
# SPECIALIST ASSESSMENT – VISUAL AND LANDSCAPE CRITERION

## PALMERSTON NORTH REGIONAL FREIGHT HUB MULTI CRITERIA ANALYSIS AND DECISION CONFERENCING PROCESS

**PREPARED FOR KIWIRAIL**

June 2020

Isthmus.

# KiwiRail Palmerston North Rail Hub

## Multicriteria Assessment

| | | | |
|---|---|---|---|
| **To:** | Karen Bell | **Date:** | Sunday, September 22, 2019 |
| **Company:** | Stantec | **Project:** | KiwiRail PN Rail Hub |
| **From:** | Lisa Rimmer, Principal | **IGL Job No. :** | 4198 |

**Subject:** Multi Criterion Assessment for Visual and Landscape Impacts, Long List Options; Workshop 2

## Introduction

The following is a rated assessment of long-list site options with regards to landscape and visual impacts, to inform the Multicriteria Assessment (MCA) Workshop 2 for KiwiRail's future Palmerston North Rail and Freight Hub.

**Isthmus Assessment Team**

The landscape and visual comparative assessment has been prepared by Isthmus Group's Wellington specialist design planning team, comprising:

**Lisa Rimmer**, Principal Landscape Architect/Design Planner (Master Landscape Architecture (Hons), Lincoln University; Bachelor Horticultural Science (Hons), Massey University; NZILA Registered);

**Rose Armstrong**, Senior Landscape Architect/Design Planner (Bachelor of Landscape Architecture (Hons) Lincoln University; Bachelor of Arts, Victoria University; NZILA Registered). Research.

**Gavin Lister,** Director Master Urban Design (Sydney University); Post-graduate Diploma Landscape Architecture. (Lincoln College); BA (Auckland University); NZCS, FNZILA. Assessment Methodology Review.

**Information for the Assessment**

The assessment has relied on the following information:

- Description of the future activity provided by Stantec for Workshop 1 (Attachment 7, 14 August 2019);
- Map of site options 1 - 9 (Attachment 5 to the MCA Workshop 2 Briefing Note, 2 September 2019, and further information provided by email on 18 September 2019);
- Information provided by Stantec in ArcGIS Online;
- Palmerston North City Council and Manawatū District Council online mapping and District Plan information;
- Topographical maps;
- Additional information provided to the assessment team by Stantec on 18 September 2019, including possible masterplan positioning within each site option;
- Use of Googlemaps and Streetview, to better understand existing landscape character.

The following information was not available for this assessment:

- Detailed information on individual property use (e.g. non rural dwellings in a rural zone);

- Alternative layouts to the proposed hub "masterplan" (although project team discussions have indicated that the footprint may be rationalised).
- Mitigation measures anticipated by KiwiRail for each site;
- Wider information contributing to landscape values as would be assessed by other experts (such as tangata whenua values, historical/heritage values, recreation values, ecological values - refer also to Assumptions, below);

## Constraints identified in each area

The following constraints have been identified for each site option, in relation to landscape and visual matters:

| Area for investigation | Constraints (what and where) |
|---|---|
| Option 1 | • Naural feature of Taonui Stream (in the western parts of site); natural processes (flooding) in south-eastern parts, contributing to natural landscape character. Section 6a matters triggered.<br>• Existing and future urban development at the north-west end of the site (Aorangi Marae, Westella Homestead rest home, Fielding Residential Growth Precinct), and Taonui School (near the centre of site's north bounday with the rail corridor);<br>• Existing urban patterns - configuration of roads and existing rail-line on north boundary of site (Waughs Road, Campbells Road, with rail line inbetween): connection of hub to existing rail line could result in a substantial change in character on Waughs and/or Campbell Roads;<br>• Adjacent aerodrome and rural-residential land use – Campbell Rd and Durie Rd increases potential for visual effects and loss of amenity. |
| Option 2 | • Natural feature of Taonui Stream (in western parts of the site); natural processes (flooding) in south-eastern parts, contributing to natural landscape character. Section 6a matters triggered.<br>• Street patterns - roads and existing rail-line on south boundary of site (Campbells Road, Waughs Road, with rail line inbetween): connection of hub to existing rail line could result in a substantial change in urban character along Waughs and/or Campbell Roads and site would cut across Taonui and Nannestads Rd;<br>• Greater density of urban patterning at the north-west end (including an adjacent Residential Growth Precinct near Fielding) increases potential for visual effects and loss of residential amenity<br>• Aerodrome directly impacted, contributes to periurban character and amneity |
| Option 3 | • Natural feature of Mangaone Stream - bi-sects the site through its centre; numerous tributaries traverse the area; associated natural processes (flooding) contributing to natural landscape character, Section 6a matters<br>• Street patterns include finer grain network of local and main collector roads and proposed site would cut across these<br>Extensive rural-residential landuse, particularly in northern and north-western parts of site and proximity to Bunnythorpe would increase potential for visual effects and loss of character and amenity |
| Option 4 | • Landform contibutes to character - rolling hills and shallow gully systems with associated streams/tributaries across the site (up to boundary/edge of railway corridor);<br>• Established rural-residential character and patterning across much of the site, particularly along the rail corridor and proximity to Bunnythorpe would increase potential for visual effects and loss of character and amenity<br>• Proximity to residential areas off Kelvin Grove in Palmerston North would increase potential for visual effects<br>• Existing rural residential landuse distinguishes the City from Bunnythorpe, provides greater distinction/ clear urban patterns |

| Area for investigation | Constraints (what and where) |
|---|---|
| Option 5 | • Natural processes - expressed in extensive flood prone areas in north-western parts of the site and underlies character of the site<br>• Adjacent rural-residential patterns along existing rail corridor increases potential for adverse visual effects and loss of amenity;<br>• Street patterns include a number of local and main collector roads that would be disrupted by the proposal<br>• Proximity of residential/future residential (Kakatangiata) areas – adjacent to the east, south-east and south increasing potential for adverse visual effects and loss of amenity; |
| Option 6 | • Natural processes - expressed in flood prone areas along Number 1 Line Longburn (north-western parts of the site) underly landscape character<br>• Street patterns include a number of local and main collector roads including Longburn line that would be disrupted/cut across by the proposal<br>• Proximity to existing rural-residential areas would increase potential for visual effect and loss of amenity through central parts of the site;<br>• Proximity of future residential area adjacent at north-east end (Kakatangiata) would increase potential for visual effects and loss of residential amenity; |
| Option 7 | • Natural patterns and processes in southern half of site - contribute to natural character of the Manawatū River corridor; former ox-bows and associated terraces "snake" across the site between SH56 and the Manawatū River. Section 6a matters will apply.<br>• Street patterns includding location of Pioneer Highway through northern parts of the site which would be cut through by the site and is main entrance into Palmerston North city from the west;<br>• Proximity to Longburn Village may increase potential for adverse visual effects and loss of amenity, although existing industrial land use offsets this |
| Option 8 | • Natural patterns and processes in southern half of site - contribute to natural character of the Manawatū River corridor; expressed in flooding. Section 6a matters will apply.<br>• Location of Pioneer Highway through central parts of the site; main entrance into Palmerston North city from the west;<br>• Extent/complexity of small-scale urban patterns and character across much of the site and context particularly to the north and east, and including future residential density increases potential for visual effects and loss of amenity; |
| Option 9 | • Extent of small-scale urban patterns and residential and finer grain commercial activity in the immediate context increases potential for visual effects and loss of amenity;<br>• Central position within city fabric, potential for disruptions to existing urban patterns including main arterial route and park areas; |

# Criteria being assessed

### Visual and Landscape Impacts

As set out in Attachment 2 to the Stantec MCA Workshop 2 Briefing Note (2 September 2019), the *criterion* pertinent to this assessment ("Visual and Landscape Impacts") covers the construction and the operation of the site in terms of the following *criteria*:

1. Impact on outstanding or significant natural features and outstanding or significant natural landscapes identified in RMA planning instruments;

2. Visual impact on surrounding land uses including from residential / private viewpoints and from public viewpoints;

3. Impact of glare and lighting effects on other land uses resulting from operating lighting for rail activity;

4. Impact of the new form and design of the site on existing character (i.e. rural character[1]) and on features that contribute to character.

### Approach to the assessment

As the assessment is of "long list" options, landscape evaluation and assessment of adverse effects has been carried out at a broad scale, considering the natural and urban patterns, features within each site and its wider context; size/density and likely sensitivity of viewing audiences, and the extent of any screening which could occur from existing taller vegetation present; and overall "fit" with landscape/urban character.

Mitigation measures have not been considered during "scoring" of each site option (email dated 18 September 2019).

Comment on potential benefits/opportunities has been included in the assessment tables. These comments are included for information only, to assist further design development. As requested, and as mitigation options are yet to be confirmed, the scores given to each option are made 'without mitigation'.

### Assessment Methodology

Methodology for the assessment of landscape and visual effects for each site option has followed best practice guidance as set out by the New Zealand Institute of Landscape Architects (NZILA) in its Best Practice Note 10.1.

For the purpose of this assessment, it is assumed that:

*'Landscape is the cumulative expression of natural and cultural features, patterns and processes in a geographical area, including human perceptions and associations*[2]*'.*

This means that an assessment of landscape effects needs to consider three interrelated components and the impacts on: natural science, sensory (including views) and shared and recognised factors.

The assessment of natural character - relevant to the identification of important natural features and landscapes and Section 6a matters - requires consideration of biophysical and perceptual matters. An assessment of relevant biophysical matters needs to integrate the findings of ecologists; as will occur in the next phase of the project. This assessment has necessarily focused on 'appearances'; the factors most likely to be perceived as having an adverse effect on natural elements, patterns and processes.

The assessment methodology has comprised the following:

- Visit to the site and surrounding area, to understand site and context;

- Broad-scale evaluation of each site option and its context, including consideration of natural and urban patterns, processes and features, and the landscape and urban character resulting from the combination of these;

1 Or urban or natural character.

2 New Zealand Institute of Landscape Architects, 2 November 2010, 'Best Practice Note 10.1: Landscape Assessment and Sustainable Management'.

- Consideration of potential viewing audience/s for each site, including number of viewers (in broad terms), likely sensitivities, and the extent of existing possible vegetative screening;

- Identification of any constraints relevant to landscape and visual matters;

- Assessment of each site option against identified "criteria" (as set out in the Stantec MCA Workshop 2 Briefing Note of 2 September 2019);

- Holistic consideration of adverse landscape and visual effects relating, to reach an "overall judgement" and "score" on the nature, level and significance of adverse landscape and visual effects for each site.

*Criteria*

To ensure that site options were considered consistently, each "criteria" identified for this assessment (refer above) has been broken into "sub-criteria", as follows:

1. Impact on outstanding or significant natural features and outstanding or significant natural landscapes identified in RMA planning instruments;

    - Section 6a natural character matters are considered here - relevant to streams and Manawatū River and limited to perceptual aspects, to avoid double counting. There are no Outstanding Natural Features (ONFL- addressed under Section 6b) or Special Amenity Landscapes (SAL- addressed under Section 7c amenity matters- near any of the site options.

2. Visual impact on surrounding land uses including from residential / private viewpoints and from public viewpoints (day-time views) as an RMA Section 7c matter:

    - Viewing audiences and likely sensitivity to the proposal with residential properties assumed to be the most sensitive;

    - Number/density (in broad terms) and location within site and context (proximity) of likely viewing audiences;

    - Extent of existing vegetative (in broad terms) within the site which could screen views of the hub.

3. Impact of glare and lighting effects on other land uses resulting from operating lighting for rail activity (night-time effects);

    - Viewing audiences and likely sensitivity to the proposal - urban versus rural sensitivity, proximity of similar night lit land uses;

    - Number/density (in broad terms) and location within site and context (proximity) of likely viewing audiences;

    - Extent of existing vegetation (in broad terms) within the site which could screen views of the hub.

4. Impact of the new form and design of the site and indicative masterplan on existing character (i.e. natural/rural/rural-residential/peri-urban/urban character) and on features that contribute to character as Section 7c and 7f RMA matters;

    - Natural patterns, processes and features present and location within site and/or context including vegetation patterns, landform and hydrology;

    - Urban patterns inside the site and its context – extent, location, scale and design vernacular or character of urban components such as streets/roads, buildings, other structures and land-uses;

    - Overall predominant landscape character and potential" fit" of the proposal.

*Scoring*

The 5-point rating score specified for the comparative assessment has been used to rate effects. The scale has been used to rate the nine site options, to understand potential adverse effects.

The following table sets out an explanation of the 1 – 5 scores, and thresholds applied in this assessment:

| Score | Impact | Explanation/Threshold |
|---|---|---|
| 1 | Low | • Small number of sensitive viewers (dwellings) and adverse effects reduced by high levels of existing vegetative screening and/or distance;<br>• Masterplan can be easily assimilated into existing urban and natural character/patterns<br>• No Section 6a matters to address<br>• Residual adverse effects – with design refinement and mitigation-are likely to be very low or low on a 7 -point scale[3] |
| 2 | Medium Low | • Small number of sensitive viewers (dwellings) and adverse effects reduced by high levels of existing vegetative screening and/or distance;<br>• A general "fit" into existing urban and natural character/patterns<br>• No Section 6a matters to address<br>• Residual adverse effects are likely to be low or low to moderate on a 7 -point scale |
| 3 | Medium | • Small - moderate number sensitive viewers (dwellings) in close proximity<br>• Fit into existing urban and natural character/patterns likely to be achieved with design refinement and mitigation measures such as more compact masterplan, enhanced screening and changes to urban forms to re- establish coherent street patterns<br>• Some potential for adverse effects on Section 6a natural character matters, although existing values may be low or low-moderate (modified environment) and/or could be avoided with design refinement<br>• Residual adverse effects are likely to be low to moderate or moderate on a 7-point scale |
| 4 | Medium High | • Moderate - high number of sensitive viewers (dwellings) in proximity with limited screening<br>• Fit with existing urban and/or natural character/patterning is problematic, site features cut across streams, local and main roads, mitigation measures are complex, although likely to be reduced by a more compact masterplan<br>• Section 6a natural character matters are evident and more difficult to address due to extent and/or value<br>• Residual adverse effects are likely to be moderate or moderate to high on a 7-point scale |
| 5 | High | • High numbers of sensitive viewers in proximity with little existing vegetative screening;<br>• Fit with existing urban and/or natural character/patterning is problematic, site features cut across streams, local and main roads, mitigation measures are complex, and design measures and mitigation are unlikely to result in appropriate effects<br>• Section 6a natural character matters are evident and difficult to address, valued natural landscape areas may be impacted<br>• Residual adverse effects are likely to range from moderate to high or very high on a 7 -point scale |

Note: In line with the MCA Working 2 Briefing Note, specific design refinement and mitigation measures are not assumed and are considered in general terms only; to help distinguish sites with greater potential for further investigation.

*Overall Judgement*

In reaching a final effects score for each site option and theoretical Masterplan footprint, an "overall judgement" approach has been taken. While individual scores are provided for each sub criteria, as a tool for analysis, the effects are assessed as a whole, through a considered judgement of natural science, perceptual and shared and recognised factors, the nature and extent of the Masterplan, the receiving environment (site option area and any wider visual catchment) and the RMA policy context of Section 6 and 7 matters. This is consistent with NZILA best practice guidance,

[3]A 7- point rating scale is recommended by the NZILA in the assessment of effects - very low, low, low-moderate, moderate, moderate-high, high, very-high and this will be used in the assessment of effects for the AEE.

which recommends that, while it is useful to consider effects on various factors contributing to outstanding or significant features and landscapes, visual effects and landscape character, these matters, and the landscape, needs to be "put back together" and considered as a whole, to reach a conclusion on overall effects. In practical terms this means the overall effects score for each option is made through qualitative judgement rather than mathematical analysis. This judgment is assisted by the consideration of relevant threshold matters, as listed above, as is consistent with best practice assessment guidance. Threshold matters provide a further analysis tool; rather than being a prescriptive checklist where all aspects need to be evident or are given an equal weighting. The level of effects on landscape and visual matters is assessed through an overall judgement and consideration of the site, project and relevant legislative/policy context.

**Assumptions**

Existing land use and buildings in all zones (the "Buildings" layer in the ArcGIS Online information) are as stated (i.e. all buildings in the residential zone are assumed to be dwellings), unless clearly otherwise (Googlemaps and Streetview was also used to understand character).

To avoid "double counting", landscape and visual matters are assumed distinct from the following areas:

- Urban design (connectivity, community cohesion, fit with regional strategies/plans)
- Tangata whenua values;
- Heritage (recorded/unrecorded archaeological sites, heritage sites/items/notable trees recorded in planning instruments);
- Natural environment (terrestrial and freshwater ecology and habitat);
- Recreational uses;
- Noise and vibration (amenity) effects.

In subsequent assessments of the short listed and preferred options the findings of these disciplines will be referenced and considered in terms of landscape only; where they provide information that is relevant to the physical, perceptual and shared and recognised components of landscape and the assessment of natural character under the RMA.

The likely future environment indicated in strategic planning documents (such as areas identified for future residential growth) has been considered within this assessment in terms of potential additional visual effects and impact on character.

In considering opportunities for further design refinement and mitigation it is assumed:

- The proposed hub infrastructure can be located at a distance from the existing railway line, as indicated in the possible hub "footprints" provided on 18 September 2019;

## Comparative Assessment

**Summary of Findings**

| Site Option | Score/Impact<br>Note: an overall judgement is used to evaluate the effects and score for each option. Refer to pg 6 . | Comment<br>Summary explanation of the main factors contributing to |
|---|---|---|
| Option 1 | 3 (Medium)<br><br>*Landscape and Features (4)*<br><br>*Visual Effects (2)*<br><br>*Lighting (2)*<br><br>*Character (2)* | *Effects –*<br>● Relate primarily to Section 6a natural character (Taonui Stream) and 7c amenity matters including:.<br>● Other minor natural waterway and urban landscape patterns that cut across the site (although aligned with Waugh Rd, Newbury Line will be impacted),<br>● Existing rural residential character which helps distinguish urban form of Bunnythorpe (less of an issue compared to Option 3 +4),<br>● Proximity to sensitive audience at Taonui and impact on school that contributes to amenity/character.<br>● Proximity to Aorangi marae, the Westella homestead and growth precinct of Fielding (and are a further consideration in design refinement along with more compact form to avoid direct impact on Taonui Stream and Whiskey Creek).<br>*Potential benefits*<br>● The site offers opportunity for restoration of streams and this could be combined with visual screening. |
| Option 2 | 3 (Medium)<br><br>*Landscape and Features (4)*<br><br>*Visual Effects (2)*<br><br>*Lighting (2)*<br><br>*Character (2)* | *Effects-*<br>● Relate primarily to Section 6a natural character (Taonui Stream) and 7c amenity matters, including:<br>● Natural and urban landscape patterns cut across the site (although aligned with Campbell Rd, Nammestada and Taonui Rd would be impacted),<br>● Existing rural residential character helps which distinguish urban form of Bunnythorpe (less of an issue compared to Option 3 +4),<br>● Proximity to sensitive audience at Taonui and impact on aerodrome, contributing to amenity/character.<br>*Potential benefits*<br>● Opportunity for restoration of streams could be combined with visual screening |
| Option 3 | Medium High (4)<br><br>*Landscape and Features (4)*<br><br>*Visual Effects (3)*<br><br>*Lighting (3)*<br><br>*Character (4)* | *Effects*<br>● Relate primarily to Section 6a natural character (Mangaone Stream), and 7c amenity matters, including:<br>● Natural waterway and urban landscape patterns cut across the site<br>● Existing rural residential character helps distinguish- separate - urban centres,<br>● Proximity to sensitive audience including Bunnythorpe residential areas.<br>Note: Effects could be reduced by alignment to Roberts Line and setting between streams.<br>*Potential benefits*<br>● opportunity for restoration of streams on the site which will also provide visual screening. |
| Option 4 | High (5)<br><br>*Landscape and Features (1)*<br><br>*Visual Effects (4)* | *Effects*<br>● Relate primarlily to Section, 7f natural character and 7c amenity matters resulting from rolling landforms and rural residential landuse including:<br>● Natural waterways, rolling landforms and urban landscape patterns cut across the site (although well aligned with Railway Rd), |

| Site Option | Score/Impact<br>Note: an overall judgement is used to evaluate the effects and score for each option. Refer to pg 6 . | Comment<br>Summary explanation of the main factors contributing to |
|---|---|---|
| | *Lighting (4)*<br><br>*Character (5)* | • Existing rural residential character helps distinguish – separate- urban centres of Bunnythorpe,<br>• Close proximity to larger numbers of sensitive audience including Palmerston North residential areas |
| Option 5 | Medium High (4)<br><br>*Landscape and Features (1)*<br><br>*Visual Effects (4)*<br><br>*Lighting (4)*<br><br>*Character (3)* | *Effects*<br>• Relate primarily to Section 7f natural character and 7c amenity matters resulting from rural -residential landuse flood impacted landform patterns, including:<br>• effects on natural (waterway and topography) and urban landscape patterns which cut across the site (although less than in Option 6 +8) and<br>• Close proximity to future residential audience |
| Option 6 | High (5)<br><br>*Landscape and Features (1)*<br><br>*Visual Effects (3)*<br><br>*Lighting (3)*<br><br>*Character (5)* | *Effects*<br>• Relate primarily to Section 7f natural character and 7c amenity matters, resulting from rural- residential landuse and flood impacted landform patterns, including:<br>• Effects on natural and urban landscape patterns which cut across the site including a number of collector and main roads<br>• Proximity to sensitive audience- future residential area |
| Option 7 | High (5)<br><br>*Landscape and Features (5)*<br><br>*Visual Effects (2)*<br><br>*Lighting (2)*<br><br>*Character (4)* | *Effects*<br>• Relate primarily toSection 6a natural character and 7c landscape matters (greatest values, compared to other options) resulting from ox bow features and proximity to manawatū river, including:<br>• Effects on natural (waterway, topography) and urban landscape patterns that cut across the site<br>• Proximity to sensitive audience at Longburn Village, although in context with other industrial landuses |
| Option 8 | High (5)<br><br>*Landscape and Features (4)*<br><br>*Visual Effects (3)*<br><br>*Lighting (3)*<br><br>*Character (5)* | *Effects*<br>• *Relate primarily to-* - Section 6a natural character matters and 7c amenity matters resulting from proximity to manawatū river and rural residential landuse, including:<br>• Effects on natural (waterway, topography) and urban landscape patterns that cut across the site<br>•<br>• Sensitive audience in proximity (greater constraint than in option 7).<br>• Significant disruptions and character effects on Pioneer Highway, the main entrance into Palmerston North city. |

| Site Option | Score/Impact<br>Note: an overall judgement is used to evaluate the effects and score for each option. Refer to pg 6 . | Comment<br>Summary explanation of the main factors contributing to |
|---|---|---|
| Option 9<br>Note: This assessment considers the redeveloped site. Including the masterplan concept for the rail hub. | High (5)<br><br>*Landscape and Features (1)*<br><br>*Visual Effects (5)*<br><br>*Lighting (5)*<br><br>*Character (5)* | *Effects-*<br>• Relate primarily to Section 7c amenity and 7f quality of the built environment matters, including:<br>• Finer grain urban landscape patterns do not fit with the patterns or the scale of development ,<br>• Large sensitive audience in proximity and impact on landscape amenity areas. |

**Recommendation**

Site Option 1 and 2 are recommended for further investigation with a more compact masterplan, to be considered as a measure to limit effects on the natural feature of Taonui Stream. Both sites would have a similar level of visual impact, and opportunities for benefits through stream restoration. It is noted, to avoid double counting, the existing land uses of Taonui School (Site 1) and the aerodrome (Site 2), are considered in terms of urban character and patterns only. It is assumed that their contribution, as valued assets for the local community, will be assessed by others under community cohesion.

On balance, Option 1 has an advantage, as it has a better fit with existing urban patterns (Newbury Line would be impacted) and opportunities for design refinement and mitigation. For example, refinement could enable a more compact masterplan such that the development can be contained south of Taonui Stream and improved by restoration planting along Taonui and Whiskey Creek. Through greater separation, this approach, would also reduce potential effects on the Westella Homestead and Aorangi marae. Relocation of the school, although very disruptive, could result in more coherent urban patterns, for example, where facilities are brought together along Taonui Rd.

Further broad scale mitigation measures to consider include final building alignment and articulation to manipulate perceptions of scale and fit with existing patterns along with quality of finish and development of a coherent palette of materials for all structures; to reduce visual dominance.

Site 3 Option could also be considered if the masterplan was set along Roberts Line between Taonui and the Mangaone Stream. This alignment would provide greater separation and distinction to Bunnythorpe and a more logical relationship and fit with the patterns of the Palmerston North industrial zone. Similarly, an alignment to Pioneer Highway, east of Tiakitahuna Rd through to Longburn (Site 6 shift) may have merit from a landscape and visual perspective. This location would avoid important natural features and most street patterns (Karere Rd would be impacted) with reduced effects due to its setting in the vicinity of the Longburn industrial development. Alternatively, options to reduce the size of the masterplan could include locating the logging component in this area.

Note: A more compact masterplan would decrease the effects score for all other site options. However, residual medium to high adverse effects (on a 7-point scale) are likely to be retained post mitigation. This is because a more compact hub is still likely to cut across natural (streams, landforms) and urban (street/road networks) patterns and/or the nature and extent of the development would contrast strongly with the character of the area and would be viewed by larger numbers of a sensitive audience – now and in the future. In summary, these matters discount:

- Option 4 due to its rolling landform and proximity to Palmerston North residential areas
- Option 5 due to its setting alongside existing and proposed residential areas and rural character
- Option 6 and 8 due, as they across natural features and a number of collector and main roads and interface with proposed new residential areas. These sites have the worst fit with natural and urban patterns.
- Option 7 due to its proximity to the Manawatū river, natural oxbow features and extension across Pioneer Highway. This area has the greatest natural landscape values.
- Option 9 due to its proximity to, and numbers of, sensitive viewing audiences and the developments likely impact on urban patterns, including street networks, open space areas and contrast with other buildings and structures typical of the central city

Isthmus.

# Addendum to the Workshop 2 Landscape and Visual Assessment

21/04/2020

## Reasons for the addendum

The reason for this addendum is to provide a:

- record updates to my assessment following workshop 2; and
- further assessment of the area options with the masterplan layout applied

## Updates to assessment post workshop 2

Following workshop 2, I updated my original assessment as a result of a further review of desktop information, relevant material presented in other discipline reports and matters relevant to landscape, discussed at the workshop. The changes are discussed below.

## Constraints identified in each area [amendment 1]

Specifically, amendments are made to the constraints table to address further information as well as a greater understanding of features relevant to tangata whenua values and notable trees identified in the PNCC district plan, not considered by other assessments. For completeness, the constraints table is included below with the additions highlighted

| Area for investigation | Constraints (what and where) |
|---|---|
| Option 1 | • Natural feature of Taonui Stream (in the western parts of site); natural processes (flooding) in south-eastern parts, contributing to natural landscape character. Section 6a matters triggered.<br>• Existing and future urban patterns at the north-west end of the site include Aorangi Marae and Maori freehold land, Westella Homestead rest home, Fielding Residential Growth Precinct and Taonui School (directly impacted)<br>• Existing urban patterns - configuration of roads and existing rail-line on north boundary of site (Waughs Road, Campbells Road, with rail line inbetween): connection of hub to existing rail line could result in a substantial change in character on Waughs and/or Campbell Roads;<br>• Adjacent urupā, aerodrome and rural-residential land use – Campbell Rd and Durie Rd increases potential for visual effects and effects on existing values/amenity |
| Option 2 | • Natural feature of Taonui Stream (in western parts of the site); natural processes (flooding) in south-eastern parts, contributing to natural landscape character. Section 6a matters triggered.<br>• Street patterns - roads and existing rail-line on south boundary of site (Campbells Road, Waughs Road, with rail line inbetween): connection of hub to existing rail line could result in a substantial change in urban character along Waughs and/or Campbell Roads and site would cut across Taonui and Nannestads Rd;<br>• Greater density of urban patterning at the north-west end (including an adjacent Residential Growth Precinct near Fielding) increases potential for visual effects and loss of residential amenity<br>• Aerodrome directly impacted, contributes to periurban character and amenity.<br>• Stream, urupā and maori freehold land in wider context- signals existing values to tangata whenua. |
| Option 3 | • Natural feature of Mangaone Stream - bi-sects the site; numerous tributaries traverse the area; associated natural processes (flooding) contributing to natural landscape character, Section 6a matters triggered and likely values to tangata whenua |

| Area for investigation | Constraints (what and where) |
|---|---|
| | • Street patterns include finer grain network of local and main collector roads and proposed site would cut across these<br>• Cemetery in wider context- increases potential for visual effects and loss of amenity<br>• Extensive rural-residential landuse, particularly in northern and north-western parts of site and proximity to Bunnythorpe would increase potential for visual effects and loss of character and amenity |
| Option 4 | Landform patterns more pronounced and contributes to character - rolling hills and shallow gully systems with associated streams/tributaries across the site;<br>• Established rural-residential landuse and finer grain patterns of development across much of the site, would increase potential for visual effects and loss of character and amenity<br>• Proximity to residential areas off Kelvin Grove in Palmerston North would increase potential for visual effects<br>• Existing rural residential landuse distinguishes the City from Bunnythorpe, provides greater distinction/ clear urban patterns |
| Option 5 | • Natural processes - expressed in extensive flood prone areas in north-western parts of the site and underlies character of the site<br>• Adjacent rural-residential patterns along existing rail corridor increases potential for adverse visual effects and loss of amenity<br>• Street patterns include a number of local and main collector roads that would be disrupted by the proposal<br>• Proximity of residential/future residential (Kakatangiata Growth area) areas – adjacent to the east, south-east and south increasing potential for adverse visual effects and loss of amenity |
| Option 6 | • Natural processes - expressed in flood prone areas along Number 1 Line Longburn (north-western parts of the site) underly landscape character<br>• Bush remnant would be directly impacted – Section 6c matter<br>• Street patterns include a number of local and main collector roads including Longburn line that would be disrupted/cut across by the proposal<br>• Proximity to existing rural-residential areas would increase potential for visual effects and loss of amenity<br>• Community Hall directly impacted -contributes to character and amenity<br>• Proximity of future residential area (Kakatangiata Growth Area) would increase potential for visual effects and loss of residential amenity |
| Option 7 | • Natural patterns and processes in southern half of site - contribute to natural character remnants of a former path of the Manawatū River with ox-bows and associated terraces featuring across the site between SH56. Section 6a matters will apply.<br>• Proximity to river corridor signals likely landscape values associated with natural science, perceptual and shared and recognised factors including sites of significance to tangata whenua.<br>• Street patterns includding location of Pioneer Highway through northern parts of the site which would be cut through by the site and is main entrance into Palmerston North city from the west;<br>• Proximity to Longburn Village may increase potential for adverse visual effects and loss of amenity, although existing industrial land use offsets this |

| Area for investigation | Constraints (what and where) |
|---|---|
| Option 8 | • Natural patterns and processes in southern half of site - contribute to natural character of the Manawatū River corridor; expressed in flooding. Section 6a matters will apply.<br>• Location of Pioneer Highway through central parts of the site; main entrance into Palmerston North city from the west;<br>• Extent/complexity of small-scale urban patterns and character across much of the site and context particularly to the north and east, and including future residential density increases potential for visual effects and loss of amenity;<br>• School -Adventist College, likely to be directly impacted- contributes to character and amenity<br>• Proximity to river corridor signals likely landscape values associated with natural science, perceptual and shared and recognised factors including sites of significance to tangata whenua; |
| Option 9 | • Extent of small-scale urban patterns and residential and finer grain commercial activity in the immediate context increases potential for visual effects and loss of amenity;<br>• Central position within city fabric, potential for disruptions to existing urban patterns including main arterial route, Park areas and notable tree (Oriana Park); |

### Criteria being assessed [amendment 2]

Amendments are made to the criteria in order to provide further explanation as to factors considered relevant to the project context. This including reference to the identification of (Section 7) Special Amenity Landscapes (SAL) and (Section 6) Outstanding Natural Features and Landscapes (ONFL) which may be identified under the RMA, using distinct thresholds tests. These matters are included to provide further explanation as to the range of landscape values considered relevant to the assessment and did not result in any changes to the scores assigned to each option. For completeness, the threshold table is shown here with changes highlighted.

| Score | Impact | Explanation/Threshold |
|---|---|---|
| 1 | Low | • Small number of sensitive viewers (dwellings) and adverse effects reduced by high levels of existing vegetative screening and/or distance;<br>• Masterplan can be easily assimilated- has a good fit with existing urban and natural character/patterns<br>• No Section 6a matters to address and existing landscape values would not meet the SAL test<br>• Residual adverse effects – with design refinement and mitigation-are likely to be very low or low on a 7 -point scale[1] |
| 2 | Medium Low | • Small number of sensitive viewers (dwellings) and adverse effects reduced by high levels of existing vegetative screening and/or distance;<br>• A general “fit” into existing urban and natural character/patterns<br>• No Section 6a matters to address and existing landscape values would not meet the SAL test<br>• Residual adverse effects are likely to be low or low to moderate on a 7 -point scale |

[1]A 7- point rating scale is recommended by the NZILA in the assessment of effects - very low, low, low-moderate, moderate, moderate-high, high, very-high and this will be used in the assessment of effects for the AEE.

| Score | Impact | Explanation/Threshold |
|---|---|---|
| 3 | Medium | • Small - moderate number sensitive viewers (dwellings) in proximity<br>• Fit into existing urban and natural character/patterns likely to be achieved with design refinement and mitigation measures such as more compact masterplan, enhanced screening and changes to urban forms to re- establish coherent street patterns<br>• Some potential for adverse effects on Section 6a natural character matters, although existing values may be low or low-moderate (modified environment) and/or could be avoided with design refinement<br>• Some potential for adverse effects on Section 7c amenity landscape values, although existing values may be low or low-moderate (modified environment) and/or could be avoided with design refinement<br>• Residual adverse effects are likely to be low to moderate or moderate on a 7-point scale |
| 4 | Medium High | • Moderate - high number of sensitive viewers (dwellings) in proximity with limited screening<br>• Fit with existing urban and/or natural character/patterning is problematic, site features cut across streams, local and main roads, mitigation measures are complex, although likely to be reduced by a more compact masterplan<br>• Section 6a natural character matters are evident and more difficult to address due to extent and/or value<br>• Some potential for adverse effects on Section 7c amenity landscape values and more difficult to address due to extent and/or values and some matters of very high or outstanding value (irrespective of Planning documents) although not likely to meet the test to be identified as an ONFL.<br>• Residual adverse effects are likely to be moderate or moderate to high on a 7-point scale |
| 5 | High | • High numbers of sensitive viewers in proximity with little existing vegetative screening;<br>• Fit with existing urban and/or natural character/patterning is problematic, site features cut across streams, local and main roads, mitigation measures are complex, and design measures and mitigation are unlikely to result in appropriate effects<br>• Section 6a natural character matters are evident and difficult to address, valued natural landscape areas may be impacted<br>• Some potential for adverse effects on Section 7c amenity landscape values and more difficult to address due to extent and/or values and there may be a number of landscape factors to consider of very high or outstanding value (irrespective of Planning documents) although not likely to meet the test to be identified as an ONFL.<br>• Residual adverse effects are likely to range from moderate to high or very high on a 7 -point scale |

## Comparative Assessment [amendment 3]

*Summary of findings*

Additional references to values to tangata whenua are considered relevant to the assessment of effects and as such the following additions are made to the "comments" column of the findings table. These amendments are recorded here for completeness and context. Consideration of these factors did not require changes to either the sub criteria or overall effects score given to each option. Specifically, further factors are acknowledged under:

*Option 2- Sites of significance to mana whenua including stream, urupā and land holdings.*
*Option 3- Sites of significance to mana whenua -Mangaone Stream*
*Option 5- Natural feature impacted – bush remnant.*
*Option 9 –[impact on landscape amenity areas] including notable tree and Park.*

### Further assessment

During Workshop 2, participants acknowledged that having a specific site to assess within the areas identified could potentially result in changes to the scores presented at Workshop 2.

As a result, after Workshop 2, the masterplan was applied to the area options assessed in Workshop 2, and sites within those areas identified. The rail connection was included on the refined options, and the implications for connecting to the North Island Main Trunk line were identified.

There are two layout options for areas 1 and 2 (Options 1a, 1b, 2a, 2b). Three layouts were originally developed for area 3 (Options 3a, 3b and 3c), however only one layout was taken forward for assessment (Option 3c) because the others did not meet the project objectives. As I had originally assessed all three options, they are included for completeness below. Area 4 could only accommodate one layout option. There were significant constraints at the ends of areas 5 and 6, therefore the parts of these two areas without the constraints were combined to create site 5.

Sites in areas 7, 8 and 9 were not identified as these areas were fatally flawed at Workshop 2.

### Assessments

The following table sets out the visual and landscape assessment and scoring for each of the site options

| Site Option | Score | Assessment |
|---|---|---|
| Option 1a | Medium (3) | **Preferred** compared to Option 1b. Avoids Taonui stream and Whiskey Creek (with opportunities for restoration planting), smaller waterways impacted. Provides some separation from marae and Homestead, excluding pull back track (could this overlap in front of the marae be avoided?). Larger scale utility type buildings at the aerodrome reduce impact– provide comparative urban patterns. Option provides increased separation from rural residential properties and peri urban areas of Bunnythorpe (compared to Option 1b) and distinct separation from future growth areas in Fielding. Direct impact on Taonui school will have adverse effects on character and amenity (although relocation to Taonui Rd could have long term benefits-as a village type node with better connections to Fielding)<br><br>*RMA Landscape and Features (2)*<br>*Visual Effects (2)*<br>*Lighting (2)*<br>*Character (3)* |
| Option 1b | Medium- High (4) | Avoids Taonui stream and Whiskey Creek (with opportunities for restoration planting), smaller waterways impacted. Provides greater separation from marae (no pull back track) and Homestead which contribute to character and amenity. Potential for visual effects increased - reduced separation from Bunnythorpe rural residential and peri urban areas (compared to Option 1a). Grade separation through Bunnythorpe will have additional adverse character and visual effects. Larger scale utility type buildings adjacent, at aerodrome, are a mitigating factor – |

| Site Option | Score | Assessment |
|---|---|---|
| | | comparative urban patterns. Avoids immediate site of Taonui school and provides some separation to Aerodrome, however, character and amenity impacts will remain, and are likely to be highly adverse - however, character and amenity impacts will remain, and are likely to be highly adverse -the rail hub will introduce a large-scale infrastructure development in close proximity.<br><br>*RMA Landscape and Features (2)*<br>*Visual Effects (3)*<br>*Lighting (3)*<br>*Character (4)* |
| Option 2a | Medium (3) | **Preferred** compared to Option 2b. Avoids Taonui stream (with opportunities for restoration planting), although several smaller waterways impacted. Provides some separation from urupā excluding pull back track (could this overlap in front of the ūrupa be avoided?). Potential for visual effects increased compared to Option 1a - due to number of rural residential properties directly adjacent although has clear separation from planned growth at Fielding. Will have a direct impact on the Aerodrome and directly adjacent Taonui school; which contribute to character. Avoids grade separation through Bunnythorpe - a mitigating factor.<br><br>*RMA Landscape and Features (2)*<br>*Visual Effects (2)*<br>*Lighting (2)*<br>*Character (3)* |
| Option 2b | Medium High (4) | Avoids Taonui stream (with opportunities for restoration planting), although several smaller waterways impacted. Provides greater separation from urupā (including pull back track) and aerodrome may be able to be retained – although likely character and visual effects. Potential for visual effects increased (compared to Option 2a) due to numbers of rural residential and residential properties in proximity/interface with Bunnythorpe. Grade separation through Bunnythorpe will have additional adverse character and visual effects. Increased separation from Taonui School, Homestead and marae, a mitigating factor.<br>*RMA Landscape and Features (2)*<br>*Visual Effects (3)*<br>*Lighting (3)*<br>*Character (4)* |
| **Option 3a** | High (5) | Direct impacts on Mangaone Stream (including values to mana whenua) tributaries and poor alignment with road patterns (compared to Option 3b). Increased proximity to sensitive audience including Bunnythorpe residential areas and cemetery - would result in additional |

| Site Option | Score | Assessment |
|---|---|---|
| | | character and visual effects. Confirmed multiple road crossings and bridge would increase adverse effects on character. Proximity to existing industrial centre a mitigating factor – comparative urban patterns (avoids direct impact on existing development). Effects could be reduced by alignment to Roberts Line.<br>*RMA Landscape and Features (4)*<br>*Visual Effects (3)*<br>*Lighting (3)*<br>*Character (5)* |
| **Option 3b** | Medium- High (4) | **Preferred** compared to Option 3a. Avoids Mangaone Steam (with opportunities for restoration planting), although smaller waterways impacted. Improved fit with existing urban patterns- alignment with the road network. Proposed grade separation through Bunnythorpe will have increased visual and character effects (can this be avoided?) Increased potential for visual effects (compared to Option 3a) due to rural residential proximity – sensitive audience.<br>Proximity to existing industrial centre a mitigating factor – comparative urban patterns (although cuts across existing development- can this be avoided?)<br>*RMA Landscape and Features (2)*<br>*Visual Effects (4)*<br>*Lighting (4)*<br>*Character (4)* |
| Option 3c | Medium-High (4) | Preferred compared to Option 3a and 3b. Avoids Mangaone Steam (with opportunities for restoration planting), although smaller waterways impacted. Improved fit with existing urban patterns- alignment with the road network. Proposed grade separation through Bunnythorpe will have increased visual and character effects (can this be avoided?) Increased potential for visual effects (compared to Option 3a) due to rural residential and residential proximity-sensitive audience.<br>Proximity to existing industrial centre a mitigating factor – comparative urban patterns and direct impact on existing development reduced compared to Option 3b.<br>*RMA Landscape and Features (2)*<br>*Visual Effects (4)*<br>*Lighting (4)*<br>*Character (4)* |

| Site Option | Score | Assessment |
|---|---|---|
| Option 4 | High (5) | Masterplan components cut across existing natural and urban landscape patterns (although well aligned with Railway Rd) including rolling landforms and numerous streams ( large scale earthworks likely to be required). Existing rural residential patterns help distinguish - separate- urban centres of Bunnythorpe and Palmerston North. Hub would be located in close proximity to a large number of residential properties. Masterplan components proximity to Bunnythorpe and confirmed road crossings/disruption to urban patterns increases potential for character and visual effects.<br><br>Proximity to existing industrial centre a mitigating factor – comparative urban patterns (excludes consideration of direct effects).<br>*RMA Landscape and Features (2)*<br>*Visual Effects (5)*<br>*Lighting (5)*<br>*Character (5)* |
| Option 5 | High (5) | Poor fit with natural and urban landscape patterns with Masterplan components cutting across a a number of collector and main roads. Potential visual and character effects confirmed by requirements for rail overpass along with proximity to sensitive audience - future residential area, community hall, and existing rural residential landuse. An alignment to the south of Longburn along Pioneer Highway would provide reduced impacts on character.<br>*Landscape and Features (1)*<br>*Visual Effects (3)*<br>*Lighting (3)*<br>*Character (5)* |

**Conclusion –** Option 1a, 2a and 3c are preferred compared to the other sub options. Options 1a and 2a are assessed as having Medium (3) overall landscape and visual effects and Option 3c Medium-High (4) effects due to the potential for greater visual, lighting and character effects. These additional effects relate to the proposed grade separated interchange, proximity to larger numbers of sensitive viewing audience and greater impact on existing urban landscape patterns, including existing road and cadastral boundaries.

Isthmus.

# KiwiRail: Palmerston North - Assessment Template Workshop 3 Landscape and Visual Impact

## 1. Introduction

Date: 18/11

Author(s)
**Lisa Rimmer**, Principal Landscape Architect/Design Planner (Master Landscape Architecture (Hons), Lincoln University; Bachelor Horticultural Science (Hons), Massey University; NZILA Registered);

**Gavin Lister**, Director Master Urban Design (Sydney University); Post-graduate Diploma Landscape Architecture. (Lincoln College); BA (Auckland University); NZCS, FNZILA. Assessment Methodology Review.

The following is a comparative assessment of short list site options to inform the MCA workshop 3 for KiwiRail's future Palmerston North Rail and Freight Hub.

This assessment has relied on the following information:

The assessment has relied on the following information:

- Description of the future activity provided by Stantec for Workshops 2 and 3 (Attachment 1-3, Assessment Template and Workshop Briefing 8th November 2019)
- Information provided by Stantec in ArcGIS platform (including shortlisted sites)
- Draft assessments prepared by other specialists on the long list of options (received 23/09/2019)
- Constraints mapping provided by Stantec 29/09/2019
- Horizons One Plan Schedule G: Regionally Outstanding Natural Features and Landscapes - including the Manawatu Gorge and Tararua Ranges
- Palmerston North City Council online mapping and District Plan information relevant to landscape matters including:
    - Landscape Inventory 2011.
    - 2018-2028 - Long Term Plan (10 Year Plan)
    - Housing and Future Development Plan 2018
    - Urban Design Plan 2018
    - Growth Infrastructure Plan 2018
    - Strategic Transport Plan 2018
    - Appendix 17C Schedule of Notable Trees, Groups of Notable Trees and Habitats of Local Significance
    - District Planning Maps Landscape Protection Areas- Tararua Ranges
- Manawatū District Council online mapping and District Plan information relevant to landscape

matters including:
    - Draft Plan Change 65- Natural Features and Landscapes – identifying Outstanding Natural Features and Landscapes
    - Fielding Growth Plan (Precinct 5 north of the Taonui Stream), operative Plan Change 45
- New Zealand Topographical maps;
- Use of Googlemaps and Street view, to better understand existing landscape character.

<u>The following information was not available for this assessment</u>

- Detailed information on individual property use (e.g. non rural dwellings in a rural zone);
- Mitigation measures anticipated by KiwiRail for each site;
- Final assessment reports of other specialists on the long list options and follow up sub and refined option assessment for sites 1a-b, 2a-b, 3a-c, 4 and 5/6
- 'General order' earthworks requirements for each site and indicative masterplan; relevant to assessing landscape effects.

# 2. Constraints identified in each site

| Site | Constraints - what they are, where they are in the site and the significance of the constraint |
|---|---|
| Option 2 | • Natural features of Taonui Stream, Mangaone Stream, likely impact on tributaries and natural processes (landforms shaped by historic stream path and flooding) contribute to natural landscape character. Section 6a matters triggered and likely values to mana whenu.<br>• Street patterns - roads and existing rail-line located on the site (Campbells Road, Waughs Road, with rail line inbetween): connecting the hug to the existing rail line is likely to result in a substantial change in landscape character along Waughs and/or Campbell Roads with possible changes to Taonui and Nannestads Rd<br>• Proximity to Bunnythorpe, including rural residential area off Eggletons Rd, urban street patterns and arterial connections – likely to be impacted by masterplan connections increases potential for effects on landscape character and visual amenity<br>• Utility patterns-overhead transmission lines and towers transect site to substation between Dixons Line and Ashurst Rd, relocation likely<br>• Aerodrome likely to be directly impacted, contributes to periurban/Taonui community character and amenity<br>• Stream, urupā and maori freehold land in wider context- signals existing values to mana whenua<br>• Urban patterns include future residential growth precinct in Fielding (Precinct 5 located to the north of Taonui Stream beyond the existing golf course) |

| | |
|---|---|
| Option 3 | • Natural feature of Mangaone Stream - likely impact on tributaries and associated natural processes (landforms shaped by historic stream paths and flooding). Section 6a matters triggered and likely values to mana whenua<br>• Proximity to Bunnythorpe, including rural residential area off Parrs Rd, urban street patterns and arterial connections - are likely to be impacted by masterplan connections increasing potential for effects on landscape character and visual amenity<br>• Cemetery located in wider context along Maple St- increases potential for visual effects and loss of rural character |
| Option 4 | • Landform patterns – the site features shallow gully systems and more pronounced topography with associated streams/tributaries likely to be impacted by the development<br>• Existing vegetation patterns contribute to rural residential character – mature shelter belts predominantly exotic species<br>• Established rural-residential landuse and finer grain patterns of development across much of the site, and in nearby surroundings, would increase the potential for visual effects and loss of character and amenity<br>• Proximity to residential areas off Kelvin Grove in Palmerston North would increase potential for visual effects<br>• Proximity to Bunnythorpe-urban street patterns and arterial connections are likely to be impacted by masterplan connections, increasing potential for effects on landscape character and visual amenity.<br>• Bunnythorpe recreation reserve in wider context- increases potential for visual effects and loss of amenity<br>• Existing rural residential landuse helps distinguish Palmerston North City from Bunnythorpe, contributing to more coherent, distinct urban patterns |

# 3. Criteria being assessed

## Visual and Landscape Impacts

As set out in the Attachment 3 to the Workshop 3 Briefing Note (8 November 2019), the criterion pertinent to this assessment ("Visual and Landscape Impacts") covers the construction and operation of the site in terms of the following criteria:

1. Impact on outstanding or significant natural features and outstanding or significant natural landscapes identified in Resource Management Act (RMA) planning instruments[1];
2. Visual impact on surrounding land uses including from residential / private viewpoints and from public viewpoints;
3. Impact of glare and lighting effects on other land uses resulting from operating lighting for rail activity;
4. Impact of the new form and design of the site on existing character (i.e. rural character[2]) and on features that contribute to character.

Together these matters address

## Approach to the assessment

As the assessment is of "short list "site options and an indicative masterplan, landscape evaluation and assessment of adverse effects has been carried out at a broad scale, considering the natural and urban patterns, features within each site and its wider context; size/density and likely sensitivity of viewing audiences, and the extent of any screening which could occur from existing taller vegetation present; and overall "fit" with landscape/urban character.

Mitigation measures have not been considered during "scoring" of each site option.

## Assessment Methodology

Methodology for the assessment of landscape and visual effects for each site and masterplan has followed best practice guidance as set out by the New Zealand Institute of Landscape Architects (NZILA) in its Best Practice Note 10.1.
For the purpose of this assessment, it is assumed that:

*'Landscape is the cumulative expression of natural and cultural features, patterns and processes in a geographical area, including human perceptions and associations[3]'.*

Following this definition, best practice guidance requires landscape values and effects to be identified through a consideration of three interrelated components: natural science, sensory (including views) and shared and recognised factors. Together these factors contribute to the overall [natural and urban] character and significance of a landscape.

1. Note: there are no Section 6b RMA Outstanding Natural Features and Landscapes identified in the vicinity of the site options - Horizons Regional Plan Schedule G, Manawatu District Plan or Palmerston North City District planning maps. Section 7c, Significant Natural Features and Landscapes are not identified in any planning documents (Special Amenity Landscapes). Matters addressed under this sub criteria are therefore limited to a preliminary consideration of natural science, perceptual and shared and recognised factors that are likely contribute to landscape values – used to identify ONFL and SAL- and Section 6a natural character matters; associated with streams and rivers. See methodology section.
2. Or urban or natural character.
3. New Zealand Institute of Landscape Architects, 2 November 2010, 'Best Practice Note 10.1: Landscape Assessment and Sustainable Management'.

Under the Resource Management Act, Outstanding Natural Features and Landscapes (ONFL) are identified under the RMA Section 6b as a matter of national importance. As an '*other matter*', District Councils may also identify Section 7c Special Amenity Landscapes (SAL).

The assessment of natural character - as is relevant to landscape and RMA Section 6a matters - requires consideration of biophysical and perceptual matters. An assessment of relevant biophysical matters needs to integrate the findings of ecologists and has been informed by the draft Natural Environment specialist report (dated 18th Sept 2019).

The assessment methodology has comprised the following:

- Visit to the site and surrounding area, to understand site and context (August 20th, 2019);
- Broad-scale evaluation of each site option and its context, including consideration of natural and urban patterns, processes and features, and the landscape and urban character resulting from the combination of these;
- Review draft long list reports relevant to the assessment of natural character matters - Natural Environment (dated 18th Sept 2019).
- Consideration of potential viewing audience/s for each site, including number of viewers (in broad terms), likely sensitivities, and the extent of existing possible vegetative screening;
- Identification of any constraints relevant to landscape and visual matters;
- Assessment of each site option and the indicative masterplan against identified "criteria" (as set out in the Stantec MCA Workshop 3 Briefing Note of 8th November 2019);
- Holistic consideration of adverse landscape and visual effects relating, to reach an "overall judgement" and "score" on the nature, level and significance of adverse landscape and visual effects for each site and the assumed footprint.
- Identification of further design measures to be investigated further to avoid, mitigate and reduce effects

*Criteria*

To ensure that site options were considered consistently, the landscape visual criteria has been broken into "sub-criteria", as follows:

1. Impact on outstanding or significant natural features and outstanding or significant natural landscapes identified in RMA planning instruments;
    - Factors contributing to natural science, perceptual and shared and recognised values are considered here along with Section 6a natural character matters - relevant to streams and Manawatū River. There are no Outstanding Natural Features (ONFL-addressed under Section 6b) or Special Amenity Landscapes (SAL- addressed under Section 7c amenity matters- identified near any of the site options.
2. Visual impact on surrounding land uses including from residential / private viewpoints and from public viewpoints (day-time views) as an RMA Section 7c matter:
    - Viewing audiences and likely sensitivity to the proposal with residential properties assumed to be the most sensitive;
    - Number/density (in broad terms) and location within site and context (proximity) of likely viewing audiences;
    - Extent of existing vegetation patters (in broad terms) within the site which could screen views of the development.
3. Impact of glare and lighting effects on other land uses resulting from operating lighting for rail activity (night-time effects);
    - Viewing audiences and likely sensitivity to the proposal - urban versus rural sensitivity, proximity of similar night lit land uses;
    - Number/density (in broad terms) and location within site and context (proximity) of likely viewing audiences;
    - Extent of existing vegetation (in broad terms) within the site which could screen views of the hub.
4. Impact of the new form and design of the site and indicative masterplan footprint on existing character (i.e. natural/rural/rural-residential/peri-urban/urban character) and on features that contribute to character as

Section 7c and 7f RMA matters. This aspect of the assessment has a primary focus on alignment or fit with existing patterns, as a useful tool to evaluate the way in which the Project is able to be integrated within the its environment, and therefore avoid adverse landscape and visual effects.

- Natural patterns, processes and features present and location within the site and/or context including vegetation patterns, landform and wider hydrological patterns (and as distinct from Section 6a matters which address natural character values of streams);
- Urban patterns inside the site and relevant to its context – extent, location, scale and design vernacular or character of urban components such as streets/roads, buildings, other structures and land-uses;
- Overall predominant landscape character and potential" fit" of the proposal.

*Scoring*

The 5-point rating score specified for the comparative assessment has been used to rate effects. The scale has been used to rate the three site options, to understand potential adverse effects.

The following table sets out an explanation of the 1 – 5 scores, and thresholds applied in this assessment:

| Score | Impact | Explanation/Threshold |
|---|---|---|
| 1 | Low | • Small number of sensitive viewers (dwellings) and adverse effects reduced by high levels of existing vegetation/ screening and/or distance;<br>• masterplan can be easily assimilated- has a good fit with existing urban and natural character/patterns<br>• No Section 6a matters to address and existing landscape values would not meet the SAL test<br>• Residual adverse effects – with design refinement and mitigation-are likely to be very low or low on a 7 -point scale[4] |
| 2 | Medium Low | • Small number of sensitive viewers (dwellings) and adverse effects reduced by high levels of existing vegetation/ screening and/or distance;<br>• A general "fit" into existing urban and natural character/patterns<br>• No Section 6a matters to address and existing landscape values would not meet the SAL test<br>• Residual adverse effects are likely to be low or low to moderate on a 7 -point scale |
| 3 | Medium | • Small - moderate number sensitive viewers (dwellings) in proximity<br>• Fit into existing urban and natural character/patterns likely to be achieved with design refinement and mitigation measures such as more compact masterplan, enhanced screening and changes to urban forms to re- establish coherent street patterns<br>• Some potential for adverse effects on Section 6a natural character matters, although existing values may be low or low-moderate (modified environment) and/or could be avoided with design refinement<br>• Some potential for adverse effects on Section 7c amenity landscape values, although existing values may be low or low-moderate (modified environment) and/or could be avoided with design refinement<br>• Residual adverse effects are likely to be low to moderate or moderate on a 7-point scale |
| 4 | Medium High | • Moderate - high number of sensitive viewers (dwellings) in proximity with limited existing vegetation/screening<br>• Fit with existing urban and/or natural character/patterns is problematic, site features cut across streams, local and main roads, mitigation measures are |

[4] A 7- point rating scale is recommended by the NZILA in the assessment of effects - very low, low, low-moderate, moderate, moderate-high, high, very-high and this will be used in the assessment of effects for the AEE.

| Score | Impact | Explanation/Threshold |
|---|---|---|
| | | complex, although likely to be reduced by a more compact masterplan/refinement<br>• Section 6a natural character matters are evident and more difficult to address due to extent and/or value<br>• Some potential for adverse effects on Section 7c amenity landscape values that are more difficult to address due to extent and/or values and some matters of very high or outstanding value (irrespective of Planning documents) although not likely to meet the test to be identified as an ONFL.<br>• Residual adverse effects are likely to be moderate or moderate to high on a 7-point scale |
| 5 | High | • High numbers of sensitive viewers in proximity with little existing vegetation /screening;<br>• Fit with existing urban and/or natural character/patterns is problematic, site features cut across streams, greater topography, local and main roads, mitigation measures are complex, and design measures and mitigation are unlikely to result in appropriate effects<br>• Section 6a natural character matters are evident and difficult to address, valued natural landscape areas may be impacted<br>• Some potential for adverse effects on Section 7c amenity landscape values and more difficult to address due to extent and/or values and there may be a number of landscape factors to consider of very high or outstanding value (irrespective of Planning documents) although not likely to meet the test to be identified as an ONFL.<br>• Residual adverse effects are likely to range from moderate to high or very high on a 7 -point scale |

*Overall Judgement*

In reaching a final effects score for each site option and indicative masterplan footprint, an "overall judgement" approach has been taken. While individual scores are provided for the sub criteria, as a tool for analysis, the effects are assessed as a whole, through a considered judgement of natural science, perceptual and shared and recognised factors, the nature and extent of the masterplan, the receiving environment (site option area and any wider visual catchment) and the RMA policy context of Section 6 and 7 matters. This is consistent with NZILA best practice guidance, which recommends that, while it is useful to consider effects on various factors contributing to outstanding or significant features and landscapes, visual effects and landscape character, these matters, and the landscape, needs to be "put back together" and considered as a whole, to reach a conclusion on overall effects. In practical terms this means the overall effects score for each option is made through qualitative judgement rather than mathematical analysis. This judgment is assisted by the consideration of relevant threshold matters, as listed above. Threshold matters provide a further analysis tool; rather than being a prescriptive checklist where all aspects need to be evident or are given an equal weighting The level of effects on landscape and visual matters is assessed through an overall judgement and consideration of the site, project and relevant legislative/policy context.

Assumptions.

Existing land use and buildings in all zones (the "Buildings" layer in the ArcGIS Online information) are as stated (i.e. all buildings in the residential zone are assumed to be dwellings), unless clearly otherwise (Googlemaps and Street view were also used to understand character).

To avoid "double counting", landscape and visual matters are assumed distinct from the following areas assessed by others:

- Urban design and recreation (as assessed under connectivity, community cohesion, fit with regional strategies/plans)
- Tangata whenua values;
- Heritage (recorded/unrecorded archaeological sites, heritage sites/items recorded in planning instruments);
- Natural environment (terrestrial and freshwater ecology and habitat);
- Noise and vibration (amenity) effects.

Draft reports provided by other specialists have been reviewed as background and integrated in terms of landscape; where they provide information relevant to the physical, perceptual and shared and recognised components of landscape and the assessment of natural character.

The likely future environment, as indicated in strategic planning documents (including areas identified for future residential growth at Kakatangiata Growth Area and on the outskirts of Fielding) has been considered in terms of potential additional visual effects and impact on character.

Effects are assessed for the permanent works associated with the indicative masterplan footprint, as provided 8th November 2019. A draft construction methodology will be used in Phase 3, to assess construction effects.

In considering opportunities for further design refinement and mitigation it is assumed:

- The proposed hub infrastructure Masterplan footprint may be able to be modified, by location within the overall site option area and possible refinement to achieve a more compact layout.
- Broadscale options for design refinement to reduce and mitigate for effects and possible benefits are addressed in this assessment. This includes options for improved road alignment, to better fit urban patterns, improved path networks and planting to integrate within the existing environment and to restore nearby natural features. Finer grain mitigation options, including planting options within the development, changes to building layout articulation and development of a coherent palette for all components, will be relevant to all options and is best addressed in the Phase 3 once the masterplan details are confirmed.

# 4. Fatal Flaws

| Site | Flaw Description (include image if appropriate to show spatial extent) | Explanation - why this is a fatal flaw |
|---|---|---|
| Option 2 | NA | |
| Option 3 | NA | |
| Option 4 | NA | |

# 5. Comparative assessment

Recommendation

**Option 2 (Medium).** This option is **preferred** in terms of landscape. The masterplan has a better fit with natural and urban landscape patterns compared to Options 3 and 4, due to its reduced impact on natural features and the way in which it retains community character and separation of Bunnythorpe from Fielding. Adverse effects on visual amenity and on street and road network patterns and specific land uses that contribute to character, are limited due to the site's peri-urban setting. Measures to refine the design are likely to reduce effects further and there are practicable mitigation options with flow on benefits.

**Option 3** (Medium High). The indicative masterplan has a better fit with the natural landscape patterns, compared to Option 4, with reduced earthworks, less distinct vegetation patterns requiring removal and fewer tributaries of the Mangaone impacted. Although the development is aligned with Railway Road and benefits from the setting alongside the industrial precinct, overall, this option has a poor fit the urban patterns of the landscape. It requires the greatest disruption to street/road networks with a link road cutting across the grain of cadastral patterns, and due to its proximity with Bunnythorpe and elevated interchange, unavoidable character and visual effects with reduced mitigation options.

**Option 4** (High). This option has a poor fit with natural landscape patterns, impacting on several tributaries of the Mangaone Stream, requiring removal of distinct shelter belt vegetation patterns and is likely to require substantial earthworks. Compared to Option 3, it has a better fit with street and road network patterns of the urban landscape; as the existing alignment of Railway Rd is retained for through traffic and the link road is set square to existing features. There will, however, be unavoidable character and increased visual effects due to the developments location on the outskirts of Bunnythorpe and proximity to the urban growth areas of Palmerston North.

Summary

| Site | Assessment of the option | Score[5] |
|---|---|---|
| Option 2 | **Preferred.**<br>*Natural Landscape*<br>-Impact on Taonui Stream limited to the Campbell Rd corner and upper catchment tributaries, the majority of which can be reconnected along the new perimeter road.<br>-Effects on Mangaone Stream will result from bridging required to extend Waugh Rd.<br>- Earthworks requirements likely to be limited, due to gentle topography.<br>*Urban Landscape*<br>- Good fit with the urban landscape patterns; masterplan and new link road is generally set along existing road, rail and property boundaries.<br>- Separated from Bunnythorpe and Fielding and local significant sites of the marae and ūrupa.<br>- Requirement to relocate overhead lines may be limited to a single tower/will need to mimic existing alignments to limit effects<br>- Impact on urban streetscape patterns of Bunnythorpe are limited to level crossing closure at Dixon Line and grade separation - rail over road - to connect Railway Rd and Stoney Creek Rd.<br>-Kairanga Bunnythorpe bypass alignment has a poor fit with existing urban and natural patterns- requires a further crossing of the Mangaone Stream with an oblique alignment to Maple St.<br>- Waughs Rd extension could improve legibility of the urban landscape. However, it requires southbound visitors to 'back track' into Bunnythorpe.<br>-Visual effects are limited by rural-peri urban setting although there are several sensitive properties directly adjacent, including Taonui School.<br>- Requires displacement/has a direct impact on the Aerodrome which contributes to the character and amenity of the community.<br><br>Section 6a, Section 7c and 7f RMA matters are relevant. | **Medium (3)**<br><br>*RMA Landscape and Features (3)*<br><br>*Visual Effects (2)*<br><br>*Lighting (2)*<br><br>*Character (3)* |

[5] Note: an *overall judgement* is used to evaluate the effects and score for each option. Refer to explanation above pg 8

| | | |
|---|---|---|
| Option 3 | *Natural Landscape*<br>-Masterplan components cut across existing natural landscape patterns including several tributaries to Mangaone Stream.<br>- New link is set in close proximity and cuts across one of the main tributaries to Mangaone Stream.<br>- Earthworks requirements are likely to be limited (compared to Option 4), due to gentle topography.<br>*Urban Landscape*<br>- Existing rural residential patterns, that will be displaced, help distinguish the urban centres of Bunnythorpe and Palmerston North.<br>- Visual and character effects will be increased due to the hubs location/proximity to a large number of rural residential properties off Parr Rd and Clevely Line.<br>- While set alongside Railway Rd, and in the context of the industrial precinct, the masterplan is disruptive of existing urban patterns. It requires the greatest number of road closures (x5 including Clevely and Richardson with sections of Railway Rd and Roberts Line becoming a dead end), level crossing closures (x2), grade separation (x2) and this increases the potential for adverse character and visual effects.<br>- The new perimeter road has a poor fit with existing natural and urban patterns due to its proximity and crossing of Mangaone Stream, oblique alignment to existing roads, setting through the existing industrial precinct and requirement for a grade separated interchange at Campbell Rd. This reduces the legibility of urban patterns for Bunnythorpe and increases the potential for adverse visual effects.<br><br>Section 6a, Section 7c and 7f RMA matters are relevant. | **Medium - High (4)**<br><br>*RMA Landscape and Features (2)*<br><br>*Visual Effects (5)*<br><br>*Lighting (5)*<br><br>*Character (5)* |

| | | |
|---|---|---|
| Option 4 | *Natural Landscape*<br>- Masterplan components cut across existing natural landscape patterns including tributaries to the Mangaone Stream, distinct vegetation patterns and rolling topography. Large scale earthworks are likely to be required.<br>*Urban Landscape*<br>-While set square to Railway Rd and alongside the industrial precinct, the masterplan requires disruption to existing patterns through road closures (x3, with Tutaki Rd becoming a dead end), level crossing closures (x2), rail realignment and grade separation (x2) increasing the potential for character and visual effects.<br>- The new perimeter road has a better fit with existing natural and urban patterns than Option 3, with the existing Railway Rd alignment retained for through traffic.<br>- Waugh Rd extension could provide more coherent, legible urban patterns between Fielding and Palmerston North, although south bound travellers will need to 'back track' to Bunnythorpe.<br>- The hub will remove some distinction between Bunnythorpe and Palmerston North, currently provided by existing rural residential properties.<br>- Potential for visual amenity and adverse effects on character is increased by the masterplan's proximity to Bunnythorpe peri urban streets-off Stoney Creek Rd-and residential growth areas in Palmerston North.<br><br>Section 6a, 7c and 7f RMA matters are relevant. | **High (5)**<br><br>*RMA Landscape and Features (3)*<br><br>*Visual Effects (5)*<br><br>*Lighting (5)*<br><br>*Character (5)* |

# 6. Mitigation

| Site | Mitigation |
|---|---|
| Option 2 | - Adverse effects on the site's natural features - Taonui Stream - could be reduced by confining the masterplan to the existing Campbell Rd alignment and mitigated through restoration planting<br>- Co- location options for overhead lines or refined alignment to replicate existing patterns would reduce the potential for adverse effects on character and visual amenity<br>- Effects of Waughs Rd extension and bridging to Mangaone Stream can be reduced by detailed design (single span structure) and effects mitigated through restoration planting<br>- Impacts on the Mangaone Stream and character of cemetery could be reduced through refining the alignment of the KB bypass, to a right-angle intersection with Te Ngaio Rd<br>- Planting to mimic past indigenous patterns to the perimeter of the masterplan will help break up the scale of the development and, along with riparian planting, |
| Option 3 | - Adverse effects on the Mangaone Stream could be mitigated through restoration planting and compensated by possible extension to existing path networks; where relevant to existing strategies<br>- Adverse visual and character effects can be mitigated through planting along Maple Rd, as a transition to residential areas<br>-Planting to mimic past indigenous patterns, to the perimeter of the masterplan, will help break up the scale of the development and, along with riparian planting, contribute to wider strategic natural landscape improvements/initiatives. |
| Option 4 | - Adverse effects in existing urban patterns and rural residential community could be reduced by confining the masterplan to Tutaki Rd, avoiding closure of Tutaki and Sangsters Rd.<br>- Adverse visual and character effects can be mitigated through planting along Tutaki Rd, as a transition to residential areas.<br>-Planting to mimic past indigenous patterns to the perimeter of the masterplan will help break up the scale of the development and contribute to strategic wider natural landscape improvements/initiatives. |