



This Landscape Assessment report of the Ngaruawahia & Surrounds Study Area has been prepared for Waikato District Council (WDC), by Mansergh Graham Landscape Architects Ltd.



Ngaruawahia Study Area | Assessment of Landscape, Visual and Amenity Effects



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Ngaruawahia and Surrounds Study Area has
been prepared for Waikato District Council
(WDC), by Mansergh Graham Landscape
Architects.

Report prepared by:

Lisa Burge
BLA (Hons)

Report checked by:

Dave Mansergh
Dip. P&R (Dist), BLA (Hons), MLA
Registered NZILA Landscape Architect
Director



Registered Member
of the
New Zealand Institute of Landscape Architects.

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BACKGROUND

Ngaruawahia and Surrounds Structure Plan

The Waikato District Council is currently developing a Structure Plan for Ngaruawahia. The primary drivers for this structure plan are the Future Proof and Waikato District Growth Strategy document. Population figures within this document indicate potential for rapid growth in Ngaruawahia, requiring the creation of a Structure Plan to manage the growth within the Ngaruawahia Study Area.

In order for the Ngaruawahia Structure Plan Strategy to remain flexible while facilitating growth and development, the following areas have been identified and considered:

Town Boundaries: The identification of landscape opportunities and constraints to identify areas within which Ngaruawahia Township and surrounding villages might be urbanised without compromising Outstanding Natural Features and Landscapes (ONFLs), landscape character and associated landscape amenity values;

Scale: The scale and intensity of development that can be accommodated without compromising landscape amenity values;

Function: The identification of how the Ngaruawahia Township and surrounding satellite villages function both internally, and within the context of the wider landscape. This includes an allowance for legibility and integration into the surrounding rural/market gardening and horticultural environment;

Methods : The methods required to maintain and enhance the character, scale and atmosphere of the township and its surrounds.

PROJECT BRIEF

Ngaruawahia Study Area

In 2013, Mansergh Graham Landscape Architects Ltd (MGLA), were engaged by Waikato District Council (WDC) to undertake a Landscape Assessment of the Ngaruawahia and surrounds study area in order to inform the Ngaruawahia and Surrounds Structure Plan (being prepared by WDC).

The overall purpose of the landscape assessment was to carry out an Outstanding Natural Features Landscapes assessment (ONFL) and identify landscape opportunities and constraints to the future growth of the Ngaruawahia and surrounds study area. Affirming the boundaries/ extent of the township and indicating the controls required to maintain and enhance the rural character and amenity values will also be undertaken. The outcomes of this assessment will be used to inform the preparation of a Structure Plan for Ngaruawahia.

This report addresses:

- Whether there are any ONFL's within the Ngaruawahia Study Area;
- The directions in which the township should expand (from a landscape perspective);

This work has been guided by the set of principles outlined below, in addition to the requirements of the Resource Management Act 1991, the Waikato Regional Policy Statement, The Waikato District Plan and the Waikato District Growth Strategy.

The approach and stages involved in the Ngaruawahia Landscape Assessment Study are set out below:

Stage One: Project Establishment

- Meet with the Ngaruawahia and surrounds project team to discuss the project brief;
- Site visit to the Ngaruawahia and surrounds study area.

Stage Two: Rationalisation and Integration of Existing Information

- Review existing information relevant to the project including the Waikato District Growth Strategy, Open Space, Recreation and Public Facilities Technical Paper, Settlement Patterns, Spatial Structure and Development Character Technical Paper the Waikato District Landscape Evaluation (1992) and the Waikato District Landscape Review (2003);

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- Liaise with urban design, heritage and archaeological consultants and discuss constraint mapping;
 - Identify wider landscape character units;
 - Analysis of the character of Ngaruawahia and surrounds to identify and map key landscape features and attributes;
 - Identification of landscape opportunities and constraints;
 - Identification of infrastructural opportunities and constraints;
 - Review existing development strategies and proposals;
 - Review Community outcomes of community workshop/ open-days and resultant development strategies/ concept plans;
 - Presentation of preliminary findings and maps to Project Team for comment and feedback.

Stage Three: Analysis of landscape opportunities and constraints

- Identification of township growth boundaries guided by a rationalisation of the visual amenity and landscape character assessment and the constraint analysis;
- Review the potential growth area maps and determine whether any special protection or development areas are required to retain particular character and amenity and Resource Management Act tested District Plan provisions for protection of wider landscape character;
- Undertake analysis, combining landscape character and landscape constraint mapping to inform areas suitable for urbanisation
- Identification of urban amenity determined by the infrastructural opportunities and constraints (distance analysis);
- Meet with the project team to discuss and compare analysis and receive comments and feedback on potential areas of Ngaruawahia suitable for urbanisation;
- Review and amend as required;
- Presentation of preliminary analysis map findings to the Waikato District Council representatives for comment and feedback;
- Produce an outcome analysis map indicating suggested growth areas and suggested development intensities within these growth areas;
- Compare the outcome analysis map with the community driven concept plan and identify common areas for urban expansion.

Stage Four: Reporting

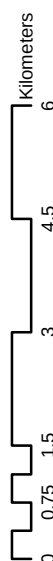
- Presentation of Ngaruawahia Landscape Assessment (including written report and GIS data) to the Waikato District Council



The Ngaruawahia and surrounds study area

The extent of the Ngaruawahia and surrounds study area, identified by the Waikato District Council, is defined by both natural and cultural boundaries, including the Waikato and Waipa Rivers, peat lakes, the Hakarimata and Taupiri Ranges, remnant patches of vegetation, gully systems, roads, and cadastral boundaries. The adjacent plan indicates the extent of the Ngaruawahia and surrounds study area.

While this report limits its findings to within the study area, parts of the adjoining landscape that influences the study area has been taken into account.



Study Area



METHODOLOGY

Ngaruawahia Structure Plan Study Area

An interactive assessment approach has been used, which assesses the study area to:

- a) identify any ONFL's within the study area (s6b landscapes) and;
- b) Indicate those factors and attributes that contribute to existing landscape and urban amenity

The approach used is summarised in the following flow charts.

This has been achieved by capturing and analysing the landscape character, associated amenity values and landscape constraints, while considering the aspirations of the Ngaruawahia and surrounds community. It is considered that this will allow Ngaruawahia Township and the surrounding satellite villages to develop in a controlled and sustainable manner, without detrimental affects to surrounding rural amenity values.

During the initial stages of analysis (ONFL analysis), findings of the relevant technical papers provided by WDC were reviewed, followed by site investigation to determine whether there were any ONFL within the Ngaruawahia and surrounds study area. Existing landscape and town character; as well as key natural thresholds; were identified on a macro level for the landscape surrounding Ngaruawahia Township and each of the satellite villages. Potential areas for urbanisation were then identified through a combination landscape constraint and opportunity identification and analysis; landscape character analysis and landscape design; and planning principles. The resultant map was then compared and tested against the outcomes of the public consultation (Concept Plan) process.

The Ngaruawahia and surrounds landscape has been assessed through the following process:

- Review of relevant technical papers, background information and reports;
- Identification of Outstanding Natural Features and Landscapes, through field analysis;
- Identification and analysis of existing landscape character through field investigation and GIS landuse classification mapping;
- Identification of township growth boundaries guided by a rationalisation of the natural features and edges, identified during site visits;
- Identification of Community preferences;

-
- GIS identification and analysis of landscape constraints and opportunities;
 - Application of landscape and urban design principles to determine opportunities and constraints;
 - Identification of potential areas of growth for Ngaruawahia based on the principles of landscape design (considered through landscape constraints and opportunity
 - Identifying national, regional and district planning provisions to inform landscape opportunities and constraints for growth within the study area.
 - Review of existing Ngaruawahia development concepts (based on community preference) and compare with the areas for potential urbanisation map;
 - Identification of the potential effect development would have on the landscape character attributes identified;
 - Recommendations of appropriate areas for development at an intensity that is appropriate to the character, scale and atmosphere of Ngaruawahia;

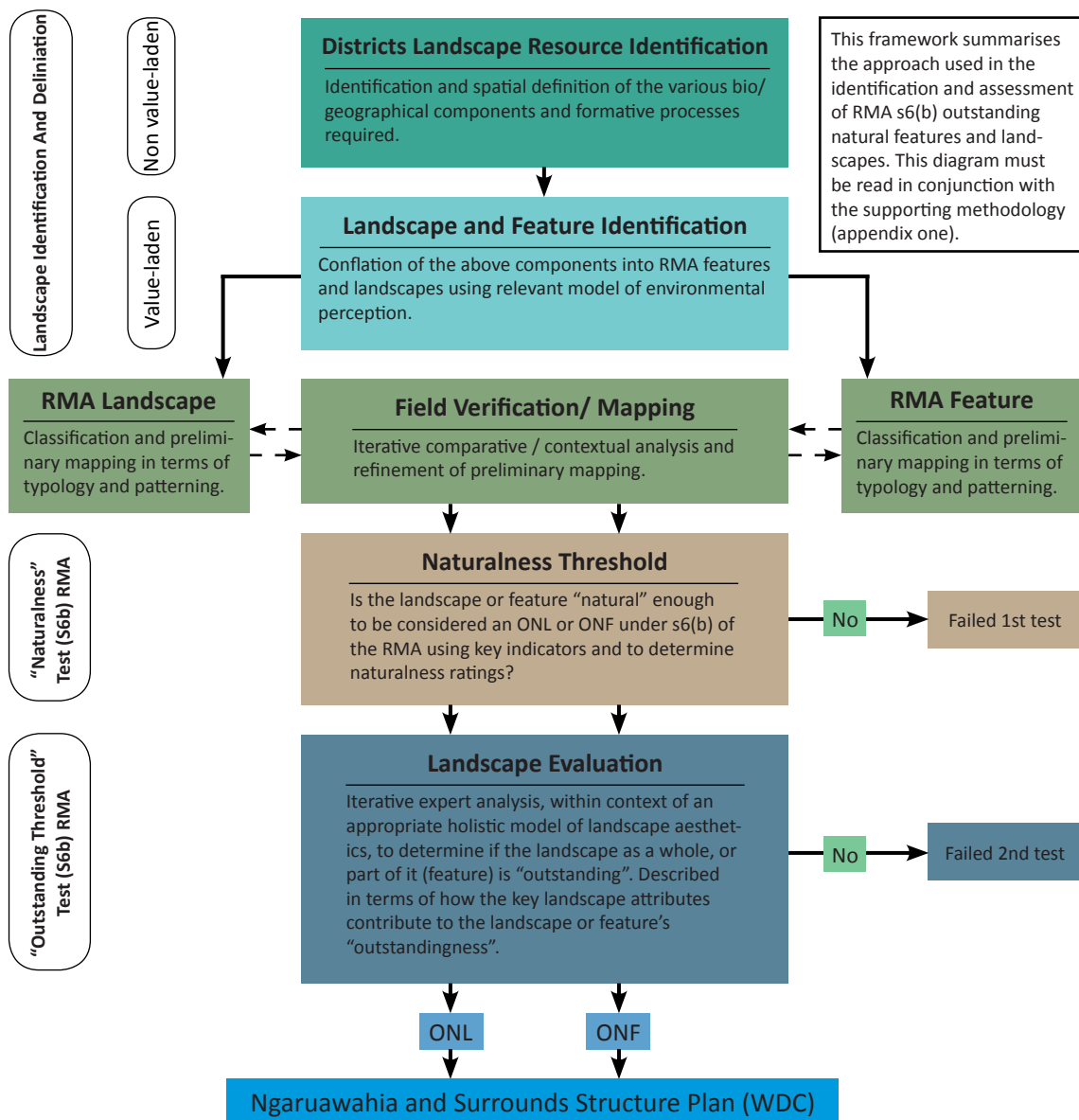
The following landscape analysis, management and design principles have been taken into consideration.

Principles for the Ngaruawahia Landscape Assessment:

- Planned growth that takes into account the unique character, geophysical and infrastructure constraints;
- Protection of landscape values and character, in particular the rural/market gardening character of the township and the Ngaruawahia environs;
- Protection of visual amenity values associated with the surrounding rural landscape character;
- Environmental sustainability of any expansion of the township - including the capabilities for utility and social infrastructure provision;
- Effects on water quality;
- Ensuring that any development maintains and enhances the individual character, community identity, cultural heritage and environmental integrity of the township;
- Ensuring that any development avoids the fragmentation of existing rural economic, social and cultural networks;
- The sequencing of all new growth should be co-ordinated with the provision or upgrading of new infrastructure.

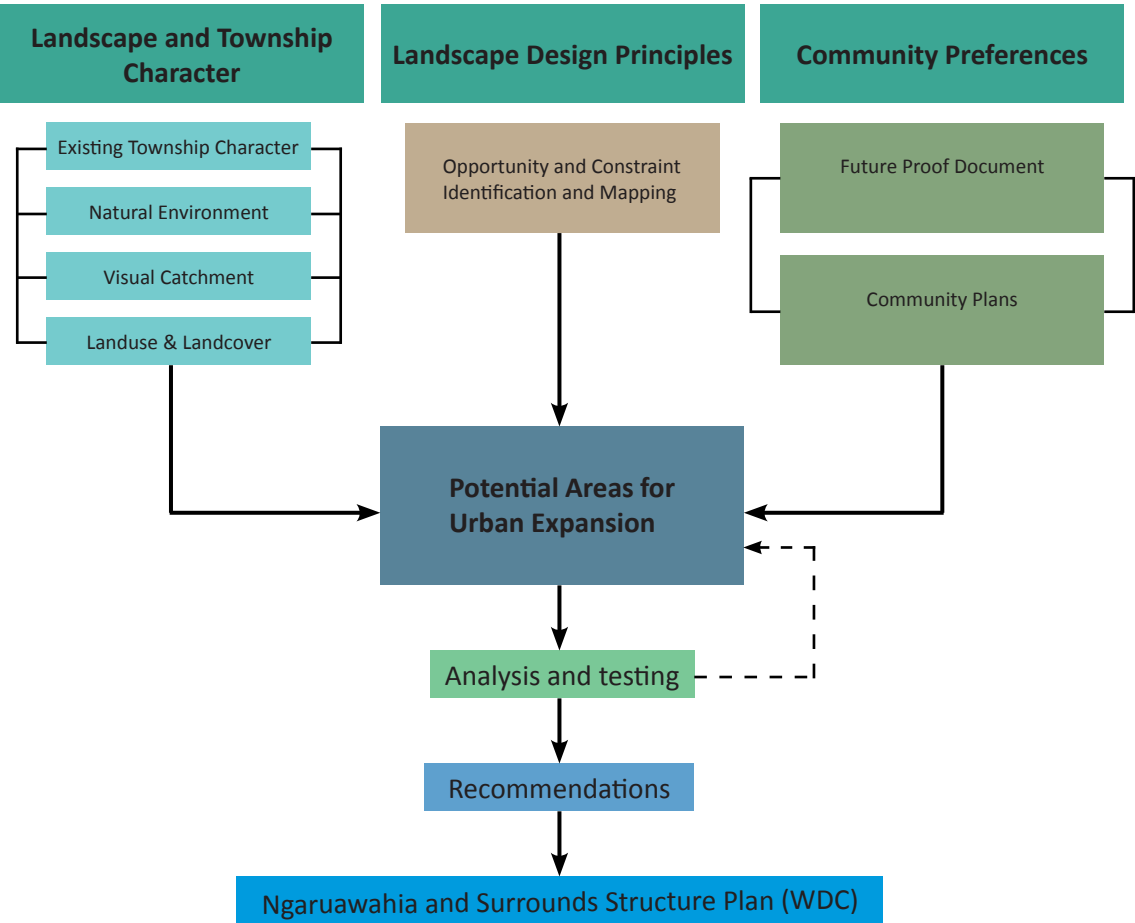
METHODOLOGY

ONFL Flow Chart



METHODOLOGY

Amenity Landscape Flow Chart



REVIEW OF TECHNICAL PAPERS

Landscape Assessment

An initial review of relevant technical papers has helped to inform landscape character and broader landscape patterns of Ngaruawahia and surrounds. Relevant reports included:

- Future Proof Document¹;
- Waikato District Council Growth Strategy²;
- Ngaruawahia Township Development Plan³;
- Landscape Policy Areas⁴;
- Ngaruawahia Structure Plan: Preliminary Assessment Scoping Report⁵;
- Draft Community Plans.

The Future Proof document suggests that the district faces intense pressure for growth and for Ngaruawahia this new residential growth is in response to the development of an employment hub at Horotiu. The document also indicates that Ngaruawahia needs to retain its individual identity as a distinctive town.

Waikato District Council Growth Strategy indicates that future development should occur to the south and east of Taupiri village, due to the constraints of the expressway and state highway development. In Ngaruawahia, the report states that there will be particular opportunity for future development where a residential neighbourhood could be specifically designed to relate to its setting and of a density that will support viable public transport services. The intensification will be supported by appropriate urban design standards for high quality and mid-density developments. A greenbelt will be developed between Horotiu and Ngaruawahia in order to protect the separate identity of the two towns and promote the cultural significance of Ngaruawahia.

In Horotiu there is considerable pressure for further residential and industrial development. The growth strategy needs to give direction to such market pressure and provide a context for further investment in necessary infrastructure. This growth will be largely through light

1 Hamilton City, Waipa District, Waikato District, Environment Waikato, Matamata Piako, NZ Transport Agency & Nga Karu Atua o te Waka; (2009). *Growth Strategy & Implementation Plan*.

2 Waikato district Council; (2009). *Waikato District Growth Strategy*.

3 OPUS International Consultants and Waikato District Council; (2004). *Ngaruawahia Township Plan*.

4 Boffa Miskell; (2011). Waikato District Council: Landscape Policy Areas.

5 Waikato District Council; (2013). *Ngaruawahia Structure Plan: Preliminary Assessment Scoping Report*.

industrial and commercial development. Expansion of Horotiu village, particularly to take advantage of proximity to the river, will contribute towards increasing the local labour supply.

Following the Ngaruawahia and Te Rapa Bypasses and the potential realignment of State Highway 39, future development within Te Kowhai will have the potential to consolidate and enhance the village core.

The Ngaruawahia Township Development Plan indicates an importance of linking key nodes into a greenbelt that surrounds the town. The report recognises that Ngaruawahia has an outstanding setting, particularly noticeable when entering the township from the north, where views of the Hakarimata Range and of the confluence of the Waipa and Waikato Rivers can be appreciated. The report suggests that the transition from the rural to urban environment should be emphasised through key gateways, through the use of large scale structured planting that contrasts with the rural vegetation and more urban elements such as the Ngaruawahia Bridge, footpaths and kerbing. The report also suggests that a strong environment change and sense of closure between the countryside and the township should be created with any future development.

The Landscape Policy Areas report examines the accuracy of the outstanding landscape natural boundary of the Hakarimata Range. The report included a re-mapping of the ONFL boundary to follow the edge of the intact native vegetation which is contiguous with the Hakarimata Range.

In the Ngaruawahia Structure Plan: Preliminary Assessment Scoping Report, detailed analysis of the existing landscape has been provided (including the underlying geology and key landscape features within the study area). This background information has aided in determining the existing landscape character and amenity of the Ngaruawahia study area.

The Ngaruawahia Draft Community Plan, Taupiri Community Plan, Glen Massey Community Plan (2007 - 2017) and Te Kowhai Community Plan indicate key community aspirations for the development of Ngaruawahia Township and surrounding villages, which have been summarised in the following pages.

COMMUNITY PREFERENCES

Ngaruawahia Structure Plan Study Area

Ngaruawahia

The key community issues identified during community consultation which relate to landscape include:

- A desire to protect and enhance natural resources for future generations;
- A desire to effectively manage growth
- Promote Ngaruawahia as a destination incorporating the Hakarimata Ranges, Waipa and Waikato rivers
- Focus on making Ngaruawahia a tourist route and a cultural and heritage corridor (aim to make the township the cultural and heritage capital of New Zealand);
- Promote Ngaruawahia as a destination for its parkland, recreational value and natural features (Hakarimata Ranges) and rivers (Waipa and Waikato);
- Making the most of the natural areas eg Hakarimata, the rivers and the peat lakes;
- Enhancement of the Waikato and Waipa rivers;
- Promote the regional park by developing a gondola concept into the Hakarimata's

The Ngaruawahia community view the landscape as having high scenic values, including landscape ridges and hilltops, riparian areas, high natural conservation value of outstanding natural features, remnant or regenerating lowland forest and wetland areas. The community wish for gully restoration to be undertaken (Newton Street) and plant isolated pockets of Council-owned land. They also wish to eradicate weeds and establish native plantings on the riverbanks and stop quarry defacing hillside and rehabilitate with indigenous species. Ensure commercial/industrial activities do not have an adverse effect on the surrounding landscape (including the Waipa and Waikato Rivers and their tributaries as well as peat lakes).

Te Kowhai

The Te Kowhai community have a desire to retain a village character within a rural setting.

They want to upgrade and maintain the gully system through the village, continue planting of Kowhai trees for beautification purposes and establish esplanade reserves when they arise through subdivision. There is a desire to obtain additional land around the existing village to protect it from development.

Glen Massey

The Glen Massey community want for any future development to respect the environment and preserve the unique village heritage.

Taupiri

The Taupiri community are interested in reviewing the Country Living Zone around the village and promoting river walkways/development of the riverbanks. The community has pride in its surrounding environment. They wish to promote the importance of the Waikato River by ensuring waterways and connections are clean and they wish to identify the cultural significance and iconic status of Taupiri Mountain. The community have requested planting within and surrounding the village, to improve amenity and to ensure managed expansion of residential development.

These community preferences were compared with landscape design and planning principles (page 42 of this report) and were found to be generally consistent with those principles. The community preferences were therefore taken into consideration during landscape sensitivity and landscape constraint mapping.

A comparison between the community preference concept plan and the recommendations of this report included on page 75.

NGARUAWAHIA ONFL ASSESSMENT

Outstanding Natural Landscapes and Features (ONFL)

A methodological approach consistent with the recent findings of the environment court⁶ was utilised to ascertain whether the landscape contained any Outstanding Natural Features or Landscapes (refer to appendix one of this report for full ONFL methodological approach). This included an initial identification and spatial definition of the bio/geographical components and formative processes, classification and mapping in terms of typology and patterning, iterative comparative and contextual analysis, through site investigation and desktop analysis.

The first test: the “naturalness threshold” test was then applied to the landscape, using key indicators to determine naturalness ratings. The second test being the “landscape evaluation” test was then applied through iterative analysis, within the context of a holistic model of landscape aesthetics to determine if the landscape as a whole, or part of it (feature) was “outstanding”.

The outcome of this analysis was that the majority of the landscape surrounding Ngaruawahia Township and Taupiri, Hopuhopu, Glen Massey, Horotiu and Te Kowhai Villages, (with the exception of the Hakarimata Range, Waikato and Waipa River’s) did not pass the first “naturalness threshold” test, as the predominantly pastoral landscape was found to be too highly modified by human processes.

The Hakarimata Range and sections of the Waikato River have been identified as Landscape Policy Areas (Outstanding Natural Features and Landscapes) within the Operative Waikato District Plan (OWDP).

Although the Taupiri Range is located outside of the study area, it is an important feature which aids in forming the unique character of the Taupiri village (as discussed in the landscape character section of this report. The Taupiri Range has been identified as a Landscape Policy Area (outstanding natural landscape) under the OWDP.

6 High Country Rosehip Orchards v MacKenzie District Council (Decision No [2011 NZEnvC 387])

While the ridgeline policy areas identified in the OWDP identify areas sensitive to developmental change, no specific amenity landscapes have been identified or mapped through the ONFL assessment process, however; landscape character and constraint analysis mapping and evaluation of the landscape surrounding Ngaruawahia and the surrounding satellite villages did identify subtle differences in landscape character as well as landscape character thresholds more sensitive to change. These subtle character differences are discussed in the following Landscape Character section of this report.

Through the application of the above ONFL methodology, the Hakarimata Range was confirmed as an ONL. Formative processes are legibly expressed and the Hakarimata Range sits prominently above the Waikato and Waipa River's and surrounding plains of the Waikato basin (to the west, south and east). The immense size of the Hakarimata Range is exaggerated by the relatively flat-gently rolling terrain of the Waikato Basin to the east and southeast and the lower elevation of the hill country to the south and west. The spatial arrangement and relationship is simple, with the majority of the range covered in mature and regenerating indigenous vegetation. The combination of these landscape perception factors come together to create an outstanding natural feature.

Future development inside the Ngaruawahia and surrounds study area could affect amenity values derived from the natural character of the Waipa and Waikato River's. With regard to the Operative Waikato District Plan (OWDP), parts of the Waikato River have been identified as ONFL, protected by the provisions of the Policy Area. The Waikato Regional Policy Statement (WRPS) is currently under appeal. The entire length of the river was previously identified and mapped as an Outstanding Natural Feature in the draft version of the WRPS; but was later removed and does not appear in the Decisions version of the WRPS.

If the Waikato River was assessed on a section by section basis it is considered that the likelihood of it being outstanding is low. However, in its entirety the river could possibly be identified as an outstanding natural feature (ONF), due to its impressive length and connection through a wide range of landscapes from Taupo to Port Waikato. Determining whether the entire Waikato River is an ONF is outside the scope of this study.

For the basis of this landscape assessment; the Waikato and Waipa River's and their margins have been assessed as a "Sensitive Landscape Area", which is unsuitable for development.

LANDSCAPE CHARACTER

Wider Ngaruawahia Landscape Character

Landscape character is a function of the landscapes visual expression. This includes elements that contribute to its appearance and the cultural modifications which have occurred upon it.

The landscape and visual quality of the site is a function of a series of factors including intactness of visual and physical elements such as topography and vegetation cover, the degree of modification that has occurred and surrounding landscape elements and attributes. Further contributing factors include juxtaposition and coherence between landscape elements within the subject site and those of the surrounding area, as well as human attributes or values assigned to an area.

The relationship between the major geophysical features contained within the broader landscape and the human modifications that have occurred upon them are important factors to consider when assessing how the proposed development will influence surrounding landscape character and the amenity derived from that character.

Ngaruawahia Township is located along Great North Road, approximately 7.25km northwest of Hamilton City boundary and 15km south of Huntly. Hopuhopu is located approximately 6 km northeast, Glen Massey approximately 9.5km west, Taupiri, 7.5km northeast, Te Kowhai 10km south and Horotiu, 5.6km southeast of Ngaruawahia.

The majority of the study area is characterised by the underlying Waikato plains/lowlands, which are bounded by the Hakarimata Range and Te Puroa hill country to the west and Taupiri Range to the north. The Main township of Ngaruawahia is enclosed to the north by the confluence of the Waikato and Waipa Rivers. The Waipa River bounds the urban environment to the west, while the Waikato River contains the majority of development to the east.

The lowlands to the east Ngaruawahia consists of a broad alluvial plain with prominent, widely spaced, rounded hills, interspersed with peat mires, peat lakes and deep gully formations. Most of the lowland geological features were derived from the deposition of pyroclastic material following the Taupo volcano eruption approximately 22,000 years ago and the various routes adopted by the Waikato River over that time. Subtle changes in elevation and undulations in landform are clearly evident due to the pastoral land cover. Peat mires and lakes developed

in blocked embayments and low areas of the plain and are typically surrounded with lake margin vegetation, and juxtapose the geometric patterns associated with the subdivision of the surrounding rural landscape.

The alluvial Waikato and Waipa Rivers, flow through flood plains that have been created by depositing sediment. The largest, the Waikato, begins on Mt Ruapehu, flowing from Lake Taupo across the Volcanic Plateau, into the Waikato basin and out to the Tasman Sea at Port Waikato. Its major tributary, the Waipa River, rises in the Rangitoto Range in Otorohanga. The two rivers converge at Ngaruawahia. An extensive network of tributary streams from the hill country feed into both of the rivers⁷.

The relatively flat river terracing adjacent to the Waikato and Waipa Rivers is influenced by the fluvial deposition associated with the rivers. While some of the larger old river channels are evident in the wider surrounding landscape, many of the smaller and more subtle landforms and features associated with overland flow patterns have either been channelised or lost to productive land management practices such as agriculture, market gardening and horticulture. Spurs and ridges within Ngaruawahia are clearly legible due to pastoral landcover across much of the study area.

Much of the Wetlands along the banks of the Waikato and Waipa Rivers have been drained and converted to pastoral farmland. However, remnant stands of Kahikatea and other indigenous vegetation are scattered in clusters along the river banks.

The Hakarimata and Taupiri ranges are formed on basement greywacke and argillite rock, which have been strongly folded, faulted and overlain by a generally thin cover sedimentary rock⁸. Erosional processes usually act on a thick mantle of weathered rock and clay to form close-set steep-sided valleys. Sandstone, siltstone and greywacke which have been strongly folded; faulted and overlain by sedimentary rocks form the Hakarimata Range and adjacent land⁹.

A cloak of indigenous forest covers the majority of the Hakarimata Range, with a skirt of pastoral farmland and low-density development along the base of the range. The immense size of the Hakarimata Range is exaggerated by the relatively flat-gently rolling terrain of the Waikato Basin to the east and southeast. The size and distinctive form of the ranges is more difficult to appreciate from the steeper hill country surrounding Glen Massey to the west of the Hakarimata's.

7 Waikato District Council; (2013). *Ngaruawahia Structure Plan Scoping Report*.

8 <http://www.doc.govt.nz/parks-and-recreation/places-to-visit/waikato/waikato/hakarimata-scenic-reserve/Edbrook>;

9 Edbrook; S. W; (2005). *Geology of the Waikato Area*.

Favourable topography and climate means that the land within the Ngaruawahia and surrounds study area is well suited to a wide range of productive uses including pastoral grazing, poultry farms, forestry and pockets of crop production (such as cornfields). This has influenced the landscape characteristics of the land surrounding the Ngaruawahia Township, which can be described as a productive rural landscape.

Rural land use surrounding the site influences the character and visual amenity of the area. Pastoral grazing is the predominant land use and imparts the wider landscape with a largely open spatial character. A degree of compartmentalisation is provided by Hedgerows, (e.g. Hawthorne) and exotic shelter planting, (e.g. Poplar, and Willow) on property and paddock boundaries, which enclose views to the broader landscape from some locations. It is noted that a number of the shelter trees in the surrounding landscape are deciduous. As such, during the winter months, the landscape within the Ngaruawahia and surrounds Study Area has a more open character than when the trees are in leaf.

A juxtaposition can be seen within the landscape between the natural form of the of water bodies (Waikato River), the Hakarimata/ Taupiri Ranges, the remnant bush patches and the geometric patterns associated with the subdivision and compartmentalisation of the rural landscape and urban environment.

Natural resources include hard rock aggregate, sand, gravel, non-productive coal measures, thermal hot springs and high quality soil resources (primary productivity). Therefore; a number of quarries operate within the Ngaruawahia Structure Plan Area:

- Clay and hard rock quarry at the southern end of the Hakarimata Range along Waingaro Road
- Three sand and/or shingle quarries; two at Horotiu and one near Te Kowhai and a disused hard rock quarry at the base of the

A	https://natlib.govt.nz/records/23197907?search%5Bpath%5D=items&search%5Btext%5D=ngaruawahia
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C	https://natlib.govt.nz/records/22881601?search%5Bpage%5D=3&search%5Bpath%5D=items&search%5Btext%5D=ngaruawahia
D	https://natlib.govt.nz/records/23160173?search%5Bpath%5D=items&search%5Btext%5D=ngaruawahia
E	https://natlib.govt.nz/records/22581674?search%5Bpath%5D=items&search%5Btext%5D=ngaruawahia
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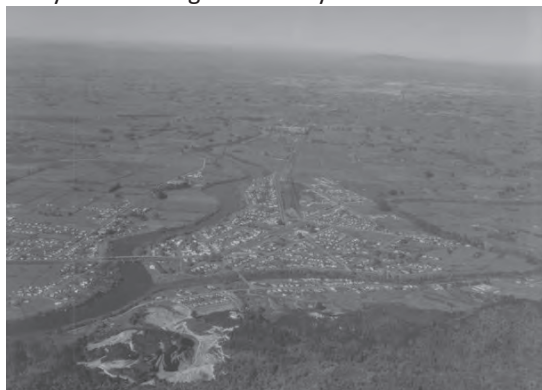
Open pastoral landscape character within the study area (looking northeast from State Highway 39)



Waikato Basin enclosed by surrounding hill country to the southwest within the study area (looking southwest from Saulbrey Road)



Ngaruawahia Township (1972)^A



Ngaruawahia Township (1970)^B



Waikato River, Ngaruawahia Township (1890)^C



Ngaruawahia Township (1979)^D



Ngaruawahia Township (1968)^E



Ngaruawahia Township (1955)^F

Hakarimata range, directly opposite The Point at the northern end of Ngaruawahia¹⁰.

The relationship between the major geographical features contained within this landscape and the human modifications that have occurred upon them are important factors to consider when assessing how the proposed development will influence existing amenity values and the natural character of the adjacent rural environment and surrounding outstanding natural landscape.

The key landscape features that influence perceptions of overall character of the Ngaruawahia and surrounds Study Area include:

- a. The Waikato and Waipa Rivers and their associated river terraces and wetlands; as well as peat lakes juxtapose the geometric landuse patterning;
- b. The tributaries of the Waikato River and associated gully systems which dissect the Ngaruawahia study area;
- c. The low-lying topography of the Waikato basin, compartmentalised by rural landuse (agricultural, horticultural, crop production, forestry and quarries) and enclosed to the west by the Hakarimata's and Te Puroa hill country and to the north by Mangawara Stream and the Taupiri Range.

These features are also influenced by land use, land management and development patterns including:

- a. Great South Road, which follows the Waikato River through to Hamilton;
- b. State Highway 39, which links Ngaruawahia with Whatawhata;

¹⁰ Waikato District Council; (2013). *Ngaruawahia Structure Plan Preliminary Scoping Report*.



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- c. The Waikato Expressway; which defines the eastern boundary of the study area;
 - d. Productive land use including pastoral grazing, forestry, christmas tree plantations, crop production and associated rural buildings, processing and packing sheds;
 - e. Rural based light industrial activities and services including light engineering, manufacturing and processing (concentrated around Horotiu);
 - f. Isolated large scale quarrying and processing including rock quarries (along the base of the Hakarimata Range) and sand quarries (along Bedford Road and Horotiu Road), concentrated around Ngaruawahia and Horotiu.
 - g. Township and rural settlements at key nodes along main roads, including Great South Road (Taupiri, Hopuhopu, Ngaruawahia and Horotiu), Waingaro Road (Glen Massey) and Horotiu Road (Te Kowhai);
 - h. Scattered dwellings throughout the rural landscape, predominantly adjacent to the roads;
 - i. Town reserves and facilities, including Ngaruawahia Domain, Centennial Park, Ngaruawahia golf course and the Hakarimata Reserve;
 - j. Existing transmission lines;
 - k. Schools, community centres, cultural sites and commercial buildings within Ngaruawahia and the surrounding areas.

The landscape has been modified by human influences, creating patterns and altering its natural character through different types of land use. Pastoral farming, forestry and quarrying make up the rural character of Ngaruawahia. This rural landscape is interspersed with rural subdivision, urban development and roading networks. The convergence of these differing land uses is relatively common in the peri-urban fringe of townships and cities across the Waikato District.

Due to productive requirements, subdivision of larger blocks of land surrounding Ngaruawahia Township has been driven by production economics rather than a demand for urbanization. As a result; residential, commercial/ industrial, community, cultural, and quarrying activities are found in relatively close proximity to one another. As such, there are noticeable juxtapositions caused by the contrasting characteristics of neighbouring properties; open rural land alongside commercial and residential properties with both rural and commercial outlooks.

This is further emphasized by the compartmentalization of the landscape through the establishment of horticultural shelter belts around production blocks and property boundaries.

LANDSCAPE CHARACTER

Ngaruawahia and Surrounds Landscape Character

The existing township of Ngaruawahia extends approximately 3km north-south and 2km east-west (between the Waipa and Waikato Rivers). Taupiri village extends approximately 1km north-south and 1km east-west. Hopuhopu village extends approximately 600m north-south and 1km east-west. Horotiu village extends approximately 3km north-south and 1km east-west. Te Kowhai village extends approximately 1.3km north-south and 1km east-west.

The character of Ngaruawahia and surrounding township's landscape is heavily influenced by historic development patterns.

In the early 1700's Ngati Mahuta, had headquarters in and around Taupiri. The Pa, apart from its excellent strategic site at the junction of the Waikato and Mangawara Rivers, and in the narrow gorge between the Mountain and the Hakarimata Range, was also the centre of the three important highways of the day. The first was the Waikato River, the second a track from Taupiri via the Mangawara to the Piako Valley and the East Coast, and the third was the Kaitotehe to Kawhia Track¹¹. During the 1800's Missionaries began establishing schools and stations in the Waikato at Horotiu and Pepepe, which has influenced the position of the villages today. Following the completion of the railway in the 1870's there was considerable progress made within Taupiri.

In 1853 land was gifted by Maori to the Church of England to set up the schools. By the 1900's the buildings had disappeared and by 1922 the Church sold Pepepe to the Crown for "Defense purposes." The land became the site of a large defence force base (Ngaruawahia Military Base). On 31st August 1991 a formal announcement was given by the Crown to return the Ngaruawahia Military Base to Waikato-Tainui. Waikato-Tainui have since built a complex at the site (Hopuhopu) which includes the Waikato-Tainui Endowed College. Residential development has followed the development of the complex, in clusters adjacent to the Waikato River; along Old Taupiri Road.

Ngaruawahia has long been gathering point for Waikato-Tainui, with the convenience of canoe travel, influencing the position of the township at the confluence of the Waikato and

11 Waikato District Council; (2013). *Ngaruawahia Structure Plan: Preliminary Assessment Scoping Report*.

Waipa Rivers. The first Europeans arrived in Ngaruawahia in 1863. River transport resulted in the development of a wharf, shipyard, goods shed, hotels, general stores, a brewery, cordial factory, flour mill and sawmills, as well as the newspaper “The Waikato Times”. Expansion of the railway line from Auckland gradually saw the decline of the river trade and influenced the current position of the main commercial centre of the township, alongside the railway line and concentrated around the train station.

Ngaruawahia also has a strong European and Maori history that has influenced the pattern of settlement and architecture of the town. Many of the buildings along Great South Road and Jesmond Street are based on a Victorian architectural style. These buildings are characteristically two storeys high with verandahs and verandah posts, with detailed mouldings and trims.

The town itself has been laid out in a grid pattern. This grid layout created a number of key view shafts connecting to the rivers and ranges and to key focal points such as ‘The Point’. This geometric pattern of settlement and detailed architectural style juxtaposes with the natural form of the surrounding bush clad Hakarimata Ranges and Waikato and Waipa River’s, reinforcing the presence of the surrounding natural environment. These visual connections to key focal points and features are key elements to be considered in the future development of Ngaruawahia¹².

In response to the needs of the farming community the Auckland Farmers Freezing Co. agreed in 1914 to build a freezing works between Frankton Junction and Ngaruawahia. Horotiu was selected for the new works because of the proximity of road and rail access and a plentiful water supply. In its early existence the works were a stimulus to the district and an area of land was set aside and subdivided for employee houses. These then formed the village behind the works which is still where the majority of the village inhabitants reside. The Horotiu Bridge was opened in 1921 and has provided access to the eastern side of the Waikato River, providing more convenient access to the meatworks for farmers within the surrounding agricultural farmland.

Apart from very steep and inaccessible land, by the time of the First World War almost all accessible land in the District was in pasture. Therefore, apart from the steeper, less accessible

¹² OPUS; (2004). *Ngaruawahia Township Plan*.

landform within the Hakarimata and Taupiri Ranges, only sparse pockets of indigenous vegetation remain within the Ngaruawahia and surrounds study area. The extent of indigenous vegetation would have been more wide-spread along the banks of the Waikato and Waipa River's and the peat lakes; had the settlers not introduced willow, which has grown out of control along the river banks and lake margins.

Since land in the Hakarimata Range was reserved (1850 hectares) the fringe areas and lower slopes have slowly regenerated after a history of light logging and fires. Introduced possums, goats and pigs cause significant damage to the Reserve's vegetation. Birds suffer too, through the loss of food plants and predation by rats and mustelids (stoats, weasels etc)¹³.

¹³ <http://www.doc.govt.nz/parks-and-recreation/places-to-visit/waikato/waikato/hakarimata-scenic-reserve/>

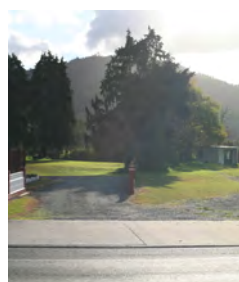
Taupiri

Taupiri Village is characterised by the Waikato River, which bounds the village to the west, the Mangawara Stream which bounds the village to the north and acts as the northern study area boundary; as well as the Taupiri Mountain and Range, also to the north (but outside the study area). The character of Taupiri village to the southeast is composed of the extensive Komakorau Stream, wetland and other tributaries of the Mangawara Stream as well as State Highway 1, which runs parallel to the Komakorau Stream. These natural and infrastructural barriers have restricted existing residential development to small pockets generally located adjacent to the state highway. Rural pastoral farmland bounds the village to the south and east, where the transition from residential development to open pastoral farmland is sudden, as lifestyle blocks are not present around the urban fringe of the village (natural thresholds).

The North Island Main Trunk Railway dissects the village, running north-south adjacent to one of the tributaries of the Mangawara Stream; before sweeping west along the base of the Taupiri Range, adjacent to the Waikato River. The Taupiri cemetery is located at the base of the Taupiri Mountain, which sits prominently above the village, to the north of the Mangawara Stream and to the east of the Waikato River. Existing ribbon development has occurred along Great South Road (southern approach to Taupiri village). The resultant village character is somewhat disjointed, with development patterns fitting in around existing natural and infrastructural barriers.

The majority of indigenous vegetation has been removed for pastoral farmland development, however, large tracts of regenerating indigenous forest exists on the slopes of Taupiri Mountain. A predominance of exotic vegetation characterises the margins of the Waikato River and Mangawara Stream, while a mix of indigenous and exotic vegetation exists within the Komakorau Stream and wetland.

It is recognised that Taupiri Maunga holds special cultural significance to Iwi, however this is not assessed within the scope of this report.

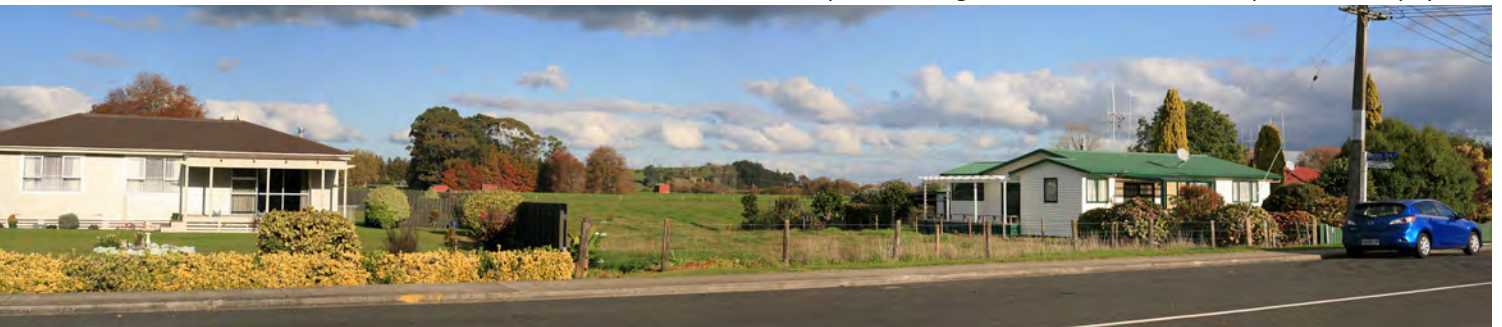




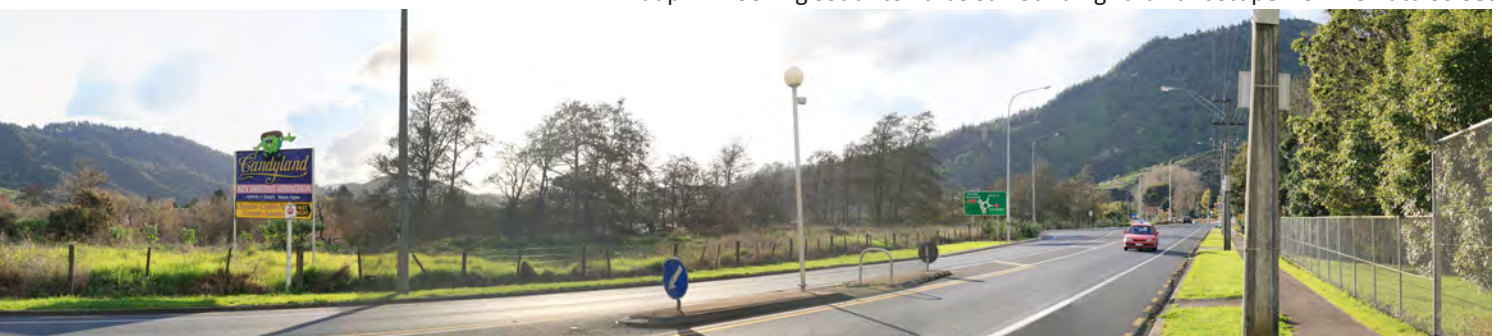
Taupiri - looking east towards surrounding rural landscape and gully systems from Murphy Lane



Taupiri - looking north towards Mount Taupiri from Murphy Lane



Taupiri - looking south towards surrounding rural landscape from Te Putu Street



Taupiri - looking north towards Taupiri village from Great South Road



Taupiri - looking north towards Taupiri village from Great South Road

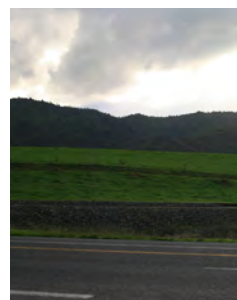
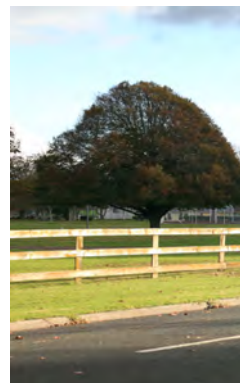
Hopuhopu

Hopuhopu village is bound to the north by the Waikato River and the south and east by Great South Road. Tainui management facilities are located on a small hill on the western edge of the village, with an amphitheatre built into the side of the hill and a sweeping roadway entrance off Old Taupiri Road. The management facilities overlook a cluster of buildings on the flat topography below, utilised for educational purposes, within close proximity to Old Taupiri Road (to the northeast). Clusters of residential development are located to the north of Old Taupiri Road, overlooking the Waikato River and adjacent to generous open space reserves. The landscape surrounding the village is characterised by open pastoral and productive cropland, with a prominent backdrop of the Hakarimata Range to the north and west. A natural threshold exists along Old Taupiri Road, as a subtle character transition occurs between the open pastoral landscape and the built development of the existing village.

The majority of indigenous vegetation has been lost to productive farmland. However; restoration planting has occurred along the banks of a stream and pond which are located adjacent to the Old Taupiri Road and large tracts of indigenous and exotic vegetation can be found along the Waikato River margins. Ornamental exotic species create an avenue along Old Taupiri Road and provide amenity throughout the management and educational facilities.

Ngaruawahia

Ngaruawahia Township is located within the flat lowland Waikato and Waipa River terraces of the Waikato Basin. Ngaruawahia Township is divided north-south by the North Island Main trunk Railway. Perpendicular to the railway runs Waingaro Road and Newcastle Street at the northern end of the township and Ellery Street at the southern end. The main commercial/ industrial and community center of Ngaruawahia straddles the railway line from Market Street at the northern end to Ellery Street in the south. Higher-density residential development has occurred mainly





Hopuhopu - looking southwest towards Hopuhopu village



Hopuhopu - looking northeast towards Hopuhopu village



Hopuhopu - looking east across Hopuhopu development from Old Taupiri Road



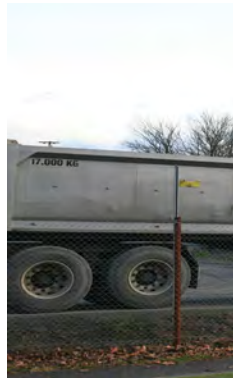
Ngaruawahia - looking east across to Jesmond Street



Ngaruawahia - looking east across to Jesmond Street

within the relatively narrow land bound by the confluence of Waikato and Waipa Rivers, the Waipa River to the west and the Waikato River to the east. The bowling green and Ngaruawahia Primary School demarcate the end of the main retail, commercial, light industrial zone within Ngaruawahia Township. The majority of residential lots are generally larger than in other townships within Waikato districts, lending to the spacious village feel of Ngaruawahia township. Residential development continues to the west, across the Waingaro Road bridge, between the Waipa River and the base of the Hakarimata Range. Residential development is also located on the eastern side of the Waikato River, with a small cluster running adjacent to the river and a large portion of the township located to the southeast of Great South Road, off River Road, centred around the Turangawaewae Marae. Natural thresholds occurs along River Road, Great South Road and Waingaro Road, where subtle character changes, from residential to large lot residential/ lifestyle blocks to rural landscape occurs. These thresholds will aid in informing future township development boundaries.

Lifestyle blocks are generally located to the northwest (Hakarimata Road), along the base of the ranges, north (along Old Taupiri Road), east (River Road, Great South Road and Starr Road), west and southwest (Waingaro, Te Puroa and Clark Roads) of Ngaruawahia Township. Rural farmland and the golf course bounds Ngaruawahia Township to the southeast. A distinctive natural threshold exists to the southeast of Ngaruawahia Township, where the pa site, adjacent to the Ngaruawahia cemetery along Great South Road signifies the transition from urban fringe to rural landscape character. The western boundary of the study area is defined by the bush clad slopes of the Hakarimata Range. The Hakarimata's are the main focal point of views from much of the township and create a natural barrier to development. An appropriate contour within the Hakarimata Range has been identified





Ngaruawahia - Jesmond Street, looking west



Ngaruawahia - Eyre Street, looking southwest



Ngaruawahia - Waipa Esplanade, looking west



Ngaruawahia - Waipa Esplanade, looking west



Ngaruawahia - Hakarimata Road, looking east

for the restriction of development. If development were to occur above this elevation, it would begin to alter the existing natural character of the Hakarimata Range, as this is the elevation above which the Hakarimata Range (in its entirety) is consistently seen and overtly recognisable from afar.

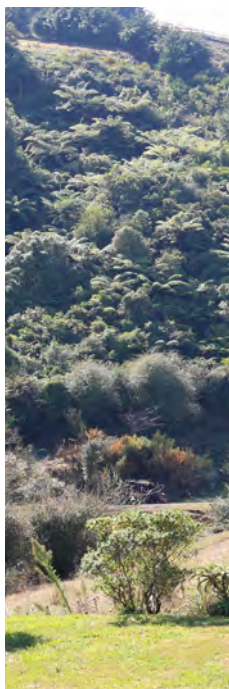
It is noted that the indigenous bush and streams with headwaters in the Hakarimata bush reserve is an important habitat for a range of fauna (including threatened species)¹⁴.

Significant specimen trees within Ngaruawahia township include a range of large exotic trees, including eucalyptus, oak, London plane, redwoods, ash, English elm, linden and copper beach. Four totara are located within the central road reserve at Carlton Avenue. Large hard beech and kauri can be seen along the ridgelines of the Hakarimata Range towering over the canopy of tawa, kohekohe, hinau, rewarewa, mangeao and pukatea. There are pockets of miro, Hall's totara and tanekawa. The large kauri on the Kauri Loop Track is of special interest as kauri this size are rare in the Waikato area. The Reserve contains *Alseuosmia quercifolia*, a strongly scented bush daphne, only be found in the central Waikato.

Glen Massey

Firewood Creek flows from the steep hill country, within which Glen Massey village is contained, towards Ngaruawahia Township, breaking the strong north-south underlying geological folding of the Hakarimata Range and Te Puroa hill country. Glen Massey has developed along the relatively flat terraces of a stream valley, adjacent to the confluence of several tributaries of the Firewood Creek. Steep hill country surrounds the village directly to the north (along Waingaro Road), east (along either side of Waingaro Road) and west (along Kereru Road) and further to the south (Wilton Collieries Road). The existing development patterns have therefore been restricted to

¹⁴ <http://www.doc.govt.nz/parks-and-recreation/places-to-visit/waikato/waikato/hakarimata-scenic-reserve/>





Ngaruawahia - Hakarimata Road, looking east



Glen Massey - Waingaro Road, looking west



Glen Massey - Edgecombe Drive looking east

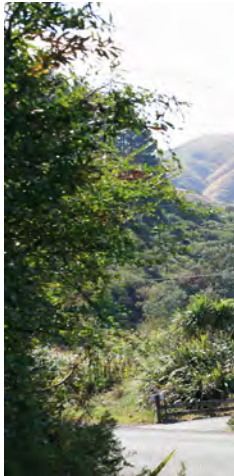
the relatively flat river terraces by a number of natural barriers. The village is characterised by the surrounding steep-sided pastoral hill country; as well as patches of forestry to the east. It is considered that the surrounding topography provides a high degree of containment of the existing Glen Massey development, resulting in a series of natural thresholds which help to define the character of the village. These include distinctive thresholds along Wilton Collieries Road, Kereru Road and Waingaro Road (heading north) on the ascent into the surrounding hill country.

Te Kowhai

Te Kowhai village is characterised by flat to gently rolling topography, giving way to hill country to the west of the village, along Woolrich and Richards Roads. An extensive stream gully system (tributary of the Waipa River) dissects the village in an east-west direction, splitting the village into two main parts. Te Kowhai school and residential development straddling Te Kowhia Road, is located immediately to the north of the gully system, while large lot residential development and reserve land is located immediately to the south. Horotiu Road is characterised by open pastoral landscape to the east and residential and large lot residential development to the west, which is bound by another fork of the gully system.

A natural threshold to the east of the village, along Te Kowhai Road is characterised by a sharp transition between the Perrinpark retirement village on the urban fringe and the adjacent rural landscape. Similarly, at the intersection of Te Kowhai and Horotiu Roads, a pocket of residential development has occurred adjacent to rural pastoral landscape. A gentler transition can be observed along Bedford Road, and further north along Horotiu Road, where lifestyle blocks exist between residential and rural farmhouse development.

Shelterbelt planting within surrounding open pastoral landscape compartmentalises the landscape and help to affirm a strong rural village character. The steeper terrain; southwest of the main village; towards





Glen Massey -Kereru Road looking east



Te Kowhai - Richards Road looking northeast



Te Kowhai - Richards Road looking east



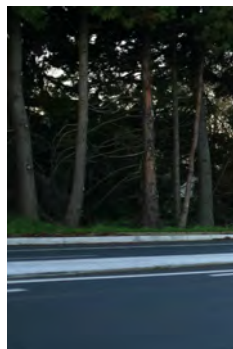
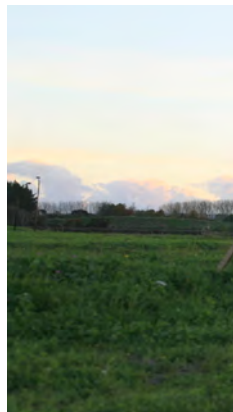
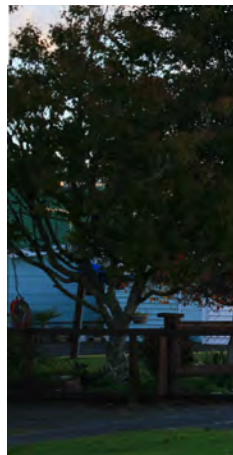
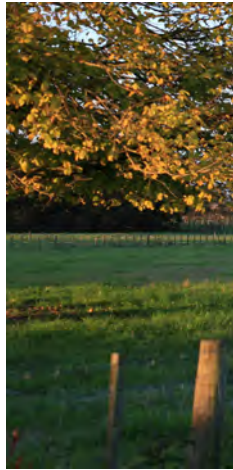
Te Kowhai - Richards Road looking southeast

Woolrich Road has acted as a natural barrier and prevented extensive urban development. Scattered rural-residential development exists within this terrain adjacent to Woolrich and Richards Roads. A prominent natural threshold was identified during site investigation, as a clear character shift occurs along Richards Road. As the road dips downwards towards the village a subtle shift from lifestyle block to residential development character can be detected.

Horotiu

Horotiu village is located within relatively flat topography, adjacent to the southern banks of the Waikato River. The industrial meatworks facility, surrounded by open pastoral landscape and screen hedge planting characterises the northwestern extent of the village. The majority of residential development has occurred to the southwest of the meatworks facility, on the northern side of Horotiu Road. Light industrial, commercial facilities and sand quarries characterising the southeastern extent of the village, interspersed with pockets of residential development associated with the Thermal Explorer Highway, Horotiu Bridge Road and the Waikato River banks. A subtle natural threshold is created to the northwest of Horotiu village, between the open pastoral landscape to the north of the village and a pocket of lifestyle block development within the urban fringe. A mix of water treatment facilities, pastoral landscape and productive cropland characterises the eastern edge of the village, situated between the Waikato River and the Thermal Explorer Highway. To the south, Horotiu village is bounded by the Waikato Expressway.

Although much of the indigenous vegetation has been lost to productive farmland surrounding the village, a mix of indigenous and exotic vegetation exists along the margins of the Waikato River. Hedge planting is a common component in the landscape surrounding Horotiu, providing screening of the industrial development from the main roads.





Te Kowhai - Te Kowhai Road looking east



Te Kowhai - Te Kowhai Road looking west



Horotiu- Thermal Explorer Highway looking northwest



Horotiu- Thermal Explorer Highway looking southeast

LANDSCAPE DESIGN AND PLANNING PRINCIPLES

Informing Ngaruawahia's Growth Options

This section identifies the landscape design and planning principles followed in the identification of opportunities and constraints for future urbanisation in Ngaruawahia and surrounds. These principles (along with landscape character analysis) were considered when identifying and mapping landscape sensitivity to change and landscape constraints:

- Avoid developing within visually prominent locations;
- Avoid developing within steep/weak terrain which will require excessive earthworks;
- Avoid developing sensitive landscapes and features, such as wetlands and along stream and riverbanks;
- Maximise development on land with higher amenity value (maximise solar gain and most attractive aspect (north facing));
- Avoid loss/change of character;
- Avoid the removal of indigenous vegetation;
- Aim to integrate ecological corridors and stands of vegetation within the study area to improve habitat connectivity and amenity values associated with natural character;
- Provide for 'green belts'/ rural buffers between landuses within Ngaruawahia and the surrounding villages within the study area;
- Plan for future infill;
- Allow for connectivity with existing town amenities;
- Avoid rural-sprawl: aim for defined settlements with green buffers;
- Avoid ribbon development along main access routes;
- Avoid urbanisation of high quality productive land where possible;
- Prevent the ad-hoc fragmentation of farmland;
- Avoid development within close proximity to historic landscapes (heritage);
- Avoid development within reserves or other protected land.

The adjacent diagram provides an example of a typical urbanisation transition from rural to urban development with adequate provision of open space and amenity planting. This type of transition will generally support the retention of existing landscape characteristics^G.



G Rural-city density diagram, from Smartcode. a Comprehensive Form-Based Planning Ordinance. Spring 2005.

GROWTH CONTAINMENT

Informing Ngaruawahia's Growth Options

Any potential urban expansion within the study area should seek to maintain the distinctive character of the surrounding landscape and the key attributes that give rise to Ngaruawahia's, Taupiri's, Hopuhopu's, Glen Massey's, Horotiu's and Te Kowhai's genius loci and landscape amenity. In order to achieve this, future growth needs to be limited within a specified boundary. Set out below are a number of reasons why future growth within the township and villages needs to be contained.

The first priority when planning for future growth should be to direct growth toward the existing township. This is the area within the rural landscape that has existing infrastructure and public facilities that will most efficiently accommodate new growth.

Directing future growth towards the existing township not only helps to retain a distinct township area that represents the heart of the community, but also prevents rural sprawl, which would take away from the intimate, friendly, village atmosphere which Ngaruawahia and the surrounding villages within the study area possess.

Rural sprawl can take two forms. The first is low-density residential development that is scattered outside of towns. The other type of rural sprawl is strip development along arterial routes leading into and out of towns. Both of these forms of rural sprawl would take away from the existing character, scale and small township atmosphere of Ngaruawahia and surrounds, as well as placing pressure on existing infrastructure. The impacts of rural sprawl must be examined in terms of the cumulative impact over time. Initially, scattered development does not seem to place a large burden on the environment or local services, but over time, such a mosaic of houses can incur infrastructural issues, and the loss of a clearly defined town area, through the lack of visual distinction between the township and surrounding rural areas.

Growth should therefore occur in a way that, amongst other things, protects the landscape, and preserves or improves a community's quality of life.

The critical ideas embedded in this concept are the importance of balancing development with landscape construction in order to manage growth, rather than prevent it. The community desires a growth pattern that moves away from sprawl, towards that that preserves, maintains, and creates a sense of place. This provides a better balance between development and the protection of natural resources and open space.

During the character analysis and mapping process; potential areas for urbanisation were identified. Growth containment principles were applied by identifying “natural thresholds” (as identified in the local landscape character section of this report) within the Ngaruawahia Study Area, which aim to maintain the key factors which make up the existing landscape character of Ngaruawahia and surrounds. These areas will allow for future growth, while limiting the development to within a defined physical boundary, in order to retain an identifiable center and destination point for the Ngaruawahia community. By keeping the township contained within a boundary, the unique character of the township can be conserved and enhanced through co-ordinated and well-designed development.

Township boundaries are important in determining the limits of township growth and create a clear definition between township and rural areas. An edge should be established around a township to demarcate areas suitable for development, from areas designated for rural-residential development. These natural thresholds will also help to ensure that development outside the township does not affect the township’s landscape character or amenity. The boundary could promote a distinct and attractive township, which stands out from surrounding low density rural-residential development.

BOUNDARY GROWTH ASSESSMENT

Informing Ngaruawahia's Growth Options

There are a number of different approaches available to use for assessing options for township growth boundaries. The approach taken for the Ngaruawahia Study Area was to analyse potential thresholds against the four boundary types listed below, each weighted according to their physical presence within the landscape.

Geo-Physical Boundaries

Geo-physical boundaries are natural boundaries within the landscape. These boundaries can be thought of as edges, with no inherent meaning. The boundaries are created by natural features, visible to everyone in the landscape, and in many instances may physically prevent development beyond them. For example:

- Ridge lines
- Valley floors
- Streams/ Waikato River
- Vegetation patterns

A significant and highly visible natural feature (e.g. a steep cliff river bank) forms a clearly defined physical boundary that is more accepted as a boundary, than a line drawn on paper with no physical manifestation, because it is a logical constraint that people can understand. A natural feature that is visually less defined (e.g. a rolling hill) provides less of an actual physical boundary, but is still a visually obvious boundary that people can identify with.

Geo-physical boundaries are also used to define areas in which additional meaning and value are added. For example:

- Flood Hazard Zones
- Visual Catchment
- Areas of Fertile Soils

Geo-physical boundaries should be given the heaviest weighting in terms of justifying where the Ngaruawahia Township future development boundary should be set. This is because these boundaries are manifest to everyone and require no prior knowledge to understand why they have been set where they are.

Socio-Physical Boundaries

Socio-physical boundaries are created by the perception that some man-made physical elements form manifest boundaries or edges. While often perceived to be limiting factors or constraints, this type of boundary is more related to the perception of its use, rather than a natural boundary. Examples of such boundaries are:

- Roads
- Green belts/ rural buffer
- Parks and reserves

Socio-physical boundaries are not as clearly defined as geo-physical boundaries because they are only obvious to varying extents and depend on peoples individual perceptions. These boundaries should not be weighted as heavily as geo-physical boundaries in terms of justifying where the Ngaruawahia township future development boundary should be set, as they are not clearly manifest to everyone. However, a socio-physical boundary would be given more weighting than a social construct boundary because of its association with physical and visual element.

Social Construct Boundaries

Social construct boundaries are not visible in the landscape. Most people are unaware of where these boundaries exist, as they are often only represented by lines drawn on paper, and can be difficult to detect. Social construct boundaries include:

- Property boundaries;
- Planning zones boundaries/overlays/policy areas;
- Study area boundaries;
- Political boundaries

Social construct boundaries should be given the lightest weighting in terms of justifying where the Ngaruawahia future development boundary should be set because only those people in-the-know would understand why the boundary has been set. Setting boundaries for development based on social construct boundaries leaves open the possibility that boundaries are set based purely on peoples' perceptions of how big the town should be.

It is recommended that social construct boundaries be aligned with geophysical and/ or sociophysical boundaries.

CONSTRAINT IDENTIFICATION & ANALYSIS

Wider Ngaruawahia landscape character

Following the identification of the character and resources within the Study Area, GIS analysis, site investigation, and desktop review were undertaken to determine how the township and villages could develop, while maintaining their rural small town atmosphere and key unique attributes.

Opportunity and constraint mapping has been used to help determine potential areas for future development within the Ngaruawahia Study Area.

This includes:

- Landcover and landuse
- Visibility
- Distance from the town centre
- Topographic Position (Ridge/midslope/gully)
- Slope
- Solar gain
- Elevation
- Identified sensitive landscape areas (including the Waikato River and its tributaries)

Landscape constraint mapping has been included in the following section.

Waikato and Waipa River's and Tributaries

Management of the Waikato and Waipa River's and their tributaries anticipates:

- Protection of existing landscape features associated with riparian margins and overland flow paths.
- Provision of future ecological corridors.

Constraint Identification Methodology

A two tiered weighted analysis approach has been used. The first tier examines the effect of development on wider landscape character by examining the wider susceptibility of key

landscape attributes to character change arising from development.

The second tier of analysis examines those factors or attributes that are likely to enhance or decrease general amenity values, and/ or effect landscape character and amenity at the 'neighbourhood' level.

The first tier is weighted more heavily than the second tier because changes to these landscape attributes (through future development) is likely to affect landscape character and associated amenity values to a higher degree than attributes of the second tier.

Weighting

For consistency, each factor has been weighted from 1 (least suitable for development) to 9 (most suitable for development).

Assigning an appropriate weighting to the range of landscape attributes within each factor has been considered and determined through the analysis of technical papers, community preferences, landscape preference studies (refer to appendix three), ONFL and landscape character assessment and landscape design (current best practice).

This is reflected in the relevant planning provisions, which include particular protection of:

- Protection of ONFL 6(b) of the RMA
- Landscape character section 6(a) of the RMA
- Amenity section 7(c) of the RMA
- Natural features

Portions of the Waikato River and its margins have been identified as landscape policy areas (ONFL) under the Operative Waikato District Plan (OWDP). The Hakarimata Range has also been identified as a landscape policy area (ONFL) under the OWDP.

Of particular importance under the OWDP is the:

- Landscape Policy Areas, including the Waikato River and Hakarimata Range (3A.2)
- Wetlands (13.6.2);
- Indigenous vegetation (25.43.1);
- Natural features (13.6.2);

-
- Ridgeline Policy areas (25.26)
 - Landscape and visual amenity values, as viewed from public places (3.4.1);
 - Natural character of the coastal environment, wetlands, and lakes and rivers and their margins is preserved (3.6.1);
 - Setback of development from rivers or lakes (25.59);
 - Amenity values of localities are maintained and enhanced (13.2.6).

Each of these OWDP concerns relating to landscape have been taken into consideration through the landscape character and landscape opportunity and constraint mapping of suitable development areas within this report. ONFL, Natural features, wetlands, indigenous bush and ridgelines have been considered as unsuitable for development through landscape character and constraint mapping. The mapping also aims to protect existing landscape character and amenity values.

Refer to appendix two for relevant sections of the RMA, PWRPS and OWDP.

Limitations

Due to limitations in data provided, coarse grained analysis was undertaken within the Ngaruawahia and surrounds study area. The purpose of the findings and mappings of this report is to indicate general areas more suitable for development than others, with specific regard to landscape character and amenity values.

Data was insufficient to determine landscape character and constraint mapping to the west of the Hakarimata Range and Glen Massey village. However, site investigation indicated that future development is constrained by the steep terrain surrounding the village and future development is therefore most suitable in and around the existing village, within the relatively flat stream terraces.

TIER ONE: LANDSCAPE SENSITIVITY

Informing Ngaruawahia's Growth Options

Landscape areas sensitive to change were identified during the landscape character analysis process and sorted into 9 categories (1 being least suitable for development and 9 being most suitable). These included:

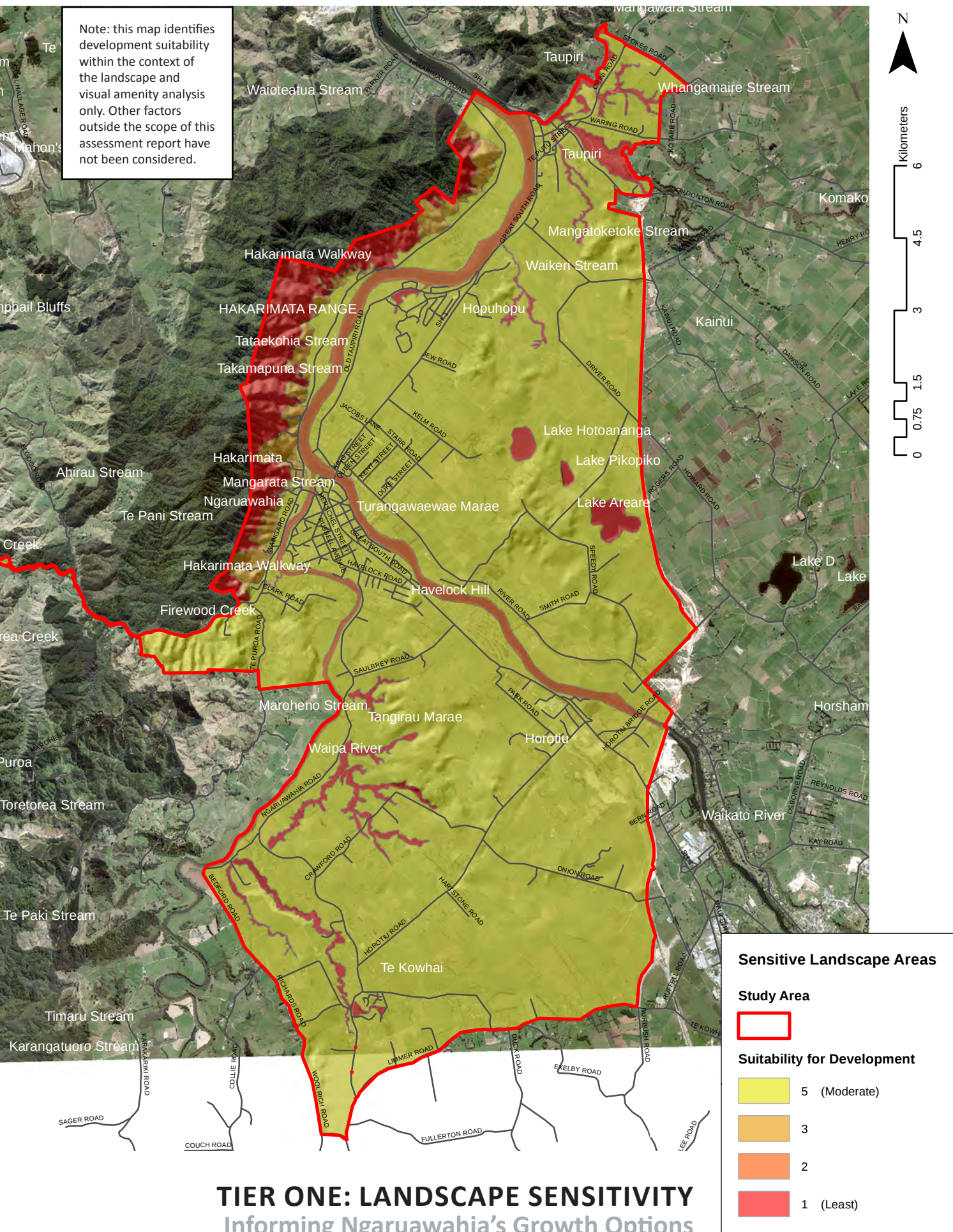
Gully systems and peat lakes (sensitive due to rarity within the Ngaruawahia Study Area and development being more likely to alter existing natural character values, due to the small size of these areas). Hakarimata Range (sensitive due to ONFL status under the district plan). Gully systems, peat lakes and Hakarimata Range were therefore attributed to category 1 (least suitable for development).

The Waikato and Waipa River's and adjacent river terraces, (sensitive due to a minimal presence of existing development along the wetlands and river terraces immediately adjacent to the Ngaruawahia section of the river; and the high natural character associated with the pockets of indigenous wetland vegetation and the river itself). However, the large size of the Waikato River and presence of town development in other locations along its banks gives it a higher capacity to absorb change than the small gully systems. The Waikato and Waipa Rivers were therefore attributed a 2 (less suitable for development).

So as not to skew the analysis, the remainder of the Ngaruawahia study area not found to be sensitive to change has been attributed a neutral rating (5).

It should be noted that these sensitive landscape areas are more susceptible to change, and that a small change within these areas may have a greater effect on landscape character and associated amenity values than the exact same change in another location within the study area not identified as a sensitive landscape area.





TIER ONE: LANDCOVER AND LANDUSE

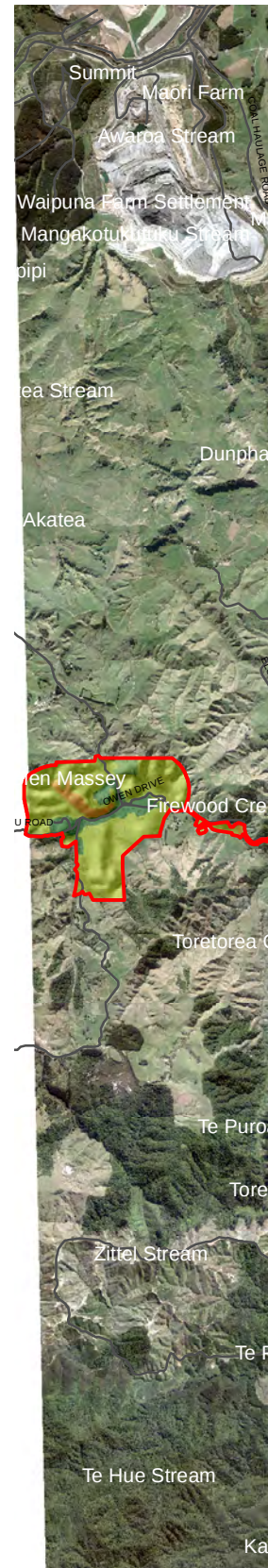
Constraint Identification and Analysis

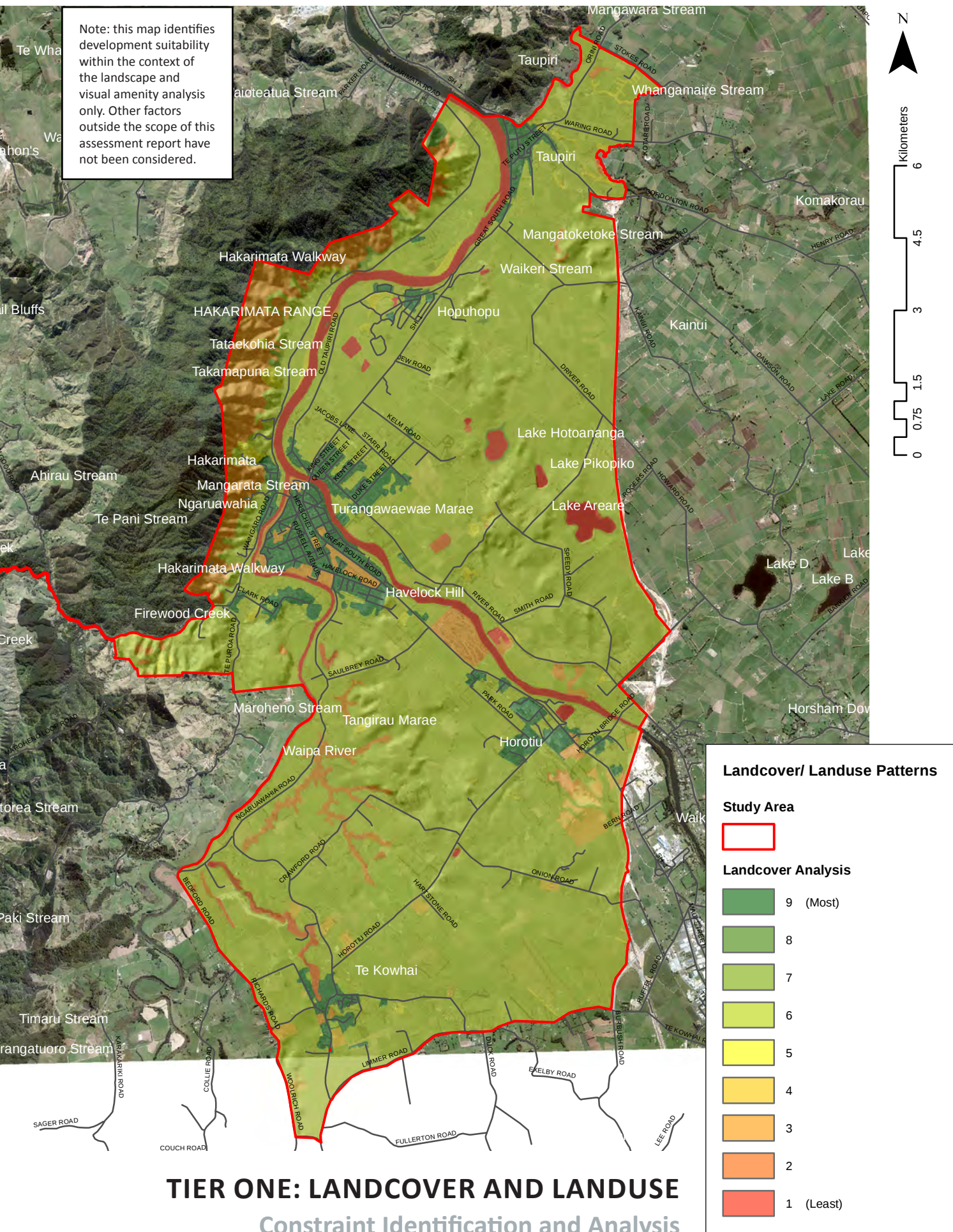
Landcover data was analysed and sorted into 9 categories (1 being least suitable for development and 9 being most suitable).

It was considered that water bodies, including the Waikato River and surrounding lakes (category 1) as well as areas of high natural value, such as wetlands (2) and indigenous vegetation (3) were least suitable for development. Conversely, land within existing built-up areas, such as Ngaruawahia Township (9) and little natural or productive value: low producing grassland (8) and mixed exotic gorse and broom (7) were considered most suitable for development. High producing grassland (6), exotic grassland (5) and cropland, including vineyards and orchards (4) were considered to sit in between most and least suitable for development.

The outcome of this analysis indicated that the majority of the flat landscape of the Waikato basin is suitable for development in terms of landcover and landuse. The existing built up areas of the Ngaruawahia Township and the surrounding villages were found to be the most suitable for future development.

The steeper bush-clad slopes of the Hakarimata Range, the peat lakes, Waikato and Waipa River's and surrounding gully systems were found to be the least suitable for development in terms of landcover and landuse.





TIER ONE: POTENTIAL VISIBILITY

Constraint Identification and Analysis

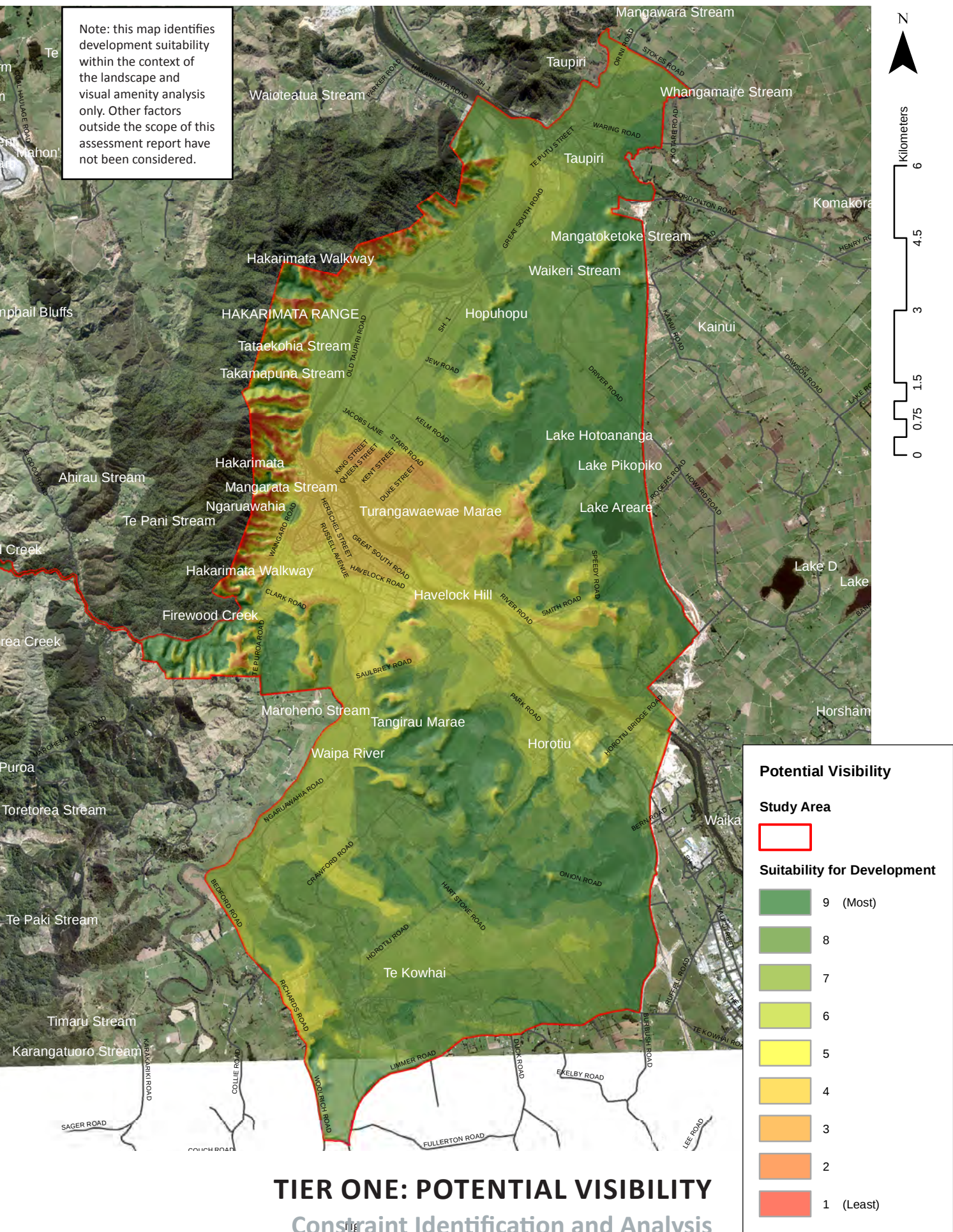
The potential visibility has been assessed from public view locations along the main roads within the Ngaruawahia and surrounds study area. The visual catchment identifies the extent of surrounding landscape visibility from the main roads, subject to intervening built development and vegetation. This provides an indication of the landscape within the study area that is less visible from publicly accessible locations; and therefore more suitable for urban expansion (less likely to alter existing landscape character and associated amenity values).

Context, viewing frequency, viewer types, viewer distance, viewing time and framework are all factors requiring consideration when examining the visual catchment. A combination of GIS mapping and site inspection were used to identify the visual catchment of the study area.

The visual catchment map indicates that elevated locations within the Hakarimata Range to the west and north of Ngaruawahia Township are highly visible from publicly accessible roads within the study area. Small mounds in the surrounding relatively flat landscape of the Waikato Basin are also highly visible from public roads. Urban expansion on these elevated sites is therefore likely to affect amenity values associated with existing expansive views across existing rural landscape.

Hills and undulations along the main roads within the study area provide subtle transition zones in which the extent of visibility gradually increases or decreases. These transition zones therefore become important natural thresholds for determining appropriate boundaries within which to contain the future growth of Ngaruawahia Township and the surrounding satellite villages. Directly to the north of Ngaruawahia Township for example Great South Road dips down, therefore making it less visible from the majority of surrounding public roads.





TIER ONE: WIDER LANDSCAPE CHARACTER

Weighted Analysis

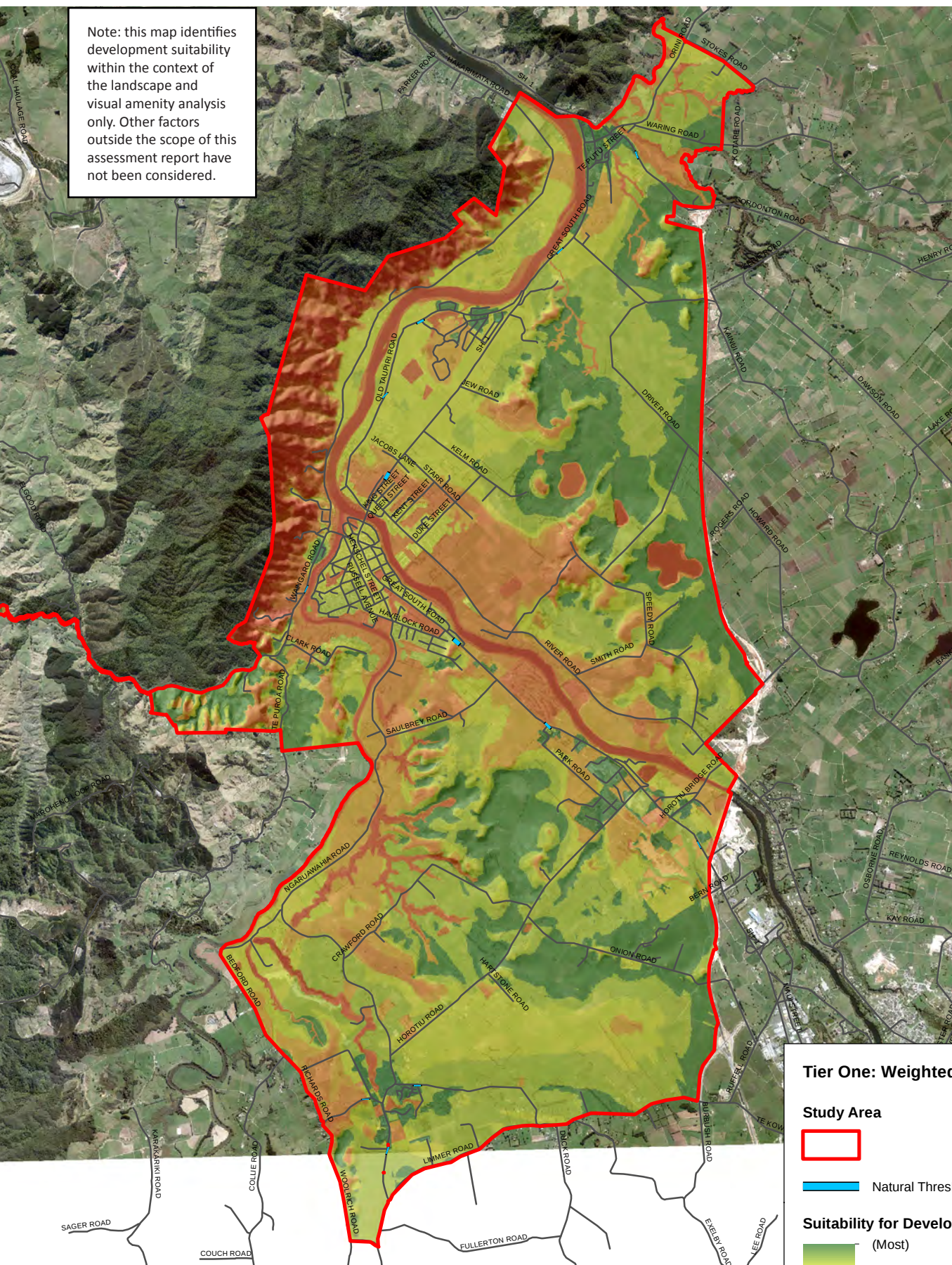
The landscape sensitivity, landcover and potential visibility maps have been analysed using weighted analysis. Landcover and visibility were each attributed 34% weighting (as landcover analysis and visual catchment analysis are considered to be of equal importance). The landscape sensitivity analysis was attributed 32% of the weighting. The resultant map (adjacent) indicates the landscape character and associated visual amenity constraints of urbanisation within certain locations of the Ngaruawahia and surrounds study area.

This weighted analysis mapping indicates that overall, the areas less suitable for development within the Ngaruawahia and surrounds study area are located:

- Towards the west of Ngaruawahia Township, within the slopes of the Hakarimata Range, due to this landscape feature being highly visible from public roads, the high natural character of the range, and indigenous vegetation landcover;
- Along the Waikato and Waipa Rivers and their margins, as well as portions of the flat river terraces to the east and south of Ngaruawahia Township;
- In the gully systems within close proximity to Te Kowhai and Taupiri villages, due to the presence of indigenous vegetation landcover and higher sensitivity to change;
- Towards the east of Ngaruawahia Township, where peat lakes characterise the lowland flats of the Waikato Basin landscape;
- Natural thresholds have also been indicated within the adjacent map along main roads, where subtle changes in landscape character were identified during site investigation (and have been described in the Local Landscape Character section of this report).



Note: this map identifies development suitability within the context of the landscape and visual amenity analysis only. Other factors outside the scope of this assessment report have not been considered.



Tier One: Weighted Analysis

Study Area



 Natural Thresholds

Suitability for Development

(Most)

(Moderately)

(Least)

TIER ONE: WIDER LANDSCAPE CHARACTER

Weighted Analysis

TIER TWO: DISTANCE ANALYSIS

Constraint Identification and Analysis

Distance analysis has been undertaken to determine locations closest to the existing infrastructural services of Ngaruawahia Township; and therefore most suitable for development (from an urban/ landscape design and planning best practice point of view).

The commercial centre of Ngaruawahia Township provided the centre point for the distance analysis (as it acts as the main service area for the surrounding villages).

The outcome of the distance analysis suggests that land beyond the existing southeastern urban fringe of Ngaruawahia Township is less suitable for development due to the distance out from existing infrastructure and services provided for by Ngaruawahia Township.

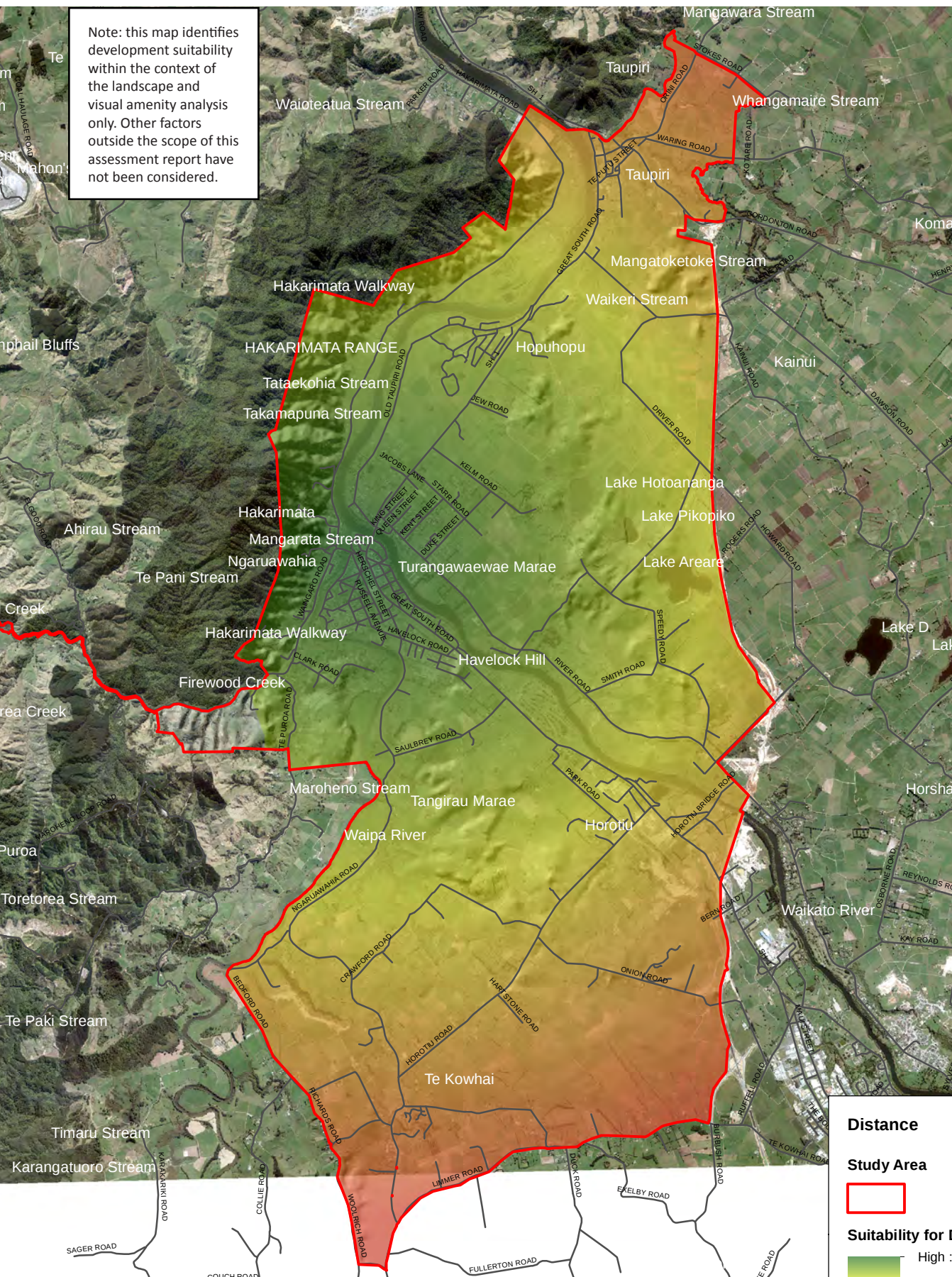
To the northeast of Ngaruawahia Township urbanisation up to Kelm Road would be most suitable for future development in terms of distance to existing services and infrastructure.

The analysis indicated that areas most suitable for urbanisation to the south of the township would be approximately bound by Saulbrey Road, in terms of convenience to town centre services and other landscape design and planning principles.

In terms of the distance analysis, urbanisation could occur as far southwest as the edge of the study area (approximately).



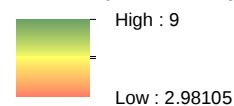
Note: this map identifies development suitability within the context of the landscape and visual amenity analysis only. Other factors outside the scope of this assessment report have not been considered.



Distance

Study Area

Suitability for Development



TIER TWO: DISTANCE

Constraint Identification and Analysis

TIER TWO: TOPOGRAPHIC POSITION INDEX (TPI)

Constraint Identification and Analysis

The adjacent TPI analysis map has been based on 0.5m Digital Elevation Model data provided by Waikato District Council. The TPI data has been assigned a number from 1-9 (where 1 indicates areas least suitable for urbanisation and 9 indicates areas most suitable for urbanisation).

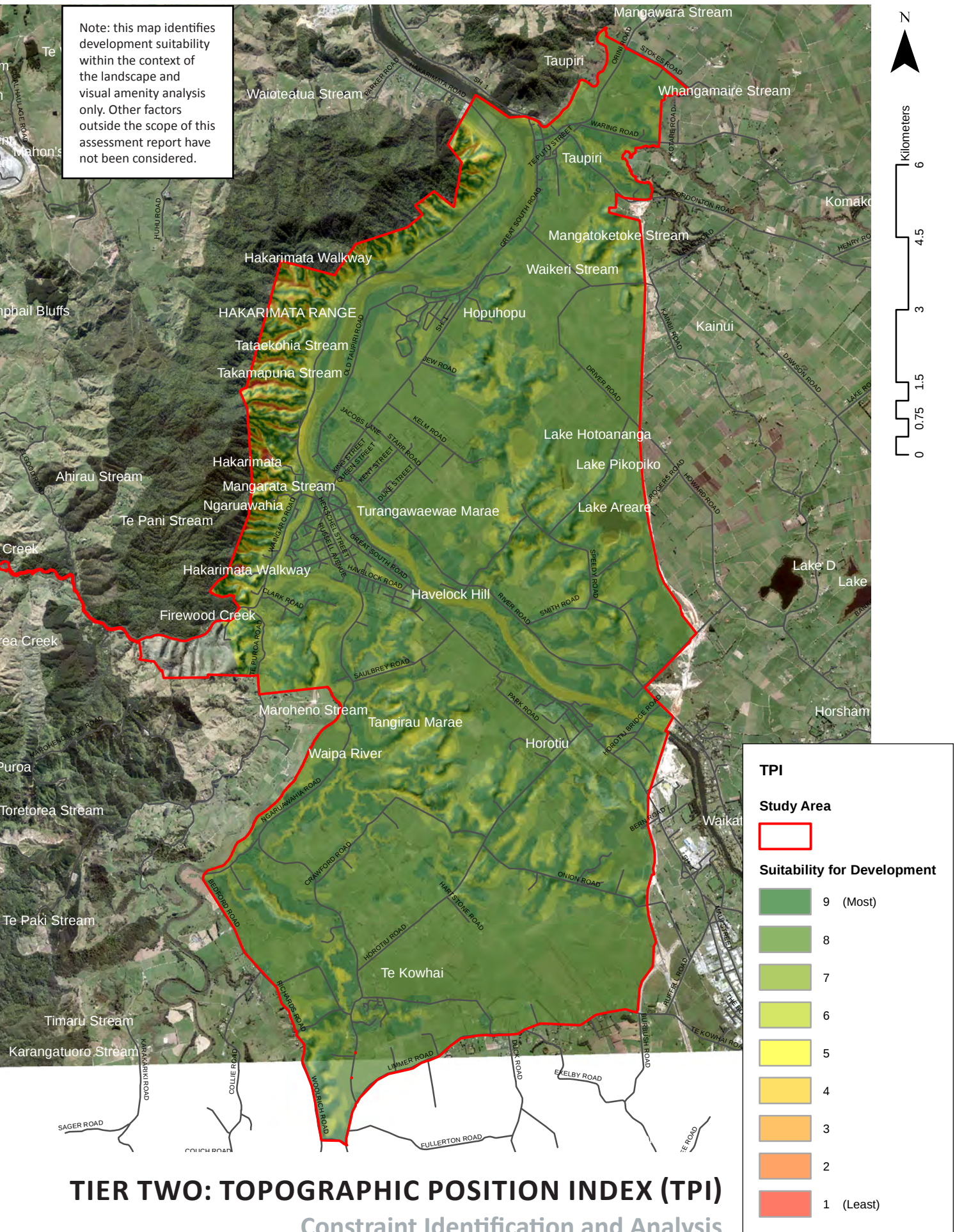
Mid-slopes were classified as most suitable for urbanisation (9), while ridgelines and gully slopes/ river trenches were classified as least suitable (1). Ridgeline development is less suitable because skylines should be protected from development (landscape design ideal), to avoid affects on visual amenity. Development within gully slopes and river trenches is less suitable due to potential disturbance of natural processes of streams.

The adjacent TPI analysis map indicates that upper hill country and ridgelines within the study area; are generally found to the west of Ngaruawahia and surrounds (within the Hakarimata Ranges). These areas would be unsuitable for development due to potential skylining, which would effect the natural character associated with these landscapes.

Lower gully slopes were identified throughout the study area, with a concentration of gully systems within close proximity to the Waikato and Waipa River's. These areas indicate further constraints for urbanisation due to the high natural landscape value of the gully systems, streams and rivers.

Areas most suitable for urbanisation according to the TPI analysis include small pockets of land directly to the south, north and northeast of Ngaruawahia Township, to the north of Te Kowhai village, to the south and northeast of Taupiri and to the west of Horotiu.





TIER TWO: SLOPE ANALYSIS

Constraint Identification and Analysis

The adjacent slope analysis map has been based on 0.5m DEM data provided by Waikato District Council.

The slope analysis data was assigned a number from 1-9, where category 1 represented the steepest slopes, less suitable for urbanisation and category 9 represented the gentlest slopes, most suitable for urbanisation.

Development on steep slopes is more likely to result in the requirement for retaining and road cuttings, which could subsequently affect landform character and associated amenity values.

The outcome of this slope analysis indicates that with the exception of the Hakarimata Range to the west of the town centre, pockets of steep-sided gully systems throughout the study area (within close proximity to the Waikato and Waipa River's), most land within the Study Area is relatively flat in terms of slope.

This indicates that most localities within the Study Area are suitable for future urbanisation in terms of slope analysis.



TIER TWO: SOLAR GAIN

Constraint Identification and Analysis

The adjacent solar radiation analysis map has been based on 0.5m DEM data provided by Waikato District Council.

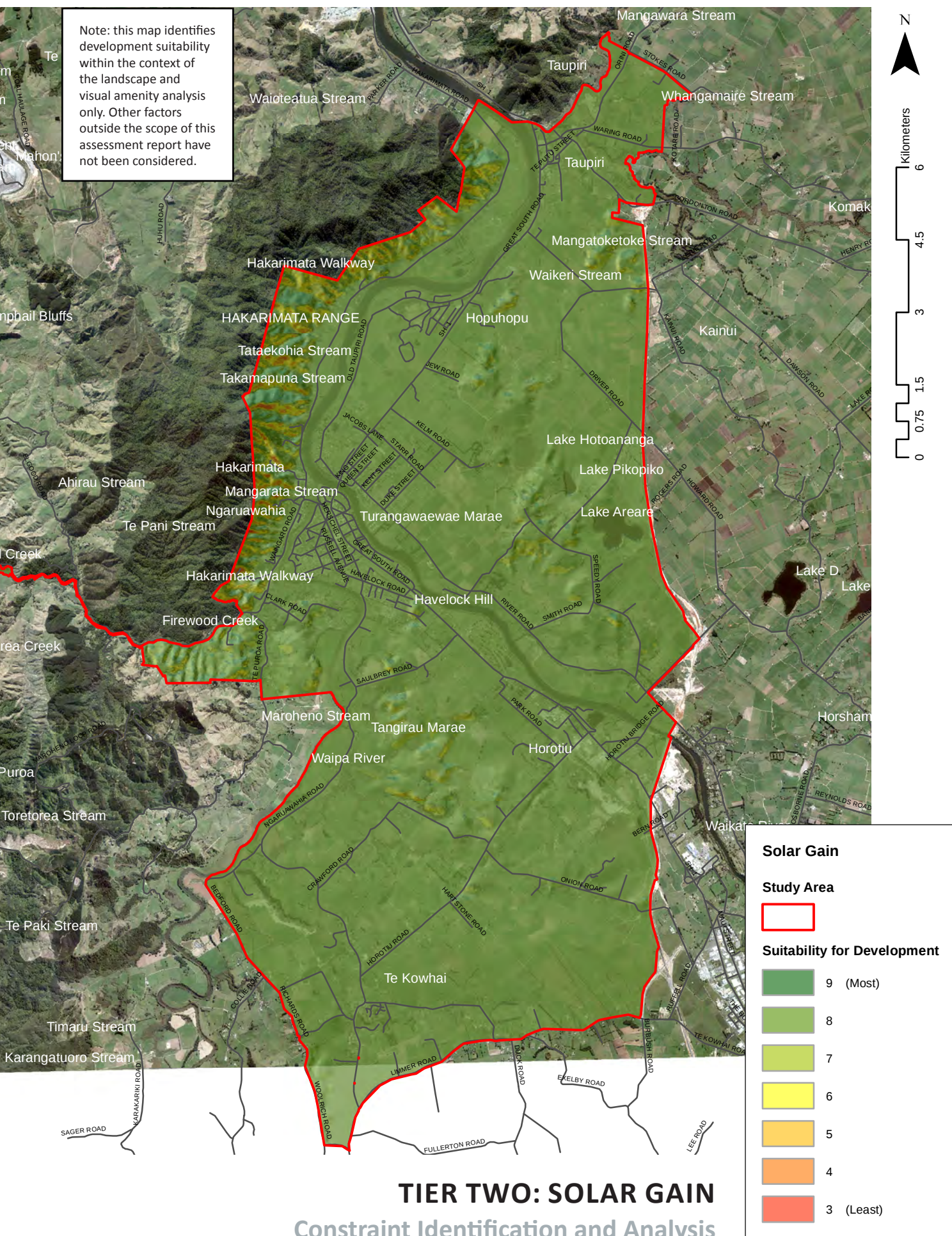
The solar radiation analysis calculated the sunshine hours of the entire study area in 2-hour increments, over a year. The solar radiation data was then assigned a number from 1-9, with areas receiving the highest sunshine hours categorised as 9 and areas receiving the least sunshine hours over a year categorised as 1.

Overall, solar gain was found to be good across the majority of the study area, with the exception of the land along steep sides of the Hakarimata Range (to the north and west of the Ngaruawahia Township) and steep hill country to the north of Glen Massey village.

Areas with lower solar gain (1-5) would typically be less desirable land; as associated dwellings would generally be colder and damper than those developed on land with higher solar gain.



Note: this map identifies development suitability within the context of the landscape and visual amenity analysis only. Other factors outside the scope of this assessment report have not been considered.



TIER TWO: AMENITY CONSTRAINTS

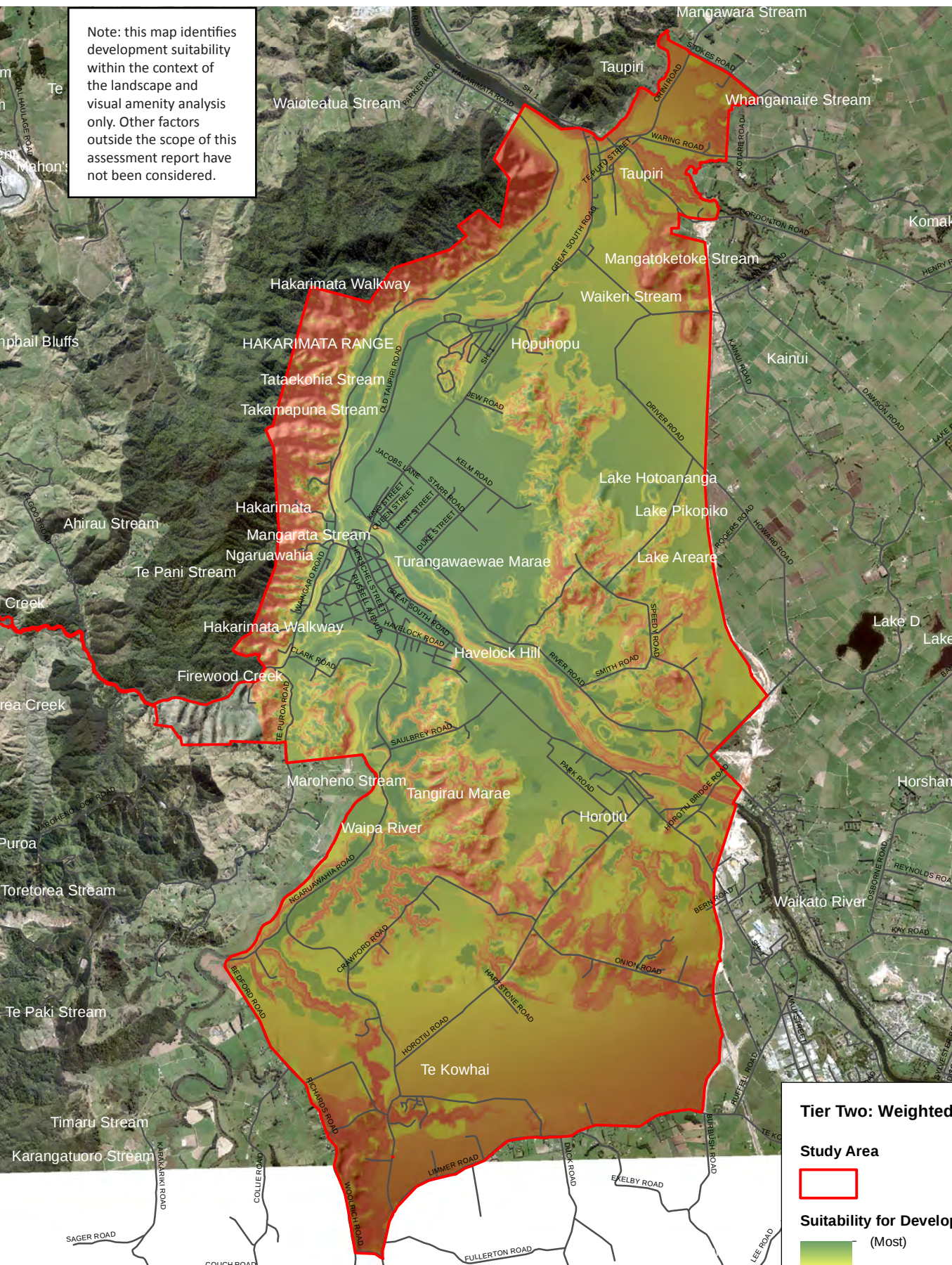
Weighted Analysis

Weighted analysis was utilised to provide an indication of the combined amenity constraints within the Ngaruawahia Study Area. 30% of the weighting was attributed to Distance Analysis, TPI analysis and Slope Analysis, while 10% was attributed to Solar Analysis.

The resultant map (adjacent) indicates that the majority of landscape constraints are associated with the elevated topography, steeper slopes, areas of little solar gain and a greater distance out from the centre of Ngaruawahia Township. These areas are generally to the far south of Ngaruawahia Township (in and around the hill country and gully systems surrounding Te Kowhai), to the far northeast (in and around the gully systems surrounding Ngaruawahia) and to the west (slopes of the Hakarimata Range).



Note: this map identifies development suitability within the context of the landscape and visual amenity analysis only. Other factors outside the scope of this assessment report have not been considered.



Tier Two: Weighted Analysis

Study Area



Suitability for Development



(Most)

(Least)

TIER TWO: AMENITY CONSTRAINTS

Weighted Analysis

COMBINED WEIGHTED ANALYSIS

Landscape Suitability for Urbanisation

In combining amenity constraint mapping (distance, slope, TPI and solar radiation) with character constraint analysis (landcover and visual catchment), analysis was used to inform areas most and least suitable for development overall.

- 17% of the weighting was attributed to each landcover and potential visibility;
- 16% of the weighting was put on sensitive landscape areas;
- 15% of the weighting was put on each distance analysis, slope and TPI;
- 5% was given to solar radiation.

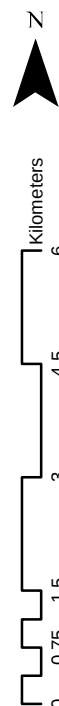
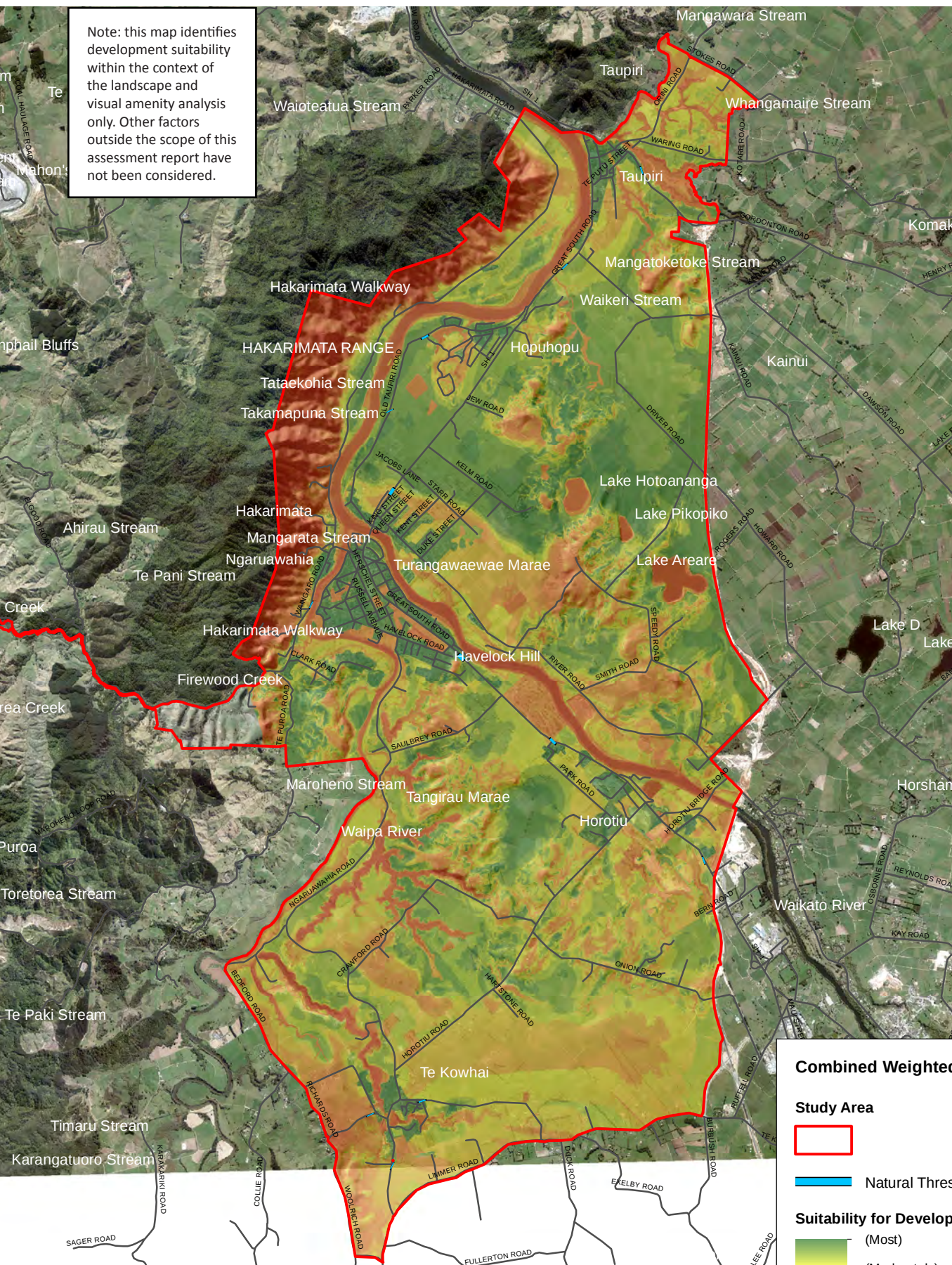
Landcover and visual catchment analysis was attributed to the highest weighting because it directly effects landscape character and associated amenity values.

The outcome of this analysis suggests that areas most suitable for development are generally located to the southeast and northeast of Ngaruawahia Township due to a combination of landscape character and landscape amenity constraints directly to the east and west of the township. The majority of the landscape surrounding Te Kowhai has been found to be suitable for future development, with the exception of the hill country to the west of the village. Similarly, in Horotiu the main landscape constraint is the Waikato River, to the east of the village. Only small pockets of landscape were found to be suitable for development around Taupiri due to the extensive gully systems, the location of the Mangawara Stream, Taupiri Range and infrastructural development restricting space for future development within close proximity to the existing village centre.

However, with the exception of the Hakarimata's and the Waipa/ Waikato River and other stream margins, overall there are no major restrictions in terms of which direction to develop in from a landscape perspective.



Note: this map identifies development suitability within the context of the landscape and visual amenity analysis only. Other factors outside the scope of this assessment report have not been considered.



COMBINED WEIGHTED ANALYSIS

Landscape Suitability for Urbanisation

Combined Weighted Analysis

Study Area



Natural Thresholds



Suitability for Development

(Most)
(Moderately)
(Least)



LANDSCAPE CHARACTER & AMENITY VALUES

Findings

The key attributes and landscape features in the adjacent table that contribute to landscape character and amenity of the Ngaruawahia Study Area area were identified during site investigations and landscape character and landscape constraint mapping analysis.

Future development within the areas indicated in the combined weighted analysis map as suitable for development is likely to have a low effect on the key attributes of the surrounding landscape which influence wider landscape character and associated amenity values. This is because the mapping analysis indicated no major landscape constraints within the study area (with the exception of the Waipa River, Waikato River, peat lakes, gully systems and the Hakarimata Range).

Expansion beyond the existing urban fringe of Ngaruawahia Township and each of the surrounding villages is likely to slightly alter amenity values associated with the existing rural landscape character. However, the affect on landscape character and amenity values is likely to have less than if development were to occur within the areas shown as less suitable for development. The outstanding natural landscape values associated with the Hakarimata Range and natural character values of the river, streams, lakes and their margins have been protected through the mapping analysis. As have ridgelines, gullies, steep slopes, indigenous vegetation, productive landscape, solar gain, distance from Ngaruawahia and areas highly visible from surrounding public roads.

Natural thresholds indicate subtle changes in landscape character and aim to protect the unique character of the Ngaruawahia Township and each of the surrounding villages. Expanding beyond the visual natural thresholds identified would create a more noticeable change in landscape character (although not significant), as development within areas out beyond these natural thresholds would be more difficult to integrate with the surrounding predominantly rural landscape character, as in most cases visual connection with the existing township is lost beyond these thresholds.

Overall, with the exception of the rivers and the Hakarimata Range, no major landscape constraints were found to exist within the Ngaruawahia and surrounds study area, only subtle differences, which make some areas slightly more or less suitable for development. Landscape

is therefore not likely to be the deciding factor in determining the extent/ exact locations for future development within the Ngaruawahia Study Area. Analysis of parallel studies indicating opportunities and constraints in terms of infrastructure, urban design, heritage and culture should therefore be carefully considered.

The following table of key attributes and landscape features found to contribute to landscape character and amenity in the surrounding area (refer to the landscape character section of this report).

	Feature	Scale	Key Attributes	Potential Effect
1	Waikato and Waipa Rivers	Medium	- Formative processes overtly obvious. - Meandering river channel. - Broad river channel. - Vegetated embankments and riparian areas. - Recreational opportunities. - Transient values (wildlife).	A negligible effect on the Waikato and Waipa Rivers; as the areas indicated as suitable for development (as shown on the combined weighted analysis map) are at a sufficient distance from the rivers to ensure adverse effects on landscape character and amenity values are avoided.
2	Streams and gully systems within the Ngaruawahia and surrounds study area	Small	- Meandering streams - Vegetated embankments and riparian areas. - Recreational opportunities. - Transient values (wildlife).	Low effects, as streams and gully systems are indicated as less suitable for development within the combined weighted analysis map and therefore should be protected from future development.
3	Rural landscape	Large	- The subdivision of the rural pastoral landscape into a mosaic of paddocks and crops. - Established shelter rows and planting. - Mix of rural-industrial development within pastoral/ horticultural landscape. - Cultural influences (formative processes) obvious.	Low effects, as the suitable future development areas, indicated in the combined weighted analysis map are more likely to ensure that existing landscape character of the wider surrounding landscape is maintained.

CONCLUSIONS & RECOMMENDATIONS

Ngaruawahia Study Area

Weighted analysis of the various landscape and amenity factors identified in this report has found that:

- The Hakarimata Range is an ONFL;
- Subtle differences in landscape character and amenity values exist across the study area (as discussed in the landscape character section of this report);
- Natural thresholds rationalise natural features contributing to character and amenity shifts (identified on the combined weighted analysis map) provide guidance for township and village growth boundaries;
- Technical papers and community preferences indicate the importance of retaining the existing identity of the Ngaruawahia township and each of the villages by directing growth towards each existing township/ village and allowing for rural buffers;
- Landscape character and amenity assessment in combination with Landscape and urban design principles and relevant planning provisions helped determine GIS opportunities and constraints. These included:
 - Sensitive landscape areas should be protected through weighted analysis mapping. These were found to include the Hakarimata Range, Waikato and Waipa Rivers, stream systems and associated gullies and peat lakes to retain existing natural character and associated amenity values within the study area;
 - The protection of indigenous vegetation and water-bodies as opposed to existing built up areas, low producing grassland and exotic vegetation;
 - The avoidance of areas of high visibility from surrounding public roads within the study area;
 - The concentration of future development in and around the main service center of Ngaruawahia Township;
 - The avoidance of steep slopes, prominent ridgelines/ deep gully systems and areas of low solar gain;
- The outcome of the combined weighted analysis indicated that areas most suitable for development are generally located:
 - Within the existing Ngaruawahia town centre and each of the existing village town centres;
 - To the southeast and northeast of and within the existing Ngaruawahia Township;

-
- With the exception of hill country, the majority of the surrounding landscape in Te Kowhai is suitable for development;
 - The majority of the surrounding landscape; except for local hills (elevated above the plains) and the Waikato River margins is suitable for future development within Horotiu and Hopuhopu;
 - Only small pockets of land are suitable for development in Taupiri, in between existing natural feature (Waikato River, gully systems) and infrastructural constraints.

These findings suggest that only subtle differences exist in the suitability of different parts of the Ngaruawahia landscape to absorb the levels of development that will likely occur without affecting wider landscape character and the amenity derived from it.

It is therefore recommended that, from a landscape and amenity perspective, development should occur in a manner that has the least effect on wider landscape values over time. This suggests a staged approach which sees any growth being prioritised within areas identified as 'most' suitable on the combined weighted analysis map.

WEIGHTED ANALYSIS - OUTCOME

Comparison with Urban Design Analysis

The WDC potential growth areas (indicated by the urban design team) have been overlaid on top of the combined weighted analysis map to indicate areas most suitable for development from a landscape and urban design point of view.

The majority of areas mapped through the urban design process align with areas found to be most suitable for development through the weighted analysis within this report. Some slight discrepancies have occurred however, these include:

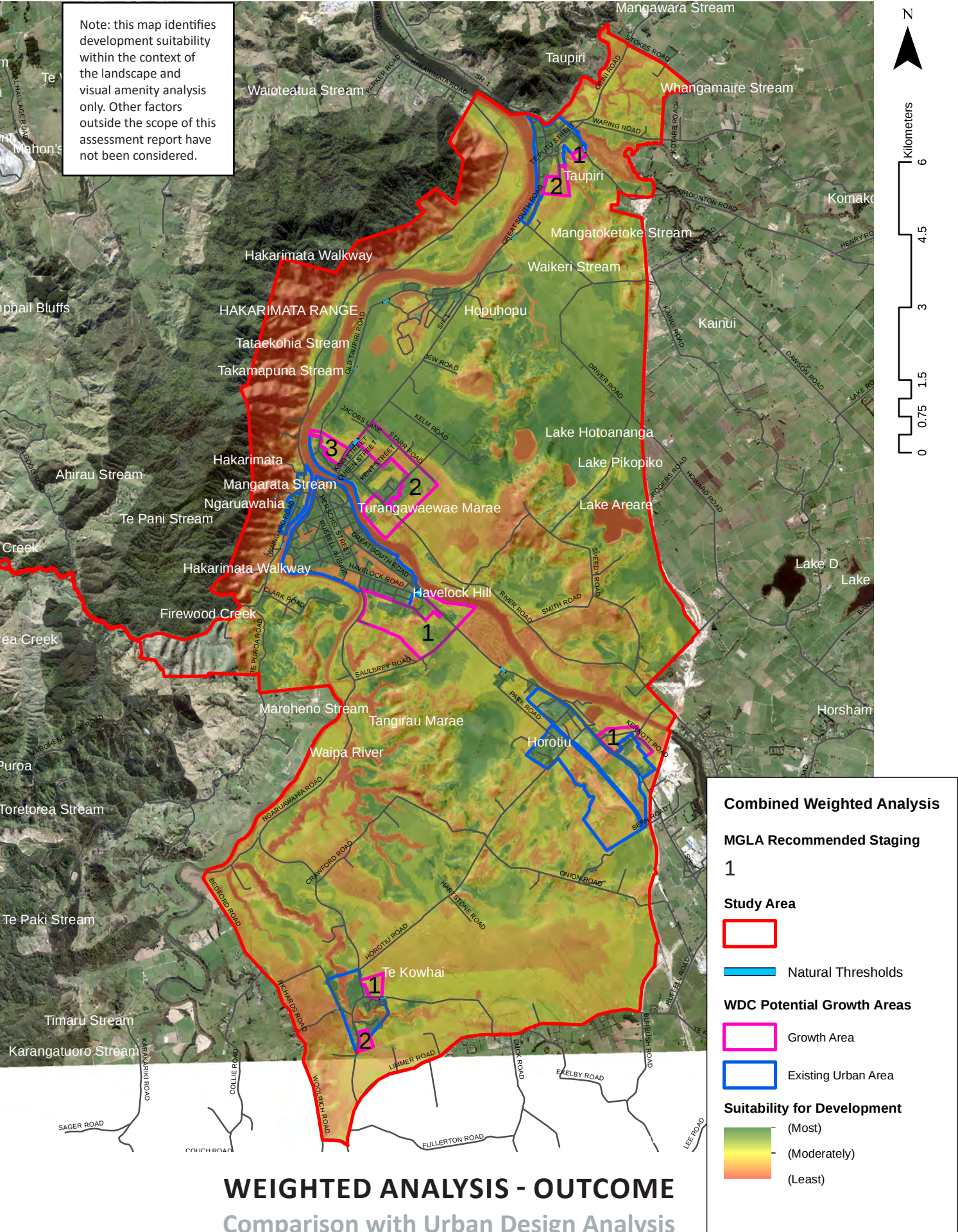
- A small area of land to the south of Te Kowhai (hill country) where weighted analysis has found this landscape to be less suitable for development (due to the elevated position, where future development would be more highly visible from surrounding public roads and may therefore slightly alter existing open pastoral landscape character);
- The proximity of the suggested boundary lines for the growth areas surrounding Ngaruawahia Township are located within areas found to be less suitable for future development: within close proximity to the margins of the Waikato River. Care should therefore be taken at the fine-grained structure plan development stage to ensure that the key landscape attributes contributing to the natural character of the river are maintained with any future development.

The numbers on the adjacent map indicate appropriate staging, from a landscape perspective, for the future growth areas (areas provided by the urban design analysis team). Urban development areas identified as stage 1 are less likely to alter landscape character and amenity values of the surrounding landscape and will aid in integrating the stage 2 and 3 development as further urban expansion is required into the future. Stage 1 indicates areas more suitable for immediate development (largest areas of green) and stage 3 indicates areas less suitable for immediate development (mix of yellow and green areas, above the moderate rating threshold) in order to help preserve wider development, should be developed last.





Note: this map identifies development suitability within the context of the landscape and visual amenity analysis only. Other factors outside the scope of this assessment report have not been considered.



Ngaruawahia

As indicated in the weighted analysis - outcome map: comparison with urban design analysis, the area to the southeast of the existing town centre has been recommended as the most appropriate for stage one of growth area development. This is because this area was found to be overall the most suitable for development from a landscape perspective.

It is recommended that the second stage of growth area development occurs to the east of Ngaruawahia Township, expanding further southeast along River Road.

It is recommended that the third stage of growth area development occurs to the northeast of Ngaruawahia Township, adjacent to great South and Old Taupiri Roads. Although a large portion of this area was found to be only moderately suitable for development, the proposed staging of development within Ngaruawahia Township will ensure a gradual integration of development within the surrounding rural landscape, reducing adverse effects on landscape character and amenity values.

Taupiri

The growth area proposed by the urban design team to the southeast of Taupiri village was found to be more suitable for development from a landscape perspective. This area is therefore recommended as the first stage for any potential future development, while the area to the southwest is recommended as second stage development.

Te Kowhai

Stage 1 of future growth area development in Te Kowhai is recommended to the east of the existing village, within flat topography, where less landscape constraints exist. Stage 2 is recommended to the south, where hill country makes the landscape less suitable for development.

Horotiu

Since only one area was identified by the urban design team for future growth within Horotiu, this area has been recommended to occur as stage one future development.

Because there are no major constraints in terms of the landscape within the Ngaruawahia and surrounds study area (with the exception of the Hakarimata Range, gully systems and Waikato and Waipa Rivers), the above recommendations and proposed staging order indicates the most suitable areas for development in terms of landscape character and amenity, but not the only suitable areas or staging. It is therefore important that the outcomes of other analysis, parallel to this study is considered before final recommendations for urban expansion are made.

The following statutory documents, issues, objectives, policies and rules are considered relevant in the assessment of visual, landscape and amenity effects.

The outcome of this comparative analysis between the combined weighted outcome map and the urban design potential growth areas has assumed that the potential growth areas will reflect the existing development type of adjacent existing zoning under the WDP and will not propose inappropriate zone mixes, (such as heavy industrial abutting existing residential).

APPENDIX ONE

ONFL Methodological Approach

1. PREFACE

Outlined within this document is an identification of the legal prerequisite tests to be applied, a direction to be applied resulting from the Waikato Regional Policy Statement and a methodological approach that will be used in the identification and analysis of the District's outstanding natural features and landscapes.

This document forms the basis of the agreed methodological approach, following caucusing.

The methodology does not include an approach for the assessment of the amenity landscapes within the district as this is outside the scope of engagement.

2. THE LEGAL PREREQUISITE TEST

In the *Rosehip*¹ decision where the Court wrote:

A fundamental question for these proceedings is whether there is one or more outstanding natural landscapes within the meaning of section 6(b) of the RMA in the Mackenzie Basin. To answer this we need first a definition of "landscape" and then to answer three factual questions:

(1) is there one landscape or more in the Mackenzie Basin?

(2) if so, is any identified landscape natural?

(3) if yes to (1) and (2) for any landscape, then is the natural landscape also outstanding?

This reasoning sequence forms the basis of the s6(b) analysis process and is fundamental to a number of decisions that are subsequently made during the detailed assessment.

Through the application of the following approach, the above test is satisfied.

3. REGIONAL POLICY STATEMENT

The Proposed Waikato Regional Policy Statement – Decisions Version (PWRPS) identifies a requirement for the identification of the district's ONFLs:

12.1.1 Protect values of outstanding natural features and landscapes

Regional and district plans shall identify and provide for the protection of the values and characteristics of outstanding natural features and landscapes, including those of regional significance identified in section 12A (Table 12-1).

12.1.2 Identify local outstanding natural features and landscapes

Waikato Regional Council will encourage territorial authorities to undertake a district-wide assessment of outstanding natural features and landscapes of local significance, the criteria in section 12B (Table 12-2) should be used as the basis of any new assessment.

¹ High Country Rosehip Orchards v MacKenzie District Council (Decision No [2011 NZEnvC 387])

The Regional Council identifies that:

All data are mapped at 1:50,000 based on a variety of data sources so the accuracy of those sources applies (see Data Sets Used in section 4 below). However, which datasets were used to define the edges/boundaries of which parts of the polygons is not clear.

The group who undertook the landscape assessment were instructed not to go onto private land and to assess the landscape from public places. Given the difficulty in defining the “edge” of a landscape and/or feature the boundaries of the ONFL are to be considered indicative only and may vary by up to +/- one kilometre from that actually mapped.

4. METHODOLOGICAL APPROACH

A number of recent Environment Court decisions have highlighted the need for the assessment of the outstanding natural features and landscapes under Section 6(b) of the RMA to be undertaken in a rigorous and defensible manner.

Analysis of recent decisions suggests that various divisions of the Environment Court have based their decisions on ONLs after considering the spectrum of scientific and evaluative evidence put before them.

The Relevant Model of Environmental Perception

Aesthetic appreciation, in the sense that it describes the level of satisfaction (positive or negative) derived from our perceptions, experiences and interactions with the environment, is fundamental to the way we define landscapes and ascribe values and meanings to them. Various models of aesthetic appreciation have been developed to explain environmental and landscape preference. These can be used to explain both landscape preference and attractiveness.

It is considered that, within the context of the requirements of section 6(b) of the RMA, an appropriate theoretical framework for the identification and evaluation of the District’s outstanding natural features and landscapes is a *holistic model of landscape aesthetics* within which consideration is given to interaction between people and the landscape, and for which the various key models of aesthetic appreciation can be used to explain why some landscapes and/or features come together in a such a manner that they are perceived as being “outstanding” while others do not (even though on cursory examination they appear to contain similar components/spatial relationships).

Under such an approach, scientific explanation of the biophysical and geophysical elements that enhance an understanding of the landscape (or feature) are evaluated within the context of a range of associative and perceptual factors that ascribe value and meaning to that landscape (or feature). These may then be described and evaluated using the language of aesthetics.

Approach Overview

A holistic methodological approach will be followed, starting with the identification of topographical and land use patterns of the district in a hierarchical manner. *Expert evaluation*, drawing upon relevant aspects of the physical and perceptual landscape, will be used to draw together the various components² of the landscape, starting with a spatial framework and using associative and perceptual data to enrich an understanding of its intrinsic and contextual values.

The following iterative approach will be applied in the identification and analysis of the District's ONFLs:

Stage One: Identification of the District's Landscape Resource

Stage one will involve the identification of the District's landscape resource through GIS analysis and field survey. This will identify, and spatially define, the various geophysical and biophysical components and formative processes relevant to the identification and understanding of "RMA features and landscapes";

Stage Two: Identification of the District's Landscapes and Features (Unevaluated)

Stage two will involve the conflation of the (above) components into *features*³ and *landscapes*⁴ based on key perceptual and associative factors considered within the context a relevant model of environmental perception (in other words, the collective identification and analysis of the components of the landscape that have identifiable associations and/or spatial relationships that, when considered as a whole, affect the way they are collectively perceived and valued). Landscape and features will be classified in terms of:

- i. *Landscape/feature typology*: A systematic classification of landscape and feature types based on the attributes that describe properties of interest (e.g. bio/geophysical, socio-cultural, perceptual). Landscapes are defined by the unique relationships between natural components (geology, soils, etc) and human components (land-use, buildings etc); and
- ii. *Landscape/feature patterns*: The spatial patterns formed by different landscape/feature typologies that form unique spatial arrangements with distinctive identities.

Stage Three: Application of the "Natural" Prerequisite Test

The "natural" pre-requisite test will be applied to the District's identified landscapes and features in order to identify which landscapes are sufficiently natural to be considered as candidates for further assessment and ONFL evaluation. Candidate ONFLs will be subject to further analysis in the following stage. The pre-requisite test will identify:

- i. **Natural landscapes and features**: Those landscapes and features that pass the "natural" prerequisite test.

² For the purposes of this study, a landscape *component* is considered to be part of a landscape or feature that (for all intents and purposes and within the scale of analysis being undertaken), is consistent in its geophysical and biophysical makeup and appearance. *Components* represent the smallest unit of analysis that will be considered during the assessment process.

³ Meaning a *feature* under RMA s6(b). Where used in this sense, a *feature* is usually comprised of a single or relatively small number of *components*, and is generally smaller than a (RMA s6(b)) *landscape*.

⁴ Meaning a *landscape* under RMA s6(b). A *landscape* can be considered to be an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. Where used in this sense, a *landscape* is usually comprised of many *components* and/or *features*, and is generally much larger than a (RMA s6(b)) *feature*.

- ii. Other landscapes or features: Those landscapes that do not pass the “natural” prerequisite test.

Landscapes and features that do not pass the “natural” threshold test will not be evaluated further or mapped.

Stage Four: Identification of Outstanding Natural Features and Landscapes (Evaluated)

A preliminary sieving exercise will occur (based on expert analysis and a review of the ONFL’s identified in similar landscapes in the surrounding Districts) to identify the District’s candidate ONFLs (and discount from further analysis, natural landscapes that are not likely to achieve ONFL status).

An iterative process will be followed in order to identify the District’s candidate ONFLs and its other natural landscapes (for which no further analysis will occur):

- i. ONFL candidate landscapes and features: Those landscapes and features that having already passed the “natural” prerequisite test, may; or are likely contain the various bio/geophysical, perceptual and associative attributes and values necessary for “outstanding” status.
- ii. Other natural landscapes or features: Those landscapes that pass the “natural” prerequisite test, but are unlikely to contain the various bio/geophysical, perceptual and associative attributes and values necessary for “outstanding” status.

Each candidate ONFL will undergo further (iterative) expert evaluation and analysis, within the context of a relevant holistic model of environmental aesthetics that informs an understanding of the landscape (or feature), its perception and why it can be considered to be “outstanding” when compared to similar (or dissimilar) surrounding RMA landscapes or features.

Identified ONFLs will be mapped and the key attributes of each described.

Stage One: Identification of the District’s Landscape Resource.

The districts geographical and landscape features will be identified through a combination of desktop analysis using existing geospatial data, non-geospatial data (descriptive data) and field investigation and verification. This will identify, and spatially define, the various geophysical and biophysical components and formative processes relevant to the identification and understanding of “RMA features and landscapes”

Geospatial Data

The following base geospatial data will be used to identify relevant geophysical and biophysical features and their associated (non value laden) attributes that contribute to an understanding of the landscape within which they are contained:

- a. Geological (geology and soils)
 - i. GNS (QMap) Geological Data (1:250000)
 - ii. LRI Soil Data
- b. Topographical Data
 - i. Contour Data

- ii. Digital Elevation Models
 - iii. Topographic Position Indexing
 - iv. Slope
 - v. Visual catchment
 - vi. Watershed
 - vii. Catchment
 - viii. Rivers/streams
 - ix. Lakes
- c. Land cover
 - i. Vegetation (LCDBv3)
 - ii. Land use
 - iii. Development
 - iv. Urban areas
 - v. Development density
 - vi. Development patterns
- d. Aerial photography;
 - i. Google
 - ii. ESRI
 - iii. District Council Aerial Photography

This exercise will be used to identify the District's landscape resource as a series of spatially associated landscape (or geographical) features, that when considered within the context of each other, form the basis from which the District's landscapes (including candidate ONFL's) are identified.

Other Data

When considering additional values associated with the district's landscapes, the following types of (potentially non-geospatial) data will be reviewed and considered:

- e. Cultural Associations
 - i. Iwi
 - ii. European
- f. Heritage and Historic Associations
 - i. Iwi
 - ii. European
- g. Planning
 - i. Existing protection mechanisms and requirements (RPS/CPS/NZCPA/RMA etc)
 - ii. Tenure (Private/DoC/Council/etc)

Stage Two: Identification of the District's Landscapes and Features (Unevaluated)

In the sense used in s6(b) of the RMA, a landscape is an amalgam of bio/geophysical components and cultural land use patterns that has an identifiable spatial association or relationship which gives rise to cultural and perceptual values. Communities of interest attribute value to landscapes, and the density and strength of value attributed may be regarded as indicative of the relative significance of different landscapes. It can be described in terms of its spatial extent, geophysical and biophysical components and processes as well as in terms of its values and associations based on how people perceive and interact with it.

Support for this approach can be derived from the aesthetic paradigm explained within the theoretical framework of environmental perception.

This is consistent with the findings of a number of recent decisions including *WESI*⁵, *Long Bay, Lammermoor*⁶ and *Rosehip*, where a wide range of bio/geophysical, associative and perceptual factors were assessed in detail (by various landscape architectural and non-landscape architectural witnesses from an expert or scientific perspective) and considered by the Court in the definition of various s6(b) landscapes and features.

Expert evaluation, within a theoretical framework of environmental perception and landscape aesthetics, will be used to identify and describe the relationships between the various environmental and/or geographic/landscape features present, and how they contribute to an understanding of/perceptions of a landscape.

To achieve this, the various factors identified in the following table (consistent with those identified in the *WESI* and *Lammermoor* cases) will be analysed in order to identify the district's landscape resource. By conflating the various empirical factors (non value laden) within the context of various perceptual and associative factors (value laden), the district's landscapes and features can be identified and described. In doing so, hierarchical emphasis will be placed on the consideration of what are termed primary factors and secondary factors.

Primary factors, are those factors considered to be a constant (such as the presence and spatial extent of a particular forest type) or unaffected by a secondary factor (such as it is perceived as the largest patch of forest in the district). Secondary factors are those that are considered to influence perceptions of the primary factors, but are not consistently present, or influence the primary factor (or perceptions of them) in different ways (such as value to Iwi).

⁵ *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* (C180/99)

⁶ *Maniototo Environmental Society Incorporated v Meridian Energy* (Case C103/2009)

Stage Three: Application of the “Natural” Prerequisite Test

Following the identification of the District’s landscape resource, the “natural” prerequisite test will be applied in order to determine if they are sufficiently natural to be able to be considered as candidate ONLs.

The test will be applied at both the “landscape” and “landscape feature” level. Landscapes that are considered to be “natural enough” will be further evaluated to determine if they are also outstanding (refer next stage). Where a landscape is found to be “not natural enough”, the features within it will be evaluated in order to determine if they are “natural enough” to be considered as outstanding natural features.

This is supported in the *Rosehip* and the *Denniston*⁷ decisions, where the Court appears to have accepted the following seven point scale and ONFL threshold. The following scale⁸ indicates the continuum between landscapes and features that are natural enough to be considered for ONFL status and those that are not, that were considered by the Court.

Natural enough		Not natural enough				
Very High	High	Moderate – High	Moderate	Moderate – Low	Low	Very Low

The following modified version of the above scale will be used to assess if a landscape or feature is considered to be “natural enough” to be considered as a candidate for ONFL status (in other words, if it passes the “natural” part of the prerequisite test). The scale indicates the existence of a continuum between natural and unnatural and identifies key indicators that will be used to determine its state of naturalness (Very High – Very Low along the continuum).

⁷ *West Coast Environmental Network Inc. Et al v Buller Coal Ltd.* [2013] NZEnvC 047 – Para 47-48.

⁸ Presented in the expert evidence of ML Steven and reproduced within the *Rosehip* decision

NATURAL ENOUGH		NOT NATURAL ENOUGH				
Very High	High	Moderate – High	Moderate	Moderate – Low	Low	Very Low
NATURAL			(continuum)			UNNATURAL
All of the key indicators remain unmodified or untouched by human activity / the consequence of human activity (to the extent possible).	Most of the key indicators remain unmodified with only one or two key indicators modified to a small extent by human activity / the consequence of human activity.	Most key indicators modified to a small extent with only one or two key indicators modified to a moderate extent by human activity / the consequence of human activity.	Most key indicators modified to a moderate extent by human activity / the consequence of human activity.	Most key indicators modified to a moderate extent with one or two key indicators modified to a high extent by human activity / the consequence of human activity.	Most key indicators modified to a high extent with one or two key indicators completely modified or destroyed by human activity / the consequence of human activity.	All key indicators are either completely modified or have been destroyed by human activity / the consequence of human activity.
All natural formative processes and association remain evident.	All natural formative processes and association remain evident.	Most natural formative processes and associations remain evident in places.	Most natural formative processes and association remain discernable.	Some natural formative processes and association remain evident.	Few natural formative processes and associations remain evident.	No natural formative processes or associations remain discernable.
No; or rare discernable sign of human activity.	Some signs of human activity.	Human activity overt in places. Landscape modification readily discernable in places.	Regular signs of human activity and landscape modification.	Signs of human activity and landscape modification common.	Human activity and landscape modification dominant.	Human activity and landscape modification predominant.
Examples: • National parks (wilderness area). • Scenic reserves. • Undeveloped private land. • Undeveloped coastal environment. Coastal foreshore and hinterland landform intact. No buildings or roads evident.	Examples: • National parks or reserves (with occasional track and/or hut). • Indigenous vegetation cover dominant over farm development and rural land cover. • Coastal environment containing an occasional building nestled in amongst predominantly native vegetation. Low levels of road access restricted to coastal hinterland. Foreshore intact.	Examples: • Recreation reserves (developed). • Farmland just dominant over indigenous and/or exotic vegetation cover. • Cut over (regenerating) native bush. • Coastal environment containing dispersed or small clusters of buildings with moderate tracts of indigenous and exotic vegetation. Road access restricted to coastal hinterland. Some developed access to the foreshore (low key).	Examples: • Rural land with some indigenous and/or exotic vegetation cover. • Bush covered peri-urban areas. • Coastal environment containing low levels of urban development and a mix of remnant indigenous and exotic vegetation. Coastal hinterland modified by roads and lot development. Developed (regular) access to the foreshore.	Examples: • Rural land with little or no indigenous and/or exotic vegetation. • Urban parks (parks and gardens). • Production forestry. • Bush covered urban areas. • Coastal environment containing medium levels of urban development and a mix of remnant indigenous and exotic vegetation.	Examples: • Rural-residential areas. • Urban parks and recreation reserves (sports grounds etc). • Cut over production forestry. • Coastal environment containing high levels of urban development and a mix of remnant indigenous and exotic vegetation	Example: • City Centre / CBD. • Industrial areas. • Canals • Coastal environment dominated by very high levels of urban development with the coastal edge artificially retained or modified. Little or no vegetation.

KEY INDICATORS

Natural processes.

Natural landforms and geological features.

Endemic vegetation patterns and associations.

Ecological associations.

Water courses and bodies.

Note: Naturalness ratings will take into consideration the size of the landscape/feature being assessed in relation to the extent of any modification that has occurred within it or influences perceptions of it.

Stage Four: Identification of Outstanding Natural Features and Landscapes (Evaluated)

This stage of the assessment process will draw upon the unifying theoretical model of *holistic aesthetic appreciation* to help explain why some landscapes/features come together in a manner that they can be perceived as being “outstanding” while other do not (even though on cursory examination they appear to contain similar components/spatial relationships).

An iterative assessment and analysis approach will be adopted to ensure that identification of the District’s ONFLs is robust and defensible.

Identification of Candidate Outstanding Natural Features and Landscapes

Following the application of the “natural” prerequisite test, an iterative analysis will be undertaken (using expert analysis techniques and a review of the ONFL’s identified in similar landscapes in the surrounding Districts) to identify the District’s candidate ONFLs and its other natural landscapes (for which no further analysis will occur):

- i. ONFL candidate landscapes and features: Those landscapes and features (having already passed the “natural” prerequisite test) that may or are likely to contain the various bio/geophysical, perceptual and associative attributes and values necessary for “outstanding” status.
- ii. Other natural landscapes or features: Those landscapes and features that are unlikely to contain the various bio/geophysical, perceptual and associative attributes and values necessary for “outstanding” status.

In the application of the iterative analytical approach, the key geophysical/biophysical, associative and perceptual factors to be considered in the identification of the district’s landscapes will be divided into two factor groups. These are primary factors and secondary factors.

Primary factors are considered to be the more constant (or enduring) factors that inform an understanding of landscape values and meaning. These will be used in the analysis and identification of whether a natural landscape (or feature) is outstanding.

Secondary factors are considered to be those that are either highly dynamic or variable and/or those that are associative, meaning that they are either:

- i. Not always present or do not always have a consistent effect on how a landscape or feature is perceived, its meaning or values (for example the effect of seasonal or atmospheric variation); or
- ii. Do not affect perceptions relating to its degree of naturalness, but enrich the understanding of the landscape or a feature through identifying values associated with past, present and future occurrences (for example historical or associative) and may affect perceptions of whether a landscape or features is outstanding or not.

The reason for this separation is that for a landscape or feature to be considered sufficiently outstanding to be included in the District Plan, it must consistently display those attributes that make it so under all conditions, meaning that factors that make it appear outstanding at some times and not others, should not be used as a determining factor in ONFL analysis and evaluation.

This approach is consistent with the findings of the Holcim case⁹, in which the Court considered the contribution of heritage values (and tangata whenua values) to the identification of section 6(b) landscapes. In paragraph 175 of the decision, the Court wrote:

...in terms of section 6(b) the question is not whether these [historic] items exist, or are important, but whether they are such that in combination they give a particular character to the landscape such that together with tangata whenua cultural associations they make the wider landscape outstanding as a natural landscape.

In paragraph 182, when considering Tangata whenua values, the Court went on to say:

As we have said, under section 6(e) we are required to recognise and provide for the relationship of Maori and their culture and traditions with their ancestral lands, water sites, waahi tapu and other taonga. Their presence contributes to an understanding of landscape, but while it may, it does not necessarily, result in the landscape being regarded as outstanding. But we bear their presence in mind as we consider whether the landscape of the Waiareka valley should be so classified. We reiterate, that inasmuch as a landscape does derive its significance from these items of significance to Maori, recognition and provision for them in a way that would satisfy the requirements of section 6(e) is likely also to satisfy the requirements of section 6(b).

This suggests that, under the RMA, the proper approach to the identification of ONFLs (s6(b) landscapes) it is to place primacy on those factors that contribute to the naturalness of the landscape first, and its outstanding nature second (as identified in the legal prerequisite tests). This suggests that, a landscape or feature may contain outstanding heritage of tangata whenua values, but be insufficiently natural to be considered as an ONFL under s6(b). This of course does not preclude its identification as a landscape of cultural value or a heritage landscape under s6(e) or s6(f) of the RMA.

Therefore, where secondary factors are considered to add significant value to an area that is also an ONFL candidate, these will be identified and considered. Where such factors and features are considered to add meaning or value to a landscape or feature in their own right but are not contained within an area that is considered to be outstanding (within the context of the primary factors), then these will not be identified by the work undertaken in response to the appeals to the landscape provisions of the district plan.

Thus, each candidate ONFL will undergo further (iterative) expert evaluation and analysis, within the context of a relevant holistic model of environmental aesthetics that informs an understanding of the landscape (or feature), its perception and why it can be considered to be “outstanding” when compared to similar (or dissimilar) surrounding RMA landscapes or features.

⁹ Waiareka Valley Preservation Society et al v Waitaki District Council and Otago Regional Council (C058/2009)

The following factors will be considered, within the appropriate holistic aesthetic framework, in the evaluation of the districts' landscape resource:

KEY BIO/GEOPHYSICAL FACTORS	NON VALUE/VALUE LADEN	FUNCTION
Key Geophysical, Biophysical and Cultural (Physical) Factors that influence landscape perception: a. <u>Geological</u> • Type (volcanic/sedimentary/igneous etc - surface geology) • Spatial extent (large – small) • Spatial relationship (simple-complex) • Temporal relationship (age) b. <u>Geomorphology</u> • Formative processes (tectonic/volcanic/alluvial/coastal etc) • Typology (mountainous, rolling, plains, etc) • Pedology (Soils) • Type • Spatial extent • Spatial relationship (proximity/TPI¹⁰) • Temporal relationship (recent – ancient) c. <u>Ecological</u> • Vegetation (type) • Spatial extent (large – small) • Spatial relationship (simple-complex) • Temporal relationship (primary – climatic) • Habitat (type) d. <u>Cultural</u> (physical) • Type (building/road/etc) • Spatial extent (large - small) • Spatial relationship (simple-complex)	Non value laden identification of the components of the physical environment that contribute to an understanding of the landscape or features within it.	<u>Primary</u> factors used in the identification of the districts landscape resource.
Key Environmental Variables: e. <u>Dynamic</u> • Type (climatic/seasonal/etc) • Rate of change (fast/slow) • Extent (large/small) f. <u>Temporal</u> • (past/present/future)	Non value laden identification of the transient or highly dynamic elements/events within the physical environment that have the potential to alter perceptions of the landscape and landscape values.	<u>Secondary</u> factors (environmental) that <u>may</u> affect the values associated with the districts landscapes and/or ONFLs in either a positive or negative way, but are not constantly present.

KEY PRECEPTUAL FACTORS	NON VALUE/VALUE LADEN	FUNCTION
Key Perceptual Factors that influence how landscapes are identified and perceived: g. <u>Legibility</u> (does it make sense / is it readable) • Internal Cohesion (between elements with a landscape) • External Cohesion (between different landscapes) • Patterning h. <u>Magnitude</u> • Size (spatial extent) • Scale (overwhelming / intimate) i. <u>Spatial arrangement</u> (of elements) • Ordered/chaotic • Juxtaposition	Value laden analysis of the (above) geophysical, biophysical, physical and environmental factors to determine whether, and to what degree, under which conditions they are valued by the (wider) community or communities of interest.	<u>Primary</u> factors (associative and perceptual) that can be used to identify and define the districts landscapes and the values associated with them. Used (in conjunction with the above geophysical, biophysical & physical factors) in the identification and evaluation of the

¹⁰ Topographic Position Index (relationship relative to topography – i.e. valley floor soils / upper slope soils etc)

KEY PRECEPTUAL FACTORS	NON VALUE/VALUE LADEN	FUNCTION
j. <u>Spatial relationship (of elements)</u> • Association (dispersed / clustered) • Pattern k. <u>Naturalness</u> • Dominance of natural/cultural processes l. <u>Other aesthetic descriptors</u>		districts candidate ONFLs.

KEY ASSOCIATIVE FACTORS	NON VALUE/VALUE LADEN	FUNCTION
Key Associative Factors that influence how landscapes are identified and perceived: m. <u>Heritage/Historic</u> • Past events and occurrences (history) • Memories & associations n. <u>Cultural</u> • Tangata whenua values • Other cultural values • Views of key informants (individuals) o. <u>Resource Management</u> • Existing use (productive/conservation) • Future use/potential (economic potential)	Value laden analysis of the associative and perceptual factors.	<u>Secondary</u> factors (associative and perceptual) that enhance the values associated with the districts ONFLs but do not contribute to their <u>existing</u> natural or landscape attributes.

Any other relevant factors, identified during the iterative analysis process, will also be considered

The “Outstanding” Threshold

During the above analysis process, consideration will be given to the meanings and thresholds applied by various divisions of the Environment Court to the term “outstanding”, as it is used in the sense of s6(b) of the RMA.

The term “Outstanding” is synonymous with the notion that an entity or act is so obviously different or out of the ordinary when compared to its physical surroundings or baseline level of activity that it stands apart as being extraordinary, stupendous, exceptional, dazzling or a superior example. It is therefore critical that the threshold, above which a feature or landscape becomes “outstanding”, is identified correctly.

In the *WESI* decision the Court, using the Concise Oxford Dictionary, defines the word “outstanding” to mean:

“conspicuous, eminent, especially because of excellence.”
“remarkable in”

It is noted that a landscape can be considered to be notable or of special significance without attaining ONL status. In the *WESI* case, the Court observed that:

A landscape may be magnificent without being outstanding (Munro v Waitaki District Council). New Zealand is full of beautiful or picturesque landscapes that are not necessarily outstanding natural landscapes.

An outstanding landscape must stand apart from its surroundings as being so extraordinary, stupendous, exceptional, dazzling or superior that it is recognisable by nearly all that encounter it.

This appears to be supported in paragraph 99 of the *WESI* decision where the Court stated:

*....ascertaining an area of outstanding natural landscape should not (normally) require experts⁹².
Usually an outstanding natural landscape should be so obvious (in general terms) that there is no
need for expert analysis.*

By necessity, this requires cognisance and comparative analysis of the range of landscapes available within the District (as identified in previous stages).

Outstanding Natural Features and Landscapes

Analysis of those landscapes identified in the earlier stage the process, which have passed the “natural” threshold test will go beyond merely describing the landscape or feature in terms of its biophysical, associative or perceptual factors. In other words, to be considered outstanding, it is not sufficient that a landscape or feature just contain the set of elements (such as water, trees, cliffs etc) or is able to be described using the WESI factors. The analysis and descriptions must be meaningful, clearly identifying the key attributes that make the landscape stand apart from other landscapes with common elements and how they are associated with each other.

Thus the test for “outstanding” will not be a quasi numerical analysis of the individual scores attained from the analysis of WESI or Lammermoor¹¹ type assessment factors, rather these factors will be assessed to identify and articulate the relative contribution that different parts of the landscape make to its overall “outstanding” status in support of an overall comparative analysis using an iterative process and broad judgement approach.

Expert evaluation within the context a holistic aesthetic model will be used to identify which landscapes and features are outstanding in terms of s6(b) of the RMA before a reductionist process (splitting the landscape into its component parts) is used to clearly identify and describe the relationship between the landscape’s various component features. This will ensure that the “whole” of a landscape or feature is evaluated, rather than the “sum of its component parts”.

The following analytical suppositions will be applied during evaluation:

- a. A *natural landscape* can be composed of those components and/or features that are either outstanding in their own right or are less than outstanding (including ordinary components and/or features or components and/or features with high amenity values) that when considered in combination result in the landscape being considered as *outstanding* as a whole. These will be identified and mapped as ONLs for district planning purposes.
- b. A *natural landscape* can be composed of components and/or features that are either outstanding in their own right and/or are less than outstanding (including ordinary features or features with high amenity values) that when considered in combination results in the landscape being considered as having high amenity value but not being *outstanding* as a whole. These will not be identified or mapped.
- c. A *natural landscape* can be composed of components and/or features that are either in their own right and/or are less than outstanding (including ordinary components/ features or components/features with high amenity values) that when considered in combination results in the landscape being considered as *ordinary*. These will not be identified or mapped.
- d. *Natural landscapes* that, when considered as a whole, are not *outstanding* may contain features that are *outstanding* in their own right. These will be identified and mapped as ONFs for district planning purposes.

Expert evaluation, within the context of a holistic aesthetic model, will be applied using the following premises:

¹¹ Maniototo Environmental Society Incorporated v Meridian Energy (Case C103/2009)

- a. In order for a “landscape” to be considered to be an “outstanding natural landscape, its components must come together in such a way that the overall landscape is considered (aesthetically) extraordinary, stupendous, exceptional, dazzling or a superior example;
- b. In order for a landscape “feature” to be considered to be an “outstanding natural feature”, it must sit above the identified threshold for “natural” end of the “natural – modified” continuum and is (aesthetically) extraordinary, stupendous, exceptional, dazzling or a superior example in its entirety.

Expert analysis and evaluation with reference to an appropriate holistic aesthetic model will be undertaken in order to identify the key attributes of each ONF or ONL with sufficient accuracy and detail to allow Council to determine the likelihood of a proposed activity affecting those key attributes, without need for a high level of additional detailed analysis.

5. MAPPING

The following approach will be applied during mapping.

Scale of Analysis

Analysis and mapping will be undertaken at a resolution that sensibly informs the district plan and allows its users to clearly identify the spatial delineation of any ONFL’s that may affect them.

In order to achieve this:

- a. GIS analysis will be undertaken at the accuracy and resolution of the available base data. Where data is aggregated, analysis will be undertaken at the “coarsest” data resolution.
- b. GIS mapping for analysis purposes will be undertaken at a scale of 1:25000 for intended use at a printed scale of 1:50000 (commensurate with the scale of the District Planning Maps).

Boundary Definition

A hierarchical approach to the decision making around the type of feature used for landscapes/features delineation will be used. The following table indicates the boundary mapping preference continuum that will be applied.

Boundary Types		
Geophysical	Socio-physical	Socio-cultural
<i>Most Preferred</i>	<i>(continuum)</i>	<i>Least Preferred</i>

Geophysical/biophysical boundaries are naturally occurring boundaries within the landscape. Such boundaries are an interpretive response to certain natural features or elements that are evident (to different extents) within the landscape. They have no inherent meaning associated with them but are often perceived as the point where (at least one) key attribute of a particular landscape feature changes (such as along a ridge where the topography ceases to ascend and starts to descend); a severance in a continuous landform pattern (such as a river or a gorge); a change in landform type (such as a edge of a plain or the coastal edge). Geophysical boundaries may include geographical features like ridge lines, valley floors, streams, the coastal edge, or biophysical features such as vegetation patterns.

Geophysical/biophysical boundaries will be given the heaviest weighting when defining the spatial extent of the districts ONFLs. This is because these boundaries are generally manifest

to everyone although they may require little or no prior knowledge to understand why they have been established where they are.

Preference will be given to clearly perceivable and (where possible) permanent natural features (such as distinct landforms or distinct changes in vegetation patterns) that form a clearly defined or sharp transition or “edge” between different parts of the landscape. Natural features with edges that are not as overt (such as rolling ridgelines) will not be preferred.

Where no geo physical boundaries are obvious, socio-physical boundaries will be used to delineate the ONFL boundaries. These types of boundaries are created by the perception that some manmade physical elements form manifest boundaries or edges. While often perceived to be limiting factors or constraints, this type of boundary is more related to the perception of its use, rather than a point of physical change (e.g. a road may be perceived as a boundary between two landscapes even though the landscape may be essentially the same on both sides of it, making the road an arbitrary boundary). These types of boundaries can include features such as the edge of town, roads, green belts, parks and reserves.

Socio-physical boundaries are not as clearly defined as geo-physical boundaries because they are only obvious to varying extents and depend on peoples individual perceptions. These boundaries will not be used in preference to an obvious geo-physical boundary as they are not clearly manifest to everyone. However, a socio-physical boundary would be given more weighting than a social construct boundary because of its association with physical and visual element.

Socio-cultural boundaries are not detectible in the landscape and their use will be avoided where possible (or a best used as a last resort). Most people are unaware of where these boundaries exist, as they are often only represented by lines drawn on paper, and can be difficult to detect. This type of boundary will only be used in the circumstance where it is logical to conflate a geophysical/biophysical or socio-physical boundary outward or inward to an existing legal or planning boundary. Socio-cultural boundaries include property boundaries, planning zones/overlays/policy areas, study area boundaries and political boundaries.

6. REPORTING

A findings report will be prepared in support of all identified ONFLs.

7. QUALITY PLANNING GUIDANCE NOTE

The above methodology is consistent with key aspects of the 2013 RMA Quality Planning Resource Document – Plan Topics Landscape.

Amongst other things, the *Quality Planning* guidance document emphasis the need for a transparent methodology together with an integrated approach to managing the landscape.

The guidance document support the analysis of landscape in terms of its:

1. *Biophysical elements, patterns and processes;*
2. *Associative meanings and values including spiritual, cultural or social associations; and*
3. *Sensory or perceptual qualities.*

APPENDIX TWO

Relevant Planning Matters

The following statutory documents, issues, objectives, policies and rules are considered relevant in the assessment of visual, landscape and amenity effects.

RESOURCE MANAGEMENT ACT (1991) AND SUBSEQUENT AMENDMENTS

The development must meet the requirements of this Act in terms of integration into the landscape. The relevant provisions are as follows:

Part 2 Purpose and principles

5 Purpose

- (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.
- (2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while -
 - (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
 - (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
 - (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and
- the protection of them from inappropriate subdivision, use, and development:
- the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development:
- the protection of areas of significant indigenous vegetation and significant habitats

-
- of indigenous fauna:
 - the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers: [Emphasis Added]

7 Other matters

In achieving the purpose of the Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to:

- (c) the maintenance and enhancement of amenity values:
- (f) maintenance and enhancement of the quality of the environment:

Proposed Waikato Regional Policy Statement (PWRPS)

The Proposed Waikato Regional Policy Statement (PWRPS) contains a suite of objectives and policies pertaining to the protection of outstanding natural features and landscapes (Objective 3.19), amenity (Objective 3.20) and the natural character (Objective 3.21). Policy 12.1 requires the identification and protection of outstanding landscapes of local and regional significance.

The objectives and policies of the PWRPS appear to have been addressed by the existing provisions of the Operative Waikato District Plan (OWDP).

Specific regard to the protection of the Waikato River has been considered under the PWRPS: 2.1 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010. The Vision and Strategy for the Waikato River sits statutorily above the Regional Policy Statement and must be taken into account.

2.4 Vision and Strategy for the Waikato River

2.4.1 states that: a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.

In order to realise the vision, the following objectives will be pursued:

- a. The restoration and protection of the health and wellbeing of the Waikato River.
- f. The adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River, and in particular, those effects that threaten serious or irreversible damage to the Waikato River.
- g. The recognition and avoidance of adverse cumulative effects, and potential cumulative effects, of activities undertaken both on the Waikato River and within the catchment on the health and wellbeing of the Waikato River.

-
- h. The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities.
 - i. The protection and enhancement of significant sites, fisheries, flora and fauna.

2.4.3 Strategies for the Waikato River

To achieve the vision, the following strategies will be followed:

g. Recognise and protect appropriate sites associated with the Waikato River that are of significance to the Waikato regional community.

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3.4 Issue – Landscape and Visual Amenity Values

3.4.1

Landscapes and visual amenity values, as viewed from public places, are retained and enhanced.

3.4.2

Natural features and landscapes, including locally distinctive landforms and prominent ridgelines, and general visual amenity values should be protected from inappropriate subdivision, use and development, in particular by:

(a) avoiding or mitigating adverse effects on natural features such as indigenous vegetation, lakes, rivers and mountains

3.5.1 Landscape and Visual Amenity

The objective seeks to retain and enhance landscape and visual amenity values viewed from public places.

3.5.1A Ridgelines

Prominent ridgelines that have been identified as having particular landscape and amenity value due to their visibility from public places have been identified as Ridgeline Policy Areas on the planning maps. This is consistent with the maintenance and enhancement of amenity values under section 7(c) of the Resource Management Act

3.5.9 Rural Landscapes

Larger, highly visible landscape units may be vulnerable to changes that occur through subdivision, use and development where prominent land forms are affected.

Issue – Natural Character

Inappropriate subdivision, use and development can adversely affect the natural character of the coastal environment, wetlands, and lakes and rivers and their margins.

3.6.1

The natural character of the coastal environment, wetlands, and lakes and rivers and their margins is preserved.

3.6.2

Subdivision, use and development should be of a density, scale, intensity and location that preserves the natural character of the coastal environment, wetlands, and lakes and rivers and their margins and should retain or enhance the relevant components of that character, including:

- (a) geology, landform, indigenous vegetation and wildlife, and
- (b) natural processes, elements and patterns, and
- (c) intrinsic values of ecosystems, and
- (d) restoration potential, including potential vegetation cover, and
- (e) aesthetic, visual, cultural and heritage values attached to places and features including the cultural and spiritual relationship of Maori with their ancestral lands, and
- (f) unique or typical characteristics, and
- (g) the scale and context of modifications, including:
 - the ratio of open space to areas covered by buildings and other development
 - land use
 - open space areas in pasture, trees, crops or indigenous vegetation
 - water quality and flows
 - views of natural features, the coast, indigenous vegetation and water bodies.

3.7.1 Natural Character

Geology, landform, indigenous vegetation and wildlife: these are primary components of natural character. The extent to which these are readily identifiable at a location will provide the most immediate indication of issues in relation to natural character.

Natural processes, elements and patterns: the viable functioning of natural processes and systems is essential to the survival of many species and habitats. These processes may not be readily visible.

3.11

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Intrinsic values of ecosystems: while these are expressly referred to in section 7 of the Resource Management Act, they also provide a valid indicator of the existence of natural character.

Schedule 3A Outstanding Natural Features and Landscapes

3A.1 Mapping

The land comprising outstanding natural features and landscapes is shown on the Planning Maps as Landscape Policy Areas. Features and landscapes are subject to the same rules.

3A.2 Outstanding Landscapes and Features

Whangamarino Wetland, Hakarimata Range, Taupiri Range, Kokako Hills, Te Hoe, Mt Karioi, Papanui Point, Matakotako Area, Bridal Veil Falls, Mt Pirongia, Horea-Rangitoto Pt, Potaki Pt (Aotea Harbour north head), Waikato River, Lake Waikare, Lake Whangape,

3A.3 Criteria for Outstanding Landscapes

The Waikato Landscape Study (1992, revised 2003 and 2006) by Boffa Miskell Ltd describes the visual qualities and sensitivities of 31 separate landscape units within the district. Within each unit a ranking was ascribed for visual quality, from 1 (low) to 5 (high). Each unit was also ascribed a ranking for visual absorption capability, i.e. the ability for the landscape to absorb change or development. These were ascribed from 1 (low) to 5 (high). The landscape units that scored high for visual quality and low for visual absorption capacity were then considered for “outstanding” status against criteria developed in case law. The above landscapes met the criteria.

3A.4 Criteria for Outstanding Natural Features

This plan recognises outstanding natural features following wide criteria, including scientific, historic, archaeological, scenic, recreational, social and cultural factors. Documentation includes the Waikato Landscape Study and its revisions referred to above. As with the outstanding landscapes, features were considered for outstanding status against criteria developed in case law.

Chapter 13: Amenity Values

13.1 Introduction

A wide variety of environmental qualities and characteristics contribute to amenity values. Green and open spaces, daylight, clean air, views, natural landscapes and vegetation, recreational area

An increasing diversity of activities in an area may generate differing expectations of acceptable amenity. For example agricultural practices such as crop spraying and night harvesting may adversely affect residential amenity. Activities establishing in an area will need to recognise existing, accepted amenity levels, which reflect common management practices in the area and the effects of existing activities. Managing subdivision and building to sustain amenity can reduce future conflicts. The towns of Raglan, Ngaruawahia, Huntly and Te Kauwhata and the rural villages and localities all have different amenity values that add to the diversity of the district.

13.2.6

Amenity values of localities are maintained and enhanced.

13.2.7

Scale, intensity, timing and duration of effects of activities should be managed to be compatible with the amenity and character of the locality.

13.2.8

Activities with similar effects or a similar expectation of amenity should be located together.

13.4.1

Amenity values of sites and localities maintained or enhanced by subdivision, building and development

13.4.2

Subdivision, building and development should be located and designed to:

- (a) be sympathetic to and reflect the natural and physical qualities and characteristics of the area
- (b) ensure buildings have bulk and location that is consistent with buildings in the neighbourhood and the locality
- (c) avoid buildings and structures dominating adjoining land or public places, the coast, or water bodies
- (d) retain private open space and access to public open space
- (e) encourage retention and provision of trees, vegetation and landscaping

13.6 Issue – Rural Character

13.6.1

Rural character is preserved.

13.6.2

Rural subdivision and development should be of a density, scale, intensity and location to retain or enhance rural character, including:

- (aa) a predominance of natural features over built features
- (a) a very high ratio of open space in relation to areas covered by buildings
- (b) open space areas in pasture, trees, crops or indigenous vegetation
- (c) tracts of unmodified natural features, indigenous vegetation, streams, rivers, wetlands and ponds

13.6.5

The cumulative adverse effects of subdivision or development on rural character and amenity

13.6.6

Rural character should be maintained and the cumulative adverse effects of subdivision should be avoided.

25.26

Ridgeline Policy Area

25.26.1

Any activity is a permitted activity if:

- (a) earthworks and formation of tracks and accesses in a Ridgeline Policy Area are at least 20m vertically below the level of a ridge, measured at the nearest point of the ridgeline

25.43

Indigenous vegetation clearance

- Landscape Policy Area
- Conservation Policy Area

25.43.1

Vegetation clearance of indigenous vegetation or habitat of indigenous fauna in a Landscape Policy Area

or Conservation Policy Area is a permitted activity if:

- (a) it does not exceed 1000m² or 1% of contiguous indigenous vegetation or habitat of

indigenous fauna, whichever is the lesser, per contiguous area per site in any 3-year period, and is limited to:

- (i) a building platform for a permitted or approved building, or structure(s) or access, or
- (ii) gathering of plants in accordance with Maori custom and values, or
- (b) it does not exceed 3000m² or 3% of contiguous indigenous vegetation or habitat of indigenous fauna, whichever is the lesser, per contiguous area per site in any 3-year period, and is limited to:
 - (i) maintaining or reinstating productive pasture and productive forests and maintenance of tracks and fences through the removal of manuka and / or kanuka and / or treeferns that are more than 10m from a water body and less than 15 years old or less than 5m in height and any under-storey under such manuka or kanuka or treeferns growing on land that was previously in productive use, or
 - (c) it is for the following purposes
 - (i) removing vegetation that endangers human life or existing buildings or structures or poses a risk to the integrity of, the safe use of, or access to existing network utilities, or
 - (ii) conservation fencing to exclude stock or pests, or
 - (iii) fire risk management in a production forest stream or river crossings or the formation of farm drains¹,

25.59

Building near a lake or river

25.59.1

Construction or alteration of a building is a permitted activity if:

- (a) the building is set back at least 32m from
 - (i) the margin of any lake with a bed area of 8ha or more, and
 - (ii) the bank of any river whose bed has an average width of 3m or more, and
 - (iii) any wetland with an area greater than 1ha and
- (aa) the building is set back at least 37m from the Waikato River and the Waipa River, and
- (ab) the building is set back at least 50m from the river on sites to which the River Bank Stability Area applies. Despite the above, a public amenity of up to 25m² on an esplanade reserve, a public walkway, or a pump shed are not subject to this rule.

Note: Refer to rule 4.2.18.1 of the Waikato Regional Plan, which controls building within 10m of artificial watercourses (drains), modified watercourses or rivers within drainage districts and river control scheme areas that are managed by the Waikato Regional Council or the Waikato District Council.

APPENDIX THREE

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