TARARUA ROAD GROWTH AREA OVERLAY LEVIN DESIGN GUIDE

Tararua Road Growth Area Structure Plan



HOROWHENUA DISTRICT PLAN

Tararua Road Growth Area Overlay Levin

DESIGN GUIDE





DATE: 4 SEPTEMBER 2013

VERSION: 3

Contents

1	Introduction						4
	Purpose of the Design Guide						4
3	Application and implementation						5
4	Desig	gn Guide	6				
5	Proce						7
6	Site Context						8
	6.1	6.1 Land use					
	6.2	Site an	Site and Surrounds: Characteristics, Features and Buildings				
		6.2.1	6.2.1 Characteristics and Features				
		6.2.2	6.2.2 Buildings				
		6.2.3	6.2.3 Transport Network and Access				
		6.2.4	6.2.4 Infrastructure and Servicing				
7	Deve	velopment Outcomes for the Tararua Road Growth Area					12
8	Subdivision and Development Guidelines						13
	8.1	Street	13				
	8.2	Growt	14				
	8.3	Roading and Transport					16
	8.4	Infrastructure and Network Utility Services					17
9	Build	Building and Amenity Guidelines					
	9.1	Site La	yout	19	9.2	Building Scale and Design	20
	9.3	Buildir	21				
	9.4	Fencing					23

1. Introduction

A large area of land on the south-east area of Levin has been zoned Industrial and is identified as the Tararua Road Growth Area Overlay (TRGA). This land is currently undeveloped and a coordinated and managed approach is required for the progressive urban development of this land to achieve the desired objectives. Through the District Plan and this Design Guide, new subdivision and land use development is to be managed to ensure the development aspirations are realised and it responds to the local context and character.

2. Purpose of the Design Guide

The purpose of the Tararua Road Growth Area Design Guide is to provide guidance for those undertaking subdivision and land use activities within the TRGA. The Design Guide provides a set of outcomes and guidelines to shape subdivision and land use development to meet landowner, community and Council expectations for the TRGA.

The guidelines are to be used in conjunction with the District Plan Objectives, Policies and Rules and to assist in the implementation of the Tararua Road Growth Area Structure Plan.

The Tararua Road Growth Overlay Area is shown on Planning Map 29 and 30. The area is zoned Industrial and a Structure Plan in Schedule 5 of the District Plan applies further sub-areas, infrastructure, landscape buffers and other features as follows:

- Industrial Zone
- Low Impact Area
- Landscape Buffer
- Landscape Noise Buffer
- Reserve / open space
- Reserve / stormwater
- Industrial Distributor Road
- Future Road Linkage

Section 7 of the Design Guide describes the development outcomes for the TRGA. Sections 8 and 9 set out the guidelines that assist subdivision and land use development to achieve the stated outcomes.

It should be noted that the illustrations within the Design Guide are intended to define and demonstrate what is meant by outcomes or guidelines and are not intended to represent actual design solutions.

3. Application and Implementation

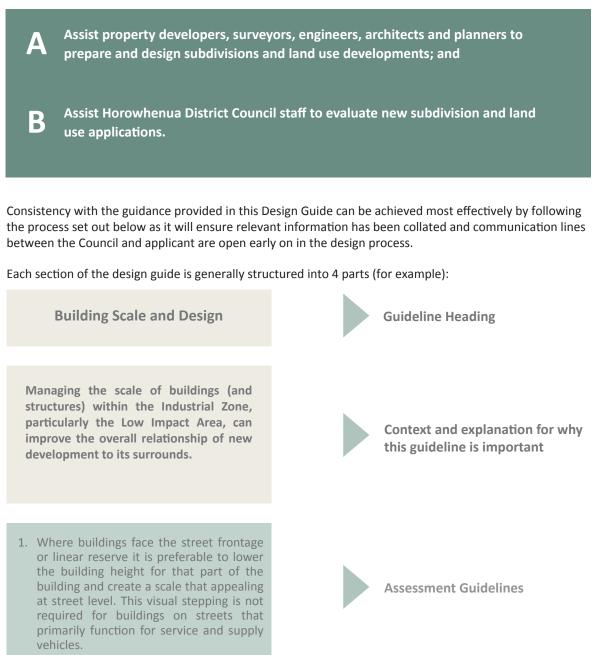
This Design Guide applies to the Tararua Road Growth Overlay Area (TRGA) identified on the Planning Maps. The TRGA is located on the urban periphery of south-east Levin and is in close proximity to existing industrial activities at Tararua Road and Cambridge Street South and residential activities to the north.

Under the District Plan rules, all subdivision and land use activities require resource consent within the TRGA and applications will be assessed against the guidelines contained within this document. The Design Guide is to be applied in conjunction with the rules and standards in the District Plan. Subdivision and land use proposals that are not consistent with the Design Guide can be a basis for the Council to decline resource consent approval.

This Design Guide offers a step-by-step approach to a higher standard of amenity within the TRGA and to manage effects at the Industrial Zone boundary with the neighbouring Residential and Rural Zones. These outcomes are achieved through the consideration of context and subdivision design, through to site layout and creating positive relationships between public/private spaces at the land use stage. Innovation and individual design solutions in development are encouraged; the guidelines are to assist the consideration of key principles in order to achieve the outcomes of this document.

4. Design Guide Structure

The Design Guide is to be used to:





Respect existing neighbourhood character



Illustration and caption relating to Assessment Guidelines

5. Process

The Horowhenua District Council encourages landowners, developers and their surveyors, planners, architects, engineers and other advisers to work collaboratively throughout the development planning process and to seek early discussions with Council prior to undertaking detailed design for any development. This allows for development concepts to be discussed prior to commencing detailed design, gives all parties more certainty which aids the preparation for the drafting of any applications and the eventual processing of them.

A diagram of the design process is described below. The need for all of these steps will depend on the development scale. This process is optional but is intended to assist in providing for an efficient design and consenting process.

Step 1

Preliminary Meeting

Initial discussion about aspects of the site and its context, confirm district plan requirements and other consents required (regional council) and confirm information requirements/expectations. It may be appropriate to hold a joint Council meeting with officers from Horowhenua District Council and Horizons

Step 2

Concept subdivision plan / draft site layout plan

The developer/applicant may submit draft or conceptual drawings for the proposed subdivision, or land use, prior to commencing detailed drawings, to seek preliminary feedback from Council in regards to the approval process, the District Plan rules, the Structure Plan and the design guide.

With respect to subdivision applications, confirm the timing of district and regional consents and whether all consents are to be processed concurrent or separate.

Step 3

Design Process Meeting

Meeting(s) as required to develop the concept designs and continually resolve design issues with Council staff, including Community Assets with respect to infrastructure and reserve development.

Step 4

Final Design

The developer/applicant is to submit the final design and supporting forms and assessment as part of the resource consent application.

•

6. Site Context

Integrating greenfield industrial development into the existing environment requires an appropriate response to the existing land uses, characteristics, features and topography of the TRGA and its surrounds. Industrial development will bring about change to the area, but can do so in a way that best responds to the locality.

This section broadly describes the land uses, connections, characteristics and features of the TRGA and its relationship with south east Levin and future subdivision and developments should respond to this context.

6.1 Land use

There is a diversity of land uses surrounding the TRGA including:

- Residential and rural residential
- Primary production
- School
- Industrial
- Major roads (State Highway 57 and Tararua Road)
- Local roads (Hinemoa Street, Kinross Street, Winiata Street, Strathmore Avenue and Perth Street)

The subdivisions are to set the underlying framework and infrastructure to enable the development and operation of new industrial buildings and activities within the TRGA. Mitigation measures are to be integrated into subdivision designs to both protect new industrial development from reverse sensitivity effects; and to protect the adjacent land uses from adverse environmental effects.

6.2 Site and Surrounds: Characteristics, Features and Buildings

6.2.1 Characteristics and Features

The TRGA is relatively flat and bound by major roads to the east (State Highway 57/Arapaepae Road) and south (Tararua Road). Currently, the area is open pasture with a shelterbelt running parallel with the northern boundary in part. There are views into the site from the existing residential activities to the north, the industrial activities to the west and from rural activities from the remaining aspects. The Tararua Ranges are the dominant natural feature within the wider context and views to these ranges from new development within the area would be possible and therefore should be promoted in future subdivision design and building orientation.



Viewpoint: from northern boundary of the Tararua Road Growth Area at Hinemoa Street looking south east, south and south west, with the Tararua Ranges forming the backdrop to the east and connection with the existing industrial activities to the west.

An established planted strip along Arapaepae Road (SH 57) for the length of the existing residential area is located north of the TRGA. The Council owns three parcels of land to partially assist the continuation of this amenity strip along the eastern boundary of the growth area.





Viewpoint: from eastern extent at Arapaepae Road towards the existing Residential Zone and the Council planted amenity strip to be continued along the Tararua Road Growth Area boundary.

6.2.2 Buildings

The TRGA is currently void of any principal buildings, whereas the adjoining Industrial Zone (Cambridge Street South and Tararua Road) contains a range of industrial buildings which are generally simple pitched roof structures that have a rural industrial appearance and scale. The exception is the Carter Holt Harvey (Packaging) building which is larger in scale, yet repeats the same simple pitched roof form and appears as a series of attached buildings. Refer to photos below for these existing buildings.



Photo 1: Looking west along Tararua Road. Established industrial activity. Rural industrial character. Single storey workshop/warehouse, simple pitched roof.



Photo 2: Looking east along Tararua Road. Scale of industrial buildings are larger than residential, but not overly dominant. Tararua Ranges providing backdrop.



Photo 3: Looking south-west along Tararua Road towards adjacent Rural Zone. The form and scale of the glasshouses provides distinctive character of the locality and their functional use.



Photo 4: Looking west along Tararua Road, simple building form and structure.



Photo 5: Near corner of Tararua Road and Cambridge Street South with the stock yards in the foreground and associated industrial builidng in the background.



Photo 6: Cambridge Street South looking north towards wholesale trade supply (RD 1) and manufacturing industries. Buildngs are a mix of styles, yet are similar in scale and alignment with the street.





Photos 7 and 8: View of Carter Holt Harvey facilty from Tararua Road. Larger scale builidng, but remains simple in form, setback from the road, open weave security fencing, established trees and clear signage.

6.2.3 Transport Network and Access

The TRGA is strategically positioned to access main transport links such as State Highway 1, State Highway 57 (Arapaepae Road) and the North Island Main Trunk Railway. To maintain the safe and efficient operation of State Highway 57, subdivisions and land use developments are to avoid providing direct road or vehicle crossing access onto the state highway. As an alternative, access onto Tararua Road and new roads within the TRGA will provide the main external entry/exit point.

Hinemoa Street, Winiata Street and Perth Street are residential streets to the immediate north of the TRGA and have the potential to provide transport options (drive, walk or cycle) from home to work, for those working in the industrial area. Any potential road connections from the TRGA to the residential area need to be designed to provide for residential traffic as well as to restrict heavy industrial traffic.

There is currently no dedicated pedestrian footpath or cycle lane along Tararua Road or State Highway 57. As development within the TRGA and the (Deferred) Greenbelt Residential Zone to the east of Arapaepae Road progresses, demand for pedestrian and cycle facilities are likely to become increasingly demanded and should be proactively considered.

6.2.4 Infrastructure and Servicing

As the TRGA is currently undeveloped, there is no infrastructure or services through the area. However, existing reticulated water and wastewater services are available within road reserve along Tararua Road. There is no reticulated stormwater system in Levin and all stormwater is to be managed on-site. Electricity and telecommunication services are available within Tararua Road and an applicant should liaise with the relevant network utility operator for these services.

7. Development Outcomes for the Tararua Road Growth Area

The industrial development outcomes for the TRGA are listed below and demonstrated spatially on the Structure Plan:

- Create a quality industrial environment in the south-east extent of Levin that will enhance the reputation, economic and social wellbeing of the Horowhenua district;
- Maximise the strategic position of the site and its close proximity to national transport links to attract quality industrial business to the Levin area;
- Provide opportunities for a range of industrial activities, wholesale and trade supply activities and other associated non-industrial activities to locate within the TRGA,
- Create an industrial environment that responds to the context, characteristics and features of the site and its surrounds and creates a level of amenity that people enjoy working within;
- Provide effective noise, visual and amenity buffers between the existing adjoining land uses and the new industrial environment so that adverse effects are internalised within the Industrial Zone and the risk of reverse sensitivity effects is minimised.
- Provide an intermediary Low Impact Area and maintain a substantial separation distance between the existing residential area to the north of the TRGA and the standard Industrial Zone.
- Provide an effective stormwater collection, treatment and disposal system throughout the TRGA using low impact urban design principles and other environmentally responsive and sustainable design solutions;
- Create a linear reserve between the residential area (including Taitoko Primary School) that supports multiple uses, including stormwater treatment swales, open space, and walking and cycling connections to and through the TRGA;
- Connect the TRGA with the existing urban area in south-east Levin and avoiding connections to State Highway 57, using a safe and efficient internal roading system and access onto local roads.

8. Subdivision and Development Guidelines

This section of the Design Guide sets out the subdivision and development guidelines to be considered and assessed as part of the design and consent process for future development in the TRGA.

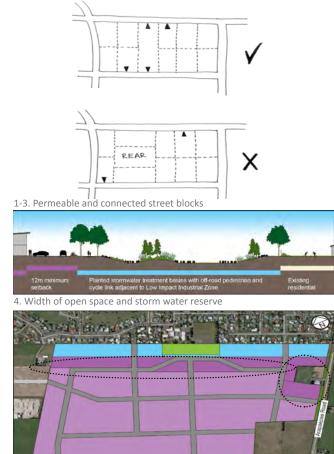
8.1 Street Blocks

The design of street blocks and the subdivision of individual lots in conjunction with the overall internal roading network and hierarchy can create a connected and well laid out industrial area. The layout of the industrial area and street blocks has significant potential to influence ease of movement in and around the area, access to sites, the efficient development of individual lots, and a positive interface with surrounding areas.

A grid pattern, with a hierarchy from main roads to secondary roads connecting with existing main and secondary roads, provides an easy to navigate and readily developable industrial area, as shown on the Structure Plan.

The interface with the adjoining residential area to the north of the TRGA needs to be carefully managed to protect the amenity of the residential area and avoid reverse sensitivity effects for new industrial development, with separation distance a key method used as shown on the Structure Plan.

Lots need to be of a size and shape to accommodate a range of industrial uses. Rear lots are undesirable due to access difficulties and the inability for development to address the street. Similarly, reserves intended for public use that are well fronted by public roads are more secure because of the informal surveillance from the road and activities that interface with the road across the carriageway.



1. Street blocks should be of a scale and shape to achieve a permeable and connected street layout suited to industrial land use.

2. The street blocks should form a grid pattern responding to the historical urban pattern and connect with the existing road network.

3. All lots should be a regular shape, front onto a road, and be accessed directly from a legal road. Rear lots are to be avoided, but through lots (with dual road frontage) are permissible.

4. A reserve/open space/stormwater treatment area should extend for the full length of the TRGA with the adjoining residential area. The width of this area should be sufficient to accommodate stormwater detention and treatment and avoid amenity (e.g. noise and visual) conflicts between residential and industrial uses.

5. A Low Impact Area is to be provided for on the southern side of the reserve/open space/ stormwater treatment area and adjoining the rural-residential property at 172 Arapaepae Road (Lot 191 DP 52352 and Lot 1 DP 341015)

6. The central reserve/open space area within the linear reserve and the road layout should be designed so that a road extends along the full length of the southern side of the reserve.



8.2 Growth Area Boundary Treatments

A range of existing land uses either adjoin or are in close proximity to the TRGA. There is potential for new industrial activities and development to adversely affect the established residential and rural amenity in the adjoining areas. Setbacks and landscape planting around the perimeter of the TRGA can mitigate these adverse effects on the amenity values of the adjoining areas. In addition, vegetation and trees can improve the attractiveness and visual appeal of the general area, including when viewed from key public viewpoints as State Highway 57 (Arapaepae Road).

A landscaped buffer along State Highway 57 (Arapaepae Road) would continue and reinforce the existing beautification strip to the north of the TRGA. In designing the landscape buffers, future management and maintenance needs to be considered to ensure they are retained in perpetuity and are not costly to maintain. While the primary function of landscape buffers is to visually screen industrial development, the design of the landscape buffers should also consider other functions such as walking/cycling.

1. Provide a buffer area between the existing residential activities (including the Taitoko Primary School) within the adjoining Residential Zone and new industrial activities through the use of a linear reserve/open space/stormwater management area so that visual, noise and nuisance effects (dust, lighting and on-site traffic noise) are minimised.

2. Create a 10m wide Landscape Buffer along the Arapaepae Road boundary to mitigate visual effects. This buffer should be designed as follows:

• Low planting zone: Low amenity planting with maximum mature height of 0.9m immediately adjacent to the Arapaepae Road frontage for a minimum width of 2m.

• High planting zone: Continuous shrub planting and groves of specimen trees with a mature height of between 2m to 3m.

• For every 40m along the landscape buffer area there is to be a maximum of shrub planting area of 20m; and

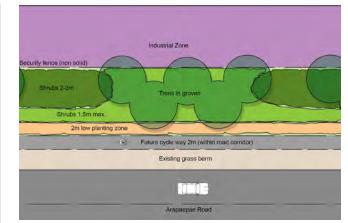
• For every 50m along the landscape buffer area there is to be groves of trees (5 tree minimum). Regular spacing of the specimen trees is to be avoided.

• Remaining Area: The areas between the Low and High planting zones shall be planted with shrubs and amenity plants with maximum mature height of 1.5m.

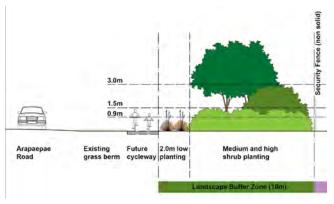
• Fencing: A 1.8m – 2.0m high non-solid security fence is to be positioned on the TRGA side of the landscape buffer and not be visible from the road.



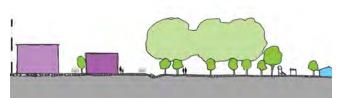
1. Buffer area between future industrial activities (Low Impact) and existing residential



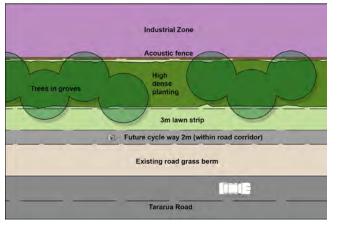
2. Landscape Buffer: Plan



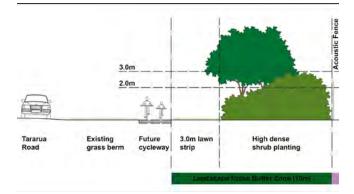




3. Landscape concept to provide attractive outlook into TRGA



4. Landscape and Noise Buffer: Plan



4. Landscape and Noise Buffer: Cross-Section



5. Hierarchy of vegetation heights to provide screening and natural surveillance

3. Maintain an attractive outlook from the adjoining residential properties and Taitoko Primary School by softening and screening industrial development through planting within the reserve/open space/ stormwater management area.

4. Create a 10m wide Landscape and Noise Buffer along Tararua Road and the southeast extent of Arapaepae Road to mitigate visual and noise effects. This buffer should be designed as follows:

• Lawn Strip: A 3m wide lawn area shall be established immediately adjacent to the road frontages.

• High planting zone: Dense shrub planting and groves of specimen trees to achieve a mature height of between 2m to 3m to ensure the acoustic fence is screened from the road.

• For every 50m along the landscape buffer area there is to be groves of trees (5 tree minimum). Regular spacing of the specimen trees is to be avoided.

• Fencing: An acoustic fence is to be positioned on the TRGA side of the Landscape Noise Buffer, with a minimum height of 2.4m.

5. Design landscape buffer areas to be safe for pedestrians and cyclists to use as informal open space.

6. Protect the adjoining rural-residential property at 172 Arapaepae Road by minimising visual and noise effects through the use of building setbacks, landscaping and/or noise buffers between this property and the eastern periphery of the TRGA.

7. Ensure any new landscape planting areas to be vested with the Council are designed to include species that are characteristic and local to the area, are established and maintained so that the long term maintenance is cost effective to the Council and community.

8.3 Roading and Transport

The roading and transport infrastructure should be considered in an integrated fashion together with the street blocks that they create. The design of the road network for the TRGA needs to connect with the existing local road network in a safe and efficient way. A new internal roading network with TRGA is also required.

The new road network should ensure there is a clear hierarchy of main and secondary roads, with a high level of connectivity to, from and within the TRGA. The new road network should be designed so it efficiently directs traffic into and out of the TRGA via Tararua Road, particularly for heavy traffic, with secondary connections to the existing streets to the north. The connections to the residential streets to the north must be designed to discourage heavy vehicular traffic to avoid safety and amenity effects within the adjoining residential area.

1. Maintain the safe and efficient operation of State Highway 57 by avoiding new access or road connections to the State Highway.

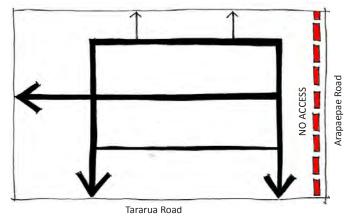
2. Provide primary road access to/from the TRGA via Tararua Road, with secondary road access via Winiata Street and Perth Street, and provision for a future road linkage to the west of the TRGA.

3. If subdivision and development is undertaken in stages, the roading networks should be designed with connections and capacity that provides for the development of the TRGA in its entirety.

4. The internal roading network within the TRGA should achieve an interconnected system of streets as shown on the Structure Plan to enable through industrial traffic to move safely and efficiently to and from destinations.

5. Road designs, including road carriageway widths, should relate to the nature and function of the road. Provision should be made for heavy vehicles, as well as provision for pedestrians and cyclists.

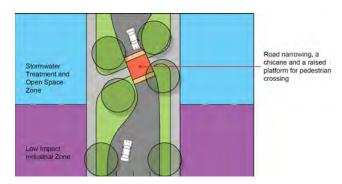
6. Restrict heavy industrial traffic from using internal access roads that connect with the existing residential area to the north of the TRGA. This restriction may be achieved through the design of the new road connections (e.g.narrow road carriageway width, planting and street tree layouts, the use of a chicane, and/or raised road surface). The design of this traffic calming measure should consider the alignment of any off-road pedestrian and cycle path within the reserve/open space/stormwater treatment area.



1-5. Schematic roading hierarchy and internal and external roading connections



6. Road linkages to Residential zone requiring a specific road design



6. Potential design solution for Residential zone road linkages

8.4 Infrastructure and Network Utility Services

The TRGA is a greenfield development site and requires the extension of infrastructure and services across the site. Infrastructure and network utility services include new roads, reserves, stormwater management, water supply, wastewater, trade waste, telecommunications, gas and power. The provision of infrastructure and network utilities is a key requirement for the effective and functional development and operation of industrial activities. It is important the design and provision of infrastructure and network utilities caters for the demands from industrial activities, both in the short and longer term (i.e. future proofed).

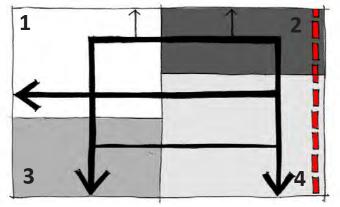
To achieve these outcomes, the infrastructure and network utility services should be planned in a comprehensive manner working with the respective network utility operators. Upgrades may be required to some services to meet future demands. In addition, the provision of new infrastructure and services should be undertaken in an environmentally conscious manner. The long-term maintenance costs of infrastructure as well as the up-front capital costs need to be considered in the design and planning of infrastructure.

1. Infrastructure (including roads) and network utility services should be planned and designed comprehensively (i.e. in an integrated manner for the entire TRGA) so that the location of utility structures, services and spaces are part of an overall scheme and meet immediate and longterm requirements.

2. If subdivision and development is undertaken in stages, the infrastructure and network utilities should be designed to provide for the capacity that satisfies the demands and requirements of the entire TRGA in a cost effective and environmentally sustainable way.

3. The design should connect efficiently with existing infrastructure. Allowance should be made for future connections with adjacent sites.

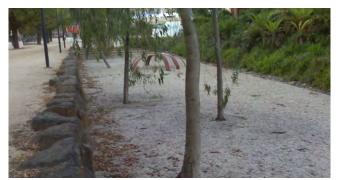
4. Utilise new technology and low impact urban design principles in managing stormwater throughout the TRGA and ensure that all stormwater run off can be collected, treated and disposed of within the overall TRGA area.



1-3: Integrated, planned infrastructure provision across multiple stages of subdivision and development



4. Low Impact urban design stormwater provision



5. Open space supporting multiple functions



6-7. Planted linear reserve supporting open space and stormwater functions



6-7. Separation distance and planting to provide an attractive outlook

5. Provide for multiple functions (open space, amenity, stormwater management, alternative transport connections) into the design of reserves.

6. Design the linear reserve so it extends along the entire northern boundary with the Residential Zone and has a width and design that responds to the following requirements:

• An stormwater detention area. This area is integral to the overall TRGA stormwater management system (collection, treatment and storage). Secondary or more stormwater collection and treatment areas and methods may be required across the TRGA.

• Provides a separation distance (approximately 50 – 60m) between the northern boundary with the Residential Zone and the Low Impact Area with TRGA in a way that buffers noise, mitigates visual effects from buildings and results in an attractive and visually appealing outlook for the residential properties and Taitoko Primary School.

• Provides a safe alternative route for walkers and cyclists from work to home.

7. Consider the long-term maintenance costs of infrastructure and services.

9 Building and Amenity Guidelines

The future character of the TRGA is reflected in the outcomes described in Section 7 above which is a good quality industrial environment. The outcomes also seek to create a relatively high level of amenity within the TRGA, to enable a good environment for business and industrial activities to operate and to provide enjoyment for those working or passing through the area. A key factor in achieving these outcomes is to ensure positive interfaces are established between the private realm (future businesses) and public realm (roads, streetscapes and stormwater reserve/open space) both within and on the edges of the development. This section of the guidelines focuses on the relationship between the private and public realms within the TRGA.

The Low Impact Area is an intermediary area between the linear reserve and the main industrial environment. There are some specific guidelines relating to the Low Impact Area because activities and buildings within the Low Impact Area are smaller in scale and less intensive than the standard Industrial Zone.

9.1 Site Layout

Functional and attractive industrial sites are to achieve high quality building and landscape frontages to public spaces including streets and reserves, leaving the remainder of the site and buildings to operate industrial activities effectively. The location of facilities and operational areas within industrial sites can influence the nature and scale of external adverse effects, such as not locating noisy or other nuisance creating operations near the property boundary.

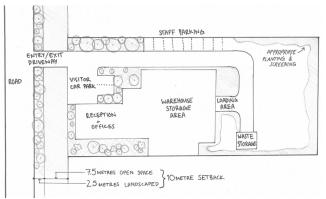
1. Position at the front of building any administration, office or other spaces accessed by the public, and present main entry doors and glazing to address the street or reserve. Where a site is bounded by more than one street or a public space it should establish a primary frontage on one public boundary, generally to meet the most significant street or space. Secondary frontages may be established on others.

2. Provide for legible vehicular and pedestrian access, as well as safe and efficient access for servicing/loading vehicles.

3. The layout of the industrial development avoids potential conflict between activities on adjoining sites through the location and design of storage areas, rubbish and waste disposal, loading bays, delivered areas and any noisy machinery and activities.



1. Primary (visitor) access and building frontage



2-3. Conceptual layout to avoid potential conflict of adjoining sites

9.2 Building Scale and Design

Managing the scale of buildings (and structures) within the Industrial Zone, particularly the Low Impact Area can improve the overall relationship of new development to its surrounds. Buildings of great height or bulk may visually overwhelm their immediate surroundings. Where the length, width and/or height of a new development conflicts with the characteristics of its surroundings, design techniques may be employed to modify and mitigate the visual impacts.



1. Scale and design of industrial buildings



2. Building height and stepping down to primary street frontage



3. Building facade broken up



4. Appropriate use of glazing to provide building interest and articulation

1. Buildings on sites facing existing residential and rural residential activities are to be of a scale and position that minimises adverse visual effects and maintain an attractive and open outlook towards the TRGA.

2. Lower building heights at street frontages to create a scale that is appropriate at street level. This visual stepping is not required for buildings on streets that primarily function for service and supply vehicles.

3. Continuous blank external building facades on the street frontage or linear reserve/open space/stormwater area should be avoided by ensuring walls of a length greater than 20m are either reduced or the façade broken with steps.

4. Examples of adding interest to long continuous walls can include walls being stepped back or vary walls in alignment, creative use of materials, texture or colour changes, and the use of glazing (where the optimal amount of window and door glazing across any single façade is between 5% and 50% of the external wall).

9.3 Building Setbacks and Sreet Frontage Landscaping

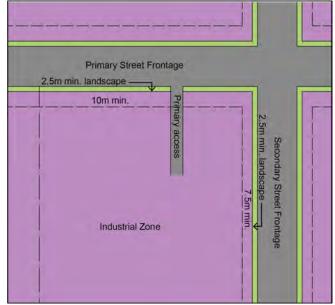
Buildings and landscaping are to create attractive and safe spaces between the development within the site and immediate road frontage and reserves. Building setbacks from the road frontage and landscaping provides visual relief from the industrial development.

1. Sites should differentiate between the street that provides the main visitor entry or "front" of the activity, compared to the street that provides access for service vehicles as follows:

• Main Entry Street Frontage: Buildings are to be setback a minimum of 10m from the street frontage. Within this 10m building setback a 2.5m landscape strip is to be established and the remaining 7.5m is to be maintained as open space.

• Service Street Frontage: Buildings are to be setback a minimum of 7.5m from the street frontages. Within this building setback a 2.5m landscape strip is to be established and the remaining 5m is to be maintained as open space.

2. On-site car parking areas shall be designed with a regular grid of shade trees, of a suitable species, between parking rows at a ratio of 1 per 6 car-bays.



1. Industrial Zone: Building setbacks and landscape requirements.



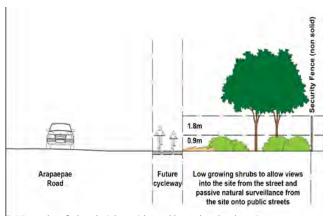
2. Landscaping within car parking areas.



3. Low Impact Area: Building setbacks and landscape requirements.



4. Shared parking for reserve and visitors to industrial site



5. Hierarchy of plant heights with road boundary landscaping

3. Sites within the Low Impact Area are to provide the following building setbacks:

• Linear Reserve: Buildings are to be setback a minimum of 12m from the boundary of the linear reserve. Within this building setback include a minimum 1m landscape strip immediately adjoining the reserve.

• All Streets: Buildings are to be setback a minimum of 5m from all street frontages. Within this building setback the entire 5m width is to be a landscape strip.

• Properties Boundaries: Buildings are to be setback a minimum of 3m from all property boundaries (side and rear).

4. Incorporate on-site car parking into building setback from the linear reserve and encourage visitors to access the reserve.

5. Within any of the landscape strips referred to above, appropriately spaced and positioned trees with high canopies (above 2m in height, where mature trees are pruned clear to a minimum of 1.8m above ground level) and low growing shrubs (less than 0.9m) allow views into the site from the street as well as enabling natural surveillance from the site onto public streets.

The landscape strips within each property are to be established and maintained by the individual owners and not vested in Council. Consequently, it is important that each landscape strip is designed and established with a cost effective maintenance regime in place.

9.4 Fencing

Safety, amenity and accessibility can be improved by avoiding dominant fences on the front boundary of lots and adjoining reserves to create positive spaces between private front yards and public spaces:

1. Avoid solid fences above 1.2m along any road frontage..

2. The use of rail-less chain link or steel mesh fence security fencing can be appropriate where this type of fencing has a height between 1.8m to 2m.

3. For sites within the Low Impact Area:

• Linear Reserve: Any fences along the boundary of the linear reserve are to be designed so that natural surveillance of the reserve can be maintained and the edge of the reserve is attractive and accessible. The use of security fences or solid fences of a height 1.2m or greater are inappropriate and shall be avoided.

• Street frontage: Any fence along the street frontage shall be designed to have a high proportion of transparency, where only 35% of the fence can be determined to have a solid appearance.



1. Definition of public and private space while maintaining and appropriate level of natural surveillance



2. Example of rail-less chain mesh fence



3. Low and open fences enable natural surveillance over adjoining reserve

This page has been intentionally left blank.