

Axel von Krusenstierna
Wellington Park Management Trust
16 Elizabeth Street
Hobart TAS 7000

30th June 2014

SUPPORTING DOCUMENTATION

Dear Axel,

In addition to our formal request on the 18th June to consider an amendment to the Pinnacle specific area boundary, please see attached the following supporting documentation to appropriately address the visual impact, visitor amenity, site investigations and public input behind our reasoning.

1. **MWCC's project's term of reference;** *(from April 2012)*
2. **Quantitative public survey responses, 1st Qtr. 2013** *(pinnacle centre sentiment)*
3. **MWCC's adopted Design Parameters 2013;** *(extract from business plan)*
4. **1+2 Preliminary design response 2013;** ~~notes, site plan & spatial schedule~~
5. **VOS recommendation letter;** *construction suitability of identified location*
6. ~~Noel Leary & Associates site specific survey – area as per architect's recommendation~~
7. ~~MWCC Preliminary visual impact analysis; (views to and from the Pinnacle)~~
8. **WPMT Summit Area Heritage Report 2010;** *relevant extracts, (highlighted)*
9. **Bureau of Meteorology Wind Rose charts 1961-2010;** *(Site No: 094087 [pinnacle])*
10. **WPMT Pinnacle Zone Plan 2001;** *– Ice Fall risk zone (highlighted)*
11. **Parliamentary Senate Report 1993;** *NTA tower & ice fall risk (Point 63.3; Page 15)*
12. **Broadcast Australia Tower;** *Construction report / site conditions (highlighted)*
13. **WPMT Management Plan 2013;** *Chapter 8b extract, (highlighted)*

In addition to the aforementioned, please see attached a copy of a recent petition requesting the WPMT to amend the Pinnacle Zone boundary in a way that is favourable to our requirements.

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'Adrian Bold', is written over a horizontal line.

Adrian Bold, Executive Director
Mt Wellington Cableway Company

Terms of Reference

FROM FEBRUARY 2012: A strategic study will be undertaken to consider the economic viability and scale of social acceptance for a tourism venture located at the pinnacle of Mt Wellington that is and serviced by and connected to the city of Hobart by cableway.

The study will focus on the opportunity to maximise the market potential of the venture, its specific location, as well as identifying possible routes, visual preservation of the transport corridor and finished terminals, as indicated by public consultation.

Specifically, the study will:

- Identify an **achievable** tourism experience that is **appropriate** for the location.
- Provide a summary of the relevant economic, environmental and social considerations as raised through a process of public consultation.
- Provide the ideal parameters for the venture to pursue as its adopted principles and design brief, in lieu of regulatory planning guidelines.
- Explore the commercial viability of the venture operating within these parameters, and identify the relationship between the cost options and return on investment available for each option.
- Explore and identify preliminary route development and present route & station options, including indicative high-level construction costs;
- Identify the physical challenges of the specific location and solutions available to these obstacles.
- Outline the financial and business operating models the construction and operation of the project;
- Outline the strategy and tactics for Phase 2 of this Concept stage.

This study will provide a basis for a **technical assessment** to be undertaken at a later date during the Proposal stage, if and when regulatory impediments are removed and investment secured.

The study will be managed by the *Mt Wellington Cableway Company* and the associated project team. It will draw on expertise from the local public and private sectors, as well as international experience, market forecasts and other contemporary data from industry. Identified stakeholder groups will be consulted and can contribute views through a variety of avenues.

It is anticipated that the 'Concept Stage' will remain in effect until late 2013, when it is estimated the current draft Wellington Park Management Plan 2012 will be ratified by the Tasmanian Planning Commission and endorsed by the Minister for Environment, Parks & Heritage.

Mt Wellington Cableway & Pinnacle Centre

Local Opinions & Values Survey

Survey Commissioned by Mt Wellington Cableway Company for the people of Greater Hobart

- Total completed: **2219**
- Total terminated: **0**
- Total incompleted: **48**
- Mean time: **15 minutes**
- Median time: **8 minutes**

MESSAGE PRIOR TO COMMENCEMENT:

A new private enterprise in Tasmania is proposing to offer a choice of access and facilities for Mt Wellington.

The eco-tourism development would be entirely funded by the private sector and no changes are sought to alter current forms of access.

A previous survey in 2009 which telephoned 1000 random local households showed clear preference for a visitor centre & cafe at the Pinnacle, (64%) instead of the Springs (23%)

This proposal would increase visitor demand to the pinnacle and therefore includes an alternative, (not a replacement) form of transport to the pinnacle to avoid expansion of carparking at the pinnacle and reduce traffic volume on Pinnacle Road.

An aerial cableway has been identified as the cleanest, safest and most reliable form of alternative transport which doesn't affect the existing road corridor.

The proposal's route is yet to be determined however options exist in South Hobart, West Hobart or Lenah Valley. **A Pinnacle centre could be located below and either to the left, right or replacing the existing observation shelter.**

The pinnacle centre would aim to be unnoticeable from the existing carpark and include public access for all to warm viewing rooms, toilets and interpretation space, as well as a choice of food and beverage offerings. A bushwalker's registration booth and park rangers office could also be included.

Your opinion and values are sought prior to a formal proposal.

Question 2	Given this information, would you support or oppose the inclusion of a Pinnacle Centre on Mt Wellington?	Answers 2095 (94.41%)	Skips 124 (5.59%)
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	0% 25% 50% 75%	Total	Percent
Strongly Support		1417	67.64%
Somewhat Support		252	12.03%
Unsure		72	3.44%
Somewhat Oppose		93	4.44%
Strongly Oppose		261	12.46%

Adopted Values

Vision

To develop and operate a unique and iconic visitor experience that is economically-viable, environmentally-beneficial and socially inclusive for all tourists and locals.

To provide an integrated & holistic solution for transport, recreation and logistics that enhances the appreciation, enjoyment and preservation of intrinsic values inherent at the pinnacle of Mt Wellington (Kunanyi).

Mission

To become and remain the Number One most recommended tourism attraction in Tasmania and is both recognised and awarded for our environmental and social practices.

Design Parameters

A stringent list of broad-stroke parameters have been voluntarily adopted by MWCC, based on local sentiment to present a palatable development application (DA)². These include an operation that:

- Co-exists with the mountain and does not detract from existing values and recreational use, whilst maximising tourism appeal and access.
- Does not impede, replace, reduce capacity or require restricted access on the existing road corridor to co-exist.
- Delivers an indistinguishable cableway corridor that requires little to no permanent clear-felling of vegetation.
- Aligns the cableway corridor to take maximum advantage of geographical terrain to minimise visual intrusion and quantity of support pylons.
- Provides a visually-unobtrusive Pinnacle Centre, both from the City of Hobart looking towards the mountain, and looking from the existing car park at the Pinnacle.
- Provides a base terminal with ease-of-access to and from the city, in particular the waterfront zone, including mixed-mode integration with existing transport options.
- Value-adds to the ongoing management and preservation of Wellington Park.



² Performance Criteria for Development Applications now exist in the WPMT Draft Management Plan

We have been asked by Adrian Bold of the Mount Wellington Cable Car development team to provide a brief summary of our key architectural considerations in contributing to the currently preferred siting for development at the pinnacle.

It is very important to note that at this stage only preliminary architectural analysis has been undertaken and that *preliminary recommendations* have been offered on that basis only. It is envisaged, that prior to the future resolution of architectural proposals, a full analysis of the environmental, architectural and engineering aspects of the proposal shall be undertaken in order to test and verify the appropriateness or otherwise of our preliminary work.

Accessibility

At the core of the architectural brief for this project is a strong desire on the part of the proponents for good quality architectural design to facilitate equitable access to the pinnacle to all users regardless of their mobility, age or other abilities. Providing Code compliant access to and throughout the pinnacle building will influence its siting and internal design. In particular the need to provide code compliant pedestrian access into the building from the pinnacle car park will influence siting and confirmation of finished design levels.

Construction access is also a key consideration. Siting has to be a balance of both achievable, work-safe, and code compliant construction access while minimising the environmental impact of the construction process. A key aspect of this will be to work where possible with the existing contours of the site to provide near level access.

Environmental Impact

Building Visibility

The visibility of the pinnacle centre is a fundamental design consideration and will have an overriding influence on building siting. Considerations in this regard have to take into account both the scope of visual impact of the building both toward the pinnacle from key vantage points and the visibility of the building within key view lines from the pinnacle itself. A primary strategy in considering this, involves analysis of the existing land form at the pinnacle and endeavouring to find opportunities to integrate the proposed building onto existing depressions or terraces within the landform. This will minimise both the visibility of the building within the silhouette of the mountain while minimising the need to alter the existing landform. The goal is to find a combination of siting and building form which will ensure that the proposed buildings profile will not unduly breach the mountains silhouette from any key vantage point.

The visibility of the pinnacle centre from key vantage points at the pinnacle is also a consideration. It is envisaged that a combination of judicious siting and site integrated architectural design will minimise the visibility of the pinnacle centre in this regard.

Building Footprint and Form

While the over-all size of the building is a consideration, we feel that its siting, form and relationship to the existing ground plane are equal if not over-riding considerations when considering its environmental impact. We feel that a building form which hugs or even integrates into the existing ground plane, is linear and narrow, following existing contours and is fragmented in form so as to eliminate continuous lengths of straight or parallel geometry may be appropriate. A native vegetated and partly trafficable roof could dramatically reduce the buildings visual impact within views from the pinnacle.



“making a positive {+} difference”

July 1, 2014

Adrian Bold
Mt Wellington Cableway Co.
GPO Box 409
Hobart TAS 7001

Dear Adrian,

RE: MWCC Pinnacle Centre Location

As a result of our investigations into the construction of the Pinnacle Centre for the Mt Wellington Cable Car, we would strongly endorse constructing the building just below the existing observation shelter. Because of the experience we have gained from completing construction projects in similar locations, where buildings are exposed to extreme weather conditions at higher elevations, we believe this would be the most suitable location.

This location has been identified as the preferred option as it would provide suitable construction access for the project. In addition, temporary hardstands for crane use could be located close to the existing disturbed area to reduce the impact on the environment.

In excess of 70% of the wind on top of Mt Wellington comes from the westerly sector. It is consistently high strength and frequently gale force, which makes this location on the east less exposed and safer for construction activities as compared to building within the current zone. This position also provides greater distance from radiation omitted from the current transmission towers.

Visual impact would be minimized not only during the construction period, but upon completion, where the building will sit below the skyline when viewed from the city.

Taking into account these considerations, we strongly believe the Pinnacle Centre for the Mt Wellington Cable Car should be located below the existing observation shelter.

Yours faithfully

Vos Construction and Joinery Pty Ltd

Darren Vos
Director

Views From

The large number of ascents of Mount Wellington in the early days of the settlement of Hobart, and the accompanying descriptions which focus mainly on the views from the summit, and which in the majority of cases appear to be the primary reason for the ascent, are a clear indication of the importance of the views from the Pinnacle. It is interesting that although the summit of Mount Wellington is a plateau and there are numerous accessible vantage points (including South Wellington, Thark Ridge and Mount Arthur) there are almost no descriptions of views from vantage points other than on or near the Pinnacle. This emphasises the importance of the summit as the main viewpoint of Mount Wellington.

Only a small number of written descriptions of the views from the summit area have been identified. The visitor numbers to the summit area however, particularly from the late 1800s until 1937 when the area could only be reached on foot by a long steep walk from the Springs, and post-1937 when it was easily accessible by car and no longer a personal challenge, attest to the value placed on the views from the summit area by visitors. In the summer of 1904-5, of the 9,500 people who visited the Springs, 7,000 travelled on foot to the summit – presumably for the views.¹²⁰ The research conducted for the preparation of the *Pinnacle Zone Site Development Plan 2001* indicates that the majority of the 200,000 plus (per annum) modern day visitors to the summit also come primarily for the 'fantastic', 'breathtaking' and 'panoramic views of Hobart and Tasmania' from the summit.¹²¹

This general conclusion is strongly supported by other documentary evidence. For example, in promoting Mount Wellington, the views from the summit are given as the primary reason for making the ascent in the many guidebooks to Tasmania of the late 1800s. The guidebooks extol the views from the summit with comments such as “it is no mere figure of speech to say that it is worth travelling 1,000 miles to see.”¹²²

It is apparent from the written descriptions of the view from the summit from the 1830s through to 1900 that there are two important aspects to the view from the summit (see Figure 8). These are –

1. the panoramic views (which are in effect 360° views); and
2. the breadth and detail of the coast and waterways (bays, peninsulas, isthmus, islands and channels) that can be seen.

It is clear that it is the broad and intricate landscape laid out before one from the summit (and to a lesser extent the Springs) that is what most captivates, engages and excites those who gain the summit of Mount Wellington. Anecdotal evidence suggests that this is still an important aspect of the viewscape from the summit, but it is possibly less important today in an age when such views are easily had from an aeroplane window, than to those who climbed Mount Wellington before there was the opportunity for a ‘bird’s-eye view’ of landscape, other than from a mountain top.

Scenic Quality

Views to and from the summit, because of their importance, can clearly be considered to be of high scenic quality. The following explores this high scenic quality, including its historical recognition.

¹²⁰ A. Werthmeiner, *JPP vol LIII No.18, cited in Sheridan (2004).*

¹²¹ *WPMT (2001b).*

¹²² *Guide for Excursionist (1869, p15).*

Views From (Out)

As indicated above in *Viewscapes*, in relation to the views from the summit, it appears that the high scenic quality views are from the summit area as this area appears to be better than any other point on the Wellington Range for sheer beauty and an uninterrupted expanse of view by virtue of its height, flat top and being at the outer corner of northeast and southwest ridges of the Mountain. The high and expansive views give panoramas and extensive vistas that are rare in Southern Tasmania. Although not explicit in the evidence reviewed, it is probable that an additional aspect of the scenic quality looking out, is the clear view of much of Hobart from this vantage point, enabling visitors to 'look down' on their local environment and understand and connect with it in a different and comprehensive, hence powerful way.

Until 1895 the views out, generally viewed from the Pinnacle, remained uninterrupted views as there were only two made structures in the summit area (the 1830s trig station and the shelter shed). In 1895, with the erection of Wragge's Summit Observatory, there would have been an obvious new interrupting element to views to the west. This structure however is likely to have had a minor impact on the scenic quality overall given its small size and because it was tucked up against a low rise of rocks and partly covered with rocks. No new elements with a visual impact were introduced until the 1930s, when the Pinnacle Road was completed to the summit and a lookout was constructed on the edge of the crest. These new features also had a relatively low visual impact as they were low in the landscape.

It is likely that the new lookout resulted in the main viewing location moving from the Pinnacle rocks to the new lookout on the edge of the summit crest and away from the Pinnacle proper. This would have reduced the visual impact of the two later (1950s) TV transmission facilities, including towers, as this infrastructure was effectively located 'behind' the lookout viewing circle. The transmission towers however would have slightly broken the 360° panoramic views from the Pinnacle proper.

The 1990s communications tower is not considered to have had a significant additional impact on the scenic quality of views from the summit as it has essentially replaced the PMG facility. It has however had some additional impact as the infrastructure is more massive and more spread out, and the landscaping surrounding the infrastructure is obvious and clearly not natural. Apart from the 1990s communications facility, the post-1950s infrastructure is limited to a new viewing shelter, toilets and boardwalks and viewing platforms. These are mostly small scale in relation to views out from the summit area. The increasing and cumulative amount (and bulk) of infrastructure in a number of directions however appears to be eroding

The 1869 Guide to Excursionists from the Mainland to Tasmania makes the following comment about the viewscape -

"The lion of Tasmanian scenery, Mount Wellington, never fails to rivet the attention and elicit the admiration of the visitor to Hobart Town ... Rising as it does to an altitude of 4,166 feet above the sea, immediately behind and to the westward of the city, it presents the appearance of a huge natural watch-tower. Whether it is seen at early morn when the rising sun strikes its columned head with shafts of crimson gold, making its pillars gleam like burnished bronze, and bringing out distinctly in bold relief patches of green yet stunted scrub, which ever contrasts strongly with the sombre hue of the dark-brown rock; or when winter has clothed it in a mantle of snow, and the full moon floods it with her cold silver light, this Tasmanian Alp is equally grand and sublime."
(Guide For Excursionists, 1869, 37).

Even the more measured and realistic descriptive sections cannot stay unmoved by the beauty of the area, such as in the following description of the summit ridge –

"...the table top of the mountain, from which rise at intervals clusters of lichen-covered monumental columns of greenstone. A soft black spongy soil occupies the hollows, which supports a scanty and dwarfed vegetation; but among which there are many very beautiful mountain shrubs. The desolation of this scene is enhanced by the bleached branches of stunted shrubs clinging closely to the rough stones. Little sign of life is there to be seen beyond the startled lizard occasionally darting beneath the stones. But let the visitor turn his gaze to the east, and if he is not spell-bound by the picture presented to him then he has not soul above buttons"
(Guide For Excursionists, 1869, 40).

the scenic quality of the views from the summit. It is difficult now to get a view out from the summit that is uninterrupted by infrastructure.

Naturalness of the view out from the summit area has not been previously identified as a significant contributor to the scenic quality of the view out. It is considered likely however, based on the emphasis given to landscape in the views out, that a significant or complete loss of natural elements would significantly reduce the scenic quality of the views out. Such a scenario however is unlikely to occur in the near future. It is also considered likely that the naturalness (or apparent naturalness) of the slopes of Mount Wellington contributes to the scenic quality, as it contributes to the high and remote 'feel' of the viewpoint.

At the Summit

The scenic experience from the summit, hence scenic quality generally, appears to be affected to some degree by the scenic quality of the summit area. This observation is based on historical and contemporary comment which frequently discusses the views from the summit and the natural beauty of the summit area in tandem. The comment suggests that the scenic quality is enhanced by the natural qualities of the viewing point, which as well as providing panoramic views from a great height, is an essentially natural area with its own alpine beauty.

Views To (In)

Although not formally assessed previously, it appears that the views to the mountain, particularly from Hobart which contain views of the summit area, are of high scenic quality (see *Viewscapes*, above) with the bulk of the mountain with its essentially natural forested slopes, the essentially natural skyline, including the low summit peak and prominent natural features such as the Organ Pipes, being the main elements contributing to the high scenic quality. This value is reflected in the historical and contemporary images of Mount Wellington, and in public reaction to developments on the mountain which impact on the scenic amenity (eg, the 1930s Pinnacle Road, the 1980s observation shelter, the 1990s communication tower, and the various proposals for a cable car to the summit). In the case of the observation shelter, although the materials used were chosen to help the building blend into the local environment, there was much public criticism of the shelter on the basis that it would be visible from Hobart, with many arguing for it to be designed and located so as not to interrupt the skyline; and with concern about lights being visible at night, a concern recognised by closing the shelter at night.¹²³

The historical and contemporary images of Hobart and the way in which the city is described, also emphasise that Mount Wellington has high scenic quality as a natural backdrop to Hobart, with changing light and weather conditions, particularly settling snow, contributing to this quality. This reinforces the importance of the naturalness of the Mountain, summit ridge and skyline to maintaining this scenic quality. It also suggests that what happens in Hobart is important with respect to maintaining scenic quality. As recently as last year (2009), the protection of the visual values of Mount Wellington was a key factor in a HCC decision to refuse an application to install wind turbines on a prominent Hobart building. One of the major reasons given was that "the structure would destroy Hobart's view of Mount Wellington".¹²⁴

"Who can look upon that magnificent mountain which towers above our city, without feeling pleasing gratitude for the gift of being rendered capable of perceiving the intellectual and glorious delights of the sublime and the beautiful".

A.J. Bicheno, colonial beaurocrat and amateur scientist, cited in Flanagan, in Dombrovskis (1996, 12-13)

¹²³ Buckman (2000).

¹²⁴ *The Mercury*, 28 July 2009, p3.

A later example is the 1996 *Draft Wellington Park Values, Use & Management Inventory* which states "public sensitivity [in relation to the Wellington Range generally] is high owing to it being viewed from areas of high population, important recreational areas, and major State highways." And it goes on to state that "based on the above characteristics [and also high scenic quality derived from the landscape, and it being seen from a range of distances over large areas], the high concern for visual resource values should be respected by the full retention of the landscape character".¹⁸⁹ And in 2001 in relation to the summit area, the *Pinnacle Zone Site Development Plan* notes "The aesthetic value of the area contributes to its highly significant social value, which manifests in an extreme public sensitivity to development in the area".¹⁹⁰

One of the issues for management however is that while it is clear that there are strong social and landscape values that attach to the summit area (and Mount Wellington more generally), these have not yet been formally assessed. Various surveys have asked for comment from Hobart residents, other local community members and visitors, but much of this survey has been focussed on reactions to proposed new management, use and development, and has not attempted to understand why people respond as they do (see also *Adequacy of Values Knowledge Base* above). It is suggested that a key research focus to promote better planning for Wellington Park should be the social and landscape values that attach to Wellington Park as a whole.¹⁹¹

From the detailed analysis undertaken by the present study, the key social and landscape values that attach to the summit area appear to be primarily as the highest point of Mount Wellington and as a place that is close by and accessible, and primarily a natural area.

Flowing from these qualities, the summit area appears to be important as a viewpoint, for its natural qualities (undisturbed alpine environment between and away from visitor and telecommunication infrastructure), as a place for alpine recreation and nature appreciation; and as the signature landmark for Hobart and the 'South', a symbol of place (Hobart) and as part of the home environment (with Mount Wellington as a whole) which is valued for its beauty, weather forecasting, as a locational reference, and simply for being there. Management, use and development that have a significant impact on this complexly related set of values are likely to be unwanted and unpopular, and potentially unacceptable to the general community.

The following explores some of the issues with existing infrastructure that arise from the strongly held social and landscape values, as well as potential issues with new use and development, and a small number of identified management issues. The comment is based on the research undertaken for the present study and is therefore of necessity general level comment and is not a comprehensive review.

Existing Infrastructure

Although their functionality is generally accepted, all of the larger existing structures in the summit area (ie, the two TV/communications towers and associated infrastructure and the Observation Shelter) are seen by many as inappropriate in their present location.¹⁹² The main reason these structures are unpopular appears to be because of their visual intrusiveness.

¹⁸⁹ *WPMT (1996, p132)*.

¹⁹⁰ *WPMT (2001a, p11)*.

¹⁹¹ *This has been recognised with the implementation in 2009 of a major, multi-project Wellington Park Landscape Assessment.*

¹⁹² *Buckman (2000), Dombrovskis (1996), Fern Tree Community Association (1996), Lands Department (1981), Pinkard (1991), Stoddart (2004), WPMT (2001b).*

This is highly explicit in the case of the Observation Shelter, with many comments noting that the shelter can be seen from Hobart because of its design and because it is sited on the edge of the steeper section, and with complaints also being made about being able to see it at night if it is lit, again because of its prominent location.¹⁹³ Perhaps the most negative comment encountered is the following by Richard Flanagan who describes the Observation Shelter as "an extraordinary carbuncle of a building that protrudes from the mountain's edge like two bloodied, swollen lips cast in rock and cement ... [encapsulating] in – literally – concrete, a failure to understand the mountain".¹⁹⁴ While there is some comment that applauds the design of the Observation Shelter for its creative design and use of natural, local materials, the comment has been more negative than positive.¹⁹⁵ In the case of the Observation Shelter, the majority of criticism appears to be in relation to its visual impact looking in to the summit from below, rather than the impact while at the summit, from where people enjoy the uninterrupted panoramic view from the shelter (pers obsv).¹⁹⁶ This indicates that siting is a critical issue in new development.

In the case of the communications towers and associated facilities, because of large scale visual intrusiveness appears to be the issue. This is evident from *The Mountain – a people's perspective* in which it is noted that the transmission towers "have raised storms of contention in Hobart" and which quotes a local comment about the towers and associated infrastructure – "that fantastic collection of geometric objects on top of the Mountain, which would win the Scar of the Year Competition were it held in Hobart".¹⁹⁷ It is however noted that the towers do have a "certain integrity because they are tied into a larger network of communications".¹⁹⁸ The *Wellington Park Management Plan 2005* also notes that "Community concerns have consistently been raised about the use of "The Pinnacle" as a site for telecommunications facilities owing to their visual and other environmental impacts".¹⁹⁹

Although many people do not comment on these structures, a significant number of people have noted that the towers are visually intrusive and would like to see them removed when there is an alternative technology that means they are not necessary.²⁰⁰ The qualification of this comment demonstrates that while the functional need for the towers is recognised, the towers are a significant visual impact, hence undesirable. In the case of these towers there is little benefit to be gained from re-siting them, but the visual impact could be reduced by reducing the number of them, and also by design considerations and keeping the size to a minimum. This is reflected in the management objective for Wellington Park to "rationalise and reduce the impact of existing telecommunications facilities within the Park".²⁰¹

It is interesting to note that the other existing structures within the summit area – the Pinnacle Shelter Shed, the Pinnacle Road, tracks and walkways and viewing platforms do not attract criticism. In general terms this again suggests that functionality is appreciated, particularly when related to the key established public use functions of the Pinnacle (ie, walking and car access, viewing, and interpretation), and that ways of doing this that are visually unobtrusive and small scale are acceptable. The Pinnacle Shelter Shed and the Observation Shelter provide a good comparative example as they both have a similar function and are made of similar

¹⁹³ Buckman (2000), Dombrovskis (1996), Pinkard (1991), Fern Tree Community Association (1996), WPMT (2001b).

¹⁹⁴ Dombrovskis (1996, p8).

¹⁹⁵ Refer footnote 194 and Appendix 3.

¹⁹⁶ The excellent views from the Observation shelter would seem from recent anecdotal comment to be the main positive value of the Observation Shelter.

¹⁹⁷ Stoddart (2004, p108).

¹⁹⁸ Stoddart (2004, p108).

¹⁹⁹ WPMT (2005, p89).

²⁰⁰ Pinkard (1991, item 2.4.2).

²⁰¹ WPMT (2005, p92).

materials and do not differ significantly in size. Yet there is strong criticism of the Observation Shelter which is a highly visible and 'modern' structure compared with Shelter Shed which is a rustic style building tucked under the Pinnacle boulders and which attracts no criticism. This would appear to demonstrate that unobtrusive siting is much more acceptable than obtrusive siting, and that older, traditional style or historical structures are more acceptable than new, innovative designs. This is supported by the social values assessment finding that the continuity of use of the summit contributes to the social value of the summit area.

New Uses & Developments

From the above, the main message for new use and development from the present assessment appears to be to respect the social and landscape values of the summit area. This is evident in the summary of public comment in relation to the development of the Pinnacle Zone SDP²⁰² which notes that respondents generally indicated "the desire to maintain the natural qualities of the Pinnacle and to prevent future developments that may impact on these natural landscape values".

With respect to landscape values, this equates in general terms to maintaining the natural qualities of the area and avoiding new major visual impacts. In relation to social values it appears to translate into maintaining public access (assumed to be cost free, commercially unrestricted access), maintaining the range of established activities (sightseeing, as a recreational (walking) destination/starting point, experiencing the natural alpine environment, and snow play) while providing the basic, but good quality, facilities normally associated with these functions (ie, car parking, viewing locations, toilets and BBQ/picnic facilities).

Although public comment ranges from removing all post-1950 infrastructure to a desire for more visitor infrastructure (eg, a cable car, a restaurant, a hotel, lawns, and BBQs), the majority of public comment in relation to the development of the Pinnacle Zone SDP indicated that people wish to 'keep it as it is' and keep visual intrusions to a minimum.^{203 204}

Because of the limited social values assessment and user surveys to date, more detailed level issues such as the location, style and balance of infrastructure within the summit area, appropriate mixes and locations of use, management of visitor numbers and protection of natural and cultural values have not been canvassed to date.

In more specific terms in relation to new use and development in the summit area, and based on the available information, maintenance of the social and landscape values (ie, natural qualities and public access, and minimisation of visual impacts) appears to require the following:

- Public access to the summit area which is maintained for traditional activities in a manner similar to that which occurs at present and has occurred historically (ie, which continues to provide for the dominantly passive²⁰⁵, non-commercial²⁰⁶, dominantly self-reliant,

²⁰² WPMT (2001b, p2).

²⁰³ WPMT (2001b, p2).

²⁰⁴ It should be noted that recent public consultation undertaken by the WPMT in developing a sustainable transport strategy (WPMT 2009), showed there is support in the local community for a cable car for access to the summit. It should be further noted that this was not based on any concrete proposal which enabled the visual and social impacts to be assessed.

²⁰⁵ This term has a particular meaning in the context of this policy and plan – the term is used to reflect wording used by the community and should be taken to mean activities that are essentially quiet, low key, reflective and non-competitive. The term as used here has the same meaning as in the Springs Initial Conservation Policy (McConnell & Scripps 2007).

²⁰⁶ This term has a particular meaning in the context of this policy and plan – the term is used to reflect wording used by the community and should be taken to mean use that has no cost (monetary) to the

outdoor recreation which occurs at the summit, and for access to be free (ie, non-fee paying) and to be essentially unrestricted (except for OH&S and essential management reasons).²⁰⁷

- Public access to the summit area which continues to allow access to traditionally important locations (ie, the Pinnacle, the Organ Pipes, the Front Drift, the various viewing points, and the natural alpine environment generally).
- Public access to the summit area which continues to allow for primarily non-commercial access for traditional activities, where those activities are not commercially constrained or mediated, except on the basis of user choice.²⁰⁸
- The retention of uninterrupted views in and out of the summit area (and the quality of these views), and where possible improved views by removing or re-siting current high visual impact infrastructure.
- Development which is not visible on the skyline.
- All developments to be visually sympathetic and minimally intrusive.
- All infrastructure to be limited to maximise the area of natural vegetation and its quality, and to ensure the area of natural alpine vegetation remains dominant.
- Major new uses and developments not to be permitted in the summit area where they can be sited in other less sensitive areas.
- Visitor building facilities and other large scale infrastructure to be kept to a minimum and limited to essential services for existing uses (recreation, sightseeing, surveying and communications).
- Signs and signing (eg, marked pedestrian crossings²⁰⁹) which is limited (including in size, extent and number).
- Other new uses requiring new infrastructure (eg, hang gliding) to be carefully assessed to ensure they do not significantly negatively impact on the social and landscape values (including by their presence in the summit area, their design and siting).
- Where there is competition between existing public use and new uses, for priority to be given to existing significant (major) public use/s in order to respect the major historical and social values that attach to the summit area.

The above comment applies to the full summit area, which includes the Pinnacle Zone. Given the management zoning in the summit area however, much of the comment relating to new development and use will only be relevant for the Pinnacle Zone, as significant development is restricted to this area.

Although some of these considerations are already written in to the WPMP and Pinnacle Zone SDP (mainly infrastructure visual impact mitigation and controls), it should also be recognised that as well as protecting the cultural heritage values in the summit area, there will

user. The term as used here has the same meaning as in the Springs Initial Conservation Policy (McConnell & Scripps 2007).

²⁰⁷ *Ongoing access for traditional activities with minimal management or commercial control was found to be an extremely important public concern at the Springs (McConnell & Scripps 2007), and it appears from public views expressed about the summit and Mt Wellington more generally to date that this is also a concern in relation to the summit area, generally stated as a concern to maintain current public use.*

²⁰⁸ *The intent here is not to prevent appropriate commercial operations (eg, current bus based sightseeing operations and the downhill bicycling operation), but to ensure that commercial development in the summit area does not constrain existing public uses which have strong historical and social value.*

²⁰⁹ *WPMT (2001b, p2).*

be potentially competing management needs and developmental aspirations, particularly in the Pinnacle Zone, which need to be considered. It is important however in making decisions about management, use and new development, that the cultural values and what is required to maintain them is taken into account, particularly given that a primary management goal for Wellington Park is to 'provide for community, tourism and recreational use and enjoyment of the Park consistent with' 'retain[ing] the essential cultural characteristics of the Park' (which is considered to include the high level historical, scientific, landscape and social values of the summit area) and the natural environmental values and water quality.²¹⁰

Management & Planning

There are a small number of other matters that have been identified that arise from the assessed cultural heritage values of the summit area and which should be taken into account in management and planning for Wellington Park, including for the Pinnacle Zone, if the significant cultural heritage values, particularly the social and landscape values are to be maintained (note - conservation of individual sites is discussed in a later section).

Many of these issues are already recognised and provided for in the *Wellington Park Management Plan 2005* and/or the *Pinnacle Zone Site Development Plan 2001*, but they are included below to reinforce the importance of these measures and policies. A small number of matters are not consistent with the recommendations or policy in the *Pinnacle Zone Site Development Plan 2001*, and it is important that these matters are considered in the next review of the plan.

- Maintenance of the established historical uses (which are also the main contemporary uses) is important for the maintenance of significant social values. These uses are recreation, sightseeing, nature appreciation and informal snow play. The social value of the scientific and communications use is less significant, and education has not been a major function historically, hence it is less important to retain or provide for these functions in the summit area from a cultural heritage perspective.
- The summit area has traditionally been one of self reliant recreation where sightseeing is the primary objective of visitor. This function and focus should be maintained, as should access to traditionally important locations (ie, the Pinnacle, the Organ Pipes, the Front Drift, the various viewing points, and the natural alpine environment generally).
- Avoidance of new uses that are unsympathetic to existing uses and values and not of necessity related to the location (ie, the summit area of Mount Wellington) is also important for the maintenance of significant social values, and contributes to the maintenance of the landscape values of the summit area. Such uses include significant commercial development.
- Access traditionally has been on foot by several routes, as well as the Pinnacle Road from 1937, allowing options for access and providing free access. The maintenance of access options and free access are seen as important for retaining the social values of the summit area and should be continued. Given the historical and social significance of the existing routes, these should be maintained (or reinstated) where possible rather than creating new routes (see also 'Tracks' in *Heritage Conservation of Individual Sites* below).
- The walking tracks and the Pinnacle Road all historically terminated at the Pinnacle proper, clearly demonstrating that the Pinnacle was the end point or culminating point of the ascent of Mount Wellington. The importance of the Pinnacle as the destination should continue to be respected by maintaining the historic track network in the area of the

²¹⁰ *WPMT (2005, 14)*.

Pinnacle, including their termination at/on the Pinnacle and by avoiding the construction of new tracks.

A number of track terminations have been lost since the Pinnacle Road was constructed and this lack of clear access was noted in the *Pinnacle Zone Site Development Plan 2001* which proposed "a few simple paths leading to the semi-observed steps located to the south west of the trig point [the former end of the South Wellington Track]".²¹¹ This work has now been carried out, but the reinstatement of the historic paths should be considered in future planning.

If new tracks are considered important in the summit area these should be kept to a minimum and should not impact on, or duplicate the historical routes. Consideration in this instance should also be given to developing a recognisable signature style and network pattern for the new tracks so they can be clearly differentiated from the historical track network. Possible options are a different track convergence location (preferably some distance from the Pinnacle) and constructing the new tracks as sealed, possibly narrower, tracks to differentiate them from the more major naturally surfaced historical tracks, and to reduce the visual impact.

- Because of the landscape values and, to a lesser extent, the social and historical values, the area of car parking in the summit area should be limited in the summit area.²¹² Expansion of car parking also has the potential to damage significant historic heritage sites in the summit area (eg, the Pinnacle and Wragge's Summit Observatory). The provision of additional car parking, and possibly bus parking, is likely to be a real issue that will need to be addressed in the medium to long term if the number of visitors who arrive by car increases significantly.²¹³ This is indicated by the *Pinnacle Zone Site Development Plan 2001* which notes that in 1989 in high visitation times there were up to 1,700-2,000 cars per day on the Pinnacle Road, with possibly as many as 1,000 cars on the Mountain at one time²¹⁴, and with the only significant parking areas being at the Springs and at the Pinnacle.
- Because of the landscape values and, to a lesser extent, the social and historical values, where developments are discontinued or shifted, the former site/s should be rehabilitated back to as natural condition as possible except in areas of natural or cultural value where this may be inappropriate (and the necessary treatment should be determined on the basis of consultation).
- It is clear from the present assessment that the summit area which contains significant cultural heritage values, including significant social and landscape values related to the summit area, is considerably larger than the Pinnacle Zone. While it is recognised that the Pinnacle Zone is primarily a use-based management zone and does not need to encompass the area of the main cultural heritage values associated with the summit, the boundary of the Pinnacle Zone should be reviewed in the next reviews of the *Wellington Park Management Plan* and *Pinnacle Zone Site Development Plan* in the light of this study, and adjusted if this is deemed appropriate.

²¹¹ *WPMT (2001a, p33)*.

²¹² *Parking areas and cars constitute a visual impact in the Pinnacle Area and have the potential to encroach into essentially undeveloped historically and socially important areas.*

²¹³ *Measures to address this and other transport issues have been considered to some extent in the recently completed Mount Wellington: Sustainable Transport System (WPMT, 2009).*

²¹⁴ *WPMT (2001a, pp24-25)*.

Rose of Wind direction versus Wind speed in km/h (01 Mar 1961 to 30 Sep 2010)

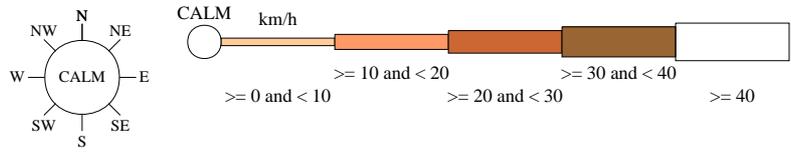
Custom times selected, refer to attached note for details

MOUNT WELLINGTON

Site No: 094087 • Opened Jan 1961 • Still Open • Latitude: -42.8967° • Longitude: 147.235° • Elevation 1260.4m

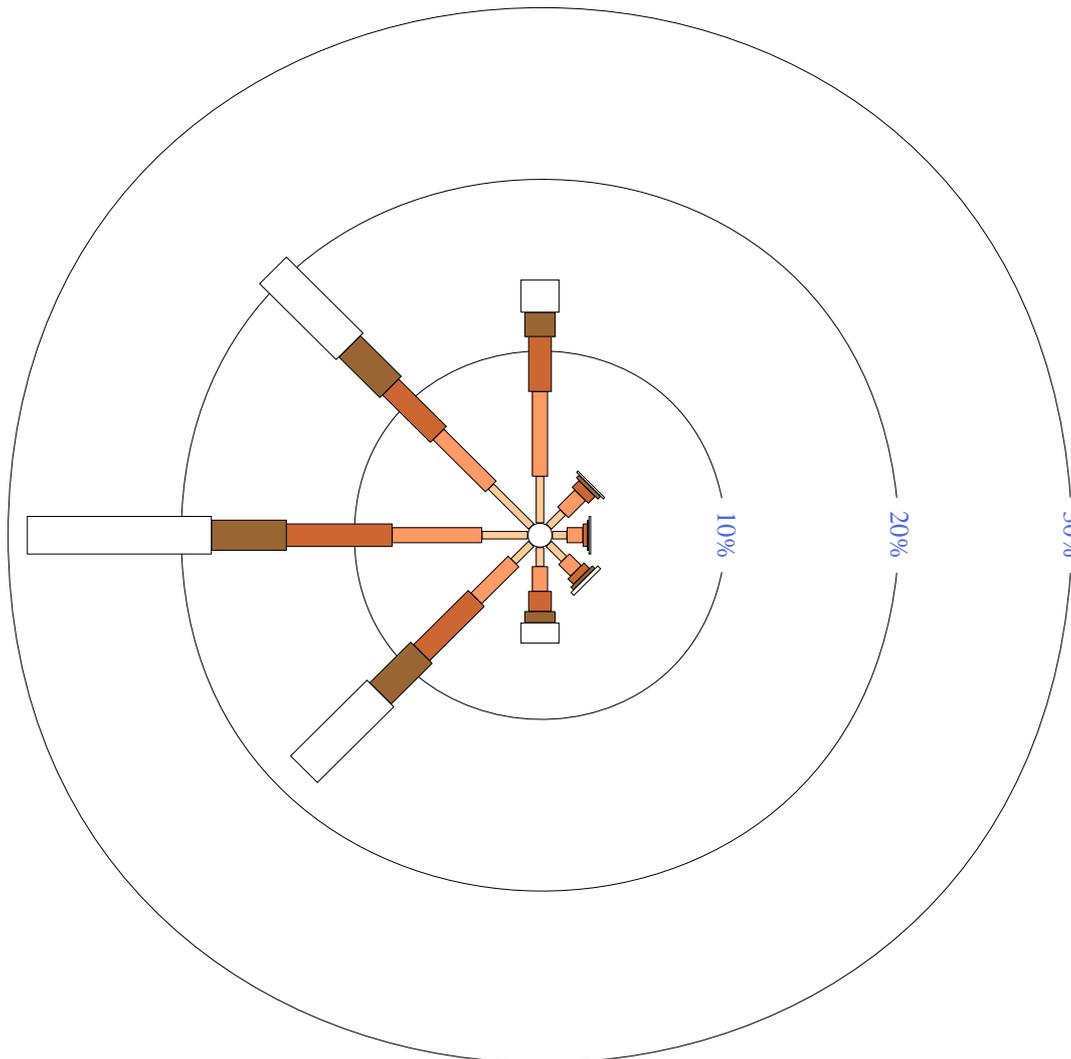
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm
9791 Total Observations

Calm 3%



Rose of Wind direction versus Wind speed in km/h (01 Mar 1961 to 30 Sep 2010)

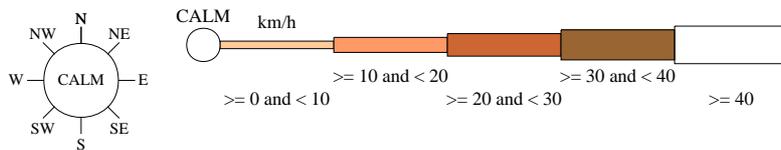
Custom times selected, refer to attached note for details

MOUNT WELLINGTON

Site No: 094087 • Opened Jan 1961 • Still Open • Latitude: -42.8967° • Longitude: 147.235° • Elevation 1260.4m

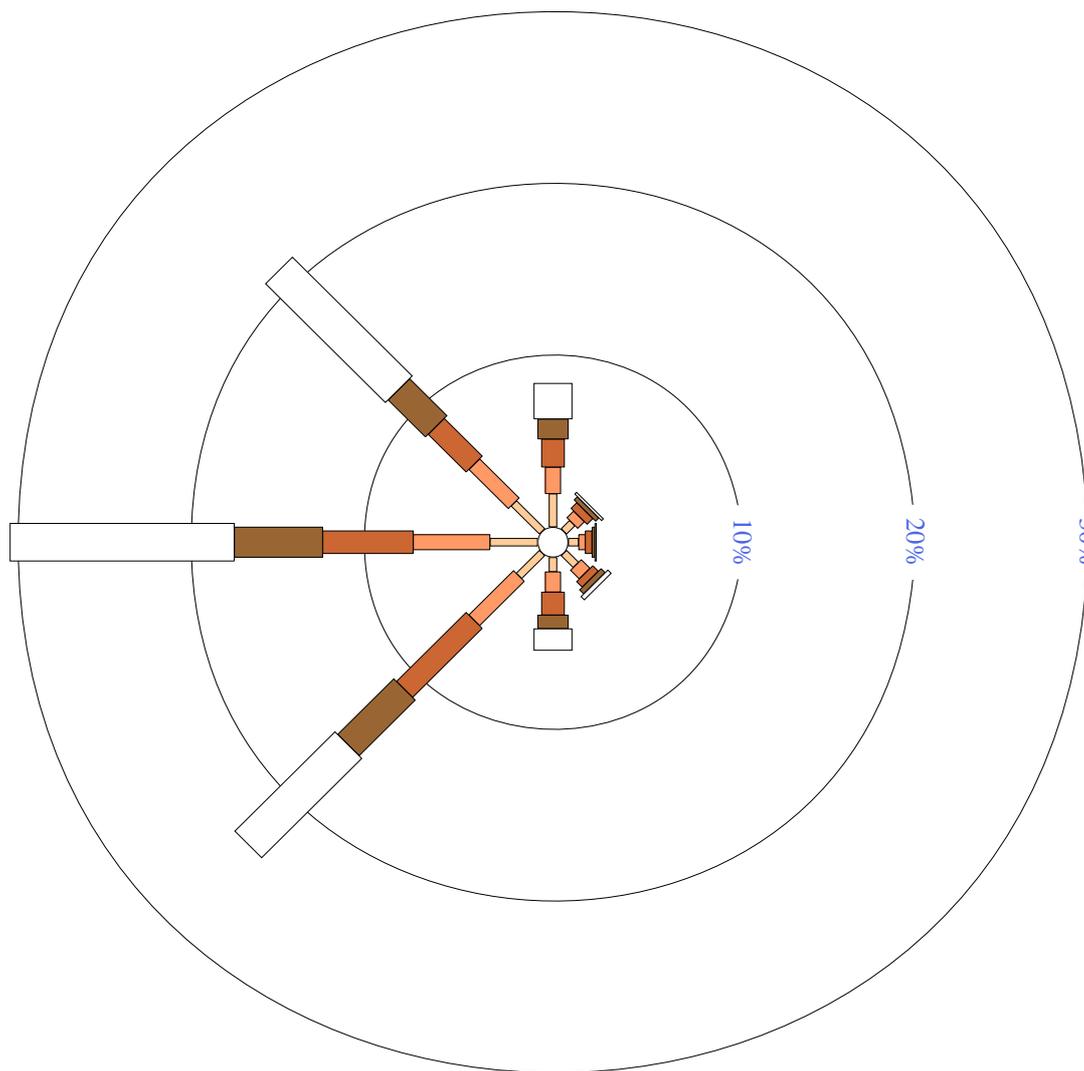
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am
9681 Total Observations

Calm 4%



3.6 IMPROVING VISITOR SAFETY

Some visitor safety considerations have been discussed with reference to recreation and carparking facilities above (Sections 3.3.2 and 3.5.2). The outstanding safety issues addressed here are:

risks to visitors in adverse weather conditions (high wind and cold);

failure of vehicular remote central locking systems; and

the definition of ice-fall zones around telecommunications towers.

Visitors have experienced problems with vehicle remote central locking systems due to impact of transmission facilities¹⁰, The Australian Communications Authority have indicated that this problem can extend anywhere from 500m - 1km and may increase with advent of digital television facilities. Anecdotal evidence suggests that the problem is greatest in the western car parking area closer to start of Zig Zag track, although this has not been fully investigated. Such a malfunction of a vehicle raises concerns for the safety of passengers left exposed to the elements, and without direct means of support.

The provision of a public telephone at the Pinnacle for use in emergency or other situations would improve visitor safety in terms of vehicle breakdown or malfunction and in other regards to other matters, particularly since there are no permanent staff on the site. Concerns have been raised about the potential for vandalism of such a facility (Bennett *pers. comm.*). Nonetheless, the needs of stranded visitors should be provided for, particularly in adverse weather or when it may be their only means to gain assistance .

Concern was raised about the risk visitor safety from ice falling off the transmission towers at the Pinnacle. The recent upgrading of ntl Australia Pty Ltd facilities has gone some way to reducing the problem on their tower, however, ice accumulation and fall can still occur. The problem is greater on the Win TV tower where the open lattice construction is particularly prone to ice accumulation. It was noted that ice has recently penetrated the roof at the ntl facility and that chunks of ice from the Win TV tower have fallen as far afield as the lower deck of the boardwalk system. These incidences suggest that some facilities within the area may be subject to falling ice. However given the prevailing wind conditions, the public toilets are considered to be a low risk area for receiving ice falls (Bennet *pers. comm.*).

¹⁰This has included complaints made by tourists to Tourism Tasmania regarding the problem.



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18 NOV 1993
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PAPER

Parliamentary Standing Committee on Public Works

REPORT

relating to the

UPGRADING OF MOUNT WELLINGTON BROADCASTING FACILITIES, HOBART

(Eighth Report of 1993)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1993

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57. In its submission the Fern Tree Community Association Incorporated expressed its concern regarding the impact on road surfaces and on the community amenity in the Pillinger Drive part of the Fern Tree community of construction traffic for the project. The Association proposed the construction of a by-pass road which would provide an alternative route and eliminate the need for trucks to pass through the populated area of Fern Tree to reach the base of the Pinnacle Road.

58. The NTA advised the Committee that a condition of the approval that it had received from the Hobart City Council is that the NTA submit a plan both to address the public danger issue of heavy vehicles and also a commitment to rehabilitating any damage to the road that is caused during construction activities. The work is to be preceded by a survey of the road, with a report about its condition and an undertaking from the NTA to restore it afterwards in any area where it is required.

59. The Commonwealth Environment Protection Agency (CEPA) advised the Committee that on the basis of information provided by the NTA and because of the EIA process, CEPA had determined that neither a public environment report nor an environmental impact statement is necessary.

Committee's Recommendation

60. The Committee recommends that the National Transmission Agency continue discussions with the Hobart City Council and the Fern Tree Community Association Incorporated in an effort to alleviate traffic and road maintenance problems resulting from construction activities during the upgrading of the Mount Wellington broadcasting facilities.

SKYWAY PROJECT

61. Skyway Tasmania Pty Ltd is a company formed to promote the concept of providing improved visitor amenities at the summit of Mount Wellington and an aerial tramway service to provide an alternative method of access. The three shareholders are Trinity Projects Pty Ltd (Trinity Projects), Leighton Contractors Pty Ltd and Von Roll Tramways Limited. The project which is called the Skyway Project, was announced in June 1993 and has attracted considerable public attention. The Tasmanian Government has recently introduced legislation to establish Wellington Park and to set up a management trust charged with the responsibility of the management of the Park. The Tasmanian Government has publicly stated that it supports the project in principle.

62. A representative of Trinity Projects who appear at the public hearing told the Committee that if the Skyway Project was approved construction would start within six months and be completed by June 1996. The facilities proposed at the summit are to be enclosed in a building of approximately 2,000 m² in floor area on four levels. At present the building is planned to be located at a distance of about 250 m to the east of the existing tower. Trinity Projects believes that there is widespread support for the limitation of the visual impact and the number of man-made structures at the summit of Mount Wellington. It believes that its proposal should be integrated with the proposed NTA tower. This would require the following changes to the NTA proposal:

- . the tower would require relocation closer to the proposed route for the tramway. A position nearby the existing tower is the most desirable
- . the tower could be built in its present format, within the present time frame, so long as it has provision for tramway terminal facilities to be built at its base
- . the terminal could then be constructed at and around the base of the tower

63. In response to the Trinity Projects proposal the NTA indicated that it is opposed to the integration of the two projects. It believes that Trinity Projects has over simplified the problems associated with integrating the cable car proposal with the NTA proposal. NTA raised the following major objections to the Trinity Projects proposal:

- . Trinity Projects suggested that in order to integrate the two proposals the position of the proposed NTA tower would need to be reconsidered. NTA believes that this raises a number of significant problems. Firstly it would involve the Commonwealth in seeking to acquire an interest of land. It is not known whether acquisition of the required land would be possible. In addition, any substantial change to the scope of the NTA's proposal would require that it start from the beginning in terms of the environmental and planning approval processes. Given the added complexity of an integrated proposal, and the uncertainty surrounding the detailed design, it is the NTA's opinion that, assuming approval was eventually given to

proceed, it would have returned to the same approval stage as at present in about two years time. NTA believes that this is disregarding the considerably more controversial nature of an integrated proposal, and the significantly higher risk of not gaining the necessary approvals

NTA believe that the geological suitability of the new site suggested by Trinity Projects has not been assessed in terms of the ability to locate a tower with substantial foundations. Secondly the extra distance required for the feeder cables from the transmission building to the new tower, ranging from 150% to 200% of the existing cable length would result in significantly greater power loss, and subsequent degradation to the transmitted signals

the collocation of a significant tourist facility with a transmission tower on the summit of Mount Wellington introduces very serious questions about public safety. From operational experience at the Mount Wellington site it is known that ice build-up is a major problem. The existing tower is reported to have experienced ice build-up with an estimated weight of 240 tonnes, and a single ice fall was estimated at 30 tonnes. The new tower is designed to reduce the build-up of ice on the tower by continually shedding ice that forms on the surface. The NTA believes that the potential danger to the public is obvious and does not believe that Trinity Projects has addressed the question of how this danger could be removed.

64. At the public hearing the NTA advised the Committee that it was firmly of the view that integration of the projects would cause considerable delay to the urgently needed replacement broadcasting tower and would inevitably lead to significant increases in the cost to tax payers. For these reasons the NTA considers that the proposed integration is not practical.

65. The Committee having considered the evidence presented by the NTA against integration of its tower with the Skyway Project, finds itself in agreement with the NTA that such a proposal is not practical and would lead to unacceptable delays in the provision of upgraded broadcasting facilities on Mount Wellington.

Committee's Conclusion

66. The suggested integration of the National Transmission Agency's proposal with the Skyway Project is not practical and would lead to unacceptable delays in the provision of upgraded broadcasting facilities on Mount Wellington.

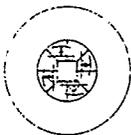
CONSULTATIONS

67. The following organisations have been consulted during, or involved in, the development of the proposal.

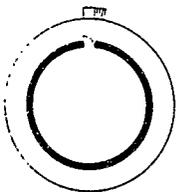
- Department of Sport, the Environment and Territories
- Commonwealth Environment Protection Agency
- Australian Heritage Commission
- Department of Finance
- Civil Aviation Authority
- Bureau of Meteorology
- Telecom Australia
- The City of Hobart
- Tasmanian Department of Environment and Planning
- Planning Appeal Board
- Tasmanian Department of Parks, Wildlife and Heritage
- Hydro-Electric Commission
- Wellington Range Working Group
- Progress Associations in the Hobart region
- Community and Environmental Groups
- Tasmanian Television Limited



1 UHF Television



2 FM Radio VHF Television Communications



3 Reinforced concrete base

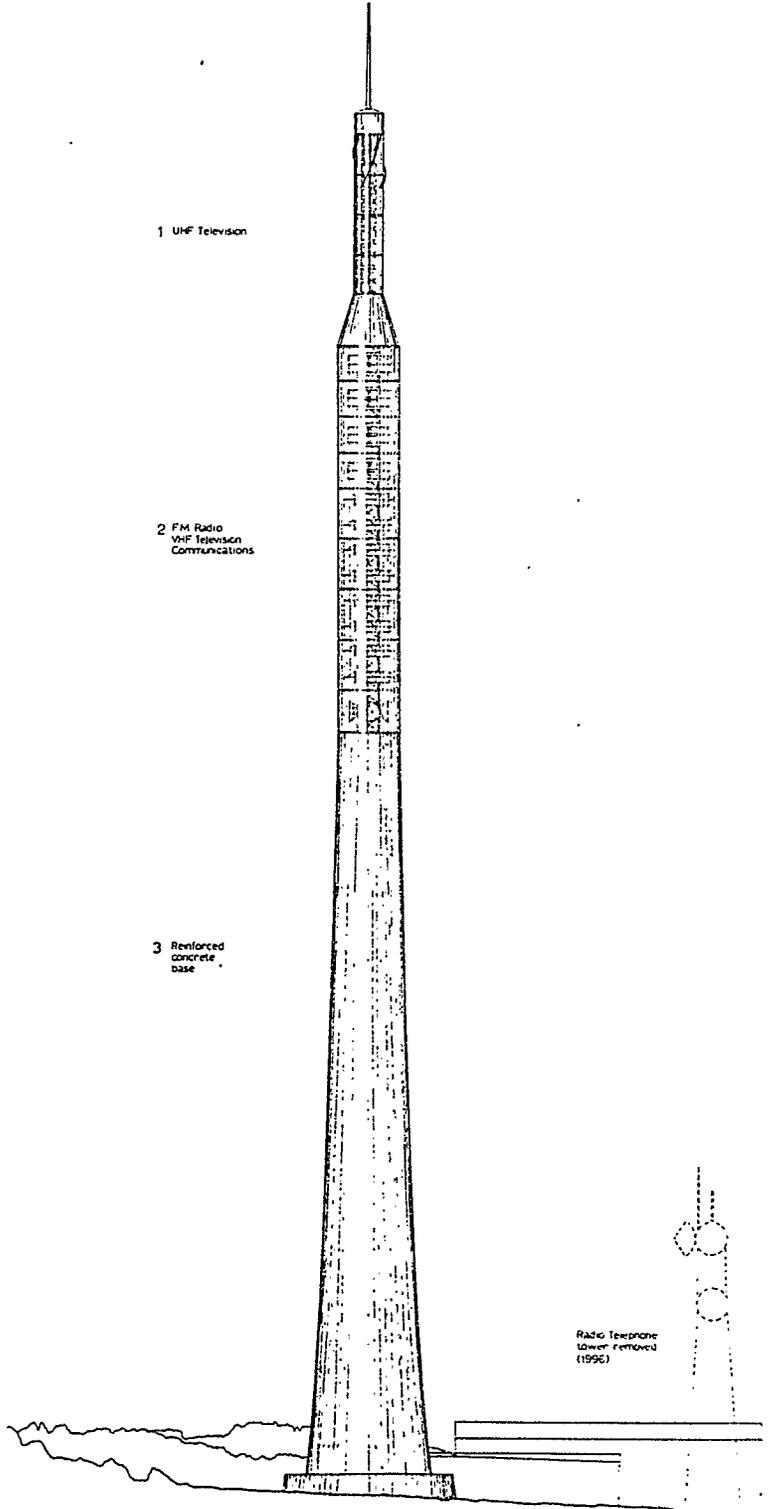
TOWER PLANS

SOUTH ELEVATION

1 UHF Television

2 FM Radio VHF Television Communications

3 Reinforced concrete base



Radio Telephone Tower removed (1996)

BROADCASTING REDEVELOPMENT M^T WELLINGTON

NATIONAL TRANSMISSION AGENCY

B-5

TOWER

JANUARY 1993

1.0 Background

Mt Wellington has been in use as a broadcasting site since 1959 when television was first introduced to Hobart. It has subsequently gained the reputation of having the most severe and hostile environment of any broadcasting site in Australia.



Photo 1 - Aerial view of Mt Wellington Summit, Feb. 1987

The original 92m high lattice steel tower on the National Broadcasting site was constructed in 1959-60 with a 4 level 4 sided Band I antenna array. The heavy toll of the harsh environment on the antenna panels and tower structure soon became apparent, with repeated freeze-thaw events over the winter seasons creating extensive impact damage from falling ice. Access to repair damaged antenna dipoles, etc was often prevented by ice blocking the ladder cage (Photo 2).

During 1980-82 the Band I antenna array was replaced and a 7.62m diameter protective radome was retrofitted to the antenna column to prevent ice build-up on the antenna array. Concurrently a 12m high 600mm square lattice steel extension was installed on the top of the tower with a fully integrated FM antenna array. This was enshrouded in a 2.0m diameter radome. A conical steel transition provided the interface between the two radomes. In 1986 a UHF slot antenna was also added

within the Band I antenna aperture to accommodate the SBS Television broadcasting service.

While the radome was providing protection from the elements, it was creating other issues. In certain wind conditions the combination of the along-wind drag of the radome and vortex shedding induced cross-wind excitation of the cylindrical radome was creating significant elliptical motions in approximately the top third of the tower height. The resulting dynamic loading created on-going issues, such as bolts repeatedly vibrating loose, dropping out and disconnecting members.



Photo 2 - Original Tower after radome installation and with access ladder clogged with ice

The annual maintenance works resulting from this dynamic excitation was ultimately significantly reduced with the installation of a specially developed tuned liquid damper system to absorb the energy of the motion. Notwithstanding this, the tower had no reserve capacity for additional antennas.

The Broadcasting Amendment Act 1987 included a section known as Equalisation Legislation. The aim of the legislation was to give most regional viewers in Australia a choice of commercial television stations. Implementation began during 1988 in NSW, progressing through Queensland, Victoria and into Tasmania during 1993-94.

The process involved aggregating license areas so that each station's area of transmission was expanded into that of its neighbours. Each aggregated area makes up part of a new approved market. In Tasmania, the market was known as Approved Market "AM-E" and for implementation, required major engineering design and construction projects to upgrade existing facilities throughout northern and southern Tasmania.

With single existing commercial licensees operating separately in northern and southern Tasmania, the Government devised the plan that each would expand into the other's broadcasting area. Hence Tas TV subsequently expanded into northern Tasmania and Southern Cross Television moved into southern Tasmania.

The imminent roll-out of the aggregation program into southern Tasmania created the need for a new tower on Mt Wellington. Consequently, planning for the new tower began in 1991.

At that time the Mt Wellington Broadcasting facility formed the hub of the southern Tasmanian broadcasting network, from which some 12 translator facilities received and rebroadcast the services to local communities. As it was not possible to construct the new tower within the time-table required for Equalisation, a temporary low wind drag antenna was installed on the original tower in March 1994 to establish the Southern Cross TV service in southern Tasmania.

1.1 The Mt Wellington Environment

Situated at Latitude 42° 54' S and rising to 1270m AHD, Mt Wellington is fully exposed to a jet stream associated with the 'Roaring Forties'. Consequently, in excess of 70% of the wind on the top of Mt Wellington comes from the western sector and with no other significant land mass between Mt Wellington and South America, these winds are consistently high and frequently reach gale force.

Snow and icing events are common during the summer months and continuous access to the site during the winter can only be maintained by extensive use of snow ploughs. Temperatures as low as -6° C are likely, and windchill effects can create effective temperatures of -30° C and lower. Due to these site conditions extensive use of cold weather clothing is required all year round.

The mountain top is above the tree line and only slow growing herbaceous alpine shrubs and grasses exist between the outcropping rock. Regeneration of this flora is naturally a slow process. Accordingly, minimal disturbance of the environment during all phases of the project and a complete rehabilitation program were prime requirements of the town planning permit issued by the Hobart City Council.

Due to its close proximity to Hobart and the unique views afforded from the summit, Mt Wellington is heavily used by sight-seers and bush-walkers. A network of walking tracks covers the mountain, one of which is located close to the boundary of the National Broadcasting site.

Design Parameters

Although the tower is simple in form, it incorporates a number of unique features which ensure its adequacy for its purpose in a frequently hostile environment. These are detailed below.

2.1 Dimensional Constraints

Due to the environmental sensitivity of Mt Wellington, it was considered highly desirable for the new tower to be located within the site lease boundaries. The distance between the original and new towers was maximised to minimise the potential for high radio frequency radiation levels creating issues for the construction personnel on the new tower or necessitating disruptions to the existing services broadcast from the original tower. Also, the location of each tower relative to the other was important in minimising interference effects due to reflected signals, etc. The length of the feeder runs to the proposed high-powered UHF antenna array was also an important consideration.

The best location available to achieve these aims was on the opposite side of the transmitter building in the south-west corner of the site. The close proximity to the building meant that further roof protection was required for ice falling from the new tower during freeze-thaw events. Also the original access road was required to be relocated and the construction of a new staff vehicle garage was required on the north side of the building outside the zone where ice from the tower would normally fall.

The primary dimensional requirement of the new tower was that the height of the centre of the Band I antenna array match that of the existing array, to minimise changes to the service area. The antennas to accommodate the required Band II, III, IV and V services were to be positioned above this in the most favourable structural arrangement.

Allowance for radio communications antennas was made within an 8.65m high aperture below the Band I antenna array.

The new tower was also to provide sufficient protection from the elements to allow complete internal access over its full height in all weather conditions.

2.2 Design Wind Loading

A Bureau of Meteorology Automatic Weather Station (AWS) had been fortuitously installed on the actual site of the new tower in mid-1990. From analyses of the Bureau of Meteorology wind data recorded on the site, it was concluded that it was inappropriate to derive the basic wind velocity directly from the wind loading code. While there was only a relatively short period of wind records available from the Mt Wellington AWS and a much longer period of records was available from the Bureau of Meteorology site at Hobart Airport, a check across coincident periods found that there was no correlation between sites.

Accordingly, the wind velocity records from the Mt Wellington AWS were used to derive the basic Mean Ultimate Wind velocity of 48m/s. Being recorded on site these records took into account such factors as topography and turbulence.

One of the prime serviceability performance criteria for broadcast services is that the tower deflection stays within the required limits for 99.9% of time. This is critical for the UHF services, which by nature of the antenna configuration, generally broadcast from the top of the tower where structural deflections are greatest. Therefore, from the AWS wind records, a serviceability wind velocity with a 0.1% probability of exceedence was derived. This value of 28.4 m/s was used to ensure that the tower stiffness was adequate to meet the broadcasting requirements.

The high potential for service degradation and antenna damage due to ice/snow formation on exposed antennas necessitated the antenna support column being totally covered by a radome. Circular radome cross-sections were adopted to minimise the wind drag. The radome diameters were kept to a minimum by limiting the offsets of antenna panels and making equivalent electrical adjustments in the antenna feed systems to maintain the required broadcast horizontal RF radiation patterns. Localised combinations of external and internal pressure co-efficients were derived around the circumference of each radome section, assuming the radome shell was not totally sealed at the joints.

Summary of Wind Loading Parameters:

Wind Load derivation in accordance with AS 1170.2 - 1989 and AS 3995 -1994

Structural Importance Factor: 0.85

Region: A1 (Tasmania is generally Region A4)

Terrain Category: 2

Topographic Multiplier: 1.0 } - Already included in the Basic design wind

Direction Multiplier: 1.0 } velocities derived from wind data recorded on site.

Mean Serviceability Wind Velocity: 28.4 m/s at height z = 10m (exceeded only 0.1% of time)

	Ultimate Mean Wind Velocity * \bar{V}_U	Ultimate Gust Wind Velocity V_U	Permissible Gust Wind Velocity V_p
At height z = 10m :	48 m/s	80 m/s	65.3 m/s
Band I Radome :			72.2 m/s
Band II/III Radome :			73.8 m/s
Band IV/V Radome :			75.6 m/s

* - 5% probability of exceedence in 50 years

Net External Drag Co-efficient for radome with helical strakes: $C_p = 1.2$

Net External Drag Co-efficient for radome with ice accumulation: $C_p = 0.7$

Drag Co-efficient for concrete section with ice accumulation: $C_p = 0.7$

Radome Internal Pressure Co-efficient: $C_{pi} = -0.6$

2.3 Structural Dynamics

Such a tall slender structure has a clear potential to be dynamically sensitive. The cylindrical profile increases this potential significantly by providing a means of structural excitation. Accordingly, the structure was analysed dynamically for both along-wind and cross-wind excitation, carefully checking for potential for cross-linking or coincident excitation of the different diameter sections of the tower.

Although along-wind loading was found to be critical, measures were taken to minimise the potential for cross-wind excitation. These included the fitting of helical strakes to the UHF antenna radome to eliminate the formation of uniform vortices over the height of the UHF radome. Fitting of helical strakes to the larger diameter radomes was considered undesirable because of the adverse effect of proportionally larger strakes on the along-wind drag.

As a second level of protection against dynamic excitation, Tuned Liquid Dampers (TLD) were integrated into the design at two levels of the structure - RL 130.0m (top of the UHF antenna) and RL 111.3m (between Band II/III and UHF antennas). These TLD's are passive devices that are tuned to provide optimum performance at the natural frequency of the structure, dramatically reducing the response to wind excitation and so reducing the possibility of fatigue damage occurring. The TLD's can increase the amount of structural damping by up to six times the natural damping of the structure.

The tower design was also checked for excitation under earthquake loading, however wind loading was found to create the critical loading.

The natural frequencies of the structure were derived from the dynamic analysis of the complete tower taking full account of the mass of all of the ancillary components including antennas, feeders, radomes, mounting structure, TLD's, access ladders and platforms. The first 4 modes of vibration are as follows:

Mode	Frequency (hertz)
1	0.776
2	1.499
3	2.346
4	5.379

2.4 Icing

With the new tower located within 12m of the transmitter building, in certain conditions ice falling from the tower could preclude access to the building, and large ice releases could cause significant damage to the building.



**Photo 3 - Mt Wellington Link Tower
in winter conditions**

Accordingly, minimising the potential for the ice formation was given high importance in the design and specification of the external surfaces of the tower. Steel surfaces, on which ice readily builds, were limited to the lightning conductors at the top and the conical radome transition sections, which have a smooth painted steeply sloping surface to minimise ice build-up.

The highly polished finish of the FRP (Fibre Reinforced Plastic) radomes provides the minimum opportunity for ice to build to any significant thickness before it releases. The large thermal mass of the concrete section of the tower resists the formation of ice on its surface. Notwithstanding this, the highest standard of surface finish applicable to the construction method was specified for the concrete.

The existing galvanised grating structure over the areas of the transmitter building roof adjacent to the radio communication tower protected the roof from ice falling from this tower (Photo 3). This protective steelwork was extended to the sections of the roof nearest to the new tower and was specially designed for large blocks of ice falling from up to 130m. Impact testing of the protective steel grating panels with 20kg blocks of ice dropped vertically from a height of approximately 21m was incremental in formulating the final design solution.

2.5 Temperature Considerations

With recorded temperatures to below -6°C , special high ductility low temperature steel (Grade 350LO) was used in the primary members of the antenna support column. Wherever possible structural steel connections were bolted, with high strength structural bolts (Grade 8.8) used in the connections of primary members and tightened with impact wrenches to minimise dynamic movements.

Welding was kept to a minimum. All welding of primary structural steel members was conducted in accordance with *AS 1554.5 - Welding of steel structures subject to high levels of fatigue*, and tested in accordance with the non-destructive testing requirements therein.

The minimum concrete compression strength at 28 days in the tower foundation ring-beam and shaft is 40 MPa. The concrete was also supplied with between 4 and 8% air entrainment to minimise the potential spalling due to freeze/thaw effects.

Design Phases

Telstra Broadcasting as Prime Contractor to the principal, the National Transmission Agency (NTA), was responsible for all aspects of the work from conceptual designs through to final commissioning. The design of the structural steelwork of the antenna support column, the radome support structures and the detailed integration of the antenna systems into the structure were all conducted by Telstra Broadcasting within their Melbourne offices. For expediency of time, discrete parts of the final design were sub-contracted to consultants with suitable expertise. These included the foundations and reinforced concrete section of the tower, the analysis and design of the fibreglass reinforced plastic (FRP) radome shells and the design and supply of the Tuned Liquid Dampers.

Initially 2 alternative concept designs were prepared as follows:

Proposal A: 150m Tower with separate Band I, II, III and IV/V antenna columns

Proposal B: 131m Tower without a Band III antenna column.

These were used to assess feasibility and to seek planning approval from the Hobart City Council (HCC). The Council was keen to minimise the number of tower structures on Mt Wellington. Accordingly, in an effort to encourage all broadcasters to co-habituate on the one tower, they would only approve the solution that provided the maximum future capacity - Alternative A.

However, as the existing commercial television broadcaster on Mt Wellington, WIN Television (TVT-6) were showing no interest in shifting from their site onto the proposed tower. This combined with the large cost differential between Alternatives A & B for little discernable gain caused the NTA to appeal the HCC decision. When in the appeal hearing it was found that the original leases for both the National Broadcasting site and the WIN Television site had in excess of 66 years still to run, the HCC acknowledged that it had no ability to get WIN Television to vacate its site and shift the NTA site. Also, one of the lease conditions was that a tower was to be maintained on the site. Therefore, the appeal was successful and NTA chose to proceed with the design and construction of Alternative B. However, the availability of the Jampro combined Band II & III antenna enabled future provision for TVT-6 to be accommodated, therefore satisfying HCC's requirements.

The design wind speed derivation for the new tower was conducted by Dr John Holmes of the CSIRO using the wind records from the Bureau of Meteorology Mt Wellington AWS. Although the available wind records were for an undesirable short period, it was considered that a satisfactory set of design wind parameters could be derived from the combination of this AWS data and the data and knowledge gained by Dr Holmes after he had instrumented the original tower to quantify its wind dynamic excitation problem.

CHAPTER 8B

THE PINNACLE SPECIFIC AREA PLAN

S2.1 Purpose of the Specific Area Plan

The purpose of this Specific Area Plan is to:

S2.1.1 Ensure that the administration of use and development in the Pinnacle Specific Area is in accordance with the *Wellington Park Act* and the Management Plan.

S2.1.2 Maintain and enhance the following values of the Pinnacle Specific Area and Wellington Park:

- The focus of the Pinnacle as a place to provide for a range of tourism and recreational opportunities based on sightseeing and appreciation of the alpine environment.
- The environmental values associated with natural vegetation, habitats, avian, aquatic and terrestrial fauna.
- The cultural heritage places and other cultural features and values.
- The landscape values and visual amenity of the Pinnacle Specific Area and, in particular, the eastern face of Mount Wellington.

S2.1.3 Facilitate environmentally and economically sustainable development at the Pinnacle in the following ways:

- Recognise the special environmental status and fragile nature of the Pinnacle while providing for development and use that does not adversely impact upon the site's natural, biological and physical processes.
- Protect the scenic qualities of the area when viewed both from within and from outside Wellington Park and, except for existing or already approved communications facilities, minimise skyline intrusions when the area is viewed from municipalities surrounding Wellington Park.
- Ensure that development does not create demands for public investment in physical infrastructure that imposes financial burdens on existing and future generations.
- Provide opportunities for people of all ages, social and economic groups to benefit from the use and development of the area.

- Maintain important scenic and visual components of the landscape for future generations.
- Ensure that there is no adverse affect on geoheritage, and native flora and native fauna habitat values (including as a result of invasive introduced flora).
- Ensure that there is no adverse affect on any natural vegetation bogs, recharge basins and waterways.
- Ensure that use and development acts to maintain and enhance the quality of all surface and sub surface water in the vicinity.
- Ensure that places of cultural heritage significance are conserved and managed.
- Provide for and manage communications facilities consistent with the above objectives.

S2.1.4 Ensure that development at the Pinnacle:

- Provides for a range of desirable services and facilities, together with adequate and appropriate supporting infrastructure, in accordance with this Management Plan.
- Is compatible with and subservient to the needs and interests of users of Wellington Park and the wider community of the Hobart Region.
- Minimises any adverse impacts upon existing uses, activities and experiences;
- Protects and conserves items and aspects of Aboriginal and European heritage and respects the historic associations of those items and aspects.
- Is of high architectural quality, and of a type, location, scale, form, size and bulk that is compatible with the environmental, landscape, visual, aesthetic, historic and other cultural heritage values of Wellington Park.
- Provides suitable traffic and parking measures which do not conflict with the use of the site for public recreation and quiet enjoyment by visitors.
- Provides for access to the Pinnacle and to other parts of Wellington Park in a manner that meets the needs of public users and so as not to cause environmental degradation of any area.
- Provides a safe environment for workers and visitors to the Pinnacle.
- Complies with all relevant Wellington Park strategies and guidelines.

S2.2 Application of the Specific Area Plan

S2.2.1 This Specific Area Plan applies to activities, use and development within the Pinnacle Specific Area as shown on Map S4.

S2.2.2 To the extent of any inconsistency with a standard or other requirement in this Management Plan or any municipal planning scheme, the provisions of this Specific Area Plan shall take precedence.

S2.2.3 Proposals for use or development to which this Specific Area Plan applies must demonstrate compliance with the standards set out in S2.6 Standards for Use and Development.

S2.3 Definition of Terms used in this Specific Area Plan

Building

- includes a structure and part of a building or structure; and
- includes fences, walls, out-buildings, service installations and other appurtenances of a building;
- but does not include, pipelines, roads, vehicular and walking tracks and associated works which are not part of a building.

Conservation Policy

A Conservation Plan or Policy accepted by Council and prepared in accordance with the *Burra Charter* (Australia ICOMOS, 1999) guidelines. A Conservation Policy will include:

- documentation of a place and its history;
- documentation of the cultural significance of the place;
- policy for the retention for cultural significance of the place; and
- measures to be undertaken to retain cultural significance.

Environment

Components of the earth, including:

- land, air and water;
- any organic matter and inorganic matter and any living organism; and
- human made or modified structures and includes interacting natural ecosystems that include components referred to in paragraph (i) or (ii) above.

LUPAA

The *Land Use and Planning Approvals Act 1993*.

Management Plan

The Wellington Park Management Plan 2013.

Plan of Development

A plan for the use and/or development of facilities approved in accordance with the requirements of this Specific Area Plan and includes all stages of the development,

conditions attached to the permit and the requirements for environmental management specified in the permit.

Planning Area

The Pinnacle Specific Area and includes all land within the boundary of the area shown on Map S4.

Proposal Plan

A plan and associated documentation setting out the details of a proposal submitted with an application for approval under this Specific Area Plan.

Potential Transport Mode

Forms of public transport that have the potential to effectively move large numbers of people, but for which little or no infrastructure currently exists in the Park. It includes but is not limited to: shuttle buses, cable cars and aerial ropeways, funicular rail and cable rail systems.

Specific Area Plan

The Pinnacle Specific Area Plan.

Values

The qualities upon which an area depends for its intrinsic nature, attractiveness, amenity and utility.

S2.4 Exempt Use and Development (applies only to permit applications under LUPAA)

S2.4.1 A permit under *LUPAA* is not required for use and development contained in Table 4 (chapter 8) of this Management Plan.

S2.5 Table of Use and Development

S2.5.1 Use and Development will conform to the following table, prescribing permitted (P), discretionary (D) and prohibited (X) use and development in the Pinnacle Specific Area.

S2.5.2 ‘Potential Transport Modes’ means forms of public transport that have the potential to effectively move large numbers of people, but for which little or no infrastructure currently exists in the Park. It includes but is not limited to: shuttle buses; cable cars and aerial ropeways; and funicular rail and cable rail systems.

Use and Development	The Pinnacle Specific Area
Tourist Operation (use of land specifically to attract tourists): only for visitor centre, interpretation centre, viewing shelter and ancillary uses to the provision of these including limited associated retail	D
Food Services: (use of land for preparing or selling food or drink for consumption on or off the premises): cafe, restaurant and take-away food premises	D
Visitor Accommodation	X
Transport Depot and Distribution (use of land for distributing goods or passengers): only for bus terminal, council depot, or a Potential Transport Mode	D
Vehicle Parking: only if single storey	D
Camping: other than rough camping, and includes some basic site infrastructure)	X
Utilities: only for telecommunications, electricity generation, transmitting power, transport networks, collecting, treating, transmitting, storing, distributing or disposing of water, sewerage or sullage	D
Storage: only for Park management purposes	D
Natural and Cultural Values Management:	
Park Management office	D
Park seating	P
Toilets	D
Picnic/BBQ facilities	D (only for picnic shelter)
Viewing shelter/building	D
Visitor Information/interpretation panels	P
Lookouts (open air)	D
Recreation trails and related structures (when endorsed in a Recreation Strategy, Walking Track Strategy or Bike Strategy prepared in accordance with the Management Plan)	D

S2.6 Standards for Use and Development

Acceptable Solutions are one way of meeting the Performance Criteria. Meeting the Acceptable Solution means the proposal is ‘deemed to comply’ with the objective. Acceptable Solutions are expressed in measurable terms that can be used to assess compliance. Where no Acceptable Solution is available, assessment will reference the relevant Performance Criteria.

Performance Criteria are general statements describing how the objectives can be met. They are used as the basis for consideration of an application when it does not meet the accompanying Acceptable Solution.

Issue 1: Subdivision	
Objective: To ensure that subdivision is consistent with the purpose of protecting, managing, enhancing or enjoying the Park.	
Acceptable Solution	Performance Criteria
A1.1 There is no acceptable solution for this element.	P1.1 Subdivision must be for a purpose consistent with all of the objectives for the relevant management zone(s) and with the Management Plan.
Issue 2: Flora and Fauna Conservation, Geoconservation and Natural Processes	
Objective: To conserve flora, fauna, geological and geomorphological values, and to protect natural processes.	
Acceptable Solutions	Performance Criteria
A2.1 Native vegetation The proposal does not impact upon terrestrial or aquatic native vegetation which: (a) is listed as significant in this Management Plan or any planning strategy or Trust endorsed scientific assessment, prepared in accordance with this Management Plan; or is a Threatened Vegetation Community under the <i>Nature Conservation Act 2002</i> . (b) supports, or forms habitat for any species of fauna listed in the <i>Threatened Species Protection Act 1995</i> or the <i>Environment Protection and Biodiversity Conservation Act 1999</i> .	P2.1 Native vegetation Any adverse affects on terrestrial or aquatic native vegetation or habitat values must be avoided, or remedied to ensure no long term impact on vegetation values.
A2.2 Threatened Species The proposal does not impact upon any threatened species listed under the <i>Threatened Species Protection Act 1995</i> or the <i>Environment Protection and Biodiversity Conservation Act 1999</i> .	P2.2 Threatened Species Any adverse affects on nationally or State listed rare, threatened or endangered species, communities or habitats must be avoided or remedied to ensure no long term impact on vegetation values.
A2.3 Geoheritage The proposal does not impact upon any geoheritage sites listed as significant in this Management Plan or in a scientific assessment endorsed by the Trust, or listed on the Tasmanian Geoconservation Database.	P2.3 Geoheritage Any adverse impacts on any geoheritage values must be avoided or remedied to ensure no long term impact on geoheritage values.
Issue 3: Cultural Heritage	
Objective: To protect sites or areas of cultural value and significance.	
Acceptable Solution	Performance Criteria
A3.1 Aboriginal Cultural Heritage Use or development does not involve an Aboriginal relic as defined under the <i>Aboriginal Relics Act 1975</i> , or Aboriginal heritage site or precinct identified in accordance with this Management Plan.	P3.1 Aboriginal Cultural Heritage Any impacts on any heritage precincts or sites of Aboriginal value must be avoided, mitigated or remedied so that no long term loss of Aboriginal cultural heritage values occurs. Any works shall conform with any relevant standards and guidelines prepared by Aboriginal Heritage Tasmania and comply with the <i>Aboriginal Relics Act 1975</i> .
A3.2 Historic Heritage The proposal does not involve a place: listed on the Tasmanian Heritage Register under the <i>Historic Cultural Heritage Act 1995</i> ; or listed in a Heritage Code of a Planning Scheme.	P3.2 Historic Heritage Adverse impacts on all identified and assessed significant historic cultural heritage values must be avoided, or mitigated so that no long term loss of historic cultural heritage values occurs. All development and use must be in accordance with the management objectives and policy in any Trust approved cultural heritage conservation policy, and conform with any relevant standards and guidelines produced by Heritage Tasmania and the <i>Burra Charter</i> (Australia ICOMOS, 1999).

Note: Achieving this can occur through the submission of a Heritage Assessment and Management Plan, identifying the potential impacts and the measures to be taken to ensure the conservation of the heritage values, to meet any existing conservation policy approved by the Trust.

Issue 4: Water Quality

Objective: To conserve water quality.

Acceptable Solution

A4.1 Waste water

Waste water, including grey water, will be connected to a reticulated or on-site waste treatment system approved by the Planning Authority; and Stormwater will be drained to a detention basin, artificial wetland or infiltration area, or reused within the site, without causing erosion or pollution of existing surface or ground waters or other values of the Park.

A4.2 Water bodies, wetlands and watercourses

No land clearing, excavation, filling or other development will occur:

- (a) Within a watercourse a water body, wetland; or
- (b) Within a buffer area, as specified in accordance with this Management Plan, of a waterbody, wetland or watercourse except for the purpose of maintaining a water supply for fire fighting purposes, or vehicle access to that water supply in accordance with a Fire Management Strategy prepared in accordance with this Management Plan.

The use or development involves no extraction of water from any water body, wetland or watercourse except for use in fire fighting or carrying out planned burns in accordance with a bushfire management strategy prepared in accordance with this Management Plan.

The use or development has the approval of TasWater that it will have no negative impact upon drinking water quality.

Performance Criteria

P4.1 Waste water

Waste water, including grey water, stormwater, or other contaminants must not prejudice the achievement of the water quality objectives for surface or ground waters established under the State Policy on Water Quality Management 1997 or the water quality objectives of this Management Plan.

P4.2 Water bodies, wetlands and watercourses

Use and development must be designed and carried out to ensure that any adverse effects on natural drainage, flow regimes, erosion and sedimentation to and within any water body, wetland or watercourse will be avoided, or remedied to ensure no long term impact on any water body, wetland or watercourse.

Issue 5: Landscape, visual quality and amenity

Objective: To protect and enhance the landscape and visual quality of Wellington Park.

Acceptable Solution

A5.1 Visual Sensitivity

The proposal does not involve a building or structure, apart from Park furniture or Park signs.

Performance Criteria

P5.1 Visual Sensitivity

Buildings and structures (other than Park furniture or replacement of an existing building or structure of the same size and location) in prominent locations visible from within or outside of the Park, or identified as of High or Moderate Visual Sensitivity in Map 4 of this Management Plan, must be designed and sited to minimise or remedy any loss of visual values or adverse impacts on the visual character of the affected area.

Note: Satisfaction of this Performance Criterion may include a Visual Impact Analysis, prepared by a suitably qualified person, demonstrating how the building or structure can be designed and located to harmonise with the site.

Issue 6: Environmental Hazards – (a) Regolith**Objectives:**

- (i) To ensure that the subject land is capable of supporting proposed developments and use.
- (ii) To ensure that any development does not cause instability or erosion on the site, or on land outside the development site.

Acceptable Solution**Performance Criteria****A6.1 Regolith**

Development is on slopes less than 6 degrees.

P6.1 Regolith

Any development on slopes 6 degrees or greater must be supported by a geotechnical land instability report which:

- is based on investigations which comply with the minimum requirements of Australian Standard 'Geotechnical Site Investigations' AS1726-1993;
- addresses all potential hazards;
- classifies the site in accordance with the relevant Australian Standard for the class of building being proposed;
- makes recommendations for the type and design of drainage methods and structures, and building/structure foundations; and
- concludes by providing an opinion on the level of risk, whether the site is capable of supporting the proposed development or the development is likely to cause instability on land outside the development site.

Issue 6: Environmental Hazards – (b) Fire**Objectives:**

- (i) To provide a safe living and working environment by maximising the potential for people to survive during a bushfire.
- (ii) To site and construct habitable buildings to maximise their potential to survive when subjected to burning debris, radiant heat and direct flame contact.
- (iii) To minimise the impact upon the natural and cultural values of the area resulting from measures that seek to reduce bushfire hazard
- (iv) To ensure adequate water supplies are available at all times for people and firefighters to defend the development from bushfires.
- (v) To provide for safe access and egress to and from sites and buildings for normal two-wheel drive private vehicles, and emergency vehicles.

Acceptable Solution**Performance Criteria**

Development of new or modified buildings must be in accordance with sections E1.6.3, E1.6.4 & E1.6.5 of Planning Directive No 5 (Bush Fire Prone Areas Code)

There are no Performance Criteria for this issue.

Issue 7: Infrastructure Provision – (a) Roads**Objectives:**

- (i) To ensure that adequate access is provided to the Pinnacle and that appropriate facilities for vehicle circulation are provided within the Pinnacle Specific Area.
- (ii) To ensure that all roads are constructed to an adequate standard.
- (iii) To ensure that the construction, maintenance and repair of roads do not result in environmental damage.

Acceptable Solution**Performance Criteria****A7.1 New Roads**

Any new road to be constructed within the Pinnacle Specific Area is to provide access to an approved development.

P7.1 New Roads

Any new road not required to provide access to an approved development is to be constructed for purposes which support the intent and objectives of this Plan.

A7.2 Road Capacity

No development is to be carried out at the Pinnacle which would result in a requirement to upgrade the capacity of Pinnacle Road (between the Park Boundary and the Pinnacle).

P7.2 Road Capacity

Where a development is shown to result in the upgrade of access roads to the Pinnacle, the proponent will avoid or minimise any adverse impacts upon existing road access, and public use and safety. A developer contribution towards the upgrade of those roads may be required.

<p>A7.3 Environmental Impacts Works associated with any road construction, repair or maintenance do not require: (a) Removal of vegetation; (b) Disposal of runoff into any watercourse, bog or recharge basin; or (c) The use of pesticides or herbicides for control of environmental weeds.</p>	<p>P7.3 Environmental Impacts Where works associated with any road construction, repair or maintenance require the removal of vegetation, result in runoff into any hydrological feature identified in this Management Plan, or create visual intrusion, an environmental management plan must be prepared setting out how it is proposed to avoid or mitigate environmental effects.</p>
<p>A7.4 Road Construction All roads are to be constructed to Australian Roads Standards as published by Austroads.</p>	<p>P7.4 Road Construction All roads and car parking areas are constructed to an adequate standard which provides for the safe and efficient movement of all users.</p>
<p>A7.5 Car Parking Construction Car parking facilities are to be constructed to Australian Standard "Parking Facilities" AS2890 for off street parking for cars and commercial vehicles</p>	<p>P7.5 Car Parking Construction All roads and car parking areas are constructed to an adequate standard which provides for the safe and efficient movement of all users.</p>
<p>Issue 7: Infrastructure Provision – (b) Water</p>	
<p>Objective: To ensure that adequate high quality drinking water supplies are available to all users of the Pinnacle.</p>	
<p>Acceptable Solution</p>	<p>Performance Criteria</p>
<p>A7.6 The use and development does not require a supply of drinking water.</p>	<p>P7.6 The collection and storage of rain water in tanks is allowed provided that storage facilities meet all other requirements of this Management Plan. Any required water treatment is to meet all other requirements of this Management Plan</p>
<p>Issue 7: Infrastructure Provision – (c) Sewerage</p>	
<p>Objective: To ensure that facilities provided for the treatment and disposal of sewerage are sufficient to meet the needs of the development and do not result in the loss of water quality or cause environmental harm.</p>	
<p>Acceptable Solution</p>	<p>Performance Criteria</p>
<p>A7.7 The use and development does not require sewerage facilities.</p>	<p>P7.7 Sewerage facilities must be designed, perform and be managed to: (a) Deliver an appropriate level of protection for human health and the environment; (b) Minimise odour nuisance to acceptable levels; (c) Minimise noise nuisance to acceptable levels; (d) Not rely on the soils for absorption of any contaminated wastes; and (e) Not cause landslip or erosion on the development site or other lands.</p>
<p>Issue 7: Infrastructure Provision – (d) Stormwater</p>	
<p>Objective: To ensure that stormwater runoff does not result in the loss of water quality or cause environmental harm.</p>	
<p>Acceptable Solution</p>	<p>Performance Criteria</p>
<p>A7.8 The design and construction of stormwater systems is to comply with Australian Standard 3500.3.2:2003, and does not drain into the Drinking Water Catchment Zone.</p>	<p>P7.8 Development and use is not to result in: (a) Erosion; (b) Siltation; (c) Degradation of water quality of any watercourse spring or recharge basin; or (d) Any increase in landslip or erosion hazard potential.</p>

Issue 8: Car Parking and Access – (a) Car Parking Provision

Objective: To provide sufficient conveniently located and accessible parking for people utilising or servicing a use or development.

Acceptable Solution**Performance Criteria****A8.1**

The use and development does not require car parking.

P8.1

Car parking is to be provided to meet the needs of a development, and is determined by taking into account:

- (a) the nature, number and size of vehicles associated with the proposed use or development;
- (b) the location and nature of other uses or developments in the vicinity;
- (c) the effect of any hazards identified in the site or other site constraints in reducing parking opportunities;
- (d) the possibility for sharing spaces with other developments; and
- (e) the car parking needs of people likely to utilise the particular use or development.

Issue 8: Car Parking and Access – (b) Car Park and Access design

Objective: To ensure that car parking spaces are designed and located to meet the needs for on-site parking, access and manoeuvring of vehicles.

Acceptable Solution**Performance Criteria****A8.2**

Design and construction of car parking spaces and access facilities is in accordance with Australian Standard AS2890 - Part 1 Car Parking Facilities and Part 2 Commercial Vehicle Facilities as appropriate; Where the development provides facilities for the public, one car parking space for every 20 provided is designed, constructed and designated for use by persons with disabilities in accordance with Australian Standard "Design for Access & Mobility" AS 1428; and Car parks are to be signed in accordance with the Wellington Park Sign Manual unless a variation is required to comply with a specific Australia Standard relating to traffic and parking regulatory signs.

P8.2

Vehicle parking facilities are to be designed and located to conveniently, safely and efficiently service the needs of users, including pedestrians, cyclists and vehicles; Vehicle parking facilities are to be designed and located to enable efficient use of car spaces and access ways and manoeuvrability for vehicles between the Pinnacle Road and the development served by the car park; Parking facilities (including access ways or structures associated with the provision of car parking) are not to cause visual intrusion and methods to reduce the visual intrusion of parking and access facilities are to be specified; Parking and access areas are to be appropriately located and designed to protect sites of cultural or heritage significance; And Access ways to a road are to be located so that vehicles entering or leaving the land are clearly visible to traffic on the road and vice versa.

Issue 9: Building Design – (a) Building Height

Objective: To ensure that buildings do not cause visual intrusion due to excessive height.

Acceptable Solution**Performance Criteria****A9.1 Building Design**

The maximum building height is 3.5m and any building is not more than 1 storey.

P9.1 Building Design

For any building greater than 3.5m in height it must be shown that the building will not visually intrude into the landscape in relation to:

- (a) Local natural and environmental features;
- (b) Views from either the Pinnacle or elsewhere in the Park, and
- (c) Views from settled areas of Hobart and suburbs through the preparation of a Visual Impact Analysis conducted by a suitably qualified person.

Any building design must give consideration to the Wellington Park Infrastructure and Design Guidelines.

Issue 9: Building Design – (b) Building Size

Objective: To ensure that buildings are of a size and dimension that fits in with the overall nature of low key development of the Pinnacle.

Acceptable Solution

A9.2 Building Size
Maximum floor area of any building is 100m².

Performance Criteria

P9.2 Building Size
Any proposal for a building of more than 100m² in floor area is to show that the building will not:
(a) Cause visual intrusion,
(b) Require infrastructure that cannot be provided in accordance with the infrastructure provision standards, or
(c) Be a dominant element in the landscape
through the preparation of a Visual Impact Analysis conducted by a suitably qualified person.

Issue 9: Building Design – (c) Appearance and Lighting**Objectives:**

- (i) To ensure that all buildings are of a high architectural design standard.
- (ii) To ensure that buildings blend with the local environment and do not cause visual intrusion.
- (iii) To ensure lighting minimises impact on the local environment.

Acceptable Solution

A9.3 Appearance and Lighting
The colour of external walls and roofs visible from off the site is to have a light reflectance value of less than 10%.
Roofs are to be clad with materials in non-reflective, muted natural colours and dark tones.
External lighting assists orientation only and is focused towards the ground.

Performance Criteria

P9.3 Appearance and Lighting
The design of buildings and structures is to take into account the unique qualities of the pinnacle area while using innovative and high quality architectural solutions.
The colour and materials of external surfaces are to blend with the local environment and the dominant colours of adjoining areas of the Park.
Lighting and reflection must be managed to avoid adverse impacts on natural and cultural values.

Issue 10: Building Siting

Objective: To ensure that buildings are located in areas where they do not cause a reduction in the values associated with the Pinnacle.

Acceptable Solution

A10.1
There is no Acceptable Solution for this element.

Performance Criteria

P10.1
Proposals for buildings facing on to or directly visible from the Pinnacle Road must show that there will be no diminution of values of the site either during the construction of the building or in its use and operation.
Buildings and structures (other than Park furniture or replacement of an existing building or structure of the same size and location) in prominent locations visible from within or outside of the Park, or in areas identified as of High or Moderate Visual Sensitivity in Map 4 of this Management Plan, must be designed and sited to avoid, remedy or mitigate any loss of visual values through the inclusion of a Visual Impact Analysis conducted by a suitably qualified person.

Issue 11: Noise**Objective:** To provide for the quiet enjoyment of natural and cultural values, and acoustic amenity of the Park.**Acceptable Solution****Performance Criteria****A11.1**

Noise from point sources must not exceed 50 dB(A) at any point within 50m of the source.

P11.1

Noisy activities which could have an adverse effect on the quiet enjoyment of natural and cultural values must be avoided or remedied to prevent any loss of acoustic amenity in the Park.