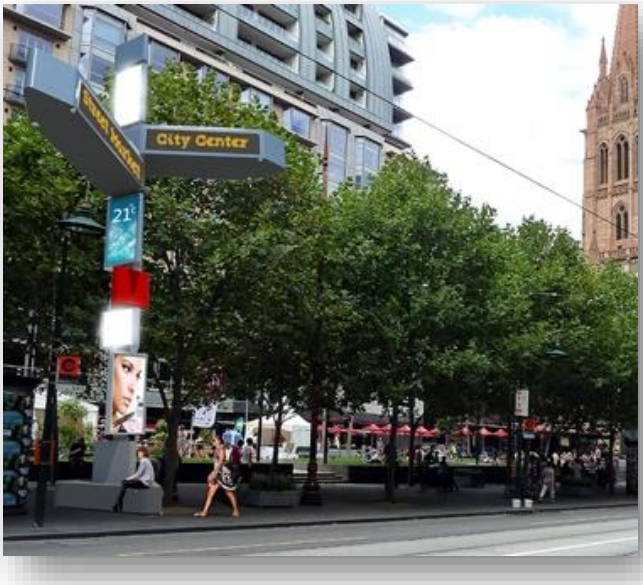


A co-operative approach between carriers, councils, building and landowners, independent infrastructure owners, government and vendors will in our view be required to achieve the outcomes sought. To ensure that the community is best served and the environment is not impacted by a proliferation of unsightly cellular installations, each party could contribute towards the costs of the final solution. Individual contributions could be cash or in kind, as required and best suited.

With the support of our Italian partner Calzavara, we are focussed in making a difference and changing the face of cellular deployments in Australia.

In making this submission, it is our intent to provide awareness of the solutions we promote; and how they can address the issues raised in the consultation paper, with:

- Aesthetically pleasing designs that are suitable for sensitive or iconic locations.
- Minimalist footprint whilst being able to co-locate carriers.
- Ability to blend with the visual surrounds and the environment.
- Inclusion of smart features, such information booth, phone charging, IoT integration and smart LED lighting.
- Opportunity to include culturally sensitive and artistic themes
- Other value-added services, such advertisement and security/CCTV.



In summary , Solcomm is hereby proposing a co-operative approach between all the relevant parties, guided by and aligned with a revised legal framework. We will be happy to play our part in this process.

The revision of this framework should, in our opinion, not only target the Low-Impact Facilities Determination but equally importantly, the Deployment Code.

Thank you for the opportunity to make this submission. We look forward to continuing being of service to Australia and the telecommunications community.

[redacted]

2 RESPONSE TO CONSULTATION

2.1 Safety and notification

No comments have been provided by Solcomm Pty Ltd under this heading at this stage.

2.1.1 Creation of a primary safety condition

2.1.1.1 Prompt questions

1. Do the current safety arrangements provide assurance for the safe and effective implementation of telecommunications equipment?
2. If no, what additional regulatory mechanisms may provide that assurance?
3. Would the addition of a primary safety condition to the Code of Practice provide that assurance?

2.1.2 Standard notifications across industry

2.1.2.1 Prompt questions

1. Is there any other information that could be included on a notice would provide clarity on the installation process and timeframes?
2. What benefits, either financial or non-financial would additional notice and information bring to landowners?
3. If possible, to what extent would the inclusion of a standardised notification process increase or decrease regulatory burden, and at what cost per notification?

2.1.3 Withdrawal of notifications

2.1.3.1 Prompt questions

1. How often has a lack of withdrawal of notice created a financial, or non-financial burden to a landowner? Please provide context to help explain your response.
2. To what extent would a notice of withdrawal, provided in a timely manner, reduce this burden?
3. What methods have carriers used to notify landowners that a proposed activity would not take place, or was cancelled? How effective are these methods?
4. How often would a withdrawal notice be required, and to what extent would this great an additional regulatory burden? If so, what is the anticipated financial regulatory burden each year?

2.1.4 Requirement to provide engineering certification

2.1.4.1 Prompt questions

1. What benefits would landowner or occupiers see in the provision of an engineering certificate within 30 business days after the certification has been received?
2. Would the provision of an engineering certificate to landowners increase the regulatory burden on carriers? If so, what is the estimated regulatory financial impact per year?

2.1.5 Extending notification timeframes

2.1.5.1 Prompt questions

1. What are the benefits (financial and non-financial) of a non-regulatory approach in providing a longer notification timeframes?
2. What are the benefits (financial and non-financial) of a regulatory approach in providing a longer notification timeframe?
3. Should longer notification timeframes apply to all landowners, and not be limited to landowners that are public utilities and road authorities?
4. What would be the benefits (financial and non-financial) of providing a longer timeframe for objections to be made to carriers about proposed activities?
5. What other factors should be considered when considering whether to extend notification or objection timeframes?

2.2 Objections and protections

No comments have been provided by Solcomm Pty Ltd under this heading at this stage.

2.2.1 Clarifying the objections process for landowners

2.2.1.1 Prompt questions

1. Is the objections process as set out in the Code of Practice clear and easily understood by landowners and occupiers? If no, what parts of the process need further explanation?
2. Does the information provided by carriers when giving notice of a proposed activity outline the objections process, or only the first step, that is, to make the objection in writing to the carrier?
3. How could the objection process be better communicated to landowners and occupiers?

2.2.2 Allowing carriers to refer objections to the TIO

2.2.2.1 Prompt questions

1. What benefits or disadvantages are there in including a carrier as a party that can initiate dispute resolution with the TIO?
2. To what extent would this inclusion increase, or decrease, the financial and non-financial burden on carriers or landowners during a dispute?
3. What financial or non-financial burden, if any, would the inclusion of a deadline on carriers to lodge an objection with the TIO have?
4. If there is support for the proposal to include a deadline on carriers to lodge an objection with the TIO, what timeframe should apply?

2.2.3 Removal of redundant equipment

2.2.3.1 Prompt questions

1. What level of enforcement would provide the best solution to the issue of redundant equipment?
2. What regulatory burden (financial or non-financial) would occur if these options were enacted?
3. Are there other non-regulatory ways to better enforce the policy position that equipment is removed if not used?

2.3 Facilitating services in line with community expectations and to support economic growth

Please refer to comments below by Solcomm Pty Ltd under this heading:

2.3.1 Improve coverage outcomes through better infrastructure, where safe

(1) Are there alternative options that would reduce impacts to visual amenity while providing necessary coverage for a modern telecommunications service?

Yes.

The range of solutions we propose, whilst designed as “radio towers”, are visually pleasing and integrated with the urban surrounds.

Such solutions are also able to provide new commercial opportunities; space for art and innovation; and better social outcomes;.

The product suite includes macro cell to small cell solutions:

- The former would fall under what would normally be considered a high-impact installation, thus subject to a council Development Approval.
- The latter can range from free standing information hubs to light poles and street furniture. Consideration would be required for the latter to be considered low-impact structures, thus falling under the LIFD.

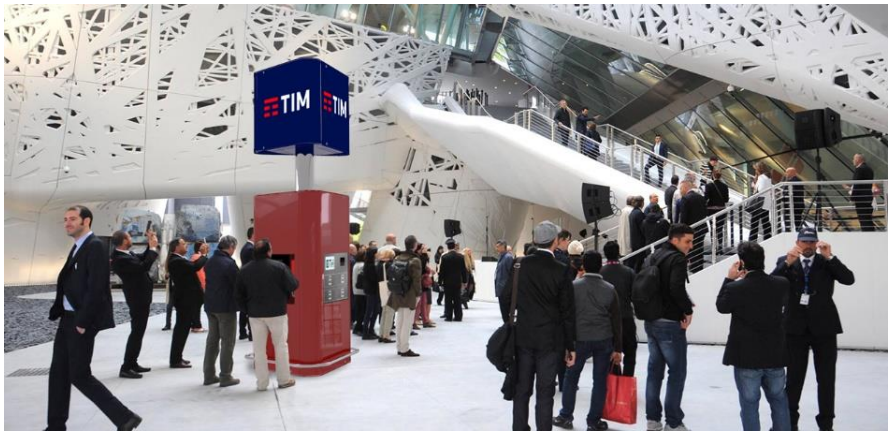
Some examples follow:

Mosaic

Mosaic is the flagship of the macro cell product line. Mosaic’s stylish appearance can be complemented by full-height LED lighting and lighting themes. The external look is available in a number of graphical day/night themes that can be customised with local art or digital content and branded to suit.

The picture below is a digital rendition of the Perth Convention multi-carrier site, where a conventional pole has been replaced by a Mosaic tower (for illustration purposes only).

The Mosaic structure is modular, comprising an integral equipment room at the base and a number of tower sections. The antennas are mounted on the top sections. Mosaictower is available for site sharing of up to three carriers and with heights up to 36m.



Mosaicell

Mosaic can be deployed in an indoor (picture on the left) or outdoor configuration.

In an indoor configuration, Mosaic typically hosts 4G/5G small cell, Wi-Fi hotspot and IoT gateway.

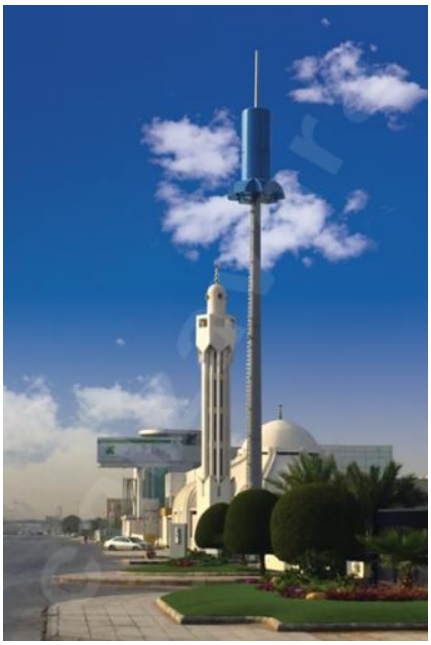
Lancepole

Lancepole is a slimline steel monopole, topped by a circular antenna radome and an elegant finial (the "lance").

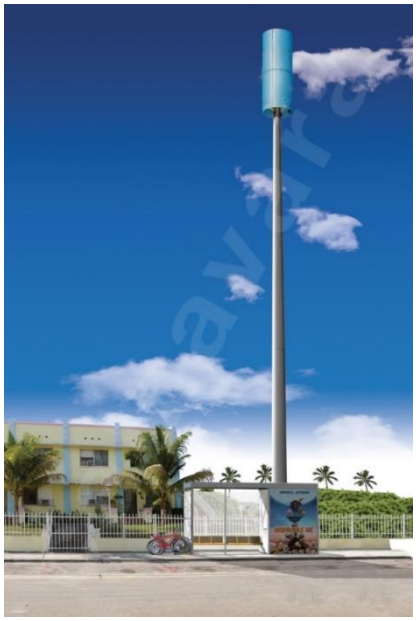
The radome can be customised with different themes or content.

Lance offers the ability to mount floodlights at the base of the lance shroud. An integral mechanical system provides the ability to service the floodlights without the need to access at heights.

Lance can also be provided with an LED lighting kit that illuminates the top lance cladding at night.



Wingstyle and Flagstyle



Wingstyle and Flagstyle both feature a slimline steel pole with a top antenna shroud, with either a "wing" or a "flag" attachment.

Wingstyle is particularly suitable for public transportation applications, such as a bus stop (illustrated at the left).

Its wide range of configuration options include a shelter with bench seating and waiting area, billboard advertising, video surveillance, 5G/Wi-Fi hotspot, etc.

The flag designs make the Flagstyle also particularly suitable for roadside applications, such as traffic lights, variable message signs, automatic number plate recognition, speed cameras, etc.

Both products support heights up to 36m and provide site sharing for up to three users.

Starpole

Starpole is a slimline steel monopole, optionally topped by a radome and an elegant finial.

The antenna radome is star or circular shaped and can be customised with different themes or content.

Starpole features smart street lighting and is aimed at key locations, such as small roundabouts, parks and historic centres, streets and squares. These structures are typically for a single carrier. Up to three antenna sectors can be accommodated. Maximum heights supported 24m.

Citypole

Citypole is a slimline pole incorporating optional street lighting.

The antenna shroud is topped by an elegant finial.

The antennas and equipment can either be housed inside the bottom section of top shroud, or optionally incorporated into the bottom lighting fixtures with a surrounding shroud.

Maximum height supported 30m.

Dicecell

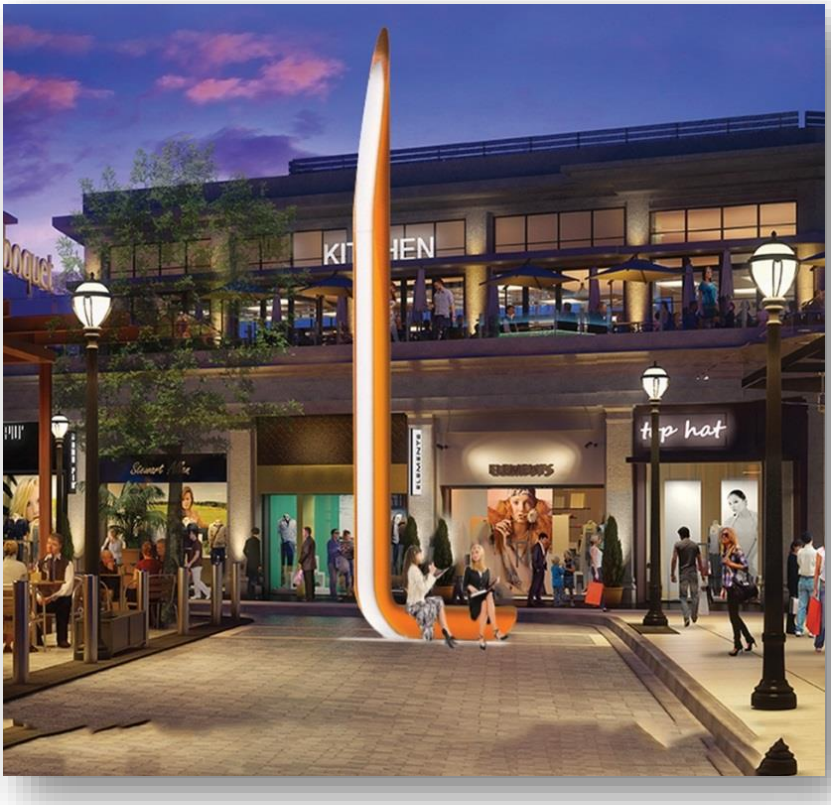
Dicecell is a modular structure with configurable modules (the “dice”).

The overall street appeal is configurable by simple module rotation. The antennas are housed on the top radio-transparent module. The equipment is housed on the bottom module.

The modules incorporate customisable artistic themes. An optional park bench is provided at the bottom.

Dicecell is available with heights between 10 and 15m.

This item has been selected by Nokia to demonstrate its small cell offering at the Mobile World Congress 2017.



Slugcell

Slugcell is a futuristic street furniture item, integrating bench seating space (the “slug”) and featuring LED lighting.

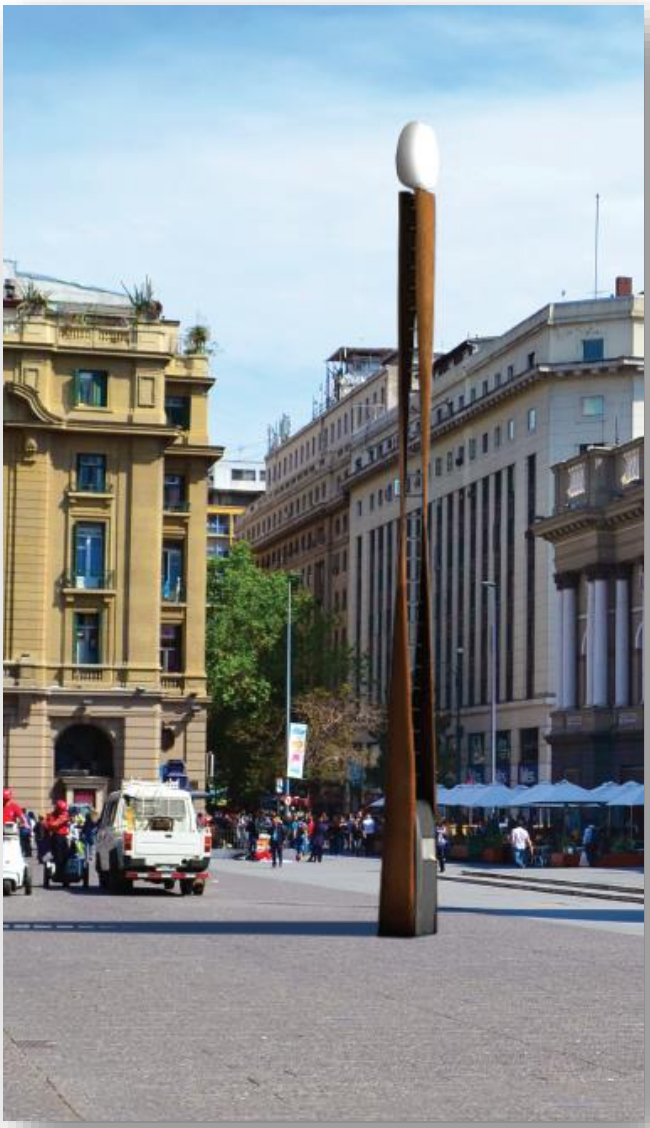
The antennas are housed in the top section of the structure, and the equipment is located under the bench.

Slugcell is perfect for public spaces, such as urban areas, squares and parks.

Twistcell

Twistcell is an iconic spiral-shaped structure for a standalone application (such as a piazza) and featuring integrated smart street lighting.

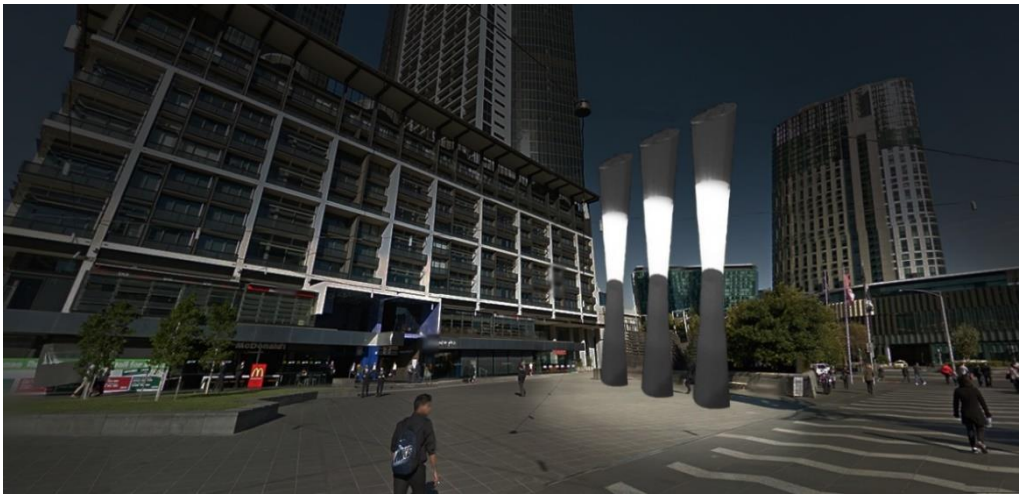
The antennas are housed in the top section of the structure, and the equipment is located in the bottom section.



Conocell

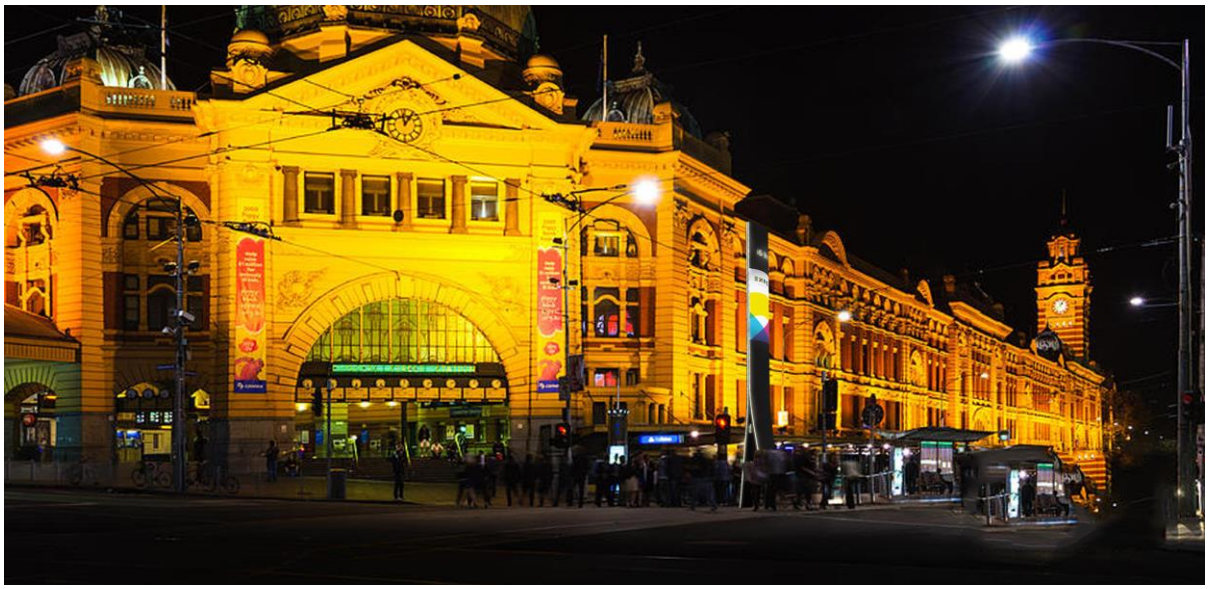
Conocell is a bi-conical futuristic structure with integral LED lighting.

the antennas are housed in the top section of the structure, and the equipment is located in the base section. The mid section is transparent and is used for lighting purposes.



Beaconcell

Beaconcell is a totem-like telecommunications structure that can integrate an extensive suite of features, such as lighting and advertising.



The equipment module is located at the bottom.

Gemcell

Gemcell is a modular structure with gem-like top design. The antenna shroud is located at the top. The equipment module is located at the bottom.

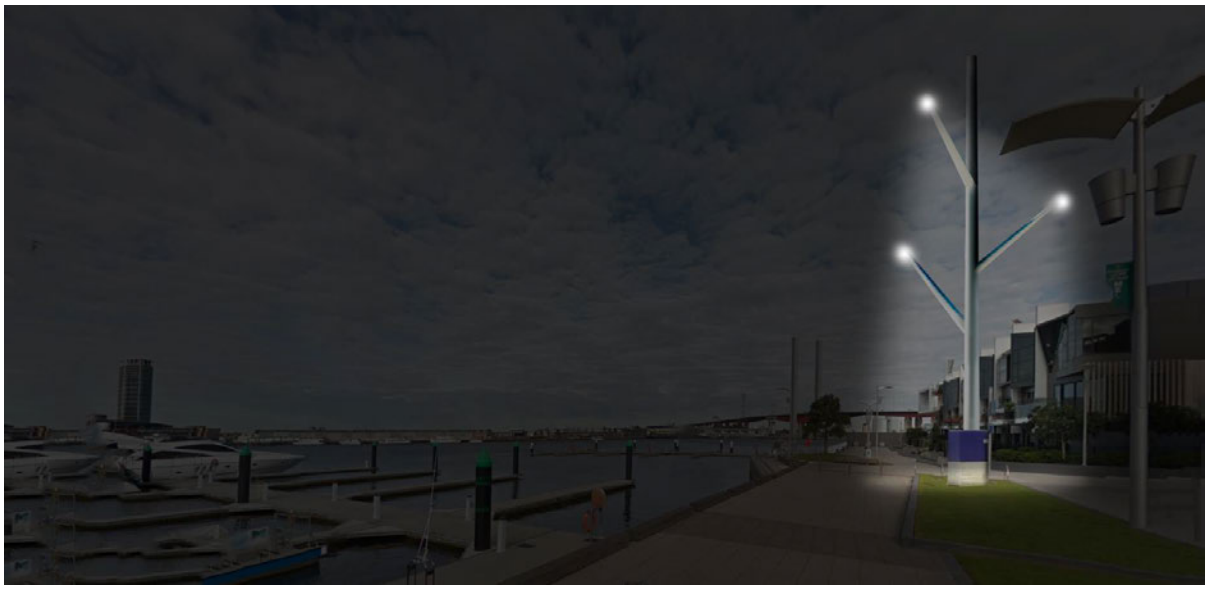
Some of the provided features include:

- Solar power.
- Bicycle rack and electric charging points.
- LED lighting.
- Advertisement panels and digital media.

Treecell

Treecell features a minimalist design resembling a tree trunk, hosting smart LED lighting as a complement.

The antenna shroud is concealed with the main tree trunk. The equipment housing is located at the tree base.



(2) Would these options strike a balance between visual amenity and the need to maintain telecommunications services?

Certainly.

These solutions were purposely designed to host cellular and other telecommunications infrastructure, whilst providing a fine balance of form and function.

Taller structures (such as Mosaic, Citypole, etc) are aimed at microcell implementations. In some cases (such as Mosaic), the design has specifically catered for carrier co-location.

Lower structures (such as Dicecell, Slugcell, etc) are intended for smaller coverage footprints, such as small cells. Options exist for carrier co-location.

All designs are intended for Smart City implementations, incorporating a provision for services such as smart lighting, CCTV and security, information and others.

(3) What benefits or disadvantages (financial or non-financial) would occur as a result of implementing these options?

Sites designated as “sensitive” are commonly located in high-traffic and high-profile or iconic areas. There is significant commercial benefit to deliver cellular and other wireless communications (e.g. Wi-Fi) to those areas.

Where possible and desirable, it would be also beneficial to co-locate Smart City services at those locations.

The net outcome of “illuminating” such sites could will be space activation with better coverage, increased traffic, better customer experience and a safer environment.

There is also the opportunity for Councils and private entities to benefit from value-added services, such as infotainment, advertisement, CCTV, emergency services, etc.

Any additional costs to deploy and maintain the required infrastructure would obviously have to be equated against net gains, for a viable business case.

2.3.2 Improve coverage outcomes through tower extensions

2.3.2.1 Prompt questions

1. Would the extension to 5m maintain a balance between visual amenity and the need to maintain telecommunications service?
2. What benefits or disadvantages (financial or non-financial) would occur as a result of implementing this option?
3. Are there any other conditions or issues that should be considered if this proposal were to proceed?

(1) Would the extension to 5m maintain a balance between visual amenity and the need to maintain telecommunications service?

No, we do not think so.

The 3m allowance in the determination is in most cases applied to rooftop sites.

There are significant planning considerations for the construction of a building, particularly with urban councils. Exempting cellular installations and upgrades under the LIFD from the existing planning instruments can be counter-productive.

Rooftop sites are seldom low visual impact, except on very tall buildings, out of public eyesight. Allowing a height increase of incidental structures with no prior owner consent or council approvals would appear unwise.

If however a planning review and asset owner consultation determines that the installation would be acceptable, then a revised 5m limit may be acceptable, subject to structural engineering considerations.

The technical justification why a 5m pole on a rooftop site may provide better coverage than a 3m one is a far-fetched one. The only real technical justification for the pole extension would be to co-locate further 5G antennas. In that case, it would be suggested the original site design be revisited and old equipment be decommissioned, to make room for new equipment.

Extensions to standalone sites (e.g. monopoles), on the other hand, need to be separately considered. Often extensions to existing monopoles are exempt from the planning approvals imposed on the original build. Pole extensions lead to more equipment (more EME and radiation concerns from the public) and increased structural load. To cater for additional structural load, very often poles need to be strengthened, leading to further visual impairment by the existing site.

Overloaded sites further exacerbate public concerns on EME matters and are a source of visual impairment.

(2) What benefits or disadvantages (financial or non-financial) would occur as a result of implementing this option?

The benefits of implementing this solution for the carriers will obviously be to be able to increase the amount of installed equipment (i.e. antennas, remote heads) with no need for further incidental structures. The improved coverage argument lacks substance.

It would be suggested that a site design optimisation would be a better option than an increase in height of incidental structures.

(3) Are there any other conditions or issues that should be considered if this proposal was to proceed?

An increase in the height of an incidental structure may require further structural support.

That in itself will constitute further space requirements and visual impact. Both matters need to be taken into consideration, particularly for rooftop sites.

2.3.3 Allowing deployment on poles rather than on utilities

2.3.3.1 Prompt questions

1. Should smart or slim line poles, under certain conditions, be considered as low visual impact? If so, what should those conditions be?
2. What other suggestions would help to categorise a smart or slim pole as of low visual impact?
3. What alternatives to this option better meet the need for a national approach to telecommunications infrastructure investment that balances the need for visual amenity?
4. What benefits or disadvantages (financial or non-financial) would occur as a result of implementing these options?

(1) Should smart or slim line poles, under certain conditions, be considered as low visual impact? If so, what should those conditions be?

Yes, provided that those conditions are correctly identified and according to common perception.

Visual impact is quite subjective and hard to quantify. Visual impact also needs to be taken into consideration other parameters, such as the installation itself, the surrounds and the community expectations.

(2) What other suggestions would help to categorise a smart or slim pole as of low visual impact?

The low-visual impact classification should thus consider parameters such as:

- Pole height and diameter/shape (volume)
- Colour
- Target antenna support structures (headframe, mounting pipes, etc)
- Target maximum number of antennas and equipment (size/volume)
- Approved areas for installation (e.g. top/mid/bottom/range
- Cable management and visibility
- Community and site owner expectations

(3) What alternatives to this option better meet the need for a national approach to telecommunications infrastructure investment that balances the need for visual amenity?

Town planning and 5G coverage need to be considered in conjunction:

- 5G millimetre wave is short-range and does not easily penetrate building materials. Use of cladding materials in e.g. antenna shrouds need careful consideration.
- IIOT relies on millimetre wave.
- Deploying 5G in utility poles does not seem like a wise or sustainable alternative.

It is suggested that :

- Carrier coverage plans should be part of Planning Reviews
- Deployment of lightweight/low-impact poles should be the subject of a planning review, per area or suburb.

(4) What benefits or disadvantages (financial or non-financial) would occur as a result of implementing these options?

Low visual impact poles, if adequately categorised and classified, may ease deployment of 5G and other cellular services if suitably supported by a legal and compliance framework.

Existing non-compliant installations under a revised framework would also need to be considered.

2.3.4 Encourage the co-location of facilities

2.3.4.1 Prompt questions

1. Would a consistent approach to measuring co-location volume assist or hinder the co-location and visual amenity of equipment?
2. What methodologies could be used by carriers to determine co-location volume? Are any of these methodologies agnostic regarding equipment type?
3. With safety as a primary consideration, which would be a preferred approach to co-location and why?
4. What benefits or disadvantages (financial or non-financial) would occur as a result of implementing these options?

(1) Would a consistent approach to measuring co-location volume assist or hinder the co-location and visual amenity of equipment?

An increase of co-location volume will inevitably result in an increased amount of equipment on residential and commercial areas (particularly on rooftop sites).

As already suggested, installation on rooftops should also be subject to planning and owner reviews and not exempted under the LIFD.

(2) What methodologies could be used by carriers to determine co-location volume? Are any of these methodologies agnostic regarding equipment type?

Floor area per carrier; and the total area and volume occupied need to be considered, prior to considering an uplift on the maximum co-location volume.

Each carrier is currently installing multiple services (e.g. 3G/4G/5G) and frequency bands. Restrictions should be made for new installations, in view of allowing efficient co-location of carriers.

(3) With safety as a primary consideration, which would be a preferred approach to co-location and why?

EME is a prime safety consideration for the public, especially long-term exposure to aggregate radiation from all carriers.

Safety concerns exist on the use of millimetre wave for mobile communications, as this is a new use for an existing technology. There is no statistical and historical evidence for cumulative effects.

The preferred approach would be to have per carrier/frequency band/service/transmitted power limits established. Limits should also exist and be declared for all carriers.

Those limits would establish the allowable co-location.

(4) What benefits or disadvantages (financial or non-financial) would occur as a result of implementing these options?

Further work would be required by the EME groups and the AMTA/MCF.

No real disadvantages if implemented wisely in our opinion.

3 CONCLUSION

5G relies on higher density deployments, thus requiring more sites to deliver seamless mobile coverage. An improvement to the Australian powers and immunities framework will be necessary to viabilise the deployment of 5G.

Under the current Low-Impact Facilities Determination, incidental structures deemed low-impact are exempt from planning and building approvals. This has led to a proliferation of 5G small cell site on utility poles, rather than erection of new telecommunications poles and construction of bespoke facilities.

Such deployments bypass the community consultation process commonly associated with the delivery of new cellular sites and has caused public uproar. The negative effect of these new sites “on people’s backyards” is further compounded by a worldwide misinformation campaign against 5G, as illustrated by delinquent attacks overseas against cellular infrastructure publicised by Australian media.

We subscribe to the thought that, similarly to mobile phones, cellular infrastructure has to follow the times. If, for example building wiring, has to be neatly concealed in walls and roof cavities; why would the Australian public have to bear the visual blight of crowded cell towers and chaotic rooftop sites in our cities?

The Australian telecommunications legal framework is arguably ageing and outdated. We suggest that a fresh look needs to be taken by those responsible into the cellular technology evolution and its coexistence with people. If the necessary corrective actions are taken, Australia will be propelled into the future.

By avoiding the proliferation of unsightly cellular installations, community expectations will be best served and the environmental impact will be minimised. We have suggested in our submission that a co-operative approach between carriers, councils, building and landowners, independent infrastructure owners, government and vendors be taken. Each party could contribute towards the costs of the final solution either cash or in kind, as required and best suited.

This submission has showcased a suite of innovative products, specifically designed for cellular deployments in public areas where sympathetic designs are desirable.

In conjunction with a revised legal and deployment framework, we feel that such solutions clearly illustrate a viable path forward for the deployment of 5G in Australia.

We make ourselves available to further assist.

4 GLOSSARY

Term	Description
ACMA	Australian Communications and Media Authority
IEEE	Institute of Electrical and Electronic Engineers
ITU	International Telecommunications Union
ITU-R	ITU Radiocommunications Group
3GPP	3rd Generation Partnership Project

5 REFERENCES

[1] Improving the telecommunications powers and immunities framework, Department of Infrastructure, Transport, Regional Development and Communications, September 2020

[2] Telecommunications Act 1997, Schedule 3

[3] Telecommunications Code of Practice 2018

[4] Telecommunications (Low-Impact Facilities) Determination 2018

[5] Mobile Base Station Deployment Code C564:2018

[6] Guidelines for better visual outcomes, low-impact mobile facilities, MCF, 2001

