



# Road Reserve: Street Tree and Landscape Guidelines

**Lockyer Valley Regional Council**



November 2017



# contents

<b>01</b>	Introduction
<b>02</b>	Aims and Key Objectives
<b>03</b>	Road Hierarchy
<b>04</b>	Design Guidelines
<b>05</b>	Plant Selection
<b>06</b>	Pilot Projects
<b>Appendix A</b>	Map Overlays





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<b>LVRC</b>	Lockyer Valley Regional Council
<b>LGA</b>	Local Government Area
<b>DTMR</b>	Department of Transport and Main Roads
<b>IPWEAQ</b>	Institute of Public Works Engineering Australasia
<b>CPTED</b>	Crime Prevention Through Environmental Design
<b>WSUD</b>	Water Sensitive Urban Design
<b>AS / NZS</b>	Australian Standards / New Zealand Standards

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Data source acknowledgement

Maps in this report contain data from:

Lockyer Valley Regional Council: Road Network, Flood Risk, Place Types, Heritage Sites, Open Areas / Parks, Street Lights, Kerbs, Channels, Footpaths, Medians, Future Road Upgrades, Salinity, Stormwater Infrastructure, Tourism Sites (2014).  
Department of Natural Resources and Mines: Regional Ecosystems, Local Government Boundaries, Towns, Waterways, Cadastre, Railways (2014).  
GHD: Transition Zones (2015).

Mapping disclaimer:

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# 01 Introduction

Lockyer Valley Regional Council's Operational Plan 2013-2014 identifies the following Corporate Goal:

*Establish a program of land acquisition (purchase) to maximise ecological outcomes in balance with growth needs.*

One of the Strategies identified to achieve this goal is:

*Develop a Road Reserve Landscaping policy in cooperation with State guidelines.*

The outcomes of this project are intended to inform subsequent planning scheme amendments and provide a guide for achieving Council's desired outcomes of planting within the Road Reserve.

Currently the Lockyer Valley Regional Council (LVRC) has a variety of applications and treatments to the road reserves across towns that differ slightly from each other. Additionally, social and economic changes are likely to occur in the future and will need appropriate outcomes and responses to guide sustainable and sympathetic growth throughout the Lockyer Valley Region.

As such the key objective of this project is to provide Council with a framework that will deliver appropriate levels of treatment for the varying road types and road reserves within the LVRC.

This document is divided into 5 sections as follows:

## 1. Introduction

Section 1 introduces the document, the purpose of the project and its benefits to the community and LVRC. It also highlights key outcomes of a consolidated approach for the road reserve.

## 2. Aim and Objectives

Section 2 provides the aim and guiding principles for the project. It introduces six key principles: Safety, Resilience, Environment, Character, Community and Economics. These are further detailed in Section 4.

## 3. Road Hierarchy

Section 3 section identifies the different road types and classifies them according to the urban fabric of the Lockyer Valley. The urban fabric is largely divided into four categories: core, urban, transition and rural settings.

## 4. Design Guidelines

Sections 4 provides a set of design principles which are fundamental and common across all road types.

The design guidelines are driven by these principles and set out appropriate design responses for the placement of street trees and landscaping to the different

road types. They are followed by detailed recommendations for each road type that concentrate on specific scenarios and require more detailed descriptions. Each of the guidelines are accompanied by diagrams showing the desired layout of the road reserve.

While consideration has been given to all possible scenarios and treatments of road reserves it is important to note that when designing or retrofitting a streetscape the surrounding landscape, adjacent land uses, the road context and its functional requirements influence the level of the landscape treatment required for any given road.

## 5. Pilot Projects

Section 5 concentrates on six towns which are evaluated against specific principles and themes appropriate to their character. The towns are: Gatton, Laidley, Plainland, Helidon, Withcott and Forest Hill. Upon successful implementation of the Pilot Town Guidelines, future towns may be considered based upon specific treatment criteria developed for each.



Figure 1.1 Locality Plan for LVRC Local Government Area with South East Queensland (Map adapted from <http://water.thinkingcap.com.au/>)



This report comprises Stages 2 and 3 of a 3-stage process. The preceding stage (Stage 1) comprised analysis of road landscapes across the region and consultation with the local community. The information obtained in Stage 1 has directly informed the development of the policy and guidelines.

### 1.1 Purpose of Stages 2 and 3

The purpose of the report is to provide guidance on the design parameters and a consistent approach to the road reserve landscapes managed and maintained by the Lockyer Valley Regional Council (LVRC). This report includes:

- Development of a landscape policy framework for the road network in the Local Government Area (LGA)
- Development of objectives and desired outcomes for the landscape treatments of each road type
- Development of themes for the six pilot towns
- Diagrams and illustrations to reflect the policy guidelines and town themes

The policy and guidelines will assist in clarifying the intended level of landscape treatment for road reserves and provide Council, developers and the community with an illustrative reference point for undertaking works and maintenance activities within these areas.

To allow for the policy and guidelines to be effective, they are first and foremost user friendly, adaptable and able to be modified over time, and take into consideration a range of constraints and opportunities whilst integrating them into a concise and meaningful format.

The guidelines will also consider and align with relevant current State and LVRC planning policies and provisions, and comply with the appropriate standards and legislation.

### 1.2 Benefits of the project

This project will ensure that the region's road reserves (some of the most visible landscapes of the municipality) are prepared and maintained to be safe, resilient, ecologically functional, and ultimately define and/or reflect and support the unique character and sense of place of the region, and the various towns.

This project could have a profound impact on the Lockyer Valley's landscape quality and amenity. This in turn has the potential to strengthen community pride and association with the region's landscapes. The project may also heighten the integrity of the regions environmental systems and potentially improve land values throughout the municipality.

Beyond this, the outcomes of the project will enable Council to more effectively plan and invest in land improvements, infrastructure provision, and maintenance programming.

### 1.3 Benefits for the Community

The project will provide a significant and responsible way to develop streets for the residents and businesses of today as well as for future generations of the region and is an important step economically, physically and environmentally to the better planning of the region. Benefits of improved streetscapes are:

- strong sense of character
- distinctive identity
- pride of living in the region
- conserving links with the past - heritage
- celebrate rural aspects of the area
- economically viable centres and industries
- provide cool amenity against the heat island effect

These guidelines provide a reference point in regard to placement and proposal of tree planting within road reserves. Planting specific activities and requirements are mentioned in the respective sections of Council's planning documents. Where required LVRC can advise further on tree selection depending on type project and future planning of the region.

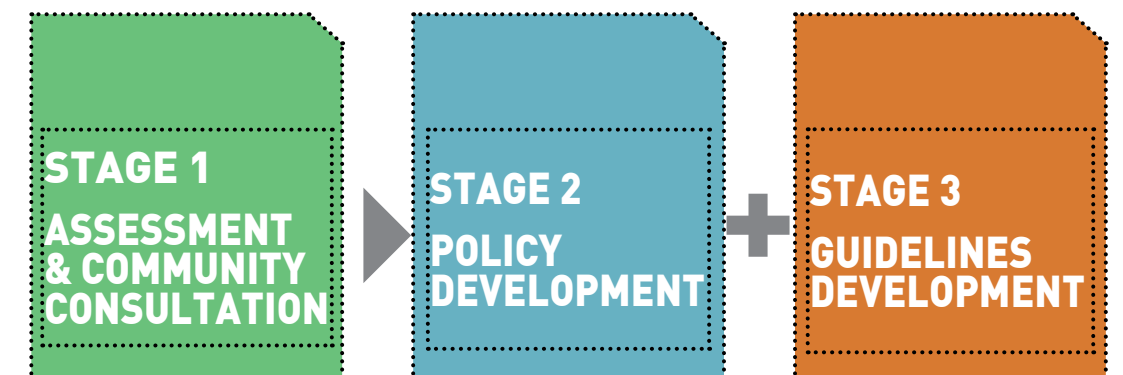


Figure 1.2 Three stage process: development of the road reserve street and landscape guidelines

#### 1.4 Desired project outcomes

Below are the key outcomes the policy and guidelines seek to promote:

- ecological restoration
- maintenance efficiency
- improvement of pedestrian connectivity
- implementation of planting and design specific to location/place
- reinforcing street hierarchy through planting design
- integration with infrastructure
- enhancing existing character
- consistent use of materials and finishes
- visually appealing and connected spaces (promoting healthy active styles)
- environmentally responsive planting according to the use of the area
- enhancement of social needs of the community (shade, paths...)
- incorporation of heritage
- contributing to economically viability of the council
- building on sense of community, pride of place and commitment to improve

#### 1.5 Relevant documents

The guidelines are an over arching document that provide guidance in the planning of landscape areas for road reserves. This document provides further detail information outlined in the LVRC planning documents. Figure 1.3 shows the relationship of the guidelines with other strategic council policies and documents.

The following are the main standards and guidelines relied on for this project.

- Complete Streets Guidelines for Urban Street Design (IPWEAQ), 2010
- AustRoads
- Road Landscape Manual (DTMR) Edition 2, 2013
- LVRC Works Manual and Planning Scheme (Draft)
- LVRC Standard drawings, 2011
- Water Sensitive Urban Design Technical Guidelines for South East Queensland, Version 1, 2006
- Crime Prevention through Environmental Design Guidelines for Queensland (CPTED), 2007
- Safe Tree Planting Guide (Energex)
- AS 4373 Pruning of Amenity Trees, Standards Australia
- AS 4970 – Protection of Trees on Development Sites
- AS 1428 -2003 Design for access and mobility
- AS/NZS 3661.1.1: 1993 Slip resistance of pedestrian services
- AS/NZS 3661.2: 1994 Guide to the reduction of slip hazards
- AS/NZS 1158 Set: 2007 Lighting for roads and public spaces
- AS 1742.5 – 1997 Street name and community facility name signs
- AS 3996 – 2006 Metal access covers, road grates and frames

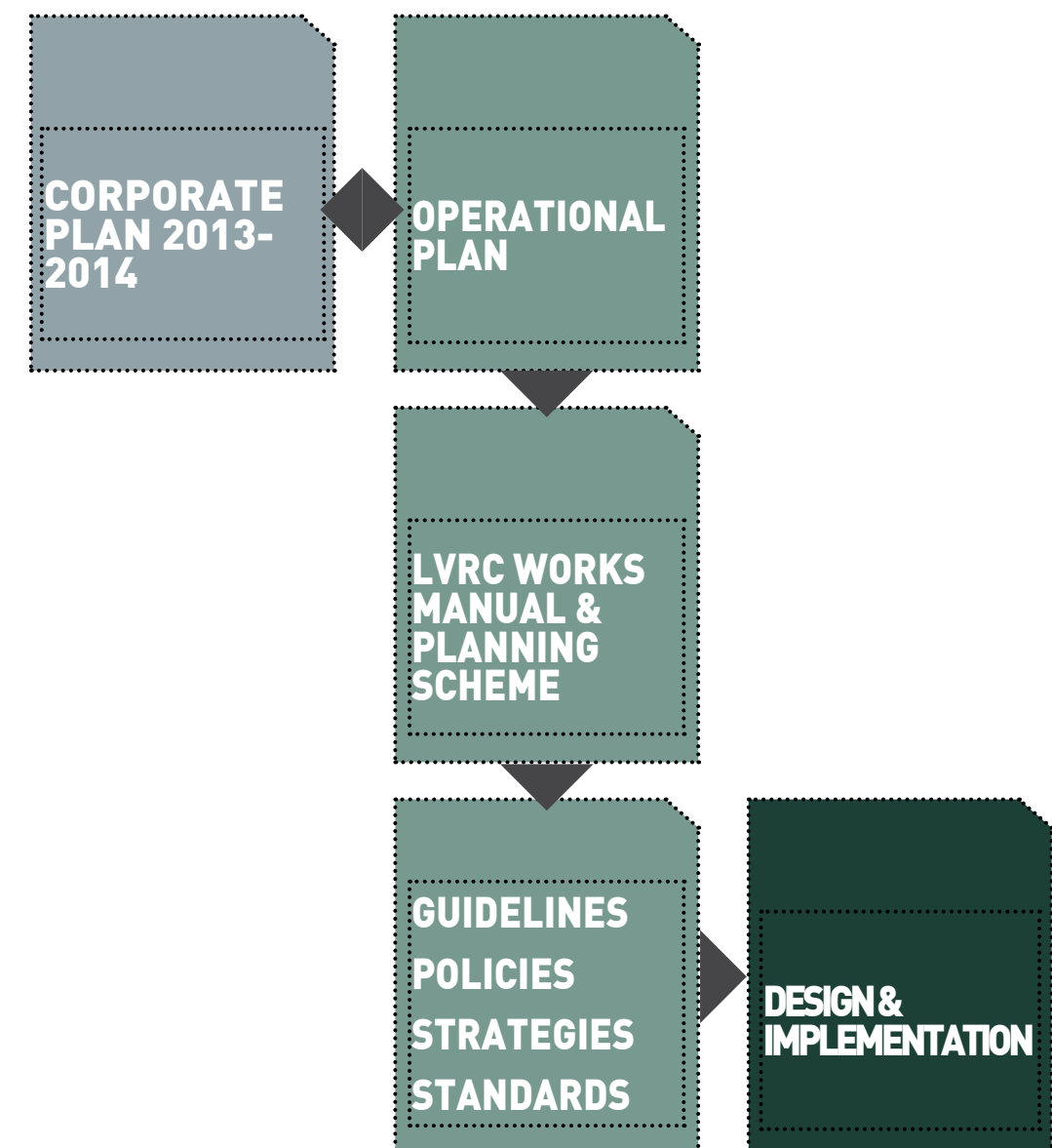


Figure 1.3 The road reserve street and landscape guidelines and its relationship to LVRC corporate plan, operation plan and planning documents



# Aims and Key Objectives

This section sets out the main aim and key objectives for the project.

## 2.1 Aim



The project aims to provide a consistent approach for the design and implementation of landscape works for road reserves. Well maintained road reserves and quality public spaces contribute to an aesthetically pleasing environment for the community of Lockyer Valley and its visitors. With this in mind and in an effort to improve connectivity and scenic amenity in town centres and throughout the region the following key objectives will guide any work within road reserves and / or design of new roads.

## 2.2 Key Objectives



### Safety

Roads are dangerous environments. Any landscaping within road reserves must prioritise the maintenance of traffic and pedestrian safety. It is important however to ensure that safety controls are appropriate to the risks posed – busier and higher speed environments obviously require increased safety measures, but it would be inappropriate and unfortunate to limit landscaping interventions if not warranted. The following key objectives guide safety outcomes:

- Improve safety in transportation of goods and people while minimising the impact on the environment, the community and wildlife
- Improve safety through early planning and design processes that take consideration of maintenance and repair processes
- Provide comfortable and safe areas for the community by implementing CPTED principles
- Promote practical and effective connections for both vehicles and pedestrians (prioritisation of movements)



### Resilience

Environments are in a constant state of change – sometimes change is incremental and sometimes sudden. There is an ever-growing need to create environments (including road reserves) that are more able to withstand change, adapt to changing conditions, and be repaired or rehabilitated following change. For each road reserve the particular risks must be identified and, to the extent appropriate, measures incorporated to withstand or avoid those risks and maximise community resilience. Key objectives include:

- Promote drought and flood mitigation measures during early stages of design
- Select materials that have high tolerances to different environmental conditions (sun, shade, water, heat/fire)
- Encourage the use of low flammable materials, including vegetation in bushfire prone areas



### Environment

A region's environmental resources are critical in terms of ecological processes as well as the contribution they make to sense of place and amenity. Road reserves are often sensitive intermediate spaces between roads and the wider environment. The appropriate treatments are critical for maintaining the integrity and connectivity of the broader environment. Road reserves treatment must be sensitive to environmental qualities and realise opportunities to rehabilitate or enhance the natural environment where they exist. Key objectives for looking after the environment are:

- Increase and maintain the diversity of vegetation used in the road reserves
- Provide linkages integral for fauna movement and ecological sustainability
- Promote the use of recycled materials
- Protect the region's soils and prevent erosion and salinity







### Character

As some of the most visible and prevalent landscape types in the region, road reserves present a unique opportunity for defining and reflecting the particular sense of identity and characteristics of an area. A key outcome of this project is the recognition and elevation of the unique characteristics of the region as a whole, of particular routes, and of the main settlements.

- Create a consistent design and style across road reserves to increase legibility and promote the attractiveness of the region
- Contribute to the protection of amenity and aesthetic values by providing attractive landscape in the road reserves
- Enhance wayfinding\* and interpretive elements (where suitable) to provide orientation and inform the community and visitors about the region

*\*(wayfinding not included as part of these guidelines)*

### Community

Towns are made and formed by their communities. It is important to provide places that promote interaction and sense of ownership. Road reserves play an important role in the development of towns and provide the required links for the community to establish a relationship with their locale. Attractive road reserves will encourage different levels of interactions by the community and this in turn creates spaces that have a pedestrian focus, making them more sociable. Key objectives for fostering good sense of place are:

- Ensure road reserves contribute to the richness of the pedestrian environment while encouraging all members of the community to participate in the enjoyment of their town. In addition, variety of land uses contributes to the economic viability of the region
- Provide linkages that are secure, comfortable and convenient for the community, allowing the community to feel safe

### Economic Viability

Investment into the creation and maintenance of road infrastructure (including road reserves) is substantial. The road reserve treatments proposed must balance the desired outcomes with the initial investment and ongoing maintenance costs. Promoting treatments which have manageable capital costs and that can be effectively maintained is paramount.

- Recognise road reserves as important assets that require design and maintenance plans in order to ensure ongoing service delivery
- Promote consistency across the region to better manage, plan and undertake work in road reserves
- Promote consistent management and implementation of renewal strategies that are consistent with the guidelines



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# Road Hierarchy

The road hierarchy section lists the categorisation of the roads identified in the analysis stage. It describes their function and characteristics in relation to LVRC place types focusing on two broad settings, rural and urban. The classification of the roads focuses on their primary use whether it is pedestrian or vehicle priority.



# 3.1 Road Anatomy

For the purpose of these guidelines, the anatomy of the road is composed of the following zones:

- verge (the guidelines apply to this zone)
- road carriageway
- median (location varies)
- adjacent land use

These zones are consistent across all road types with the exception of medians which are usually found in town centres and some major arterial roads.

The treatment of the verge is dependant on the speed environment of the road and is closely related to adjacent land use and the landscape immediately adjacent and within the surrounding area of the road.

The road profile below shows the typical layout of a road with a median.

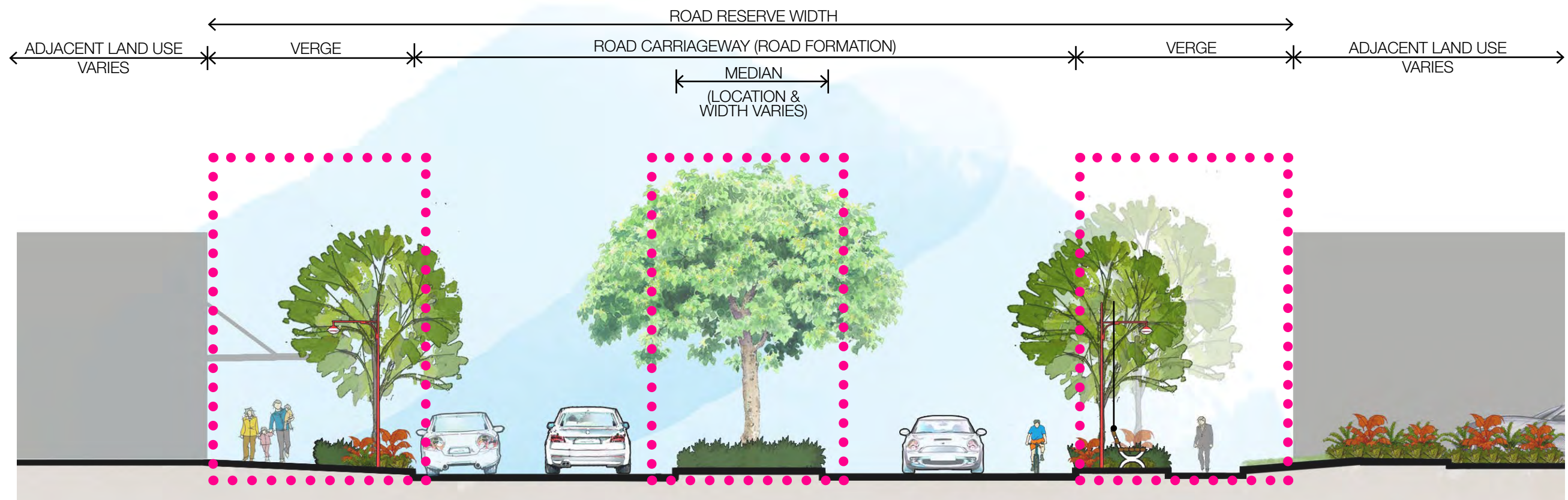
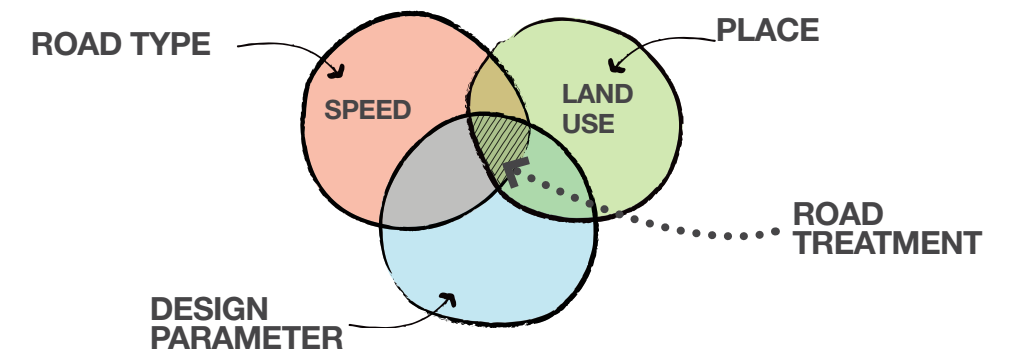


Figure 3.1.1 Key components of the road reserve

STREET TREE & LANDSCAPE GUIDELINES

# 3.2 Road Classifications

## 3.2.1 Road Types

The road types identified for the Policy and Guidelines are in-line with the updated LVRC Planning Scheme, being:

- Arterial Road
- Distributor Road
- Collector Road
- Laneway/Access Street
- Industrial Road

Table 3.2.1 shows how the road type terminology has been adopted. The road types found in LVRC are shown on Figure 3.2.2.

Table 3.2.1 Road classifications used for the road reserve guidelines.

LVRC Road Type <sup>1</sup>	Project Road Classification
Arterial Highway/Bypass <sup>2</sup>	Highway
Arterial <sup>3</sup>	Arterial
Sub Arterial <sup>4</sup>	
Distributor Road	Distributor
Collector Road	Collector
Access Street	Access
Laneway	
Industrial Road	Industrial

<sup>1</sup> Road types obtained from LVRC Works Manual and Planning Scheme.

<sup>2</sup> Arterial roads are generally the responsibility of DTMR. This document provides guidance only. Highways and bypasses are typically excluded from these Guidelines, except where otherwise noted. All works are subject to approval of DTMR.

<sup>3</sup> DTMR controlled roads. This document provides guidance only. All works are subject to approval of DTMR.

<sup>4</sup> LVRC controlled roads.

## 3.2.2 Place Types

Each road type has been further defined by five place types. Below is a brief description of each place type:

*T1 Natural Places* are dominated by the natural environment. The designation also includes national parks, creeks and lakes as well as privately owned natural areas.

*T2 Rural Places* are identified as small settlements outside the towns. There is a mix of living areas and production areas, generally people live on large lots.

*T3 Suburban Neighbourhoods* have a central focus like a park, shop or bus stop. They are easy to walk around and offer a choice of housing, all of which is low in scale. About 15 dwellings per hectare.

*T4 Urban Neighbourhoods* are close to the centre of Gatton and Laidley and have the greatest mix of house types, lot sizes and lifestyle in LVRC.

*T5 Town Centres* are the focus of urban activities like shopping, government services, offices, education facilities, healthcare, community infrastructure and entertainment. Gatton and Laidley are the two established town centres with one emerging town centre at Plainland.

*T6 Specific Use Places*, these places are single use or single focus places like industrial areas, universities or community facilities. They are restricted to a small number of locations and development is different from other place types.

### 3.2.3 Urban Fabric Settings for Road Classification

The following describes the settings that are used throughout the report to establish the landscape treatments for the different road types.

Figure 3.2.1 illustrates the typical spatial arrangement of the urban settings.

#### Core

Focuses on treatment to the main street of the town and central business precinct. More detail is provided in Pilot Projects Section 5, which

presents individual design principles and themes to promote the identity and character of each town.

#### Urban

The outer urban fabric immediately adjacent to the core area, density is higher than rural settings and facilities/services are in close proximity – walking distance.

#### Transition

The density of the towns starts to spread and the urban fabric starts to disappear to make way for more rural/natural setting.

#### Rural

Rural zones encompasses the areas where land is primarily used for production like agriculture, cattle grazing, etc. This zone will also include natural and open spaces.

This is everything else in between transitions areas of the towns.

Table 3.2.2 explains how the urban settings typically relate to Council's Place Types.

Table 3.2.2 Urban Fabric settings for road classifications.

Place Types LVRC Planning Scheme	Urban Fabric Settings
T1 Natural Places	
T2 Rural Places	Rural
T3 Suburban Neighbourhoods	Urban
T4 Urban Neighbourhoods	
T5 Town Centres	Core
T6 Specific Use Places	Rural or Urban

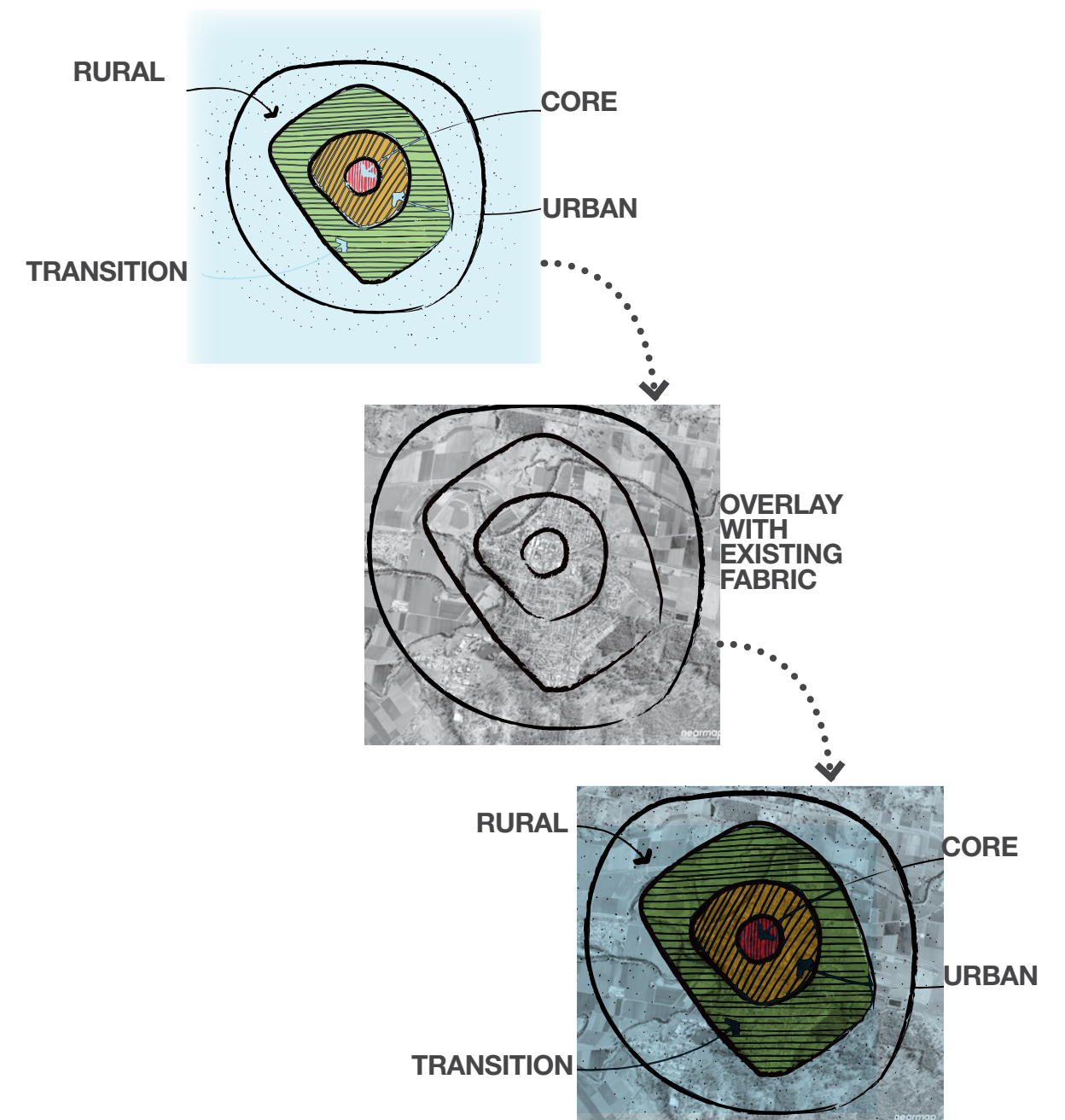


Figure 3.2.1 Illustrates the relationship of the adopted urban settings derived from 'Place Types'.



# 3.2 Road Classifications

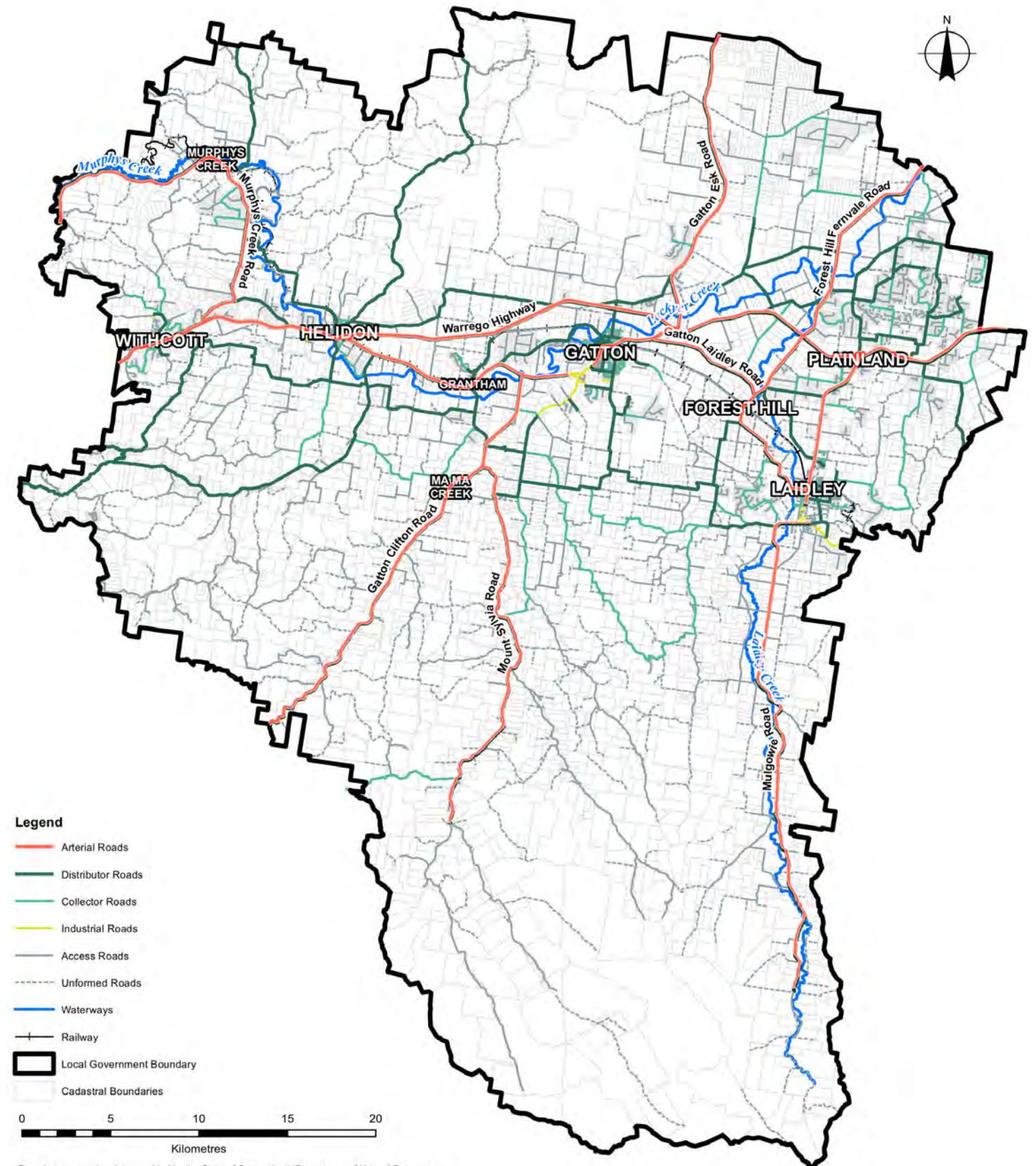


3-1



3-2

3-1 Existing industrial road, Western Drive - transition setting at Gatton  
3-2 Existing access road, Fernrow Drive - urban setting at Plainland



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Figure 3.2.2 Road network and hierarchy



## 3.3 Road Characteristics

The following table lists the basic functions and characteristics of the identified road types for LVRC:

Table 3.3.1 Road classifications, functions and characteristics

ROAD NAME	Arterial – Highway / Bypass (DTMR)	Arterial (DTMR)	Sub Arterial (LVRC)	Distributor Road	Collector Road	Access Street	Laneway	Industrial Road
<b>% OF ROADS WITHIN LGA*</b>		11%		12%	7%		35%	2%
<b>SPEED (km/hr)</b>	80-100	60-100	60-100 (Main street: 40-60)	60	50-60	30-60	30	50
<b>CHARACTERISTICS</b> <i>(Based on Place Types see table 3.1.2)</i>	<ul style="list-style-type: none"> <li>Intra-regional connection</li> <li>High traffic volumes, including heavy vehicles</li> <li>Pedestrians excluded</li> </ul>	<ul style="list-style-type: none"> <li>Connects town centres</li> <li>High traffic volumes, including heavy vehicles</li> <li>Vehicles prioritised</li> <li>Pedestrians included</li> </ul>	<ul style="list-style-type: none"> <li>Connects town centres</li> <li>High traffic volumes</li> <li>Vehicles prioritised</li> <li>Pedestrians included</li> </ul> <p>Main Street sub-functions:</p> <ul style="list-style-type: none"> <li>Serves town centres</li> <li>High pedestrian volumes</li> <li>Pedestrian / vehicle priority is variable</li> </ul>	<ul style="list-style-type: none"> <li>Access to natural places</li> <li>Mostly local traffic</li> <li>Links to arterial roads and collector roads</li> </ul>	<ul style="list-style-type: none"> <li>Serves neighbourhoods and commercial centres</li> <li>Provides links to local streets</li> <li>Links to distributor, arterial and access roads and laneways</li> <li>Access to industrial properties</li> </ul>	<ul style="list-style-type: none"> <li>Serves neighbourhoods and commercial centres</li> <li>Mostly local traffic</li> <li>Mainly urban zones</li> <li>Access to industrial properties</li> </ul>	<ul style="list-style-type: none"> <li>Low speed environment</li> <li>Mostly local traffic</li> </ul>	<ul style="list-style-type: none"> <li>Access to industrial properties</li> <li>Heavy vehicle access</li> <li>Links to arterial roads</li> </ul>
<b>EXAMPLES</b>	<ul style="list-style-type: none"> <li>Warrego Highway</li> </ul>	<ul style="list-style-type: none"> <li>Eastern Drive, Gatton</li> <li>Railway Street, Gatton</li> <li>Western Drive, Gatton</li> <li>Laidley Plainland Road</li> <li>Gatton Laidley Road</li> </ul>	<ul style="list-style-type: none"> <li>Spencer Street, Gatton</li> <li>Gehrke Road, Plainland</li> <li>Woodland Road, Gatton</li> <li>Railway Street, Gatton</li> <li>Patrick Street, Laidley</li> <li>Victoria Street, Forest Hill</li> </ul>	<ul style="list-style-type: none"> <li>Old Toowoomba Rd, Placid Hills</li> <li>Summer Street, Laidley</li> <li>William Street, Gatton</li> <li>North Street, Gatton</li> <li>Edward Street, Laidley</li> </ul>	<ul style="list-style-type: none"> <li>Blenheim Rd, Laidley Ck West</li> <li>Ropely Rd, Blenheim</li> <li>Larkin Street, Gatton</li> <li>Thomas Street, Laidley</li> <li>Paroz Rd, Laidley</li> </ul>	<ul style="list-style-type: none"> <li>Bowen Street, Helidon</li> <li>Bottlebrush Place, Laidley</li> <li>Goltz Street, Gatton</li> <li>Ann Street, Gatton</li> <li>Hooper Dr, Plainland</li> <li>Wilks Street, Gatton</li> </ul>	<ul style="list-style-type: none"> <li>May Court, Withcott</li> <li>Scanlan Court, Helidon</li> <li>Wilson Lane, Gatton</li> <li>Wiggins Street, Gatton</li> <li>Patrick Lane, Laidley</li> </ul>	<ul style="list-style-type: none"> <li>Industrial Road, Gatton</li> <li>Nans Road, Helidon</li> <li>Roaches Road, Withcott</li> </ul>
<b>MOST COMMON PLACE TYPE</b>	<ul style="list-style-type: none"> <li>T1 Natural Places</li> <li>T2 Rural Places</li> </ul>	<ul style="list-style-type: none"> <li>T1 Natural Places</li> <li>T2 Rural Places</li> <li>T6 Specific Use Places</li> </ul>	<ul style="list-style-type: none"> <li>T2 Rural Places</li> <li>T3 Suburban Neighbourhoods</li> <li>T5 Town Centres</li> <li>T6 Specific Use Places</li> </ul>	<ul style="list-style-type: none"> <li>T1 Natural Places</li> <li>T3 Suburban Neighbourhoods</li> <li>T4 Urban Neighbourhoods</li> <li>T5 Town Centres</li> </ul>	<ul style="list-style-type: none"> <li>T1 Natural Places</li> <li>T2 Rural Places</li> <li>T3 Suburban Neighbourhoods</li> <li>T4 Urban Neighbourhoods</li> </ul>	<ul style="list-style-type: none"> <li>T1 Natural Places</li> <li>T2 Rural Places</li> <li>T3 Suburban Neighbourhoods</li> <li>T4 Urban Neighbourhoods</li> <li>T5 Town Centres</li> <li>T6 Specific Use Places</li> </ul>	<ul style="list-style-type: none"> <li>T2 Rural Places</li> <li>T3 Suburban Neighbourhoods</li> <li>T4 Urban Neighbourhoods</li> </ul>	<ul style="list-style-type: none"> <li>T2 Rural Places</li> <li>T3 Suburban Neighbourhoods</li> <li>T6 Specific Use Places</li> </ul>

Note: \* 33% of roads in the LGA include 'unformed roads' these are not included in the guidelines



# 3.3 Road Characteristics

The following table shows the typical road characteristics found in each of the road types according to their urban fabric setting. More detailed information in regards to each road type can be found in LVRC Planning Scheme and Works Manual.

Table 3.3.2 Typical road characteristics by urban setting.

Setting	Rural	Transition	Urban	Core	Rural	Transition	Urban	Core
<b>Characteristics</b>	<b>Arterial Road (DTMR)</b>				<b>Sub-arterial (LVRC)</b>			
Concrete Footpath	no	no	min 2.5m	min 2.5m	no	no	min 2.5m	min 2.5m
Lighting	no	junctions	yes	yes	junctions	junctions	yes	yes
Verge width	varies	varies	varies	varies	7.5m	7.5m	7.8m	7.8m
Parking	no	no	yes	yes	no	no	unmarked	yes
Sealed	yes	yes	yes	yes	yes	yes	yes	yes
Median	no	no	varies	varies	no	no	yes	yes
Kerb & channel	no	no	varies	yes	no	no	yes	yes
Typical road reserve width	varies	varies	varies	varies	26m	26m	39m	32m
Typical number of lanes	2	2-4	2-4	2-4	2	2	2-4	2
Typical speed range (km/hr)	100	60-100	60-80	60	80-100	60-80	60	40-60
Property access	yes	yes	yes	yes	yes	yes	yes	yes
Tree planting	yes	yes	yes *	yes*	yes**	yes	yes*	yes*
Groundcover planting	no	only at town entry	only at town entry	yes	no	no	only at town entry	yes
Median planting	n/a	n/a	yes	yes	n/a	n/a	yes	yes

Note:

\* Tree planting allowed in verge area only when no median is present. Where a median is present tree planting to be located at the median only. Refer Section 4 for specific requirements of street tree placement and landscaping.

\*\* Tree planting will vary depending on the urban setting, consideration on safety, visibility, frangibility will take precedence over placement of vegetation in this setting.



3-3 Existing arterial road, Laidley-Plainland Rd - rural setting at Plainland



3-4 Existing sub-arterial road, Anzac Avenue - urban setting at Grantham

# 3.3 Road Characteristics

Table 3.3.2 Typical road characteristics by urban setting (cont.).

Setting	Rural	Transition	Urban	Core	Rural	Transition	Urban	Core
Characteristics	Distributor Road				Collector Road			
Concrete Footpath	no	no	min 2.5m	min 2.5m	no	no	min 1.5m	n/a
Lighting	no	yes	yes	yes	no	no	yes	n/a
Verge width	7.5m	5.5-6.3m	5.0m	5.0m	7.5m	5.25m	5.25-6.25m	n/a
Parking	no	no	unmarked	yes	no	no	yes	n/a
Sealed	yes	yes	yes	yes	yes	yes	yes	n/a
Median	no	no	no	yes	no	no	no	n/a
Kerb & channel	no	varies	yes	yes	no	no	yes	n/a
Typical road reserve width	26m	20-22m	20m	20m	26m	18m	18-20m	n/a
Typical number of lanes	2	2	2	2	2	2	2	n/a
Typical speed range (km/hr)	80-100	60-80	50-60	40-60	80-100	60-80	50-60	n/a
Property access	yes	yes	yes	yes	yes	yes	yes	n/a
Tree planting	yes**	yes	yes	no	yes**	yes	yes	n/a
Groundcover planting	no	no	no	no	no	no	no	n/a
Median planting	n/a	n/a	n/a	yes	n/a	n/a	n/a	n/a

Note:

\*\* Tree planting will vary depending on the urban setting, consideration on safety, visibility, frangibility will take precedence over placement of vegetation in this setting.



3-5 Existing distributor road, Railway Street - urban setting at Grantham.



3-6 Existing collector road, Station Street - urban setting at Helidon.

## 3.2 Road Characteristics

Table 3.3.2 Typical road characteristics by urban setting (cont.).

Setting	Rural	Transition	Urban	Core	Rural	Transition	Urban	Core
<b>Characteristics</b>	<b>Access Street</b>				<b>Laneway</b>			
Concrete Footpath	no	min 1.5m	min 1.5m	min 1.5m	n/a	n/a	no	no
Lighting	no	no	yes	yes	n/a	n/a	yes	yes
Verge width	5.5m-7.5m	7.0m	5.0m	3.5m	n/a	n/a	5.0m	3.5m
Parking	no	no	unmarked	no	n/a	n/a	no	no
Sealed	no	yes	yes	yes	n/a	n/a	yes	yes
Median	no	no	no	no	n/a	n/a	no	no
Kerb & channel	no	no	varies	varies	n/a	n/a	varies	varies
Typical road reserve width	24-26m	20m	16m	12.5m	n/a	n/a	16m	12..5m
Typical number of lanes	2	2	2	2	n/a	n/a	2	2
Typical speed range (km/hr)	60-80	60-80	50	40-50	n/a	n/a	40	40
Property access	yes	yes	yes	yes	n/a	n/a	yes	yes
Tree planting	yes	yes	yes	yes	n/a	n/a	yes	yes
Groundcover planting	no	no	yes	yes	n/a	n/a	yes	yes
Median planting	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a



3-7 Existing access street, Tarantall Road - transition setting at Forest Hill.



3-8 Existing access street, Cribb Street - urban setting at Laidley

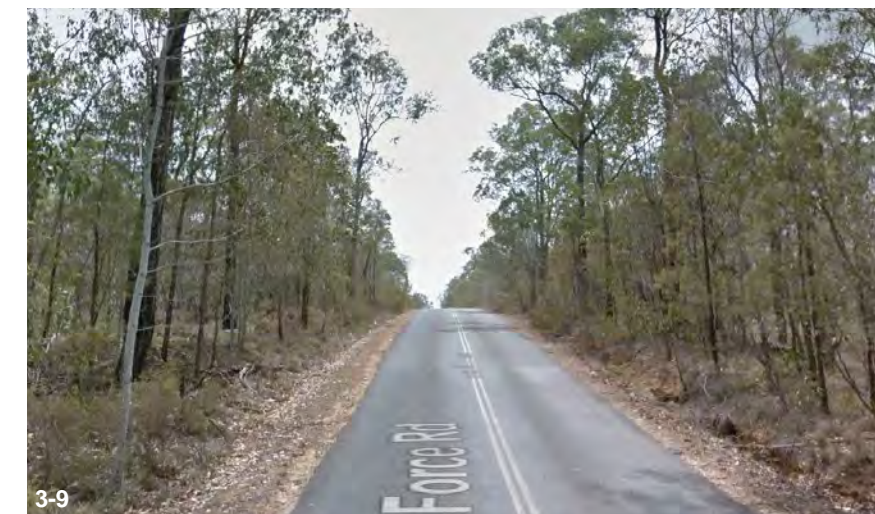


## 3.3 Road Characteristics

Table 3.3.2 Typical road characteristics by urban setting (cont.).

Setting	Rural	Transition	Urban	Core
<b>Characteristics</b>	<b>Industrial Road</b>			
Concrete Footpath	no	no	no	n/a
Lighting	no	no	no	n/a
Verge width	7.5-11m	4-15m	4.0-10m	n/a
Parking	no	yes	yes	n/a
Sealed	yes	yes	yes	n/a
Median	no	no	no	n/a
Kerb & channel	no	varies	yes	n/a
Typical road width	20-30m	15-30m	20-30m	n/a
Typical number of lanes	2	2	2	n/a
Typical speed range (km/hr)	60-80	60-80	50-60	n/a
Property access*	yes	yes	yes	n/a
Tree planting	yes	yes	yes	n/a
Groundcover planting	no	no	no	n/a
Median planting	n/a	n/a	n/a	n/a

Note: \*Access in this instance is specific to industrial lots



3-9 Existing industrial road, Air Force Road - rural setting at Helidon.



3-10 Existing industrial road, Market Drive - transition setting at Gatton.

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# Design Guidelines

The following section outlines the design principles and desired outcomes for each road type. It provides guidance about the treatments expected for each road type according to their location and use, along with other design considerations to determine the minimum desired outcomes to be achieved.

The typical cross sections and diagrams presented in the following section are a guide for developers, Council staff and the community to assist in the design and/or refurbishment of a road reserve. It must be highlighted that this section provides a general overview of the main road types found in LVRC and some roads might fit more than one category.

The Project Guidelines are a starting point to assist Council to work together with relevant stakeholders to determine appropriate levels of treatment and planting opportunities for the road reserves in the detail stage process. The Project Guidelines will also be used to inform Council's land acquisition, infrastructure planning and maintenance programs.

# 4.1 Design Principles

The fundamental principles below apply to all road types and will guide Council, developers and the community on the expected standards to be achieved when developing future road reserves, and improving existing road reserves.

Promoting and implementing the following principles will assist in creating places where the community feel proud to live and work.



## Safety

- select species that are frangible, particularly for high speed environments
- select plants species that have minimal limb-drop, particularly where adjacent to paths
- ensure tree spacing and plant placement do not hinder the operational requirements of lighting and road safety
- encourage low vegetation to maximise sight lines, particularly at intersections
- maximise natural surveillance by using low or permeable planting in areas of high public use
- use a combination of landscape and materials to raise awareness of changing environments, and to delineate pedestrian movements from vehicle movements
- design road reserves to avoid areas for concealment and entrapment
- divide or delineate vehicular traffic and crossings adjacent to pedestrian areas
- observe tree height limits where adjacent overhead powerlines



## Resilience

- select materials that can withstand instances of flooding for flood risk areas
- select plant species that are drought tolerant and can withstand inundation
- improve street tree locations to maximise opportunities for passive watering
- provide shade trees to enhance pedestrian connections and provide protection from the sun
- utilise appropriate species to attenuate stormwater flow
- utilise materials that are easily repaired or replaced when damaged
- select plant species with low flammability in bushfire prone areas, particularly for windbreaks
- create separation between groups of planting to reduce spread of fires (minimise continuous vegetation in bushfire prone areas)



4-1 Street tree planting in kerb build outs within street parking to provide shade and improve street aesthetics



4-2 Low planting adjacent to pedestrian paths to maximise visibility



4-3 Layers and diversity of planting to create interest and increase biodiversity



# 4.1 Design Principles



## Environment

- design and plant streets to contribute to significant improvement of the habitat and biodiversity of an area
- enhance and protect ecological networks adjacent to natural sensitive areas and/or provide vital connections for wildlife
- promote the use of local and native plants in areas of high ecological value
- ensure fauna movements are addressed according to the relevant local and state policies
- include systems to assist in treating road runoff prior to joining the storm water systems
- include subsoil drainage in areas of poor draining conditions
- minimise the use of impervious materials to improve infiltration of water runoff
- include the use of energy efficient lighting



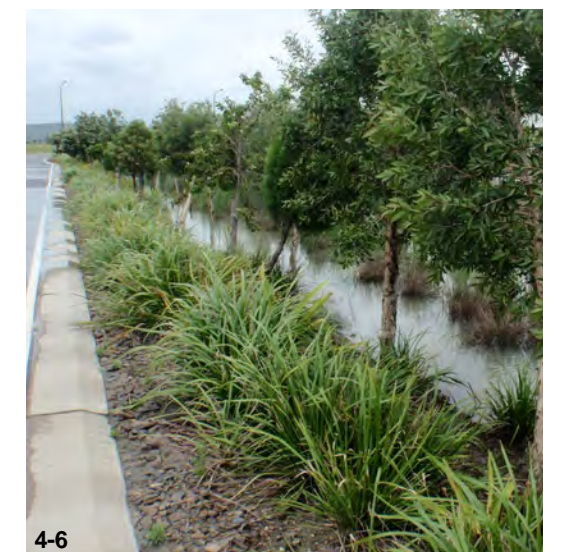
## Character

- mark gateways/entry points through providing feature planting
- maintain views to high amenity/ scenic areas
- provide screening according to land use zones along road frontages
- consider the enhancement and integration with existing heritage places
- distinguish pedestrian movements from vehicular ones by selecting and using different materials to minimise confusion – pavement selections colours, footpath crossing over driveways
- include a family of elements to maintain consistency - use of species, colours, and materials that reflect culture and heritage of the area
- ensure placement of furniture / signage is suitable to the space available within road reserve
- utilise vegetation (species, spacing, type) to provide passive wayfinding



## Community

- provide strong links and accessible streetscapes for the community
- provide opportunities for seating and gathering to allow the community to meet and interact, and contribute to a sense of place
- promote the use of plant species suitable for the region which contribute to the education of the community
- provide adequate lighting to all paths and areas of pedestrian traffic, controlling light spillage
- locate parking areas where they provide significant value to the community and people passing through (e.g. travellers with caravans)
- incorporate seating / signage as part of walls or other elements – reduce clutter on the road reserve
- seek to retain and enhance trees or other elements that have particular meaning for the community



4-4 Town centre seating located in road reserve to provide respite areas and opportunity for community interaction  
 4-5 Shared use zone separated by bollards and installation of coloured concrete for pedestrian safety  
 4-6 Flood resilient planting application in a road median planting area

## 4.2 Road Analysis Matrix

The Road Analysis Matrix (Table 4.2.1) is a tool to enable users to determine what additional design parameters must be considered prior to designing or refurbishing a road and consequently the road reserve. The road matrix adopts the road types identified in Section 3 and the design parameters highlighted in Stage 1.

A road might be affected by more than one parameter which will dictate how the road reserve must be treated.

For example, where flooding risk might impact arterial roads it is envisaged that materials used in such areas must be able to withstand inundation, and the finishes would need to be of low to medium standard. Similarly if the work to be carried out is part of a scenic route it must also meet specific scenic amenity requirements.

The design parameters refer to physical, cultural and heritage aspects of the region. The parameters have been defined by analysis of GIS (Geographic Information System) data provided by Council and has been used as the starting point to determine the priority in which parameters need to be considered to guide the road reserve treatment.

Following is a brief description of the requirements relating to each of the design parameters:

- **Place Types** – Refers to strategic zones derived from planning scheme to assist in the development of the region. Works must respond to the adjacent land use and consider interactions and connections as well as speed environments.**Regional Ecosystems** – Endangered ecosystems are to be protected and road reserve treatment would need to improve the particular ecosystem.
- **Open Areas and Parks** – Determining how the road transects natural zones and establishing measures to maintain wildlife corridors.
- **Heritage Places** – Identifying heritage value and ensuring they are protected or enhanced.
- **Scenic Routes** – These are aesthetically pleasing routes that bring benefit to the community and visitors of the region. Any works must maintain and enhance key views and landscape qualities.
- **Flood Risk** – Low lying areas prone to inundation, works must be appropriate to the flood environment.
- **Salinity Risk** – Minimising salinity within the landscape, utilising plants that have high salt uptake.
- **Stormwater Devices** – Providing methods of stormwater management according to the urban fabric, such as kerb and channel are usually found in core and urban areas. Flush kerbs and grassed swales are more suited to rural roads.
- **Future Road Upgrades** – Ensure no conflict with identified road upgrades.

Illustrative maps and more detailed descriptions for each of these parameters are provided in Appendix A.

# 4.2 Road Analysis Matrix

Table 4.2.1 Road Analysis Matrix

	DESIGN CONSIDERATION	Place Types #	Regional Ecosystems	Open Areas	Heritage Places	Scenic Routes	Stormwater Devices	Future Road Upgrades	Median Locations	Footpath, Kerb and Channel	Street Lights	
ROAD TYPE	ARTERIAL ROAD	T1	●		●	●	●		●*	●*	●	
		T2	●	●	●	●	●	●	●*			
		T6	●	●	●		●	●				
	SUB-ARTERIAL ROAD	T1	●				●		●*	●*	●	
		T2	●	●	●		●*	●*				
		T5	●					●*				
	DISTRIBUTOR ROAD	T1	●					●*	●*	●	●	
		T5	●			●		●*				
	COLLECTOR ROAD	T1	●	●	●	●	●		●	●	●	
		T2	●	●	●	●	●		●			
		T3	●	●	●	●						
	ACCESS ROAD	T1	●					●			●	●
		T2	●				●	●				
		T5	●	●	●	●	●	●	●			
		T6	●	●	●	●					●	
INDUSTRIAL ROAD	T1	●							●*	●	●	
	T3	●			●					●		
	T6	●			●							

Notes:

- # Refer to Section 3.2.2 for Place Type descriptions
- Roads in this place need to consider the design parameter
- Only a small percentage of the roads in this place type are affected by the design parameter
- \* Mainly concentrated around the Core Areas



## 4.3 Design Guidelines

The guidelines provide the minimum design standards acceptable to Council to provide more consistent, functional and attractive streetscapes within the Lockyer Valley region. The guidelines seek to:

- promote a high standard of landscape design
- encourage appropriate landscaping according to local context that can be effectively maintained
- minimise conflicts with infrastructure, services and other Council's assets
- enhance distinct areas by introducing a precinct based planting approach
- guide anyone involved in the design and development of landscapes within road reserves

The placement of street trees and landscaping requires consideration of many factors such as infrastructure, intersections, services locations. This section introduces general requirements for offsets and clearances for street tree placement and landscaping.

Sections 4.4 to 4.9 provide detailed information on the layout and treatments of the road types found in LVRC:

- Arterial / Highway (DTMR)
- Sub-Arterial
- Distributor
- Collector
- Access / Laneway
- Industrial

Street tree planting is recommended to be planted at the spacings provided in table 4.3.1.

The final placement of trees must consider relevant guidelines from Austroads and RLM where applicable. Such guidelines will override the guidelines set out in this report.

Table 4.3.2 provides the setbacks and clearances that apply to tree placement as a minimum. These dimensions may need to be altered depending on the speed of the road and other site-specific constraints.

Council may consider alterations to these dimensions in tables 4.3.1 to 4.3.3 if it can be demonstrated that the placement of the tree will not impact on existing infrastructure or compromise the safety of road users and pedestrians.

Figures 4.3.1 to 4.3.3 graphically represent some of the required clearance zones for street tree planting along the verge and the median, these clearances must be confirmed for each planting project depending on actual site constraints.

Practices that disfigure the shape of the tree must be avoided to ensure it can grow in a healthy and safe condition.

The intention of the following layout considerations is to maintain consistency and uniformity across the LGA these layout considerations apply to all road types regardless of urban setting.

### Street (Verge) Tree Planting

- Street tree planting only to areas with a minimum width of 1.2m between hard edges (paths/kerbs/roads)
- Trees under overhead power lines to be maximum height of 4m and must follow Energex Safe Tree Planting Guidelines
- Trees minimum 600mm from edges of paths and garden beds

### Median Tree Planting

- Trees to be centrally located in the median
- Medians suitable for low level landscaping to be minimum 2m wide
- Tree spread/canopy to match median width or be a maximum of 6m wide whichever is smallest (canopy must not extend beyond median width)
- Provide a minimum 500mm wide mulch strip from back of kerb for ease of maintenance access

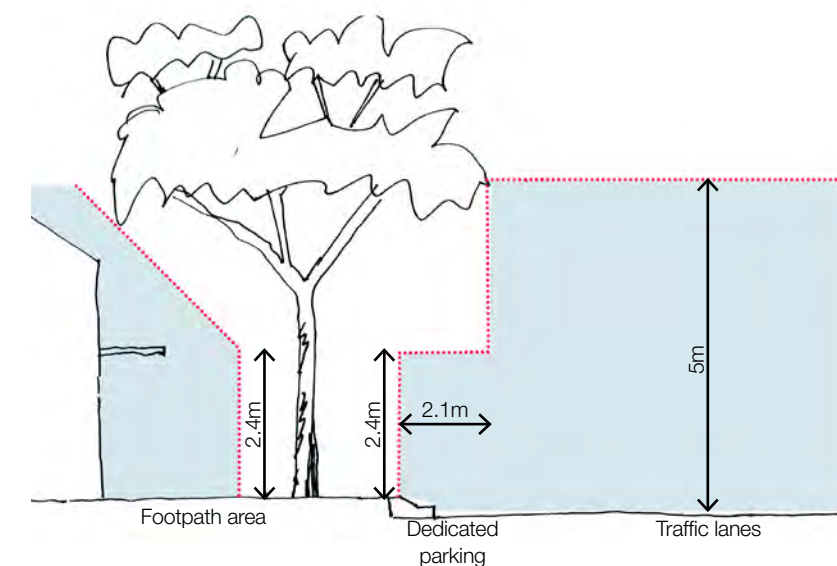


Figure 4.3.1 Clearance zone along street verge

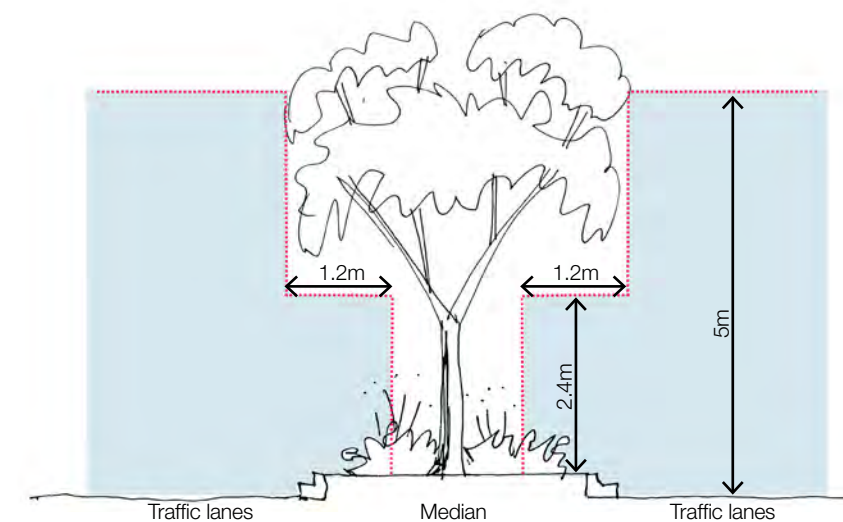


Figure 4.3.2 Clearance zone on medians

## 4.3 Design Guidelines

Table 4.3.1 Tree placement guidelines

Tree size	Recommended tree spacing	Root barrier
Small (5-8m at maturity)	5-10m intervals	dependent on species and urban setting
Medium (8-15m at maturity)	7-15m intervals	dependent on species and urban setting
Large (>15m at maturity)	15-30m intervals depending on context	urban / core - always required rural / transition - not required

Note: Table 4.9.1 gives the typical spacing for tree planting. Spacing must consider other relevant guidelines like Austroads and/or RLM where relevant to ensure tree placement complies and is suitable for its locality.

Residential areas require as minimum 2 trees per lot as prescribed in the Planning Scheme and Works Manual.

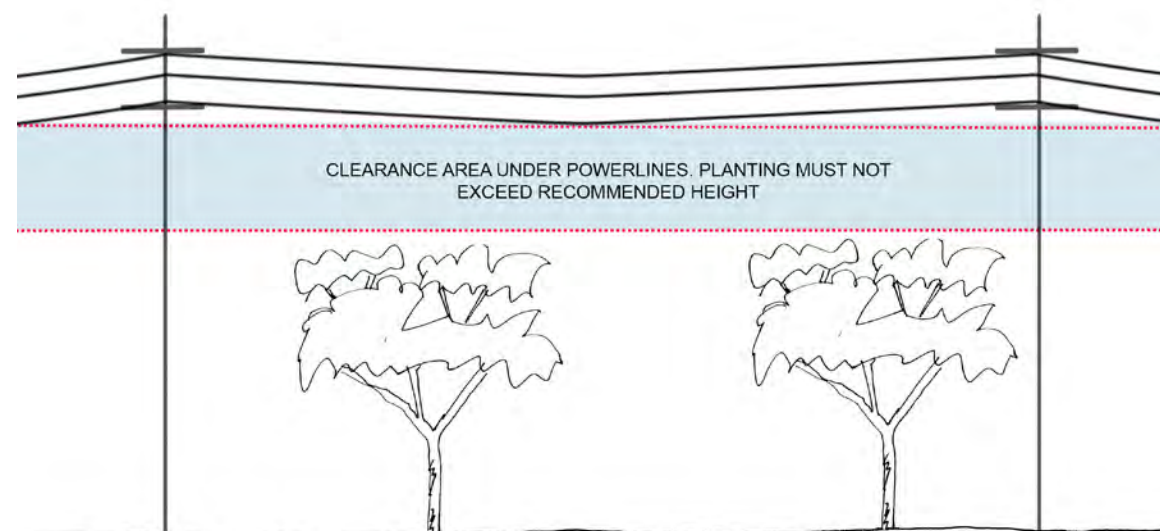


Figure 4.3.2 Clearance zone under powerlines

Table 4.3.2 Tree offsets and clearances

Road Element	Description	Typical Clearance / Offset
Street intersection	distance from projected line of the intersecting kerb line on approach side	15m
Street intersection	distance from projected line of the intersecting kerb line on non-approach side	7m
Clear zones	NO tree planting within areas identified as clear zones	-
Sightlines	maximum mature height of vegetation directly on triangle sightlines	0.5m
Stormwater inlet pit	distance from nearest edge of pit structure	2m
Driveway	distance from driveway edges	2m
Paths / garden edges	minimum distance from path or garden edge	0.6m
Traffic light	distance from signal pole on approach side	>10m
Pedestrian crossing	distance from outer edge of crossing on either side	10m (on approach) 7m (on departure)
Street light pole	minimum horizontal distance from pole to mature canopy edge (refer relevant consider Austroads or RLM)	5m
Street signs	horizontal distance from a road sign	10m (on approach) 3m (on departure)
Bus stops	distance from bustops	20m (on approach) 5m (on departure)
Power lines	maximum mature height for planting located under powerlines	4m
Tree trunk clearance	vertical clearance from underside of canopy to top of horizontal surface (path, garden bed)	2.4m

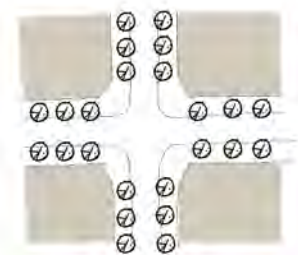
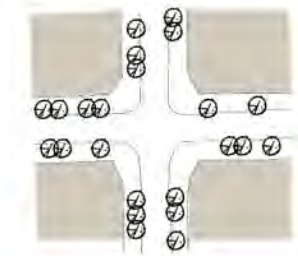
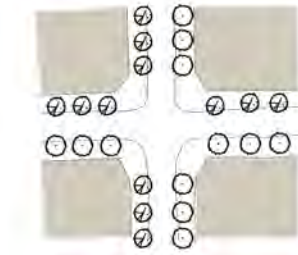
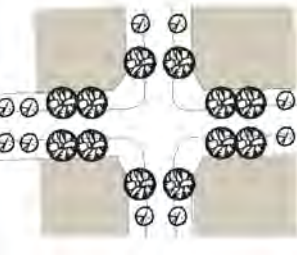


## 4.3 Design Guidelines

Table 4.3.3 Minimum width requirements for planting areas

Location	Minimum width	Landscape Treatment
Street verge planting	<0.6m	No soft landscaping
	0.6 – 1.2m	Turf/groundcovers
	1.2 – 2m	Small to medium trees allowed
	>2m	Medium to large trees allowed
Median planting	<0.6m	no landscape treatment. Median to be paved or concrete infilled.
	<2m	Turf/groundcovers
	2 – 4m	Shrubs and small trees allowed
	>4m	Medium to large trees allowed

Table 4.3.4 Tree configuration guidelines

Arrangement	Description	Example
<b>Formal</b>	Single species at regular intervals suitable for urban and core setting with large road frontages and uniform street conditions	
<b>Informal</b>	Single or mix of species at irregular intervals. Planting to single verge or both sides of the carriageway dependent on road type. Suitable for urban, transition and rural setting	
<b>Asymmetrical Planting</b>	Combination of species planted at regular intervals. Suitable for roads with limited space (width/height) due to placement of infrastructure e.g. powerlines.	
<b>Feature Planting</b>	Use of local and/or exotic species to highlight key areas like intersections, roundabouts, precinct entries which are highly visual	

## 4.4 Design Guidelines Arterial / Highway Roads

### Overview

Arterial roads provide intra-regional connections between major centres and significant residential areas, and carry large volumes of traffic. Street tree planting and landscape must be as per the DTMR Road Landscape Manual (RLM) and are not included in these guidelines.

Exception to the treatments of arterial roads would be where they traverse through town centres and maintenance of that road is done by LVRC. In this instance treatment shall be as per sub-arterial road Section 4.5.



4-7 Landscaping in Spencer Street provides a strong sense of arrival to Gatton. Spencer Street is identified as an arterial road between Eastern Drive and Railway Street.  
4-8 Turfed strips and median planting on Railway Street is identified as an arterial road south of Spencer Street.



# 4.5 Design Guidelines Sub-arterial Roads

## Overview

Sub-arterial roads connect to arterial roads through and around suburbs. These roads often provide long views of the expansive rural areas, agricultural land and natural features. The roads are usually two lanes wide in each direction, dual carriageway with a median and wide road reserve.

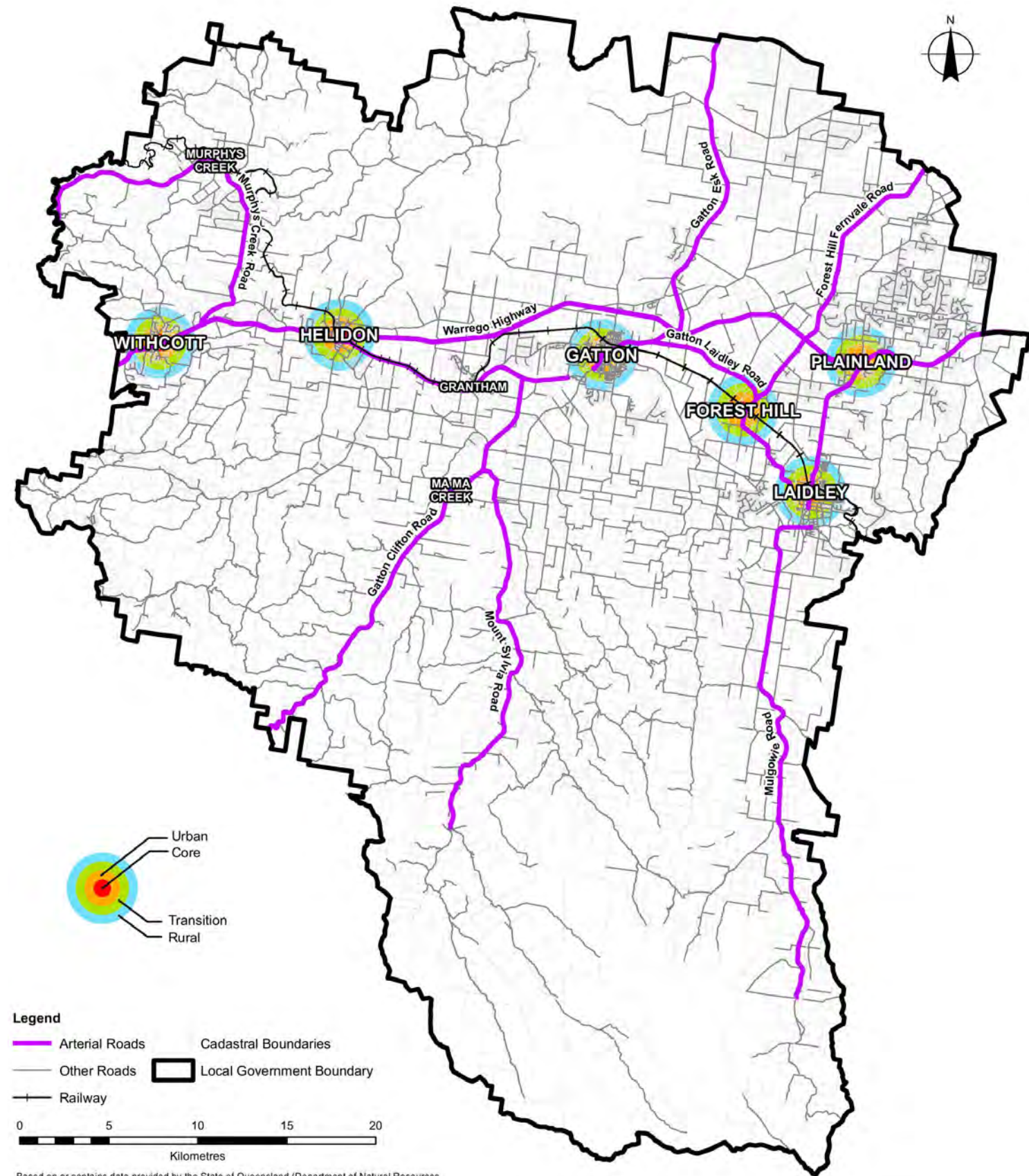
Sub-arterial roads located in rural and natural areas are two lanes wide, one in each direction (single carriageway).

The road verge for sub-arterial roads in rural areas would be typically treated as turfed areas due to the high velocities of these roads. The main priority of sub-arterial roads is the movement of vehicles. Parts of these roads also traverse the town centres and in this instance the landscape treatments would generally use groundcovers and feature plating suited to lower speeds.

The road sections that follow illustrate the minimum acceptable outcomes for the sub-arterial roads. The outcomes respond directly to the overlay constraints to ensure an appropriate road reserve treatment is applied to sub-arterial roads.

## Layout considerations

1. Kerb and channel in accordance with LVRC Works Manual and Planning Scheme.
2. Trees sizes and spacing in accordance with table 4.3.1.
3. Median planting must meet frangibility requirements as per DTMR Road Landscape Manual.
4. Planting offsets and clearances as indicated in table 4.3.2.
5. Planting to apply to areas with minimum width requirements as listed in table 4.3.3.
6. Road verge planting along existing natural systems should focus on preserving and enhancing fauna habitats.
7. Table 4.4.1 outlines the landscaping requirements that will typically apply to sub-arterial roads.



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Figure 4.5.1 Location of arterial roads

Urban settings shown indicatively. Refer section 3.1 for more information. Urban settings will vary according to each town's size and scale.



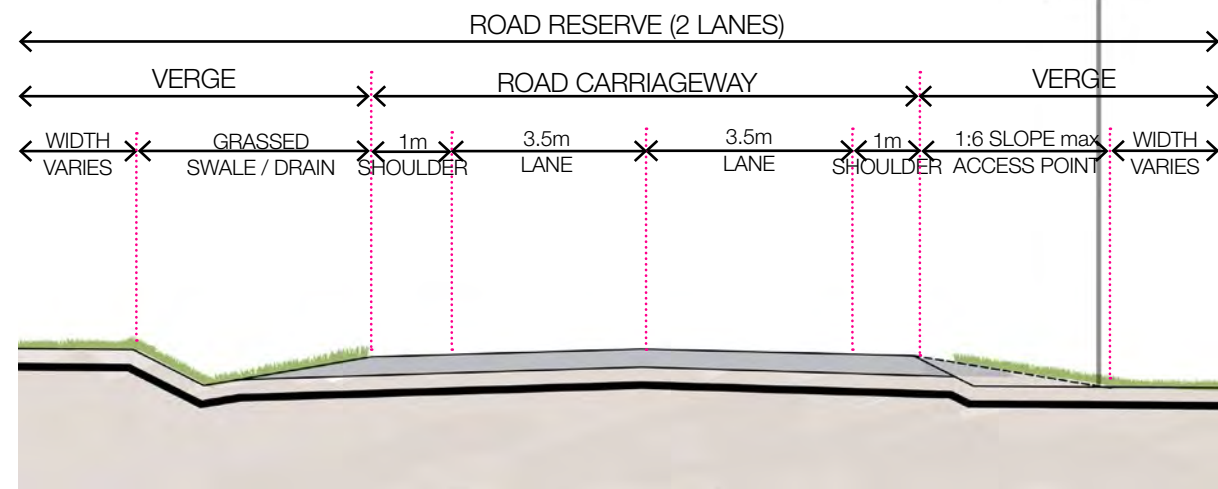


Figure 4.5.2 Typical cross section for arterial roads in rural / transition setting

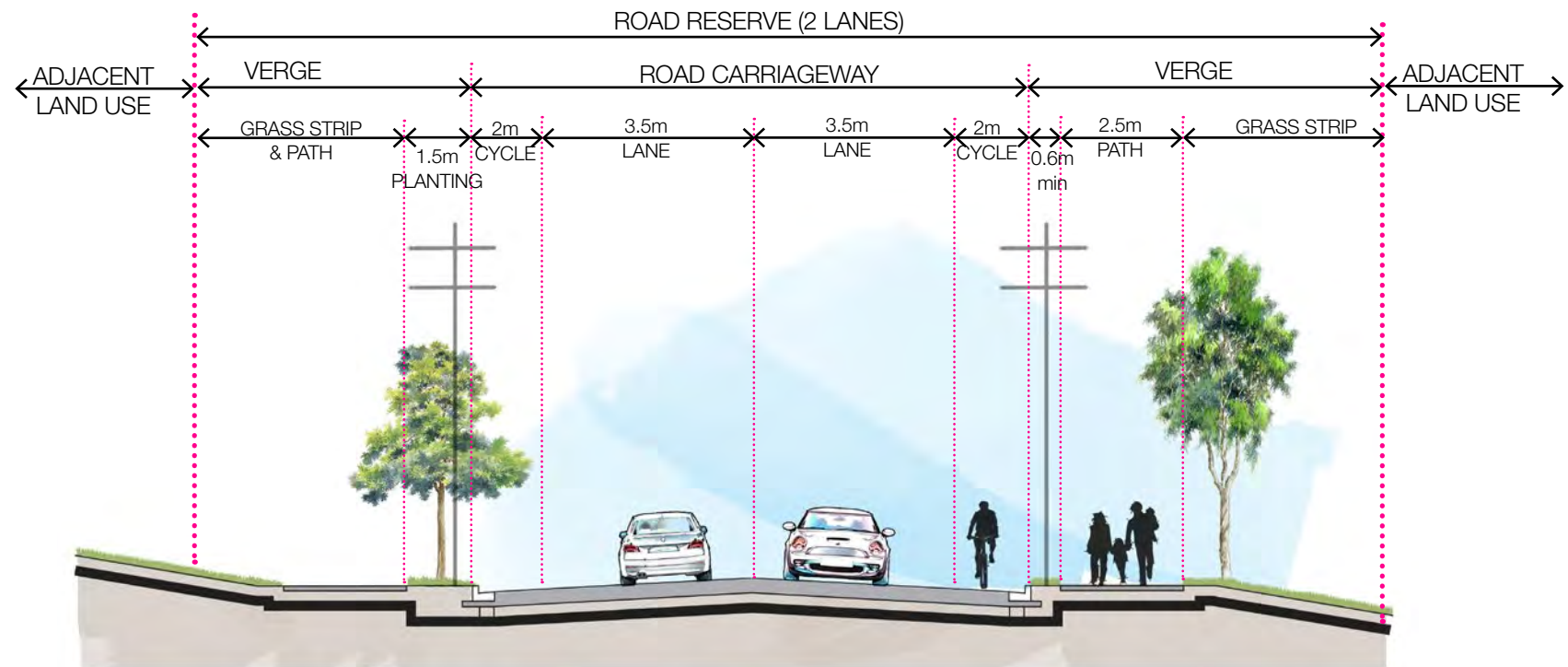


Figure 4.5.3 Arterial road cross section in urban setting, road corridor width varies between 20-30m

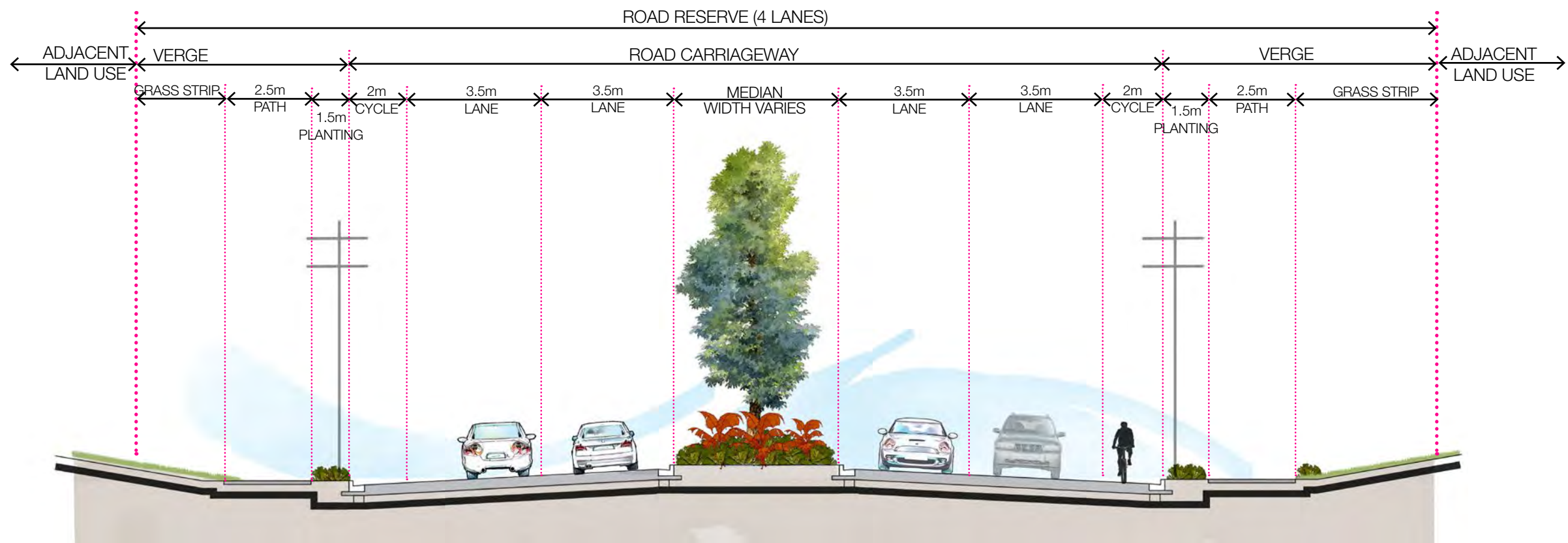


Figure 4.5.4 Arterial road cross section in urban (core) setting, road corridor width varies between 30 to 40m



Table 4.5.1 Layout considerations for sub-arterial roads

Setting	Rural	Transition	Urban	Core
Element	Sub-Arterial Road (LVRC)			
Street trees (Refer table 4.3.1)	large	medium	small	small to medium
Street tree spacing	Refer table 4.3.1			
Maximum canopy spread	no maximum	tree canopy spread shall be no greater than the width of the verge	tree canopy spread shall be no greater than the width of the verge or 6m (which ever is smaller)	varies (depends on surrounding land uses)
Street tree planting setback	50% of mature canopy spread or in accordance with Austroads whichever is more appropriate from lanemarking	1500mm minimum from shoulder edge	750mm minimum from back of kerb	750mm minimum from back of kerb
Verge tree arrangement	Informal	Informal / Asymmetrical	Formal / Asymmetrical	Formal / Feature
Verge planting allowance	no	no	no typically yes in town entry	yes
Median tree planting	no	no	small to medium	small to medium
Median tree spacing (Refer table 4.3.1)	n/a	n/a	12m intervals for trees along parking areas 8m intervals all other areas	
Median tree arrangement	n/a	n/a	Formal / Asymmetrical	Formal / Feature
Median planting minimum width	n/a	n/a	grass/groundcovers: <2m shrubs/ small trees: 2-4m small/medium trees: >4m	grass/groundcovers: <2m shrubs/ small trees: 2-4m small/medium trees: >4m
Grass strip - verge	width to match verge	width to match verge	min 600mm 1000mm to new roads	n/a
Grass strip - median	n/a	n/a	yes	yes
Examples	Woodlands Road, Woodlands Old Laidley Forest Hill Road	Woodlands Road, Woodlands Postmans Ridge Road, Helidon	Woodlands Road, Gatton	William Street, Gatton



4-9 Median strip planted with low shrubs and groundcovers to maximise visibility  
 4-10 Formal street tree planting including the median with minimal groundcovers typically found in urban and core setting  
 4-11 Informal tree planting along median with continuous low groundcovers and mixed tree species



# 4.6 Design Guidelines Distributor Roads

### Overview

Distributor roads connect to arterial roads through and around centres. They are usually single or dual carriageway with two or four lanes respectively. The road easement width varies depending on the place type location.

Adjacent road reserves are usually rural areas, natural vegetation or revegetated areas with native species.

Distributor roads connect to identified tourist roads in the region. Establishing recognisable tree planting in these roads will further strengthen these routes and provide orientation.

Distributor roads in core and urban zones will usually have a footpath on one or both sides of the road. In transition and rural zones paths are minimal and are provided for small connections.

Distributor roads would be treated with native tree species in planting areas or turf. In the core and urban zones, street tree planting can follow an informal or formal arrangement corresponding to the land use of the area.

### Layout considerations

1. Kerb and channel in accordance with LVRC Works Manual and Planning Scheme.
2. Trees sizes and spacing in accordance with table 4.3.1.
3. Median planting must meet frangibility requirements as per DTMR Road Landscape Manual.
4. Planting offsets and clearances as indicated in table 4.3.2.
5. Planting to apply to areas with minimum width requirements as listed in table 4.3.3.
6. Road verge planting along existing natural systems should focus on preserving and enhancing fauna habitats.
7. Table 4.5.1 outlines the landscaping requirements that will typically apply to distributor roads.
8. Tree planting between paths and property boundaries allowed.

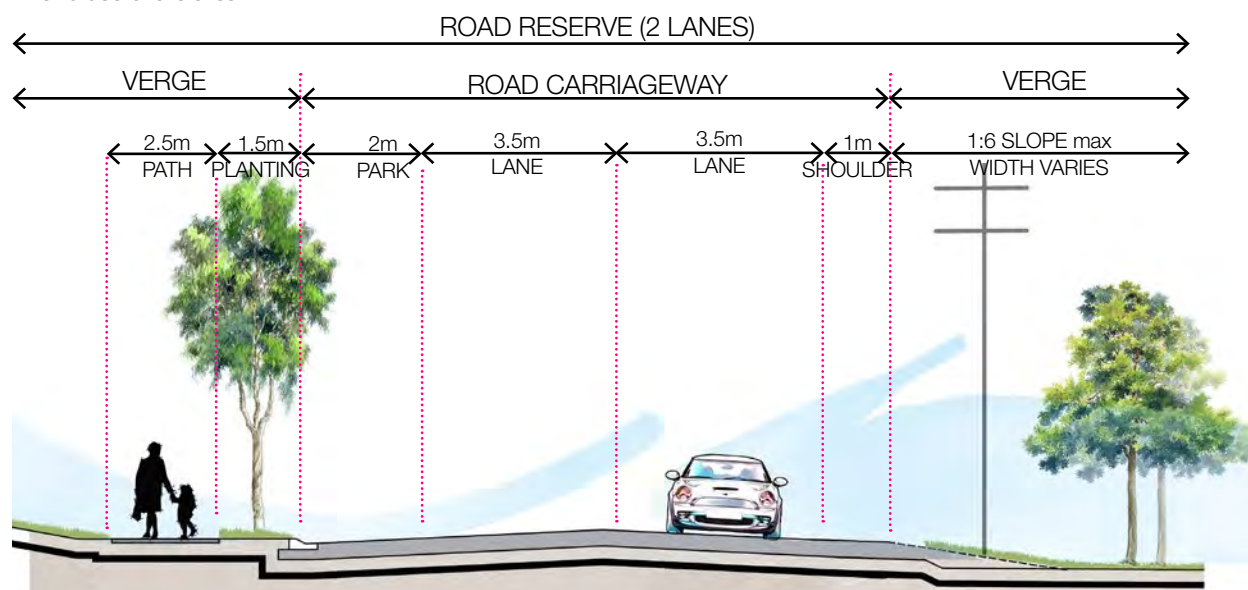
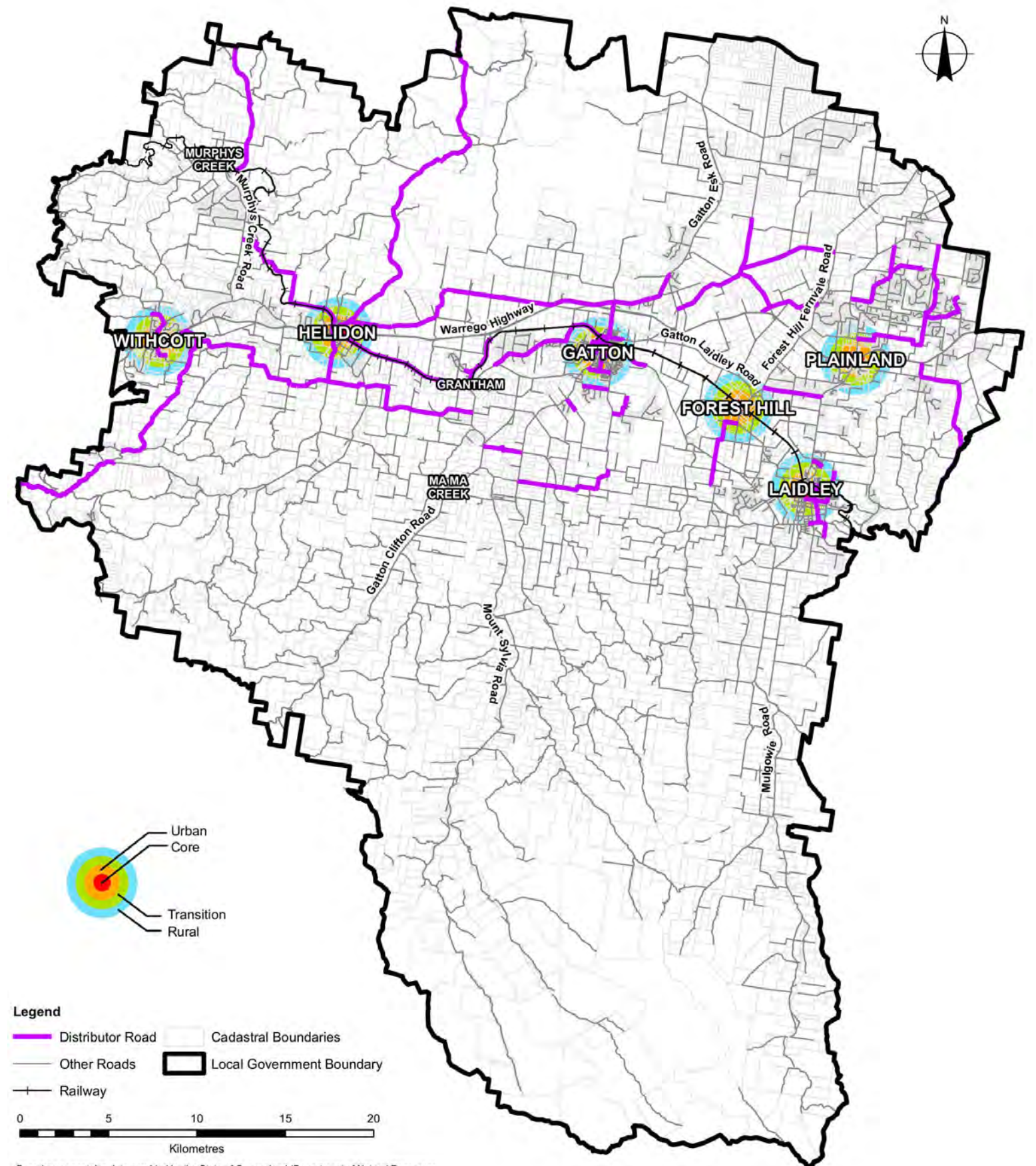


Figure 4.6.1 Typical Distributor road section, with parking



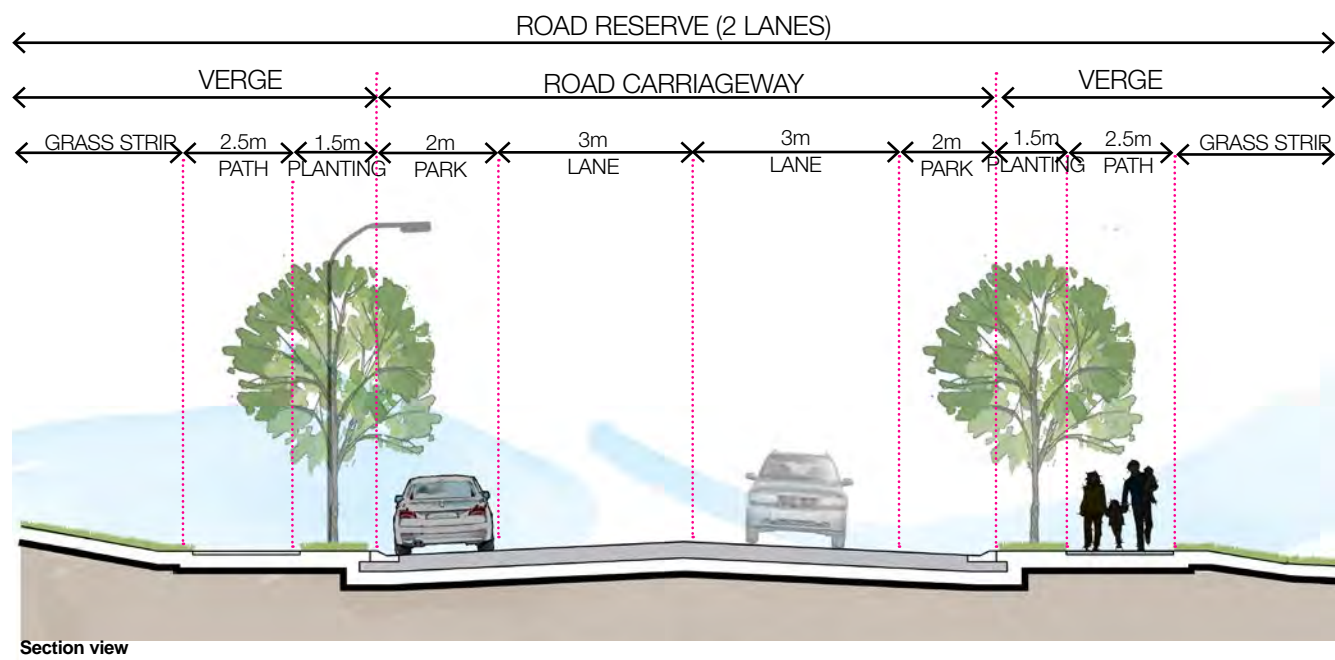
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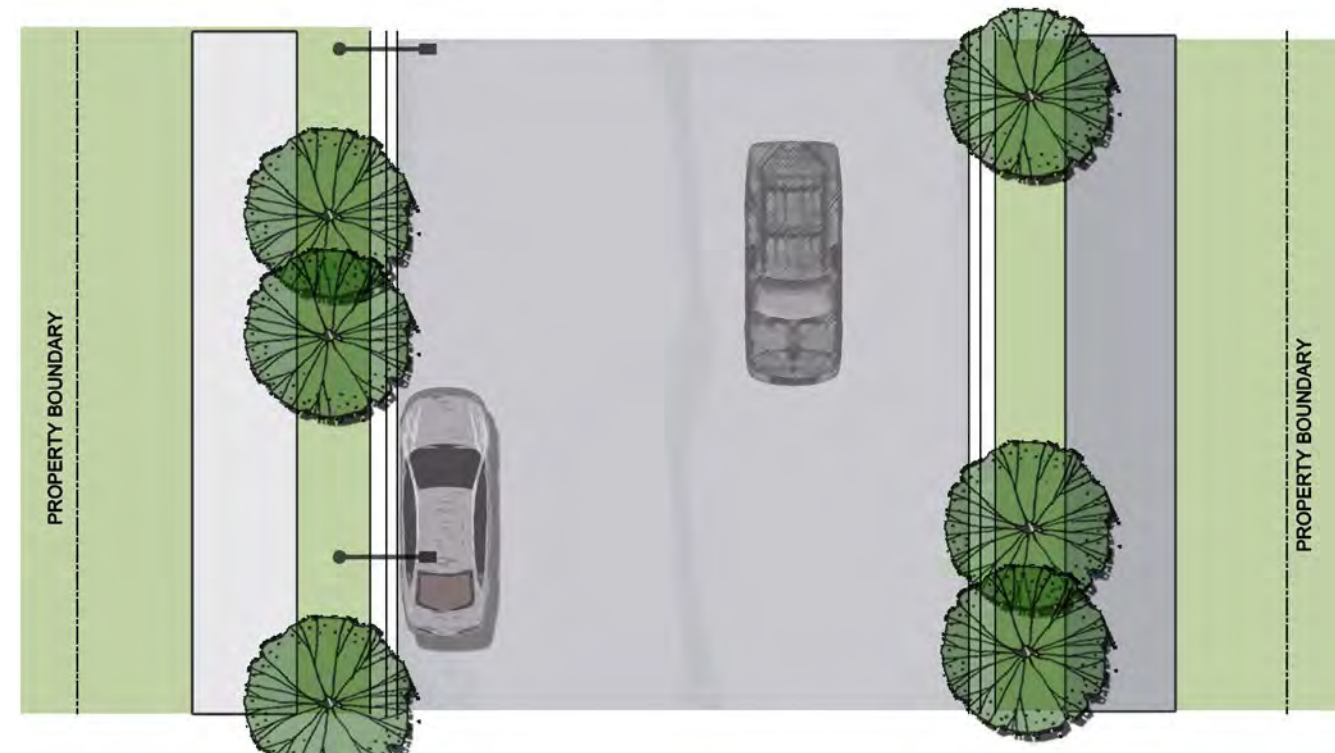
Figure 4.6.2 Location of distributor roads

Urban settings shown indicatively. Refer section 3.1 for more information. Urban settings will vary according to each town's size and scale.



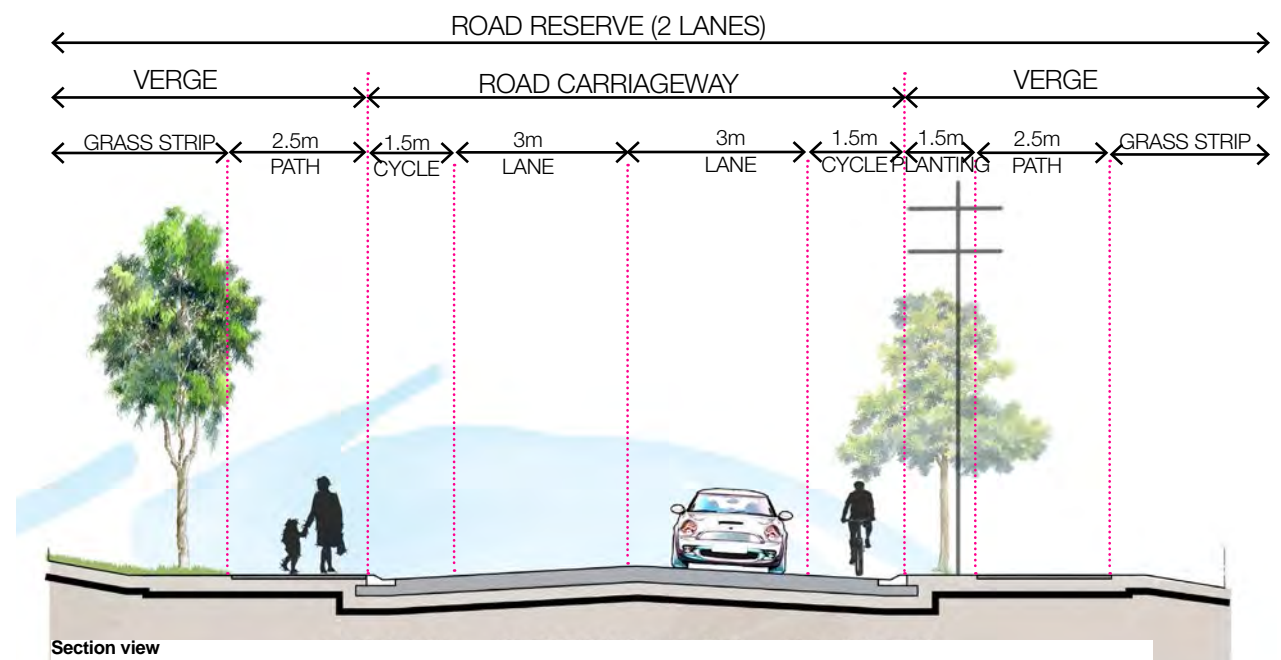


Section view

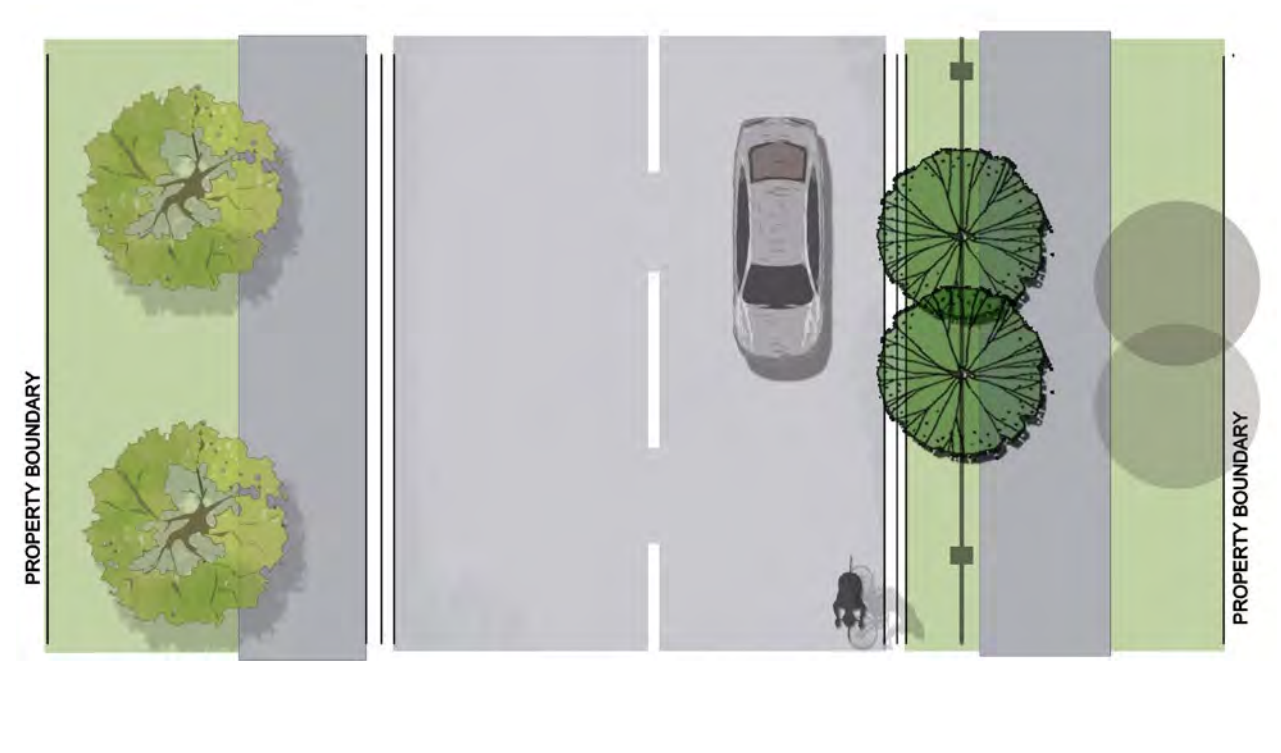


Plan view

Figure 4.6.3 Distributor road cross section and plan view in urban setting, width 20m



Section view



Plan view

Figure 4.6.4 Distributor road cross section and plan view in urban setting, width 20m



Table 4.6.1 **Layout considerations for distributor roads**

Setting	Rural	Transition	Urban	Core
<b>Element</b>	<b>Distributor Roads</b>			
<b>Street trees (Refer table 4.3.1)</b>	large	medium	small	no
<b>Street tree spacing</b>	Refer table 4.3.1			
<b>Maximum canopy spread</b>	n/a	tree canopy spread shall be no greater than the width of the verge	tree canopy spread shall be no greater than the width of the verge or 6m (which ever is smaller)	n/a
<b>Street tree planting setback</b>	50% of mature canopy spread or in accordance with Austroads whichever is more appropriate from lanemarking	50% of mature canopy spread or in accordance with Austroads whichever is more appropriate from lanemarking	750mm -1500mm minimum from back of kerb	n/a
<b>Verge tree arrangement</b>	Informal	Informal / Asymmetrical	Formal / Asymmetrical	Formal / Feature
<b>Verge planting allowance</b>	no	no	no typically	no
<b>Median tree planting</b>	n/a	n/a	n/a	small to medium
<b>Median tree spacing (Refer table 4.3.1)</b>	n/a	n/a	n/a	12m intervals for trees along parking areas 8m intervals all other areas
<b>Median tree arrangement</b>	n/a	n/a	n/a	Formal / Feature
<b>Median planting minimum width</b>	n/a	n/a	n/a	grass/groundcovers: <2m shrubs/ small trees: 2-4m small/medium trees: >4m
<b>Grass strip - verge</b>	width to match verge	width to match verge	min 600mm 1000mm to new roads	min 600mm 1000mm to new roads
<b>Grass strip - median</b>	n/a	n/a	n/a	yes
<b>Examples</b>	Blenheim Road, Forest Hill	Golf Links Drive, Gatton Waddington Parade, Forest Hill	William Street, Gatton	North Street, Gatton



4-12



4-13



4-14

4-12 Distributor road planted with mixed street tree species to manage conflicts with infrastructure. Left verge with small tree planting under power lines and right side with trees planted between path and property boundary.  
4-13 Tree planting along open spaces to have a clear trunk to maintain sightlines around bends on the road  
4-14 Groundcover planting on verge incorporated with seating elements, use of long lasting materials.



# 4.7 Design Guidelines Collector Roads

## Overview

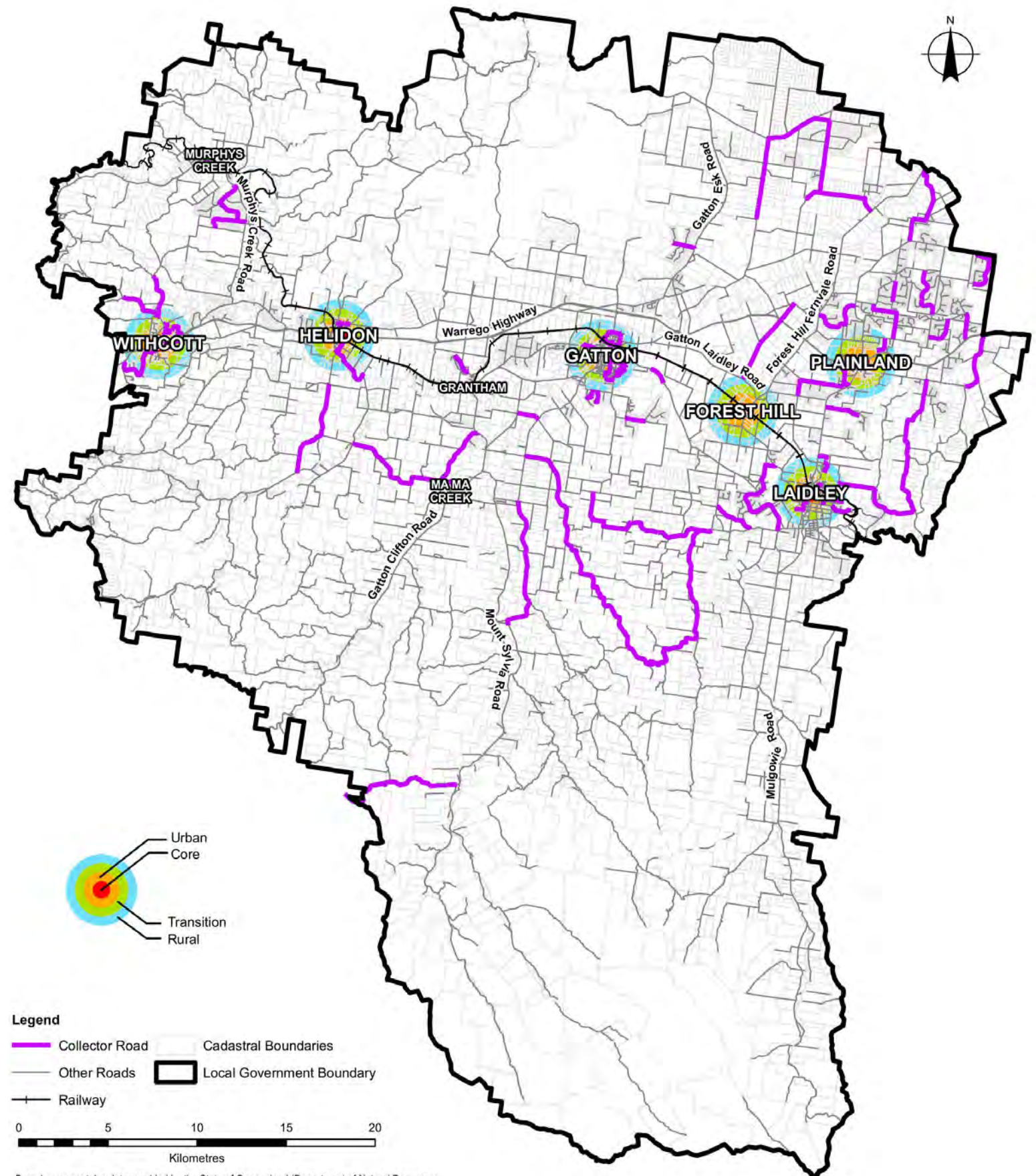
Collector Roads are typically 18-20m wide and may have allocation for cycle lanes and street parking. These roads connect to the distributor roads and have one lane in each direction, usually single carriageway.

Collector roads collect low volumes of traffic and connect the neighbourhood together to access parks, schools, shops and connect local streets with distributor roads.

Paths are provided mainly in core and urban zones with street tree planting typically an informal arrangement.

## Layout considerations

1. Kerb and channel in accordance with LVRC Works Manual and Planning Scheme.
2. Trees sizes and spacing in accordance with table 4.3.1.
3. Planting offsets and clearances as indicated in table 4.3.2.
4. Planting to apply to areas with minimum width requirements as listed in table 4.3.3.
5. Road verge planting along existing natural systems should focus on preserving and enhancing fauna habitats.
6. Table 4.6.1 outlines the landscaping requirements that will typically apply to collector roads.
7. Tree buffer planting to provide noise attenuation and / or visual screening where adjacent to industrial / commercial land uses.
8. Planting to be proportionate and sympathetic to surrounding land uses.
9. Maintain vehicular sightlines as required.
10. Trees shall be installed at a minimum size of 1.5m tall for urban/core settings.



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Figure 4.7.1 Location of collector roads

Urban settings shown indicatively. Refer section 3.1 for more information. Urban settings will vary according to each town's size and scale.



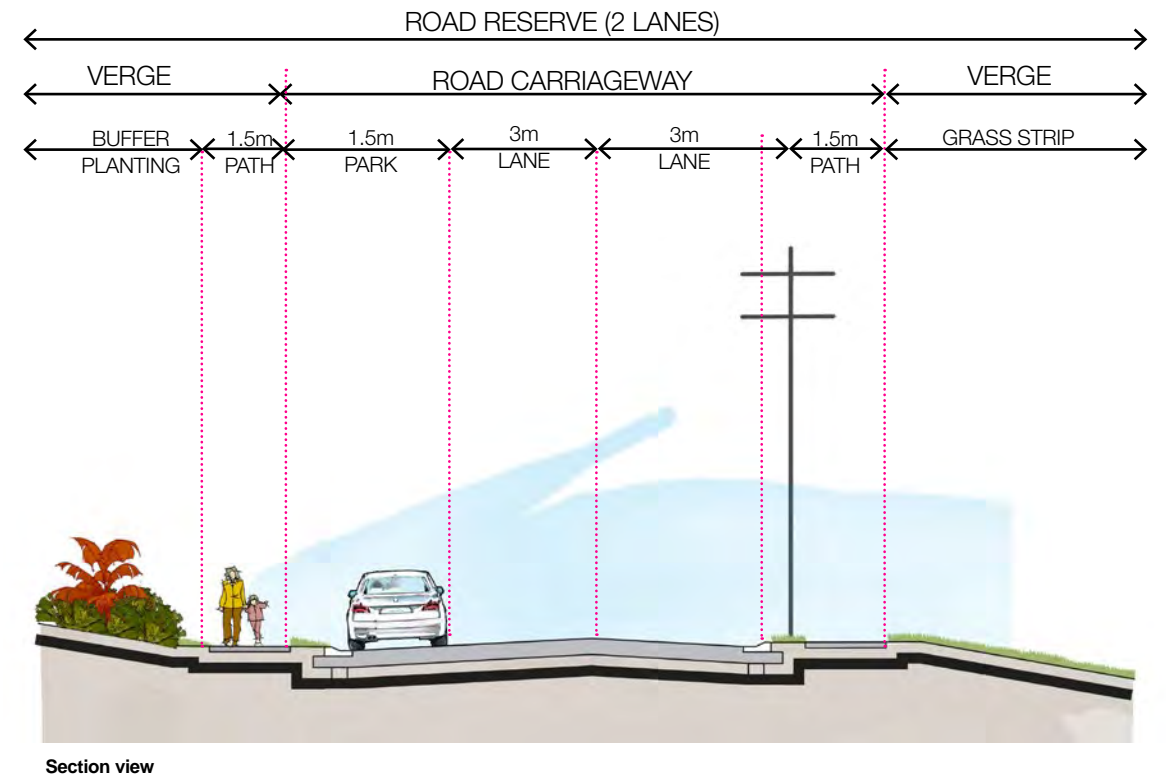
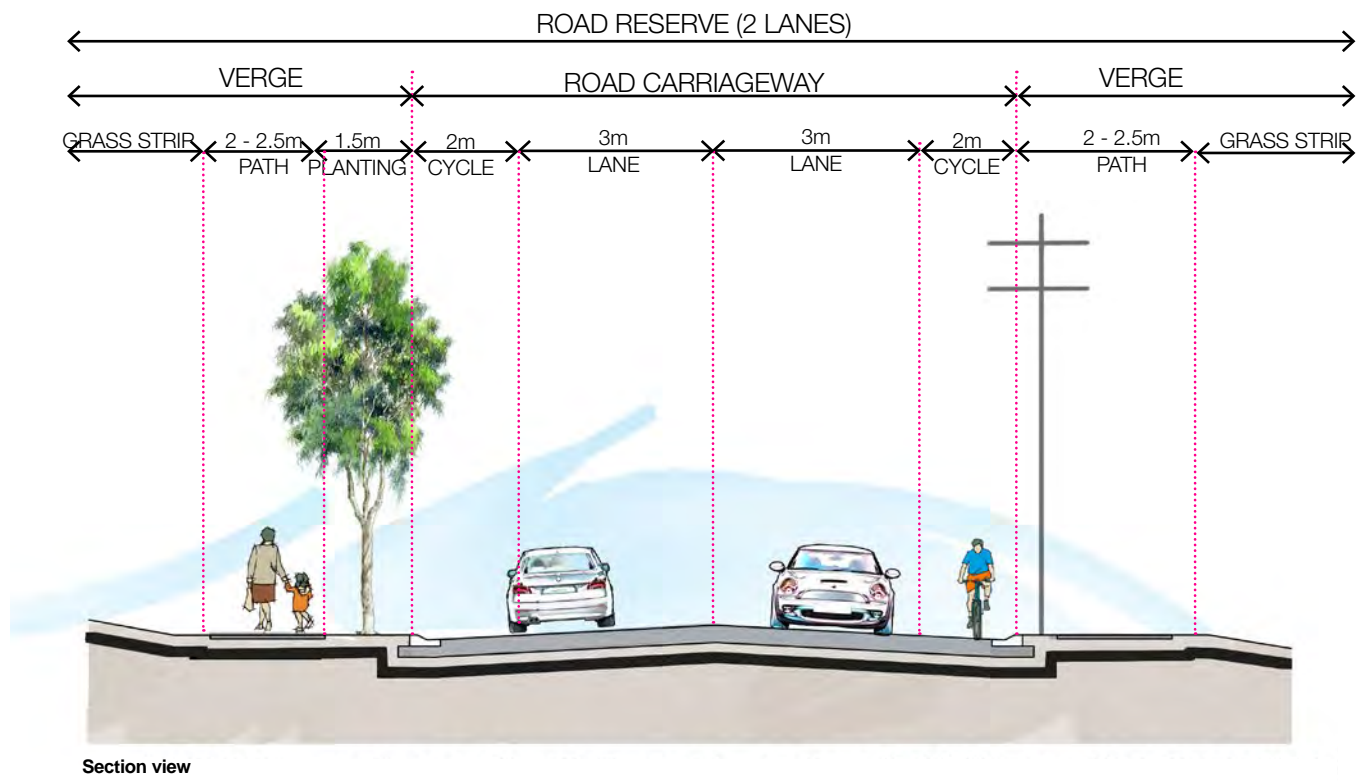


Figure 4.7.2 Collector road in urban setting, 2 lanes with cycle lane and paths between 2.0-2.5m wide - road corridor approx width 18-22m

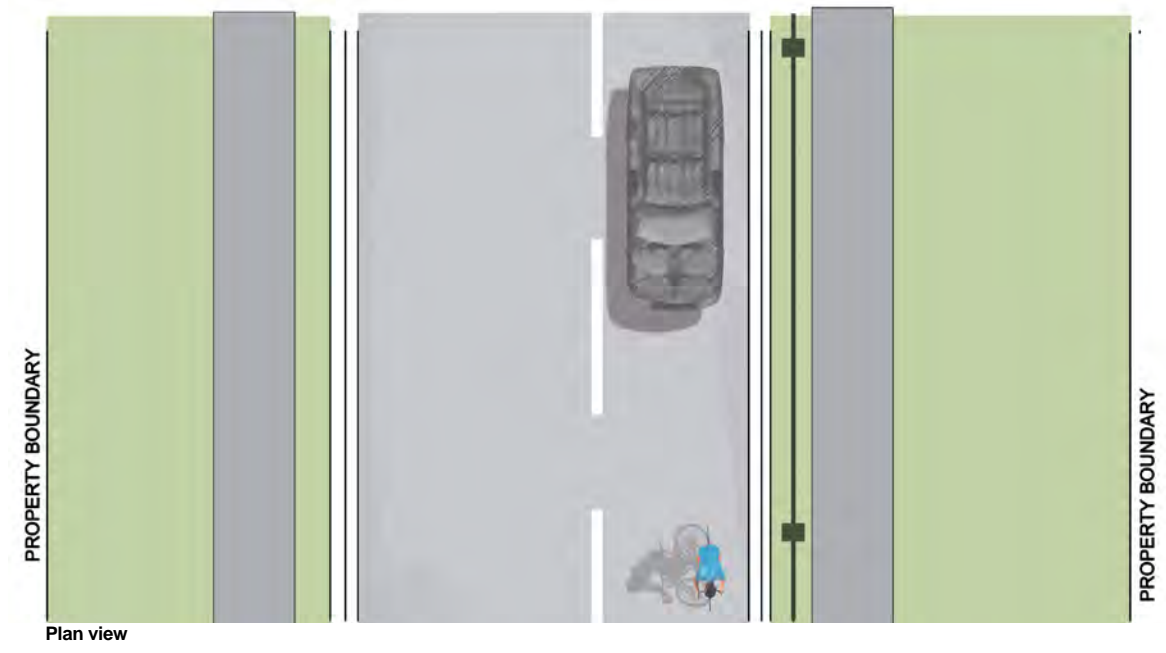
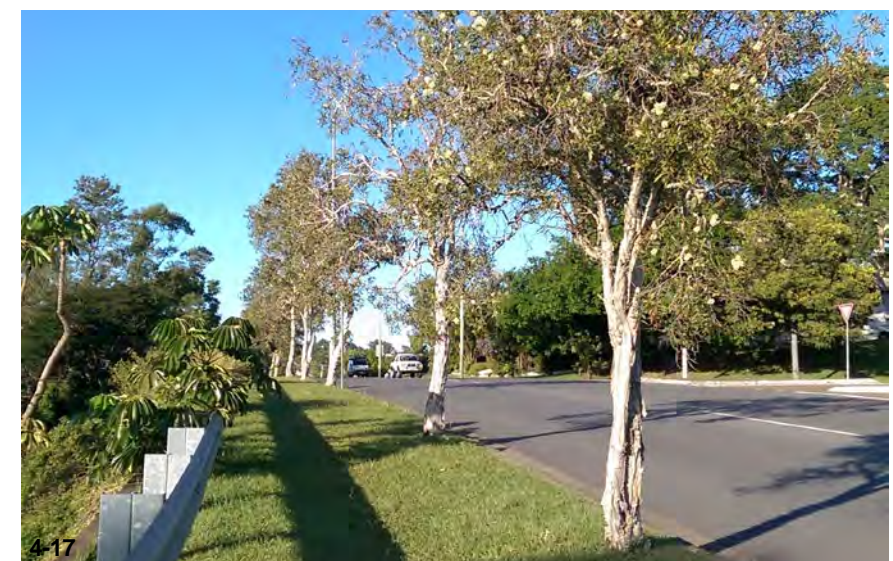


Figure 4.7.3 Collector road in urban setting, 2 lanes with parking on one side paths between 1.5m wide - road corridor approx width 16-18m



Table 4.7.1 Layout considerations collector roads

Setting	Rural	Transition	Urban	Core
<b>Element</b>	<b>Collector Roads</b>			
<b>Street trees (Refer table 4.3.1)</b>	large	medium	small	n/a
<b>Street tree spacing (Refer table 4.3.1)</b>	Refer table 4.3.1	10-15m intervals or 2 trees per residential lot	5-10m intervals or 1 tree per residential lot	n/a
<b>Maximum canopy spread</b>	n/a	tree canopy spread shall be no greater than the width of the verge	tree canopy spread shall be no greater than the width of the verge or 6m (which ever is smaller)	n/a
<b>Street tree planting setback</b>	50% of mature canopy spread or in accordance with Austroads whichever is more appropriate from lanemarking	50% of mature canopy spread or in accordance with Austroads whichever is more appropriate from lanemarking	750mm -1500mm minimum from back of kerb	n/a
<b>Verge tree arrangement</b>	Informal	Informal / Asymmetrical	Formal / Asymmetrical	Formal / Feature
<b>Verge planting allowance</b>	no	no	no typically	n/a
<b>Median tree planting</b>	no	no	n/a	n/a
<b>Median tree spacing (Refer table 4.3.1)</b>	n/a	n/a	n/a	n/a
<b>Median tree arrangement</b>	n/a	n/a	n/a	n/a
<b>Median planting minimum width</b>	n/a	n/a	n/a	n/a
<b>Grass strip - verge</b>	width to match verge	width to match verge	min 600mm 1000mm to new roads	n/a
<b>Grass strip - median</b>	n/a	n/a	n/a	n/a
<b>Examples</b>	Ingoldsby Road, Upper Tenthill Jones Road, Withcott	Lakes Drive, Laidley Heights Lamook Street, Upper Lockyer Gittins Road, Withcott Connors Road, Helidon	John Street, Laidley Barkoo Drive, Plainland	n/a



4-15 Street tree planting to a single verge of the road to reduce conflict with power lines (asymmetrical arrangement)  
 4-16 New tree planting setback from driveway entrance  
 4-17 Grassed verge planted with one tree species, sympathetic to adjacent vegetation



# 4.8 Design Guidelines Access Streets/ Laneways

## Overview

Laneway and access streets can be described as narrow roads that are single carriageway and have one lane in each direction, with no allowance for a median or parking. These roads provide access to individual properties and / or local access.

## Layout considerations

1. Kerb and channel in accordance with LVRC Works Manual and Planning Scheme.
2. Trees sizes and spacing in accordance with table 4.3.1.
3. Planting offsets and clearances as indicated in table 4.3.2.
4. Planting to apply to areas with minimum width requirements as listed in table 4.3.3.
5. Road verge planting along existing natural systems should focus on preserving and enhancing fauna habitats.
6. Table 4.7.1 outlines the landscaping requirements that will typically apply to access streets and laneways.
7. Street trees to be planted in an informal arrangement or small clusters of trees.
8. Trees planted in turf to have 1m diameter mulch ring.

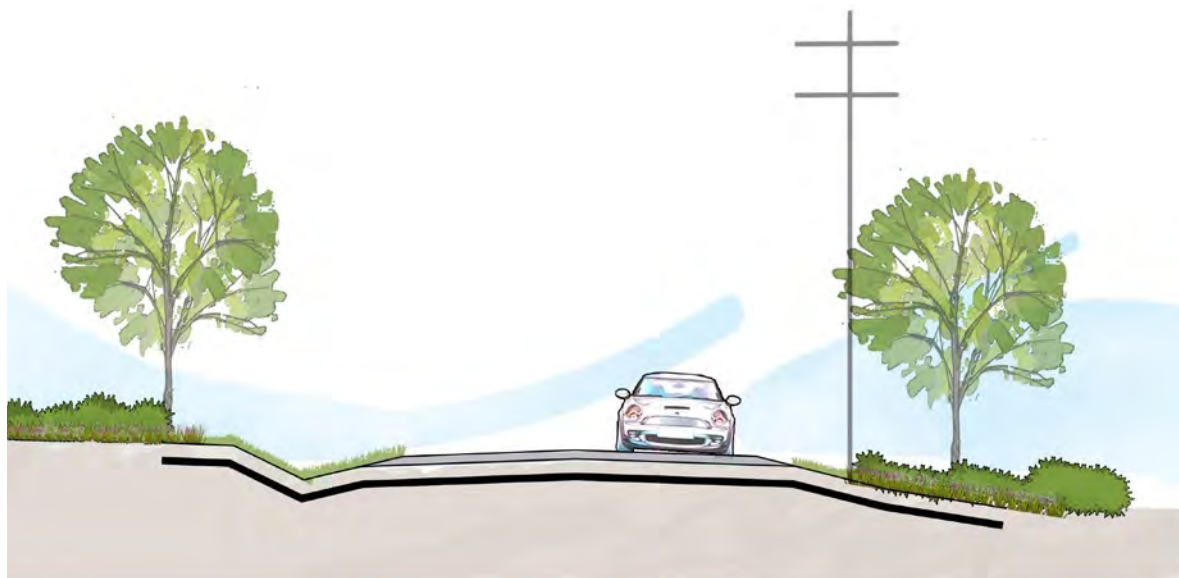


Figure 4.8.1 Typical cross section for access streets and laneways

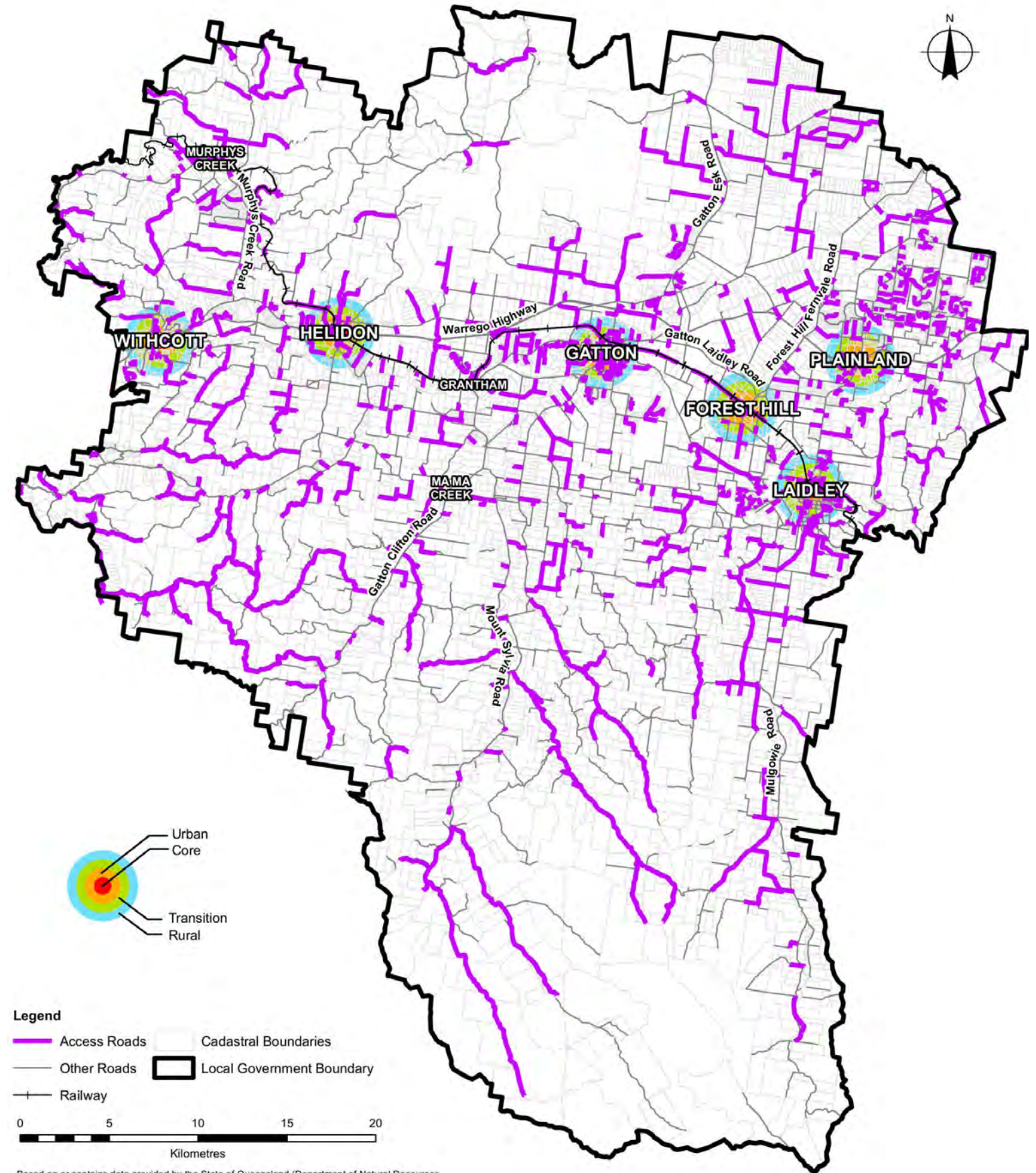
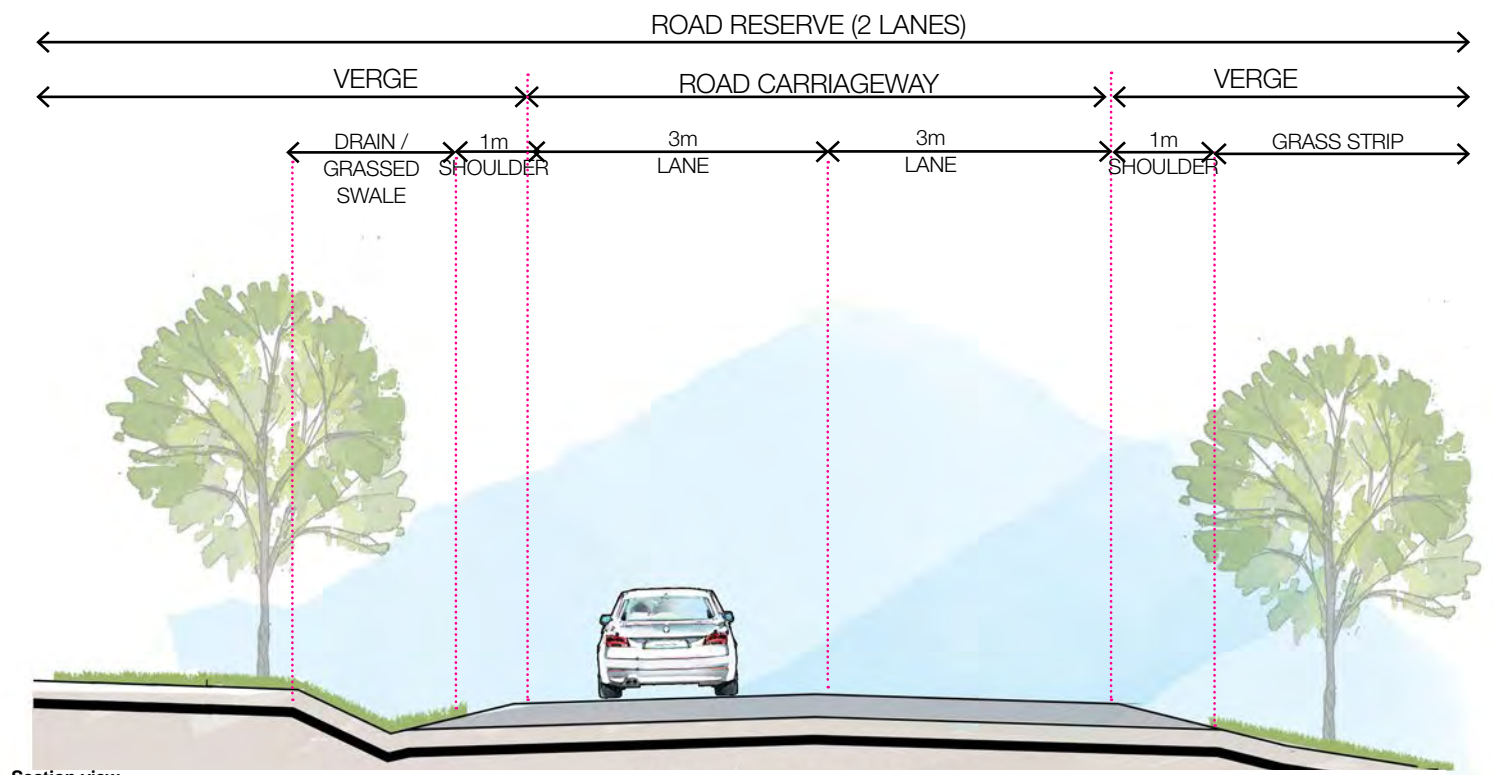
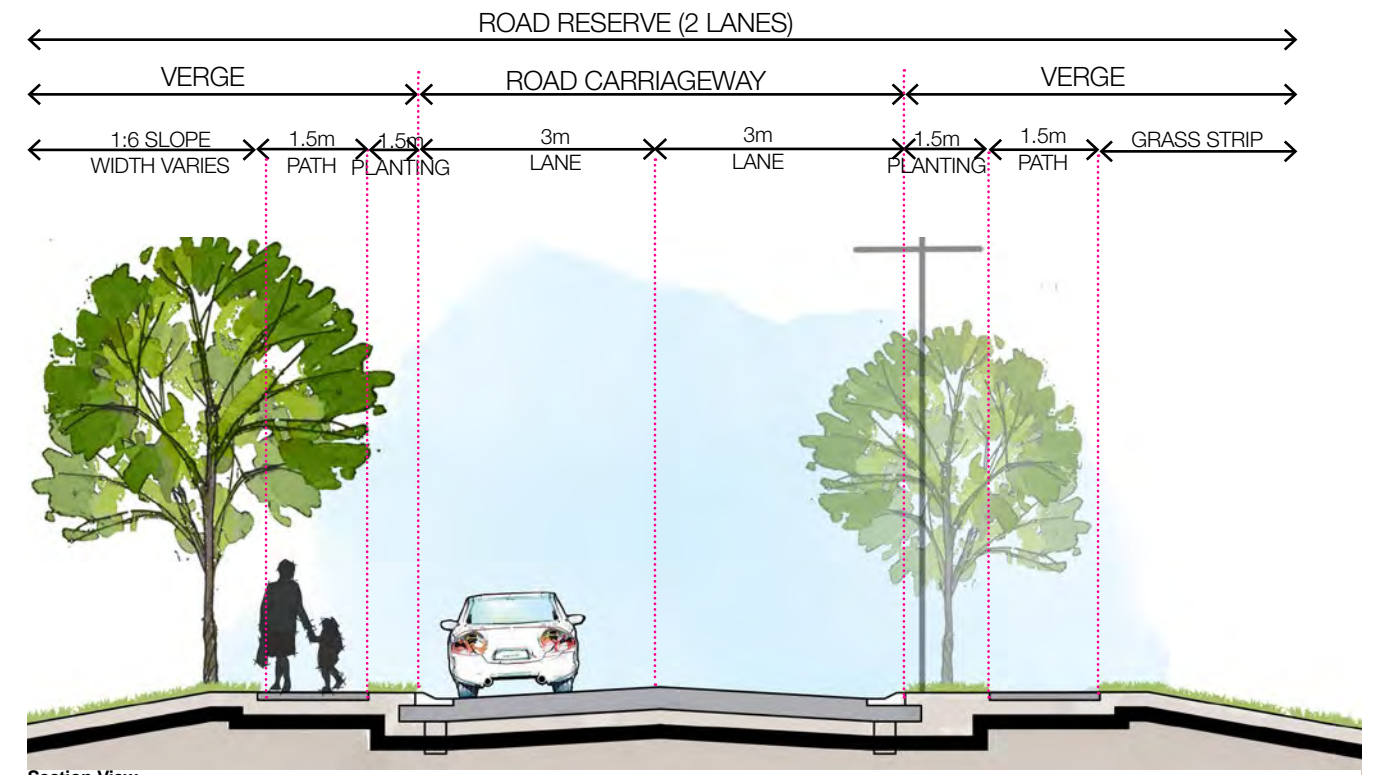


Figure 4.8.2 Location of access and laneways





Section view



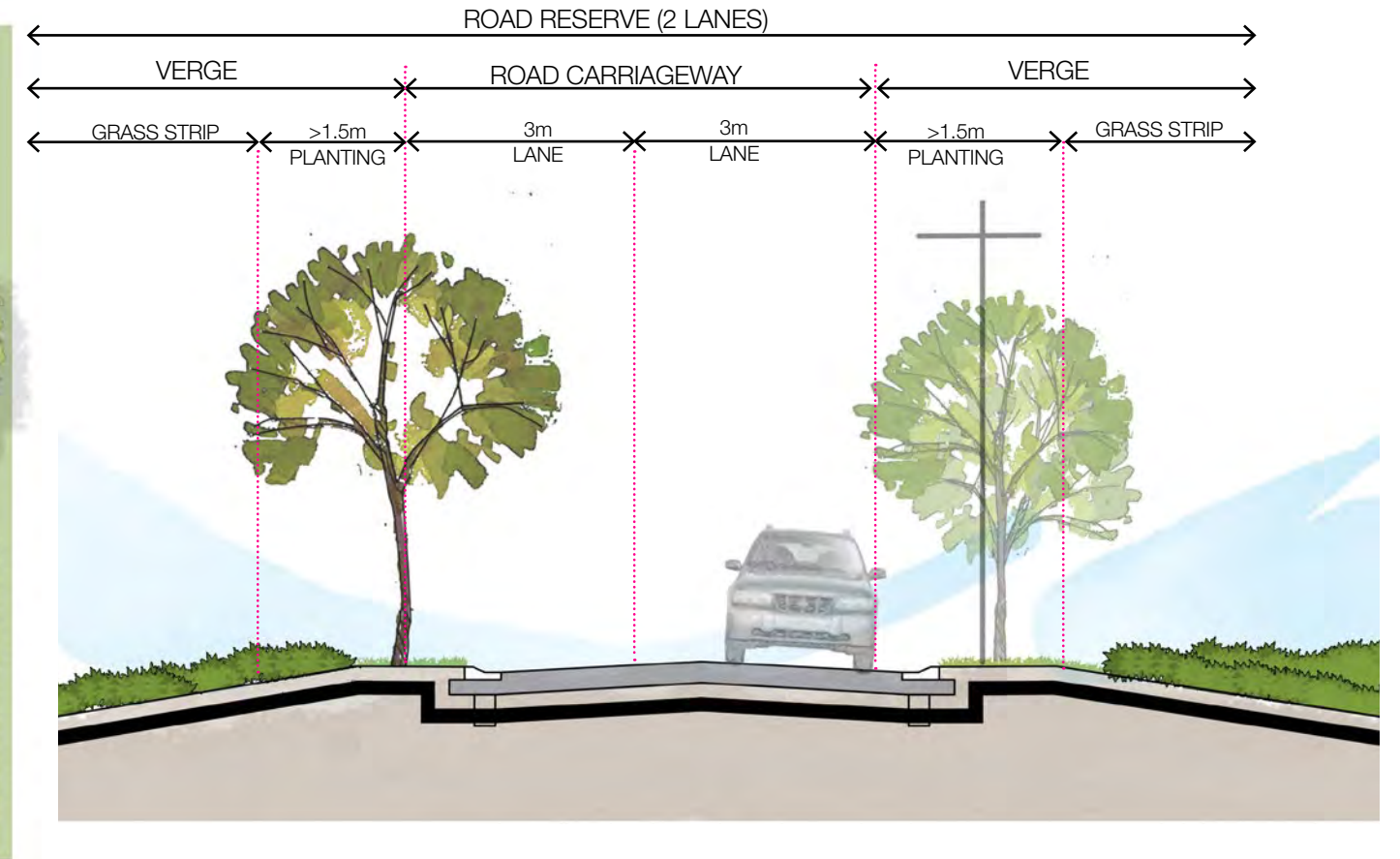
Section View

Figure 4.8.4 Access road in core and urban settings, 2 lanes with 1.5m wide paths and no allowance for cycle lanes or parking- road corridor approx width 16-18m



Plan view

Figure 4.8.3 Rural access road, 2 lanes longitudinal drain and no allowance for paths - road corridor approx width 18-22m



Section View

Figure 4.8.5 Access road in transition and urban settings, 2 lanes no allowance for parking or paths - road corridor approx width 16-18m



Table 4.8.1 **Layout considerations for access streets and laneways**

Setting	Rural	Transition	Urban	Core
<b>Element</b>	<b>Access Streets and Laneways</b>			
<b>Street trees (Refer table 4.3.1)</b>	large	medium	small	small to medium
<b>Street tree spacing</b>	Refer table 4.3.1			
<b>Maximum canopy spread</b>	no maximum	tree canopy spread shall be no greater than the width of the verge	tree canopy spread shall be no greater than the width of the verge or 6m (which ever is smaller)	varies (depends on surrounding land uses)
<b>Street tree planting setback</b>	50% of mature canopy spread or in accordance with Austroads whichever is more appropriate from lanemarking	1500mm from shoulder edge	750mm from back of kerb	750mm from back of kerb
<b>Verge tree arrangement</b>	Informal	Informal / Asymmetrical	Formal / Asymmetrical	Formal / Feature
<b>Verge planting allowance</b>	no	no	no typically	yes
<b>Median tree planting</b>	no	no	n/a	n/a
<b>Median tree spacing (Refer table 4.3.1)</b>	n/a	n/a	n/a	n/a
<b>Median tree arrangement</b>	n/a	n/a	n/a	n/a
<b>Median planting minimum width</b>	n/a	n/a	n/a	n/a
<b>Grass strip - verge</b>	width to match verge	width to match verge	min 600mm 1000mm to new roads	n/a
<b>Grass strip - median</b>	n/a	n/a	n/a	n/a
<b>Examples</b>	Woodlands Road, Woodlands Old Laidley Forest Hill Road	Woodlands Road, Woodlands Postmans Ridge Road, Helidon	Woodlands Road, Gatton	William Street, Gatton

# 4.9 Design Guidelines Industrial Roads

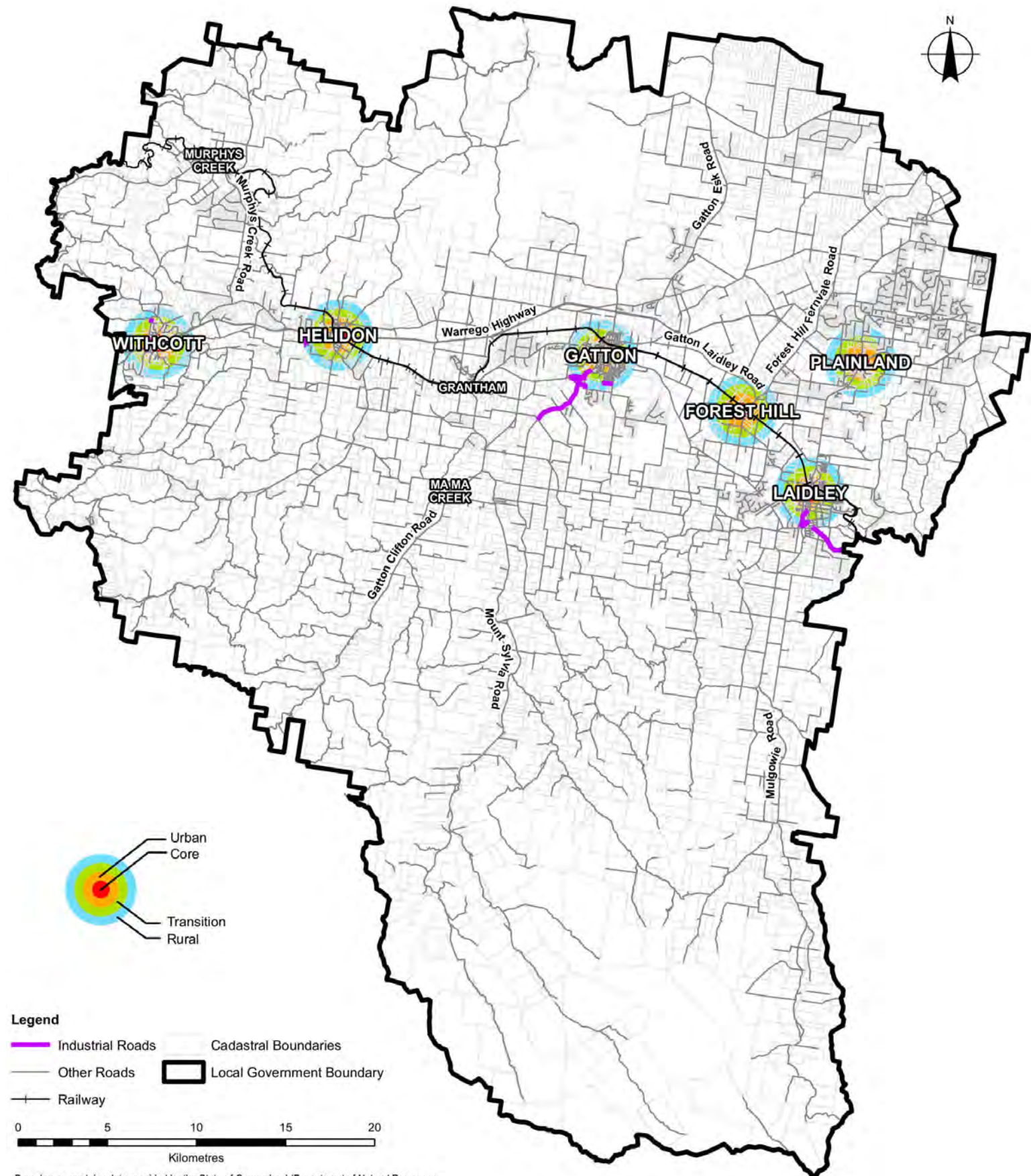
### Description/Overview/

Industrial roads provide for individual property access for heavy vehicles and link directly to a sub-arterial or higher order road.

These roads are typically 22-30m wide and can be single or dual carriageway depending on the nature of the industrial zone location.

### Layout considerations

1. Kerb and channel in accordance with LVRC Works Manual and Planning Scheme.
2. Trees sizes and spacing in accordance with table 4.3.1 or as prescribed by council officers.
3. Planting offsets and clearances as indicated in table 4.3.2.
4. Planting to apply to areas with minimum width requirements as listed in table 4.3.3.
5. Road verge planting along existing natural systems should focus on preserving and enhancing fauna habitats.
6. Table 4.8.1 outlines the landscaping requirements that will typically apply to industrial roads.
7. Street trees to be planted in an informal arrangement or small clusters of trees.
8. Trees planted in turf to have 1m diameter mulch ring.
9. Shrubs and tree planting along road frontages to screen unattractive views of industrial use.
10. Provide a suitable edge between turf and planted areas.



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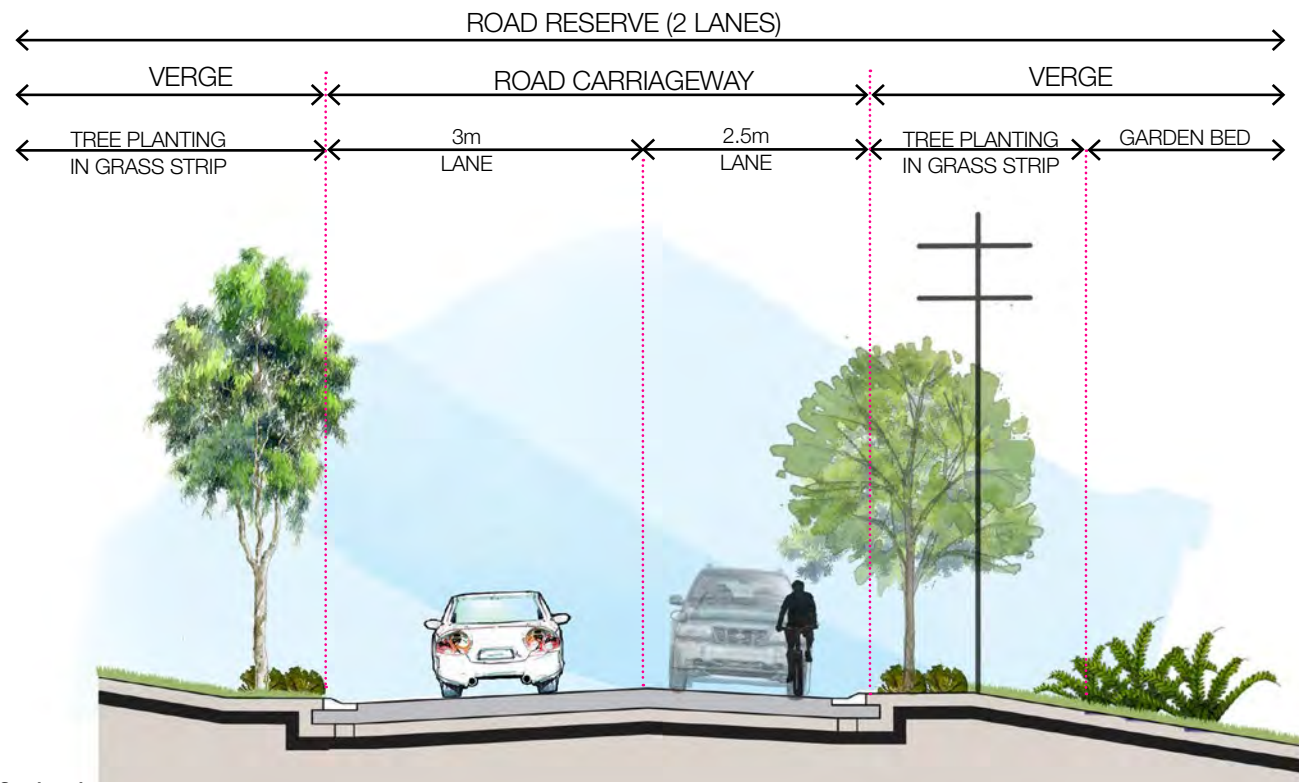
Figure 4.9.1 Location of industrial roads

Urban settings shown indicatively. Refer section 3.1 for more information. Urban settings will vary according to each town's size and scale.

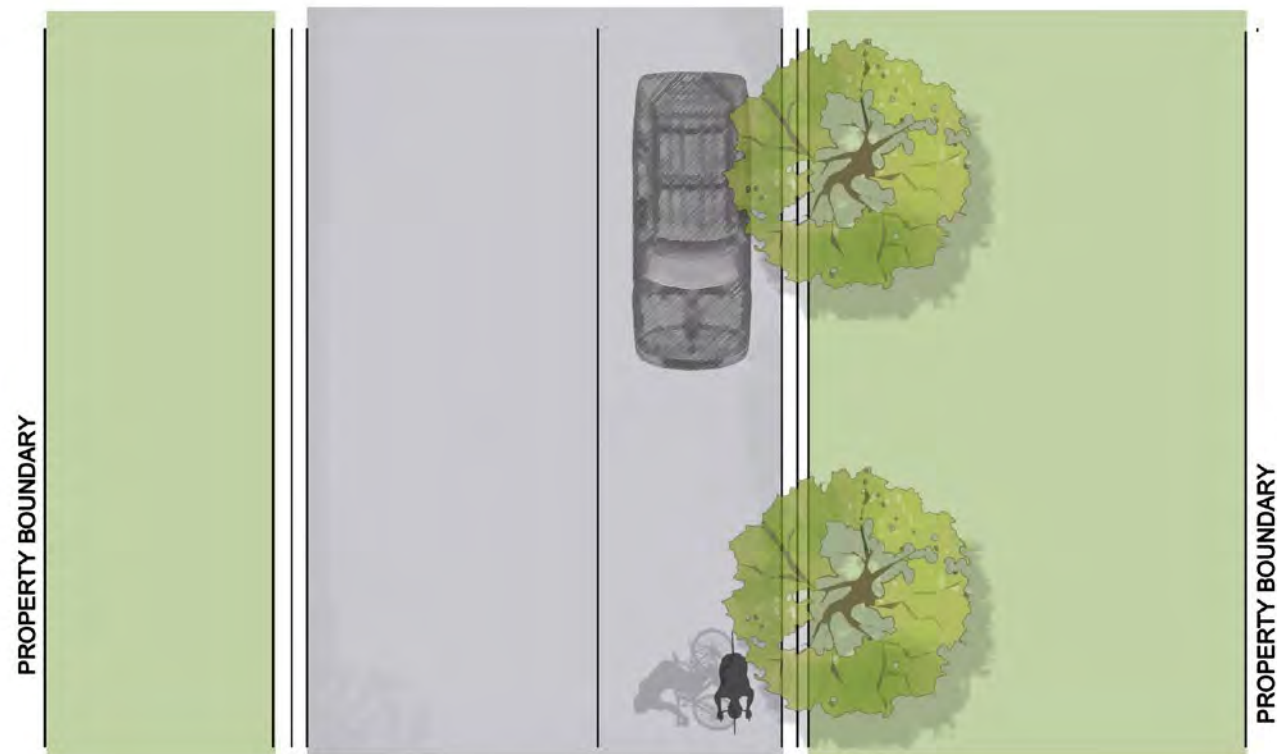


Table 4.9.1 Layout considerations for industrial roads

Setting	Rural	Transition	Urban	Core
<b>Element</b>	<b>Industrial Roads</b>			
<b>Street trees (Refer table 4.3.1)</b>	large	medium	small	n/a
<b>Street tree spacing</b>	Refer table 4.3.1			
<b>Maximum canopy spread</b>	no maximum	tree canopy spread shall be no greater than the width of the verge	tree canopy spread shall be no greater than the width of the verge or 6m (whichever is smaller)	n/a
<b>Street planting setback</b>	50% of mature canopy spread or in accordance with Austroads whichever is more appropriate from lanemarking	1500mm from shoulder edge	1500mm from back of kerb	n/a
<b>Verge tree arrangement</b>	Informal	Informal / Asymmetrical	Asymmetrical	n/a
<b>Verge planting allowance</b>	no	yes for screening as required by Council	yes for screening as required by Council	n/a
<b>Median tree planting</b>	n/a	n/a	n/a	n/a
<b>Median tree spacing (Refer table 4.3.1)</b>	n/a	n/a	n/a	n/a
<b>Median tree arrangement</b>	n/a	n/a	n/a	n/a
<b>Median planting minimum width</b>	n/a	n/a	n/a	n/a
<b>Grass strip - verge</b>	width to match verge	width to match verge	width to match verge	n/a
<b>Grass strip - median</b>	n/a	n/a	n/a	n/a
<b>Examples</b>	Kelly's Road, Helidon Airforce Road, Helidon Rosewood-Laidley Road, Laidley	Rosewood-Laidley Road, Laidley Roaches Road, Withcott Market Drive, Gatton	Vaux Street, Laidley Rosewood-Laidley Road, Laidley	n/a



Section view



Plan view

Figure 4.9.3 Typical cross section for industrial road

# Planting Selection

The following section provides a list of recommended plant species for planting in LVRC.



# 5.1 Planting Selection

The recommended plant species for LVRC have been largely incorporated due to their suitability to the region's soils and microclimates. The list focuses on native species due to their habitat advantages, however exotic species have also been included due to their use within the region. Feedback from the community was used to guide theme and characteristics of the towns in LVRC.

The selection of plants provided cover a range of applications such as, conservation, habitat, urban setting, visibility, frangibility and low maintenance to name a few.

The planting guide provides Council staff, developers and the wider community with a range of plant species suitable for a variety of applications.

Proposed plants not included in the list would be considered upon review by council for their application, environmental benefits to the area and ensuring they meet the associated road safety requirements.

Other characteristics required for appropriate tree selection are aspect, drainage, overhead wires, underground services, setbacks from buildings and hard elements.

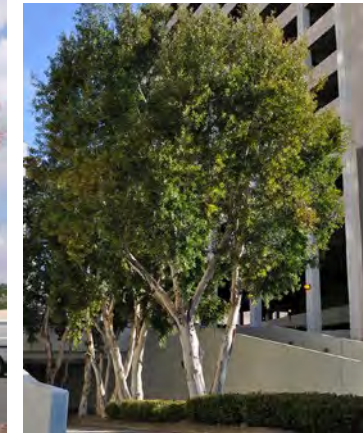
Determining the space available for planting is essential in the selection of the most suitable species for the road reserve planting. Consideration of the mature height and canopy of the trees is paramount when designing a new road and / or refurbishing an existing road.

While all efforts have been done to provide a suitable species list for the various conditions found in LVRC, physical factors could change and provide different growing conditions. It is suggested the planting list be reviewed periodically to ensure it excludes species that have become non-performing.

Example of feature tree >  
*Brachychiton acerifolius*



< Example of shade tree -  
*Melaleuca quinquenervia*



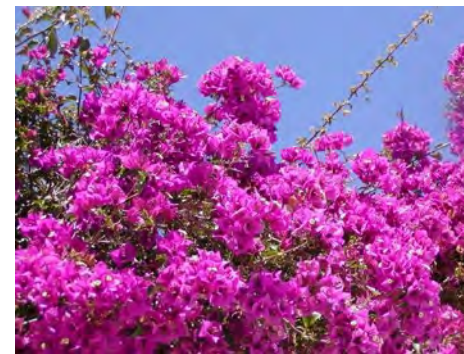
^ *Liriope* spp.



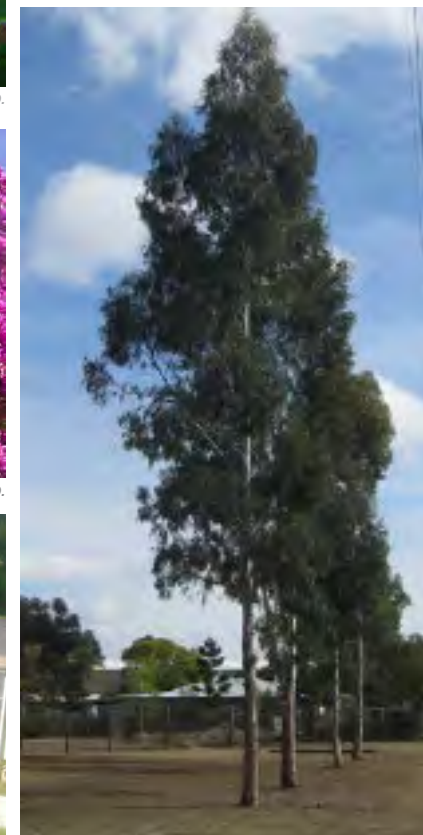
^ Mix of natives and exotics species



^ Example of low maintenance planting - non spreading



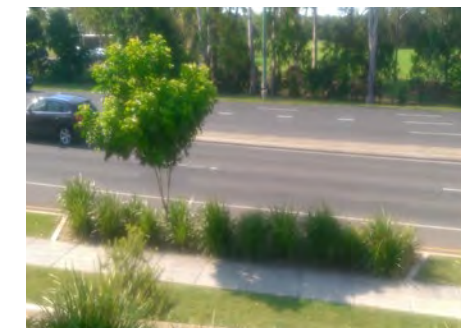
^ *Bougainvillea* spp.



^ Example of formal planting - single stemmed trees



^ *Lomandra* spp.



^ Example of planting sections to provide interest and break up long turf areas



^ *Syzygium luehmannii* -

Table 5.1.1 Planting list

SPECIES	COMMON NAME	Local Native	^MATURE HEIGHT (m)	MATURE SPREAD (m)	Access Roads	Collector Roads	Distributor Roads	Arterial Roads	Industrial Roads	Flood Resilient	Fire Tolerant	Drought Tolerant	Salinity Tolerant	Heritage Character	Fauna Habitat	Screen / Buffer	Gateway / Entry	Comments
<b>LARGE TREES &gt;15m</b>																		
<i>Araucaria cunninghamii</i>	Hoop pine	Yes	50	20		*	*	*							*			Rainforest
<i>Brachychiton rupestris</i>	Narrow-leaved bottle tree	Yes	20	5		*	*					*			*			Medium to heavy clay, silt, sand
<i>Buckinghamia celsissima</i>	Ivory curl	N Qld	30	10			*					*		*	*			Rainforest
<i>Acacia blakei</i>	Wollombi Wattle	Yes	13	4								*			*			Sclerophyll woodlands
<i>Acacia disparrima</i>	Hickory	Yes	12	4		*	*								*			Sclerophyll woodlands, rainforest margins
<i>Acacia harpophylla</i>	Brigalow	Yes	15	5											*	*		Usually in claim loam soils
<i>Alphitonia excelsa</i>	Soap tree	Yes	15	3	*	*	*	*	*						*		*	Closed forests
<i>Brachychiton australis</i>	Broad-leaved bottle tree	Yes	10	4		*	*					*			*		*	Grows in vine thickets
<i>Casuarina cristata</i>	Belah	Yes	10	2											*			Inland dry sclerophyll
<i>Casuarina glauca</i>	Swamp she-oak	Coastal Qld	10	5		*	*		*	*			*		*	*		Fast growing, potential to remediate saline areas
<i>Corymbia ptychocarpa</i>	Swamp bloodwood	N Qld	15	4			*	*	*			*		*	*			Along watercourses
<i>Eucalyptus crebra</i>	Narrow-leaved ironbark	Yes	35	15					*	*					*		*	In grassy woodlands/forest on sandy soils
<i>Eucalyptus microcorys</i>	Tallowwood	Yes	40	20			*	*							*			Forests with medium fertility soils
<i>Eucalyptus propinqua</i>	Grey gum	Yes	20	15			*	*		*					*		*	Wet coastal forest on low fertility soils
<i>Eucalyptus saligna</i>	Sydney blue gum	Yes	50	25				*	*	*					*			Wet forest, moderate fertility soils, often on slopes
<i>Eucalyptus siderophloia</i>	Northern grey ironbark	Yes	45	25			*	*	*						*			Wet forest, moderate fertility soils
<i>Eucalyptus tereticornis</i>	Forest red gum	Yes	50	15		*		*	*	*					*		*	Wide range - alluvial floodplains to volcanic mountain sides
<i>Flindersia australis</i>	Crow's ash	Yes	40	10		*	*	*						*	*			Rainforest at low altitudes
<i>Flindersia collina</i>	Leopard wood	Yes	40	10		*	*								*		*	Dry rainforest
<i>Grevillea robusta</i>	Silky oak	Yes	30	10			*	*				*	*		*		*	Drought hardy - NB leaves can be poisonous
<i>Lophostemon confertus</i>	Brush box	Yes	20	15					*	*					*			Common street tree

*^Note: Actual height at maturity depends on the conditions at the site and the health of the individual plant. Maximum height is often not reached in street locations.*



SPECIES	COMMON NAME	Local Native	^MATURE HEIGHT (m)	MATURE SPREAD (m)	Access Roads	Collector Roads	Distributor Roads	Arterial Roads	Industrial Roads	Flood Resilient	Fire Tolerant	Drought Tolerant	Salinity Tolerant	Heritage Character	Fauna Habitat	Screen / Buffer	Gateway / Entry	Comments	
<b>MEDIUM 7-15m</b>																			
<b>Allocasuarina torulosa</b>	Forest oak	Yes	8	4			*	*							*				Usually on higher nutrient soils, moister, understorey in open forest
<b>Backhousia citriodora</b>	Lemon-scented myrtle	Coastal Qld	7	3												*			Coastal rainforest
<b>Brachychiton populneus</b>	Kurrajong	Yes	7	5		*	*					*							Various well-drained soils
<b>Bursaria incana</b>	Prickly pine	Yes	7	4								*			*				Open woodland, dry scrub
<b>Cassia tomentella</b>	Velvet scrub cassia	Yes	8	2								*			*				Open woodland, dry scrub
<b>Cupaniopsis anacardioides</b>	Tuckeroo	Yes	10	8	*	*	*					*			*				Drought hardy, from rainforest/scrub near estuaries
<b>Cupaniopsis parvifolia</b>	Small-leaved tuckeroo	Yes	10	3	*	*	*								*				Dry rainforest
<b>Harpullia pendula</b>	Tulipwood	Yes	12	4	*	*		*				*			*				Drought hardy, from drier rainforest
<b>Hymenosporum flavum</b>	Native frangipani	Yes	10	4	*	*						*			*				Drought hardy, from rainforest and tall open forest
<b>Syzygium australe</b>	Lilly-pilly / Scrub cherry	Yes	15	10				*				*			*	*	*		Rainforest
<b>Toona ciliata</b>	Red cedar	Yes	10	10	*	*						*		*	*				Drought hardy, from rainforest and tall open forest
<b>Waterhousea floribunda</b>	Weeping lilli pilli	Yes	10	8	*	*	*		*	*	*				*	*	*		Riverine rainforest, often lining streams

*^Note: Actual height at maturity depends on the conditions at the site and the health of the individual plant. Maximum height is often not reached in street locations.*

SPECIES	COMMON NAME	Local Native	^MATURE HEIGHT (m)	MATURE SPREAD (m)	Access Roads	Collector Roads	Distributor Roads	Arterial Roads	Industrial Roads	Flood Resilient	Fire Tolerant	Drought Tolerant	Salinity Tolerant	Heritage Character	Fauna Habitat	Screen / Buffer	Gateway / Entry	Comments	
<b>SMALL 5m-8m</b>																			
<b>Acacia concurrens</b>	Black wattle	Coastal Qld	5	5		*	*									*			Sclerophyll woodlands
<b>Babingtonia sp.</b>	Twiggy Babingtonia	Yes	4	4	*				*			*			*				Drought hardy, near creek banks
<b>Backhousia citriodora</b>	Lemon Scented Myrtle	Yes	6	4	*	*			*					*		*			Sclerophyll woodland, watercourses
<b>Brachychiton bidwillii</b>	Little Kurrajong	Yes	4	2	*				*		*	*			*				Rainforest
<b>Eremophila sp.</b>	Emu bushes	Yes	5	5		*			*			*	*		*				Drought tough, bird attracting
<b>Elaeocarpus eumundi</b>	Eumundi Quandong	Yes	7	4	*	*			*					*		*			Sclerophyll woodland, watercourses. Glossy green, suitable for screen planting
<b>Melaleuca salignus</b>	Weeping bottlebrush	Yes	4	3	*	*			*										Sclerophyll woodland, watercourses
<b>Notelaea lloydii</b>	Lloyd's native olive	Yes	5	3	*		*		*			*			*		*		Shallow well drained sloping stony soils
<b>Pavetta australiensis</b>	Butterfly bush	Yes	4	2					*		*				*				Drought hardy, from dry rainforest
<b>Eucalyptus 'Summer Beauty'</b>	Pink Flowering Gum	No	6	3				*	*										
<b>Eucalyptus 'Summer Red'</b>	Red Flowering Gum	No	5	3				*	*										Ornamental tree, clusters of pink flowers. Non-invasive roots
<b>Grevillea baileyana</b>	White Oak	N Qld	8	4		*													Suitable for wind break, white flowers. Invasive roots. Bird attracting
<b>Harpulia pendula</b>	Tulipwood	Yes	6	3		*	*					*							Evergreen tree with non-invasive roots
<b>Hibiscus tiliaceus rubra</b>	Bronze Cottonwood					*	*												
<b>Hymenosporum flavum</b>	Native Frangipani	Yes																	
<b>Lagerstroemia indica</b>	Crepe Myrtle	No	6	4	*	*		*						*			*		Ornamental flowering tree various colour flowers pinks, whites varieties
<b>Randia fitzalanii</b>	Native Gardenia	Qld	8	3															Evergreen rainforest tree. Good shade tree

*^Note: Actual height at maturity depends on the conditions at the site and the health of the individual plant. Maximum height is often not reached in street locations.*



SPECIES	COMMON NAME	Local Native	^MATURE HEIGHT (m)	MATURE SPREAD (m)	Access Roads	Collector Roads	Distributor Roads	Arterial Roads	Industrial Roads	Flood Resilient	Fire Tolerant	Drought Tolerant	Salinity Tolerant	Heritage Character	Fauna Habitat	Screen / Buffer	Gateway / Entry	Comments
<b>GROUNDCOVERS / CLIMBERS</b>																		
Acacia complanata	Flat-stemmed wattle	Yes	1	1	*			*	*		*				*		*	Found in forest country
Alectryon diversifolius	Holly bush	Yes	3	2											*	*		In vine thickets, dry rainforest
Atriplex nummularia	Old man saltbush	Yes	3	4					*				*		*			Low-lying saline clay soils
Boronia rosmarinifolia	Forest boronia	Yes	1	1											*			Dry heath and eucalypt forest
Bouganvillea Donya		No	3	3			*	*	*							*	*	
Bouganvillea Penelope		No	3	3												*	*	
Cleistochloa subjuncea	A grass	Yes	1	1											*			Grass
Crinum pedunculatum	Brisbane River lily	Yes	1	1	*		*	*		*		*			*		*	Drought hardy, grows in muddy swampy tidal areas
Cymbopogon refractus	Barbed-wire grass	Yes	1	1			*	*	*						*		*	A grass in open woodland
Dodonaea lanceolata var. subsessifolia	n/a	Yes	2	1					*						*			Rocky hillsides or sandy soils
Dodonaea viscosa subsp. cuneata	Sticky hop bush	Yes	2	1	*	*	*	*							*			Rocky slopes
Grevillea Scarlet Sprite	Grevillea	No	1	1	*		*	*										
Grevillea juniperina Molonglo	Grevillea	No	2	2			*	*									*	
Grevillea juniperina Red	Grevillea	No	1	1	*		*	*									*	
Grevillea Poorinda Royal mantle	Grevillea	No															*	
Hardenbergia violacea	Native sarsparilla	Yes	1	6			*					*			*			Scrambling vine, stems to 6 m, cover for embankments, frost tolerant.
Hemerocallis cultivars	Day Lily	No																
Indigofera brevidens	n/a	Yes	2	1											*			Rocky slopes
Indigofera spp.	Various	Yes	1	1											*			Various sandy soils
Kennedia rubicunda	Red kennedy pea	Yes	1	4			*			*		*			*			Scrambling vine, stems to 4 m, cover for embankments, frost tolerant.
Liriope muscari	Evergreen giant	No			*	*	*	*	*			*		*			*	
Lomandra hystrix	Matt-rush	Yes	2	2					*	*					*	*		Stream-side, wetlands and gullies
Lomandra longifolia	Spiny matt-rush	Yes	2	2	*	*	*	*	*	*	*	*			*	*		Widespread and hardy
Myoporum ellipticum	Coastal Myoporum	No																
Myoporum montanum	Water bush	Yes	3	2						*	*	*			*	*		Sclerophyll or open forest, rainforest margins
Olearia elliptica	Scrub daisy	Yes	1	1				*							*		*	Rainforest in Lockyer Valley

*^Note: Actual height at maturity depends on the conditions at the site and the health of the individual plant. Maximum height is often not reached in street locations.*

SPECIES	COMMON NAME	Local Native	^MATURE HEIGHT (m)	MATURE SPREAD (m)	Access Roads	Collector Roads	Distributor Roads	Arterial Roads	Industrial Roads	Flood Resilient	Fire Tolerant	Drought Tolerant	Salinity Tolerant	Heritage Character	Fauna Habitat	Screen / Buffer	Gateway / Entry	Comments	
<b>GROUNDCOVERS / CLIMBERS</b>																			
<i>Pandorea jasminoides</i>	Trumpet Creeper	No				*	*	*	*										
<i>Paspalidium spp.</i>	Panicgrass	Yes	2	1			*								*				Grass; 40 species from tropical regions
<i>Sarga leiocladum</i>	Wild sorghum	Yes	2	2											*	*			Tufted grass, on hill slopes
<i>Senna coronilloides</i>	Brigalow senna	Yes	2	2								*			*				Sclerophyll / Brigalow
<i>Scaevola aemula</i>	Fairy Fan-flower	No																	
<i>Themeda triandra</i>	Kangaroo grass	Yes	1	1	*	*	*	*	*	*	*				*		*		Grass, open woodland
<i>Tulbaghia violacea</i>	Society Garlic	No																	
<i>Westringia sp.</i>	Rosemary	Yes	2	2	*	*	*	*	*	*	*	*			*	*			Drought hardy; salt tolerant
<i>Zieria cytisoides</i>	Downy zieria	Yes	1	2								*			*	*			Drought hardy small rounded shrub
<b>WETLAND/AQUATIC SPECIES</b>																			
<i>Cyanogeton procerum</i>	Water ribbons	Yes	n/a	n/a						*					*				Aquatic
<i>Eleocharis spp.</i>	Spike-rush	Yes	n/a	n/a						*					*				Aquatic
<i>Gahnia aspera</i>	Saw sedge	Yes	1	1						*					*				Riparian, moist situations in open forest
<i>Leersia hexandra</i>	Swamp ricegrass	Yes	n/a	n/a						*					*				Aquatic
<i>Nymphaea violacea</i>	Native waterlily	Yes	n/a	n/a						*					*				Aquatic
<i>Nymphoides indica</i>	Water snowflake	Yes	n/a	n/a						*					*				Aquatic
<i>Persicaria spp.</i>	Knotweed	Yes	n/a	n/a						*					*				Aquatic
<i>Philydrum lanuginosum</i>	Frogsmouth	Yes	n/a	n/a						*					*				Aquatic
<i>Phragmites australis</i>	Common reed	Yes	n/a	n/a						*					*				Aquatic
<i>Schoenoplectus spp.</i>	Rush	Yes	n/a	n/a						*					*				Aquatic

*^Note: Actual height at maturity depends on the conditions at the site and the health of the individual plant. Maximum height is often not reached in street locations.*



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# Pilot Projects

Section 5 outlines individual design principles for the six towns identified in Stage 1: Gatton, Laidley, Plainland, Helidon, Withcott and Forest Hill. These six towns are considered pilot projects and further towns may be included in the guidelines. The following section presents specific principles and themes appropriate to the towns' character and identity.

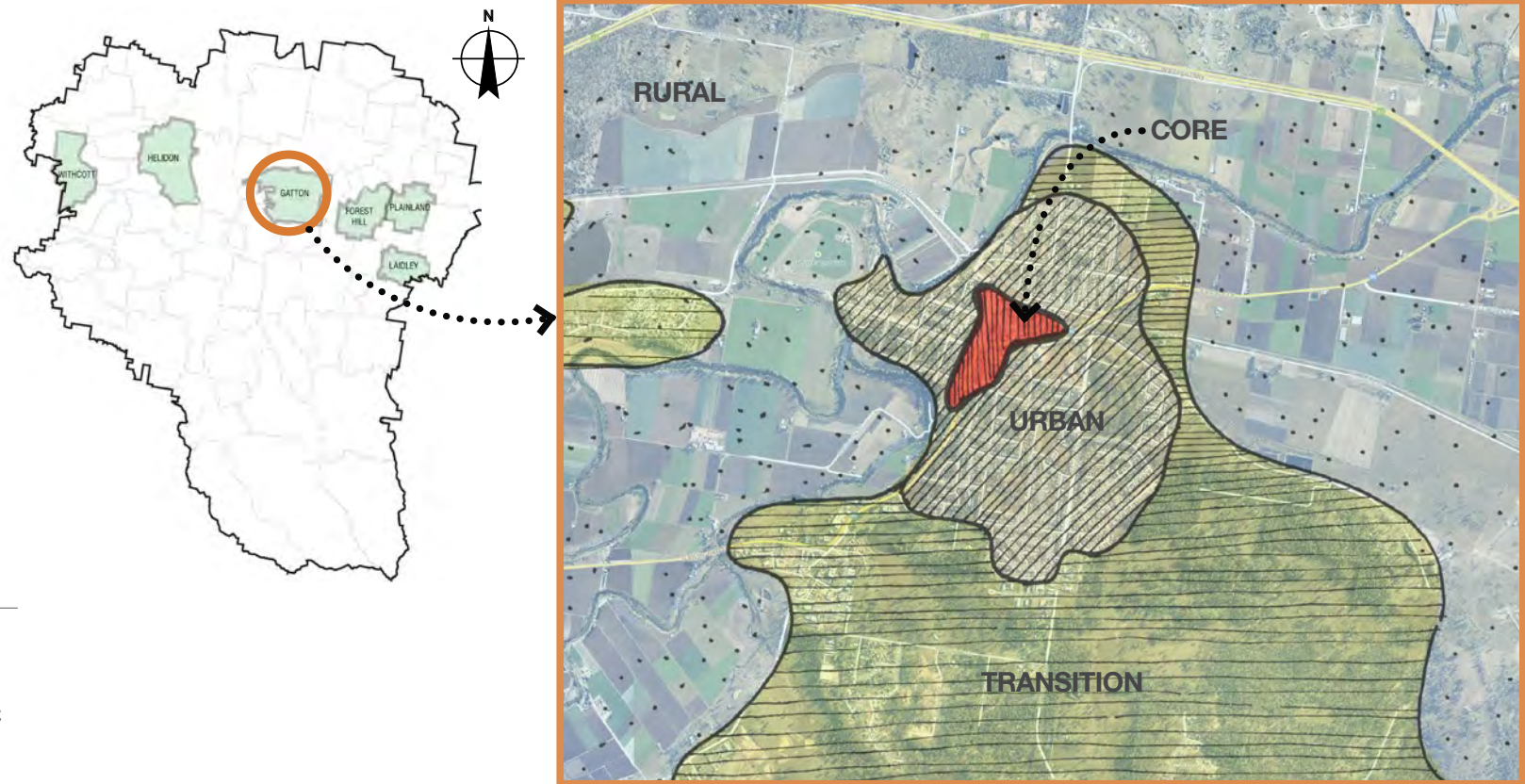
The design themes have been developed based on the analysis of local historical, cultural and natural context surrounding each town, as well as through consultation with the community and the Councillors and officers from LVRC. Each of the six towns use locally occurring flora and specific materials to highlight their own character, while maintaining individuality, the towns are also connected through the use of common materials and colour palettes.

Following are the themes adopted for the selected towns:

- Gatton – agriculture and irrigation
- Laidley – heritage
- Helidon – sandstone industry
- Plainland – business
- Withcott – ranges (nature and open space)
- Forest Hill – railway



# 5.1 Gatton



5.1 Gatton urban fabric

The uniqueness of Gatton is demonstrated by the large and expansive agricultural areas surrounding the urban centre. The patterns of the crops and the urban fabric are prominent, and enhance the geometric shapes that surround the town. A combination of these lines together with irrigation lines represent a strong linearity of the area. There is an opportunity to incorporate patterns that emphasize this linearity with the potential to rejuvenate the colour palette currently used in the town centre.

The selection of materials and colours can enhance and create a visually attractive area as long as they meet the same guidelines. Streetscape elements which make the town distinctive and identifiable are a combination of seats, lights, bins, tree grates, fencing, bollards, paving, public art, banners and bicycles to name a few.

### Materials

- Low maintenance materials with simple colours are proposed for Gatton and across all the towns. The colours selected emphasise the natural surroundings and built environment.
- Earthy and neutrals complementing the natural and built environment.
- Formal paved areas that provide connection to key areas.
- Use of contrasting paving types and/or colours to provide interest and guidance.
- Inclusion of wayfinding elements, such as signage (directional, informative, identity), historical plaques to increase legibility and create a consistent design and style to provide an identifiable.
- Assessment and placement of furniture to ensure it is well integrated with public realm and ultimately with the function of the road reserve.
- Paving materials and patterns should be simple and assist to define areas of activity by using different colours and textures of pre-approved designs.

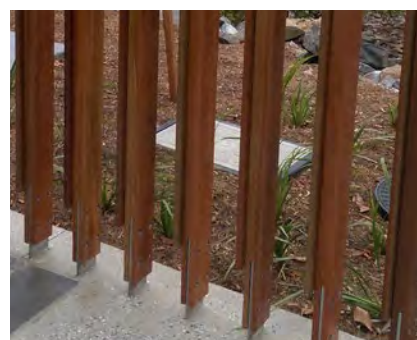
- Paving patterns to provide variety and act as visual cues.
- Street lighting should be consistent with LVRC standards. Lighting in new developments should provide fixtures that are consistent in style and colour to the approved LVRC standards.
- Decorative fencing to separate pedestrians from vehicles in areas where planting is not feasible.

### Planting

Focus should be on locally occurring plant species as they are adapted to the regional conditions. The use of exotic planting species should be considered in areas that require more interest and variation. The planting is to emphasise the colours proposed for Gatton to reinforce its character and appearance.

Planting beds along kerb side assist to separate pedestrians and vehicle traffic, assist to break the harsh expansive paved areas and create visual interest.

### Finishes and Colours



Use of natural materials with simple shapes minimising custom designed elements. Timber bollards and fencing, sandstone rock walls, timber bench seating, neutral pavement colours.



Table 5.1.1 Proposed species for Gatton

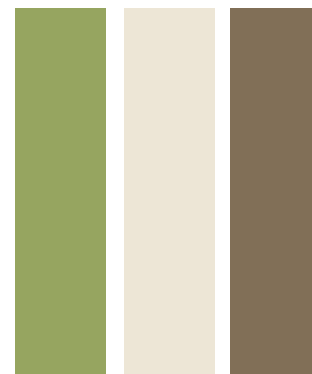
Scientific name	Common name
<b>Trees</b>	
<i>Backhousia citriodora</i>	Lemon-scented myrtle
<i>Brachichyton populneus</i>	Kurrajong
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Caesalpinia ferrea</i>	Leopard Tree
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Delonix regia</i>	Poinciana
<i>Harpulia pendula</i>	Tulipwood
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<b>Grasses / Groundcovers</b>	
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Crinum pedunculatum</i>	Brisbane River Lily
<i>Callistemon 'Little John'</i>	
<i>Liriope muscari</i>	Liriope
<i>Lomandra longifolia</i>	Spiky Matt Rush

The above species are proposed for the core and urban settings in the town of Gatton. For street and landscape planting beyond these settings refer to Section 4 Planting Selection. Plant species must be selected taking into account site conditions and road type.

**Planting**

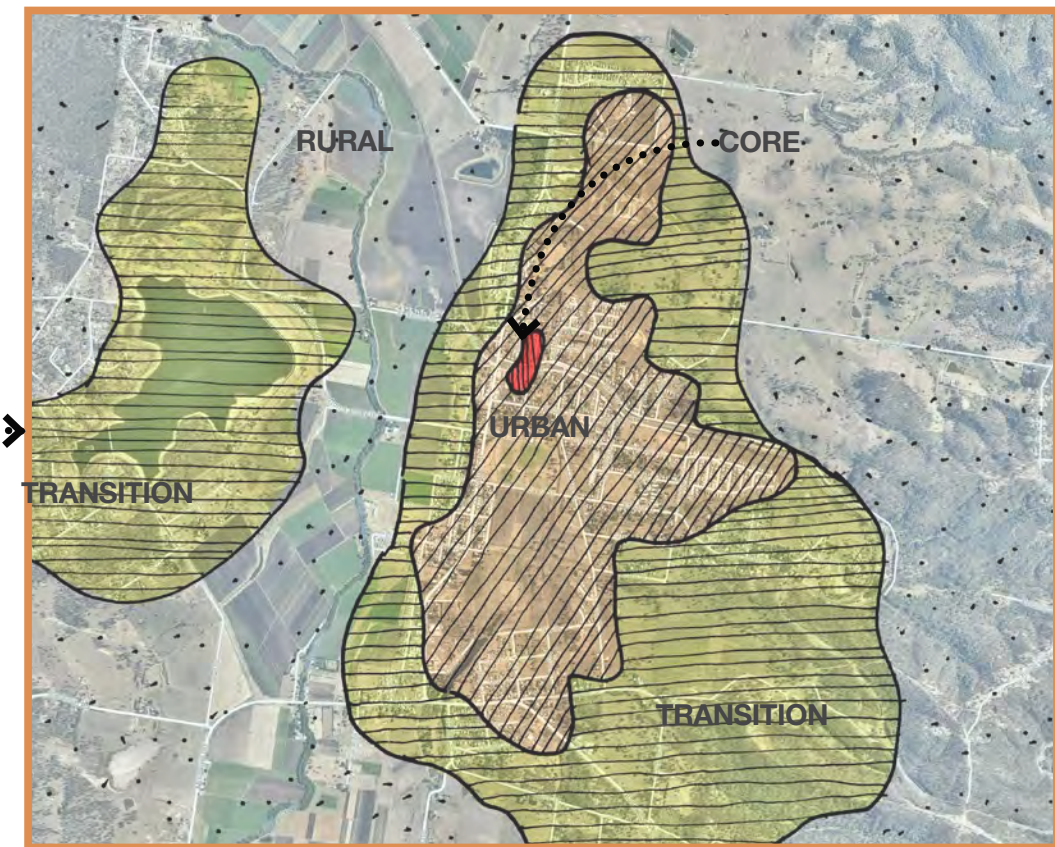
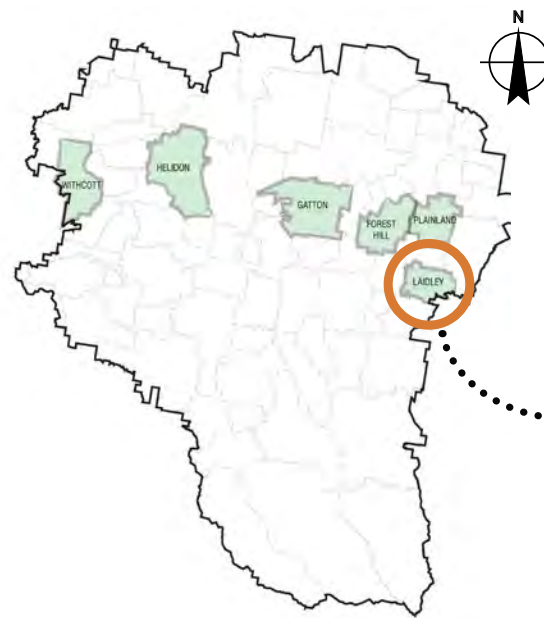


**Character**





# 5.2 Laidley



5.2 Laidley urban fabric

Whilst still very much an agricultural town, Laidley is distinguished by its strong architectural heritage in the centre of the town. In addition to this architectural character, Laidley is emerging as a vibrant tourist destination offering unique cultural experiences, many closely linked to the wider agricultural qualities of the area.

The Patrick Street streetscape was constructed by Laidley Shire Council in the early to mid-1990's with a heritage theme. The project was undertaken in three stages and included paving the footpaths as well as various other embellishments including heritage street lighting, bollards, planter boxes, seating and street bins.

Of note, the Laidley Urban Design Framework seeks to:

- Reinforce the existing main street activity centre.
- Frame the main street through thresholds at each end and by green, treed edges.
- Complement the urban character of the main street, seeking to strengthen and better present its traditional form, not 'green-wash it'.
- Understand the unique settlement pattern of Laidley that has resulted from its historic growth and flood events and tie this together into a framework of open space that links settlements together and frames the town.
- Activate key pedestrian and civic spaces through the centre. Present 'special places' with interesting street art.
- Increase the visible presence of Laidley and the sense of arrival into Laidley and the entrance into the main street.

The Urban Design Framework also identifies the following preferences for streetscape palettes:

### Base colours

- Natural Brick
- Neutral spectrum – beige and greys
- Pastel colours – salmon/pinks, blues, browns, greens, purple, blue-greys
- Colours to avoid: mustard, heritage green & heritage red, creams, yellows, blank white.

Highlight/Accent colours (window frames, posts)

- White
- Black/ charcoal
- Darker tints of the base colour.

### Paving

- Darker neutral colour or combination of similar tones. Subtle variation only – focus is the buildings

### Street Furniture

- Black, charcoal, natural timber infill – avoids visual clutter of disparate colours

The colours and materials selected for the design themes broadly reflect these preferences, promoting low maintenance (and flood resilient) materials with simple, earthy colours that enhance (but don't mimic) the architectural heritage.

The incorporation of wayfinding elements to promote legibility (particularly for visitors) will be important, as will opportunities for incorporation of urban art and tactical urban events (also promoted by the Urban Design Framework).

Paving will be neutral colours and hardwearing and as much as practical will be flood resilient. Paving patterns should be utilised to add visual interest and improve wayfinding, but should not be so complex or detailed as to appear chaotic. The degree of complexity and texture should reflect that observed in the historic facades of the town.

As for all towns, furniture should be well integrated with the public realm, should be conveniently located, and should assist in the definition of outdoor spaces. Street lighting should be consistent with LVRC standards.

The Urban Design Framework also promoted the use of hanging baskets as a means of making the town centre more distinctive. This is an existing strategy that would make a significant contribution to the aesthetic appeal of the town if widely adopted.

### Finishes and Colours



Materials demonstrating the heritage style by using black colours and curved shapes within furniture. Contrasting paving of similar shades (warm greys) and use of simple patterns, mosaic like to highlight key areas. Sleek rectangular planter boxes with one or two plant species used along side buildings to soften extensive walls and to provide planting where space is limited.



**Planting**



Table 5.2.1 Proposed species for Laidley

Scientific name	Common name
<b>Trees</b>	
<i>Brachychiton rupestris</i>	Queensland Bottle Tree
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Croton insularis</i>	Silver Croton
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Lagetroemia indica</i>	White Crepe Myrtle
<i>Melaleuca linariifolia</i>	Narrow-leaved paperbark
<i>Melia azedarach</i>	White Cedar
<b>Grasses / Groundcovers</b>	
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Bougainvillea 'Easter Parade'</i>	
<i>Grevillea 'Bronze Rambler'</i>	Prostate Grevillea
<i>Grevillea 'Poorinda Royal Mantle'</i>	Prostate Grevillea
<i>Leptospermum Crimson Cascade</i>	Prostate Grevillea
<i>Leptospermum Pink Cascade</i>	Prostate Grevillea
<i>Lomandra longifolia</i>	Spiky Matt Rush

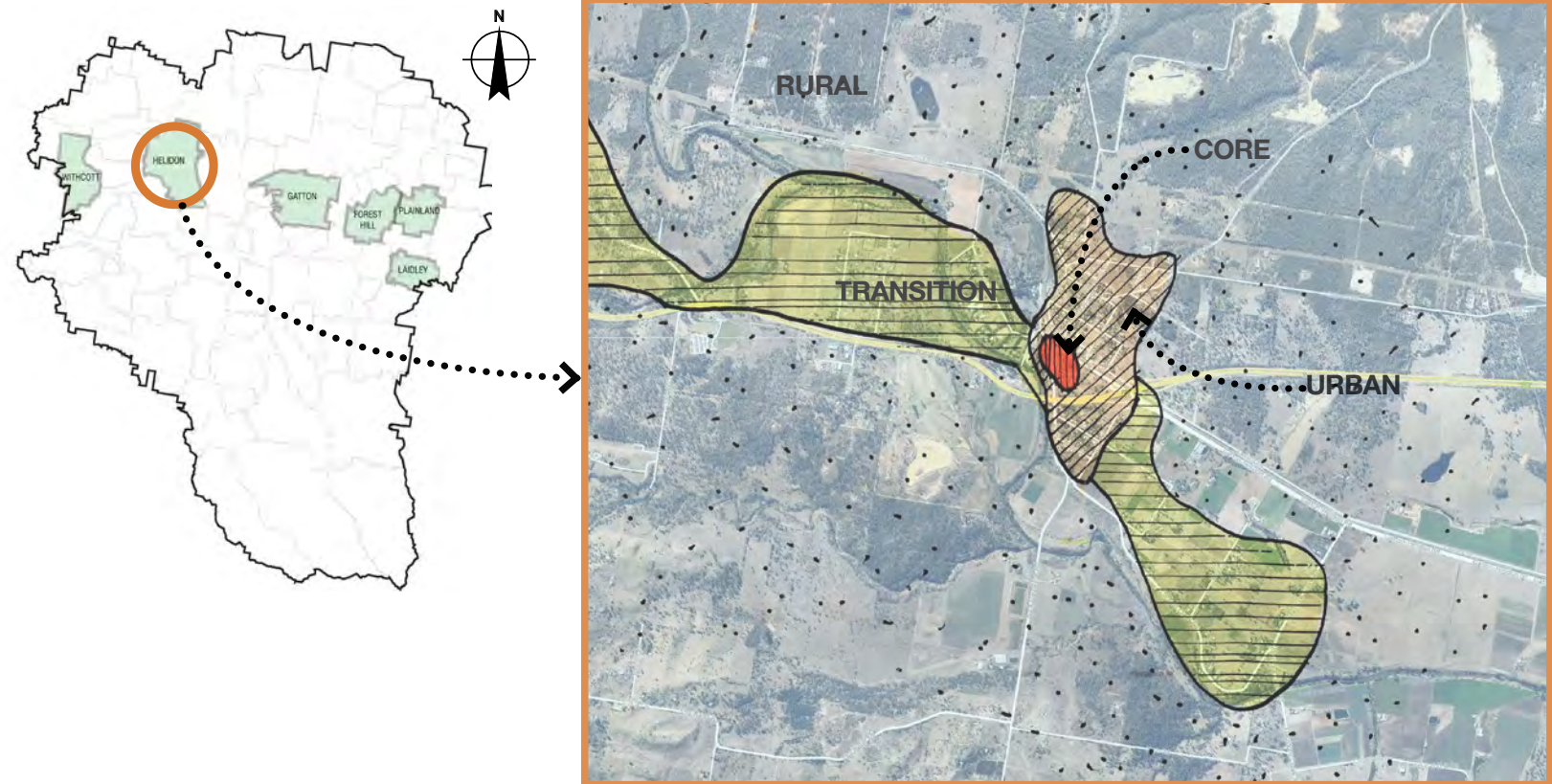
The species proposed are for the core and urban settings in the town of Laidley. For street and landscape planting beyond these settings refer to Section 4 Planting Selection. Plant species must be selected taking into account site conditions and road type.

**Character**





# 5.3 Helidon



5.3 Helidon urban fabric

Helidon was established around its quarries at the time of the opening of the railway line. The Warrego Highway passes through Helidon dissecting the township into southern and northern sections. The town centre is located entirely on the northern side of the Highway and is centred by the short main street (Railway Street).

Key features which define the township of Helidon are the stand of Jacarandas along the main street (planted in the 1930s), local sandstone (which is internationally valued), and the Gazebo Museum located on the main street.

Being far less urban than many of the other towns in the region, streetscape measures should tend towards a more rural and natural aesthetic. Similarly, there is less need for expansive paving and elaborate furnishings. Whatever treatments are employed should assist with wayfinding by enhancing the main focal points of the town.

Due to lower levels of urbanisation, streetscape treatments need to be particularly low maintenance and durable to environmental conditions and vandalism.

Sandstone is to be promoted as a base material, and the primacy of the main street Jacarandas to be respected. Because the existing street environment is relatively simple in terms of built form and features, a reasonable diversity of planting colours could be comfortably accommodated and this could be something that reinforces the local character and appeal of Helidon.

## Finishes and Colours



Formalised planting of various textures for core and urban areas to delineate key avenues. Furniture of durable materials like aluminium with ability to customise colours. Paving materials using more neutral colours in combination with sandstone to highlight key areas. Opportunities for patterning in street furniture to define town centre (core area). Signage made of mild steel for town entry or landmark areas complements the use of sandstone.



**Planting**



**Character**



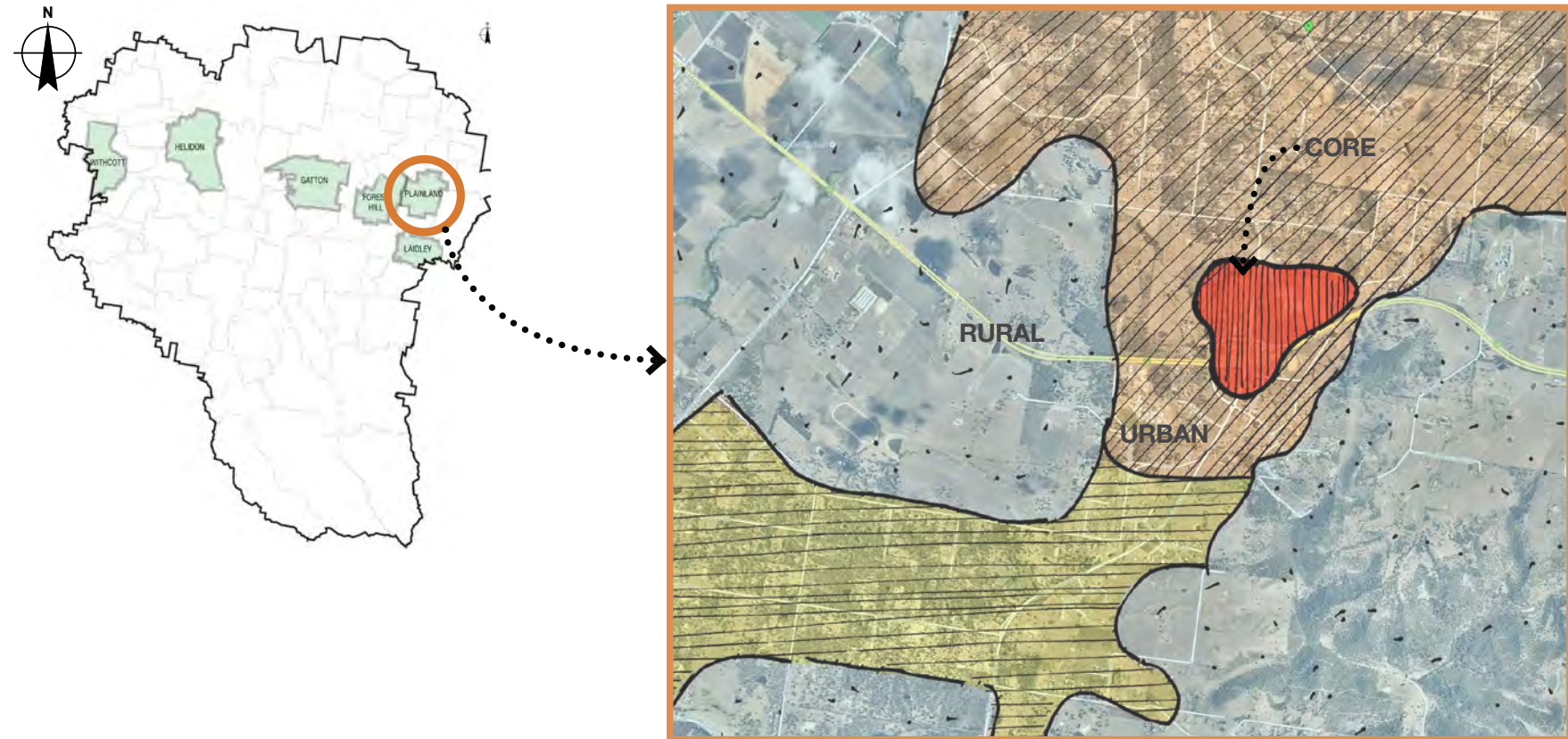
Table 5.3.1 **Proposed species for Helidon**

Scientific name	Common name
<b>Trees</b>	
<i>Brachychiton rupestris</i>	Queensland Bottle Tree
<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Lagetroemia indica</i>	Pink Crepe Myrtle
<i>Melaleuca linariifolia</i>	Narrow-leaved paperbark
<i>Podocarpus elatus</i>	Brown Pine
<b>Shrubs / Grasses / Groundcovers</b>	
<i>Bougainvillea 'Easter Parade'</i>	
<i>Bougainvillea Magnifica Traillii</i>	
<i>Bougainvillea Snowcap</i>	
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Grevillea Misty Pink</i>	Grevillea Misty Pink
<i>Hardenbergia violacea 'Meema'</i>	Hardenbergia Meema
<i>Hymenocallis littoralis</i>	Spider Lilly
<i>Lomandra longifolia'</i>	Spiny Matt Rush
<i>Melaleuca thymifolia</i>	Melaleuca Little Beauty
<i>Scaevola aemula</i>	Fairy fan flower
<i>Westringia 'Jarvis Gem'</i>	Rosemary

The above species are proposed for the core setting in the town of Helidon. For street and landscape planting beyond these settings refer to Section 4 Planting Selection. Plant species must be selected taking into account site conditions and road type.



# 5.4 Plainland



5.4 Plainland urban fabric

Of the six towns, Plainland is identified as an emerging township and is slowly moving away from its status of a rural centre. Like Helidon and Withcott, the Warrego Highway traverses through the middle of the town centre dividing it into southern and northern parts.

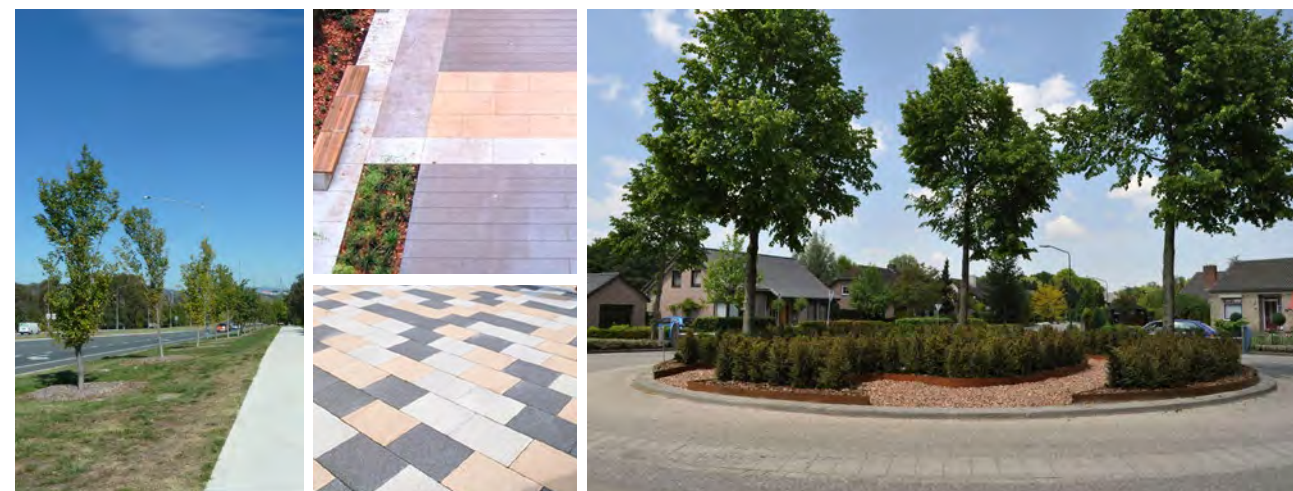
The design of the township has made it very car focused. The street layout is mostly curvilinear and follows the conventional loop and cul-de-sac treatment; this layout reduces pedestrian connectivity within the residential areas. Street tree planting is non-existent, especially in newer subdivisions. Older established residential areas have abundant planting within the private lots which gives the local streets a softer appearance.

The design theme for Plainland recognises the emerging and contemporary nature of the settlement, and is squarely focussed on providing an improved pedestrian amenity. Street trees will become a prominent element throughout the settlement and will help to define each of the relatively disparate areas. Planting will also help soften the currently overbearing built form.

Feature planting will be employed to punctuate key nodes in the area, again to improve legibility and sense of arrival.

Materials and furniture will also be contemporary, but will maintain an aesthetic link with the wider agricultural character of the region.

### Finishes and Colours



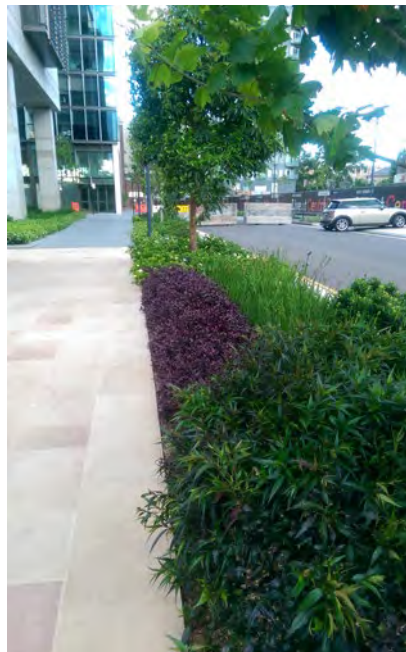
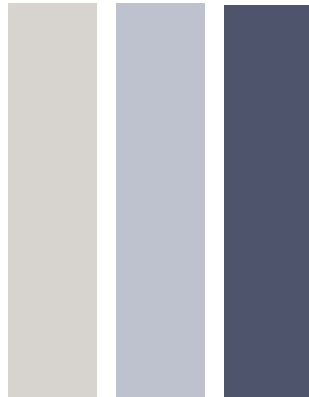
Street tree planting in formal arrangement to provide shade along footpaths. Continuous use of one or two tree species create avenues that provide visual cues and wayfinding. Simple alternating patterns of coloured concrete pavers to highlight areas of interest. Feature planting to roundabouts consisting of low groundcovers and clear tree trunks to maintain clear sight lines and provide an aesthetically pleasing landscape.



Contemporary street furniture with simple shapes. Preference for hardy materials like hardwood and aluminium/steel to minimise maintenance. Modern edging to accentuate key nodes (business district).



**Finishes and Colours**



**Character**



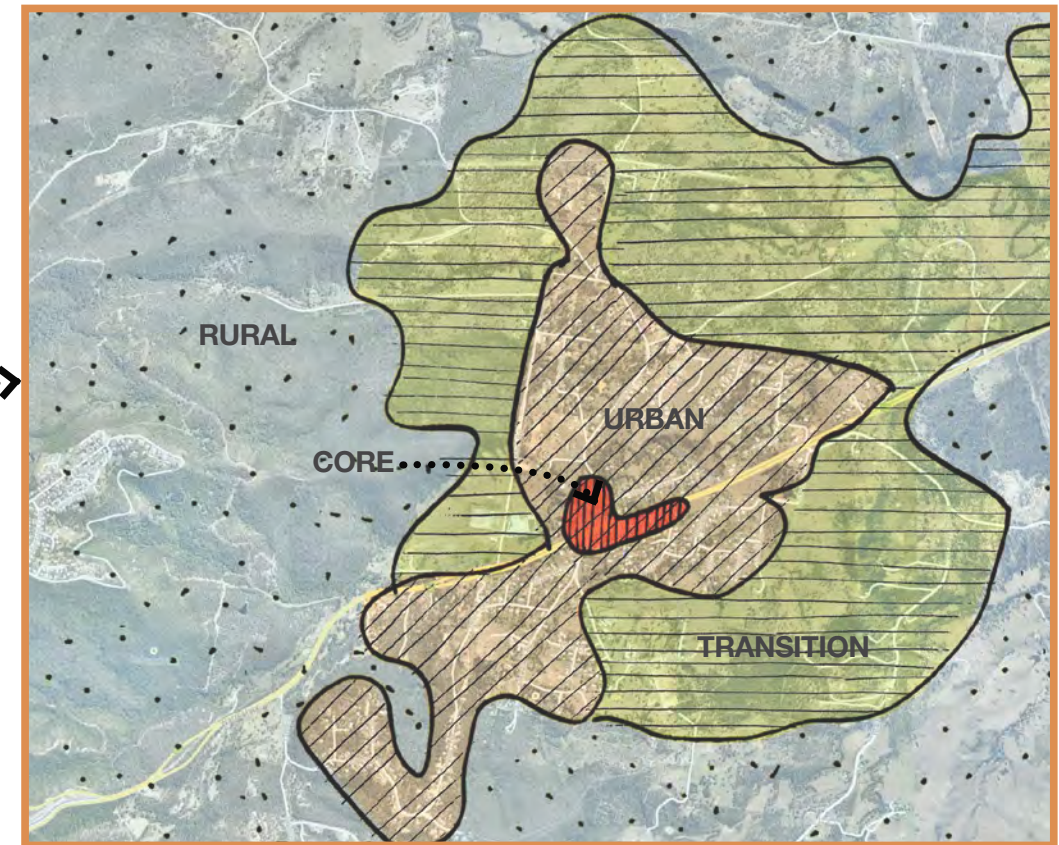
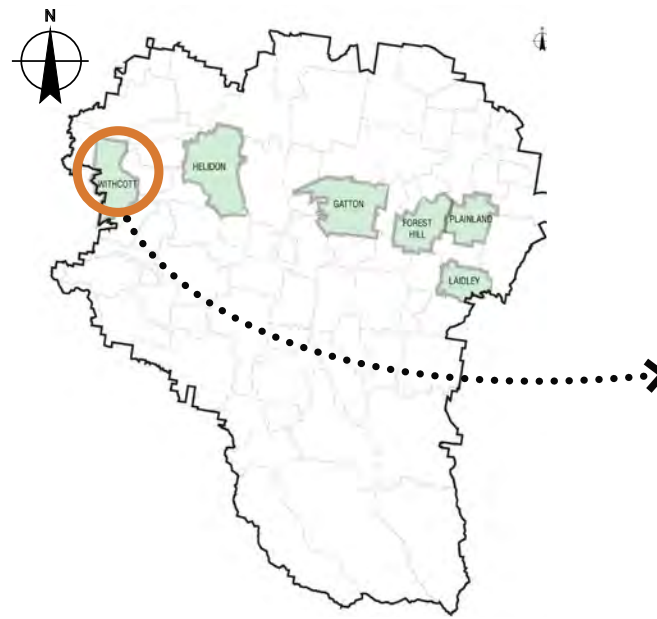
Table 5.4.1 **Proposed species for Plainland**

Scientific name	Common name
<b>Trees</b>	
<i>Acacia fasciculifera</i>	Rosewood
<i>Alphitonia excelsa</i>	Soap Tree
<i>Backhousia citriodora</i>	Lemon-scented myrtle
<i>Araucaria cunninghamii</i>	Hoop Pine
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Cassia brewsteri</i>	Leichhardt Bean
<i>Flindersia collina</i>	Leopard Ash
<i>Lagestroemia indica</i>	White Crepe Myrtle
<i>Melaleuca linariifolia</i>	Narrow-leaved paperbark
<i>Melaleuca salignus</i>	Weeping bottlebrush
<b>Grasses / Groundcovers</b>	
<i>Diets grandiflora</i>	Wild Iris
<i>Crinum pedunculatum</i>	Brisbane River Lily
<i>Hymenocallis littoralis</i>	Spider Lily
<i>Liriope muscari</i>	Liriope
<i>Lomandra longifolia</i>	Spiky Matt Rush
<i>Myoporum ellipticum</i>	Coastal Myoporum
<i>Themeda triandra</i>	Kangaroo grass
<i>Trachelospermum jasminoides</i>	Star Jasmine

The above species are proposed for the core and urban settings in the town of Plainland. For street and landscape planting beyond these settings refer to Section 4 Planting Selection. Plant species must be selected taking into account site conditions and road type.



# 5.5 Withcott



5.5 Withcott urban fabric

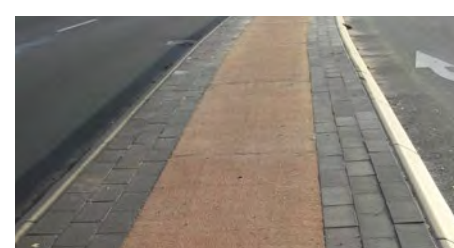
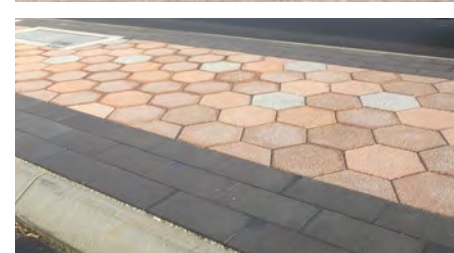
As with Helidon, Withcott is dissected by the Warrego Highway, with the retail and commercial areas divided. Although significantly larger than Helidon, it remains a small rural centre, albeit with a more naturalised feel than Helidon, owing partly to the fact that it is located at the base of the Toowoomba ranges.

Like Helidon, there is an expectation that the level of streetscape treatment is relatively modest, and again it would be appropriate for streetscaping to be defined by a softer, natural aesthetic.

Key practical interventions would be: to enhance the natural character by buffering unattractive built form from Highway views; and to embellish the main commercial areas to provide a sense of place and enhance the legibility of the town.



### Finishes and Colours

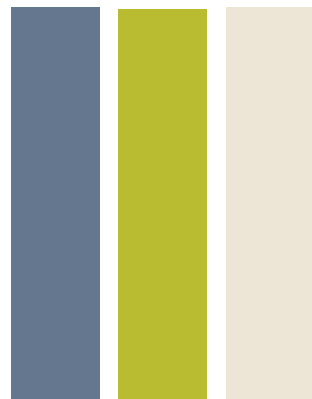


Medians can be treated with hard surface finishes and / or planting according to median width available. Using hard elements allows for creative patterning and combinations of colours.

Median planting used to emphasize the arrival point by including plants of different textures and colours. Screen planting examples minimising views to industry lots and unattractive built forms.



Finishes and Colours



Character



Table 5.5.1 Proposed species for Withcott

Scientific name	Common name
<b>Trees</b>	
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Alphitonia excelsa</i>	Soap Tree
<i>Backhousia citriodora</i>	Lemon-scented myrtle
<i>Brachichyton rupestris</i>	Queensland Bottle Tree
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Melaleuca linariifolia</i>	Narrow-leaved paperbark
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Syzygium luehmannii</i>	Small Leaf Lilly Pilly
<b>Shrubs / Grasses / Groundcovers</b>	
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Crinum pedunculatum</i>	Brisbane River Lily
<i>Callistemon 'Little John'</i>	Callistemon Little John
<i>Grevillea 'Ivory Whip'</i>	Grevillea 'Ivory Whip'
<i>Grevillea 'Misty Pink'</i>	Grevillea 'Misty Pink'
<i>Grevillea 'Kay Williams'</i>	Grevillea 'Kay Williams'
<i>Grevillea juniperina 'Molonglo'</i>	Grevillea 'Molonglo'
<i>Hardenbergia violacea 'Meema'</i>	Hardenbergia Meema
<i>Leptospermum petersonii</i>	Lemon Scented Tea Tree
<i>Liriope muscari</i>	Liriope
<i>Lomandra longifolia</i>	Spiky Matt Rush
<i>Scaevola aemula</i>	Blue Ribbon
<i>Westringia fruticosa</i>	Coastal Rosemary

The above species are proposed for the core and urban settings in the town of Withcott. For street and landscape planting beyond these settings refer to Section 4 Planting Selection. Plant species must be selected taking into account site conditions and road type.



# 5.6 Forest Hill



5.6 Forest Hill urban fabric

Like Laidley, Forest Hill enjoys a clear rural village character, with a well-defined main street (Victoria Street) and a close relationship with the surrounding agricultural land. It has heritage listed war memorials, and two heritage listed hotels.

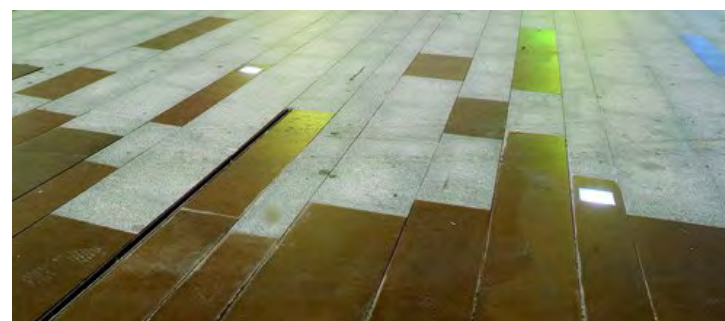
Whilst the established Callistemon trees along Victoria St are characteristic of the arrival to Forest Hill, it otherwise has a relatively weak landscape aesthetic, with the character largely defined by the heritage architecture.

The design theme seeks to tie together the existing colour scheme of the Callistemons and the materials of the heritage buildings. Street furniture will reinforce the vernacular established by the war memorials, and thereby reinforce their significance.

As with Laidley, paving will be neutral colours and hardwearing and as much as practical will be flood resilient. Paving patterns should be utilised to add visual interest and improve wayfinding, but should not be so complex or detailed as to appear chaotic. The degree of complexity and texture should reflect that observed in the historic facades of the town.

As for all towns, furniture should be well integrated with the public realm, should be conveniently located, and should assist in the definition of outdoor spaces. Street lighting should be consistent with LVRC standards.

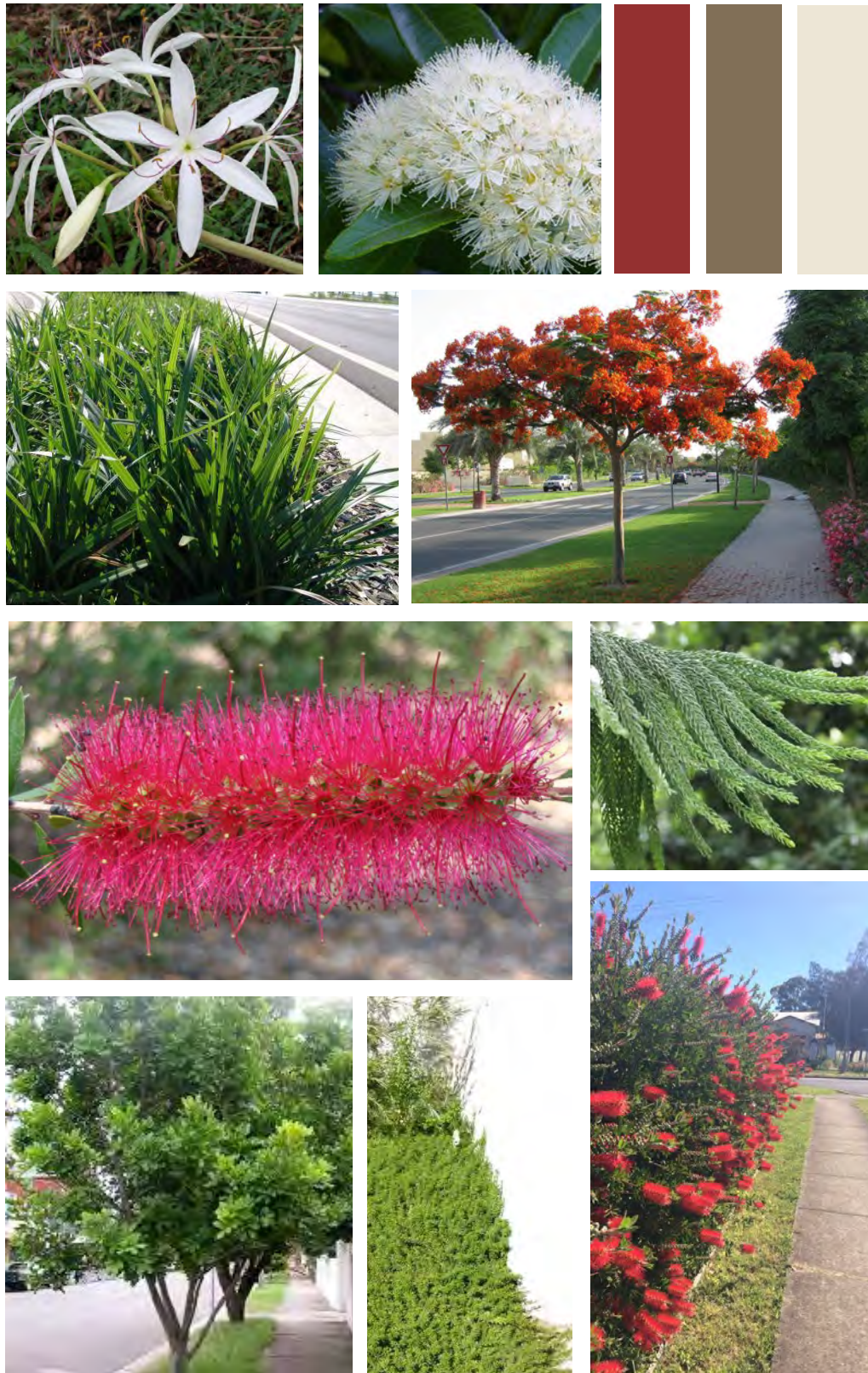
### Finishes and Colours



Paving patterns using a simple pattern with natural stone and steel tiles to mark areas of interest. Opportunities exist to incorporate patterns in the steel characteristic of Forest Hill. Similarly street furniture to use stained timber to emphasize the deep red tones and complement the historical character of the area.



**Finishes and Colours**



**Character**



Table 5.6.1 Proposed species for Forest Hill

Scientific name	Common name
<b>Trees</b>	
<i>Araucaria cunninghamii</i>	Hoop Pine
<i>Backhousia citriodora</i>	Lemon-scented myrtle
<i>Brachychyton populneus</i>	Kurrajong
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Caesalpinia ferrea</i>	Leopard Tree
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Harpulia pendula</i>	Tulipwood
<i>Delonix regia</i>	Poinciana
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<b>Grasses / Groundcovers</b>	
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Crinum pedunculatum</i>	Brisbane River Lily
<i>Callistemon 'Little John'</i>	
<i>Liriope muscari</i>	Liriope
<i>Lomandra longifolia</i>	Spiky Matt Rush
<i>Myoporum parvifolium</i>	Creeping Boobiala

The above species are proposed for the core and urban settings in the town of Forest Hill. For street and landscape planting beyond these settings refer to Section 4 Planting Selection. Plant species must be selected taking into account site conditions and road type.







# Appendix A

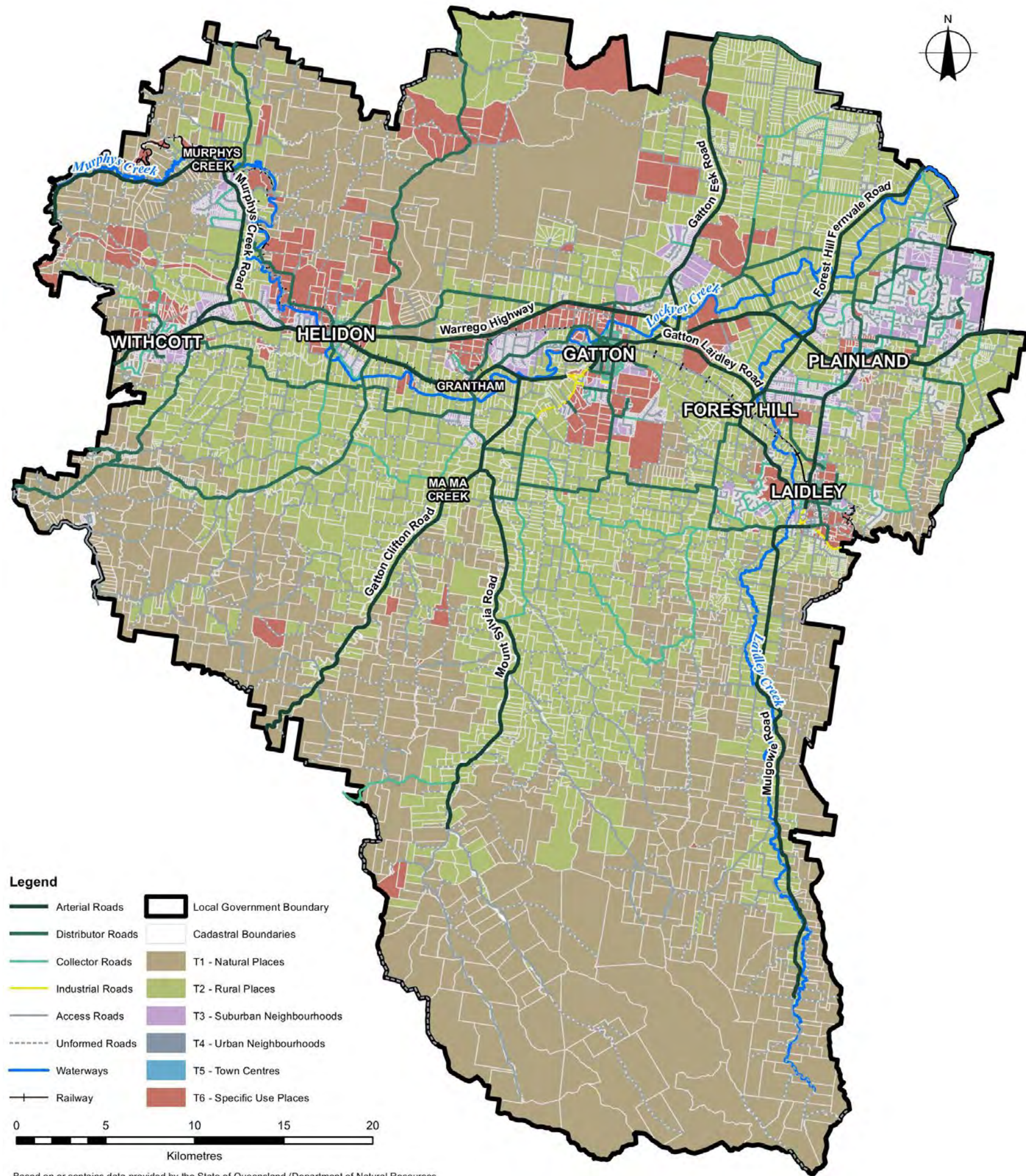
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## Appendix A

The following maps graphically represent the different overlays and constraints that can affect the type of trees used in road reserves. These constraints should be considered when preparing a street tree planting plan for an existing road or when designing a new road.



# Place Types

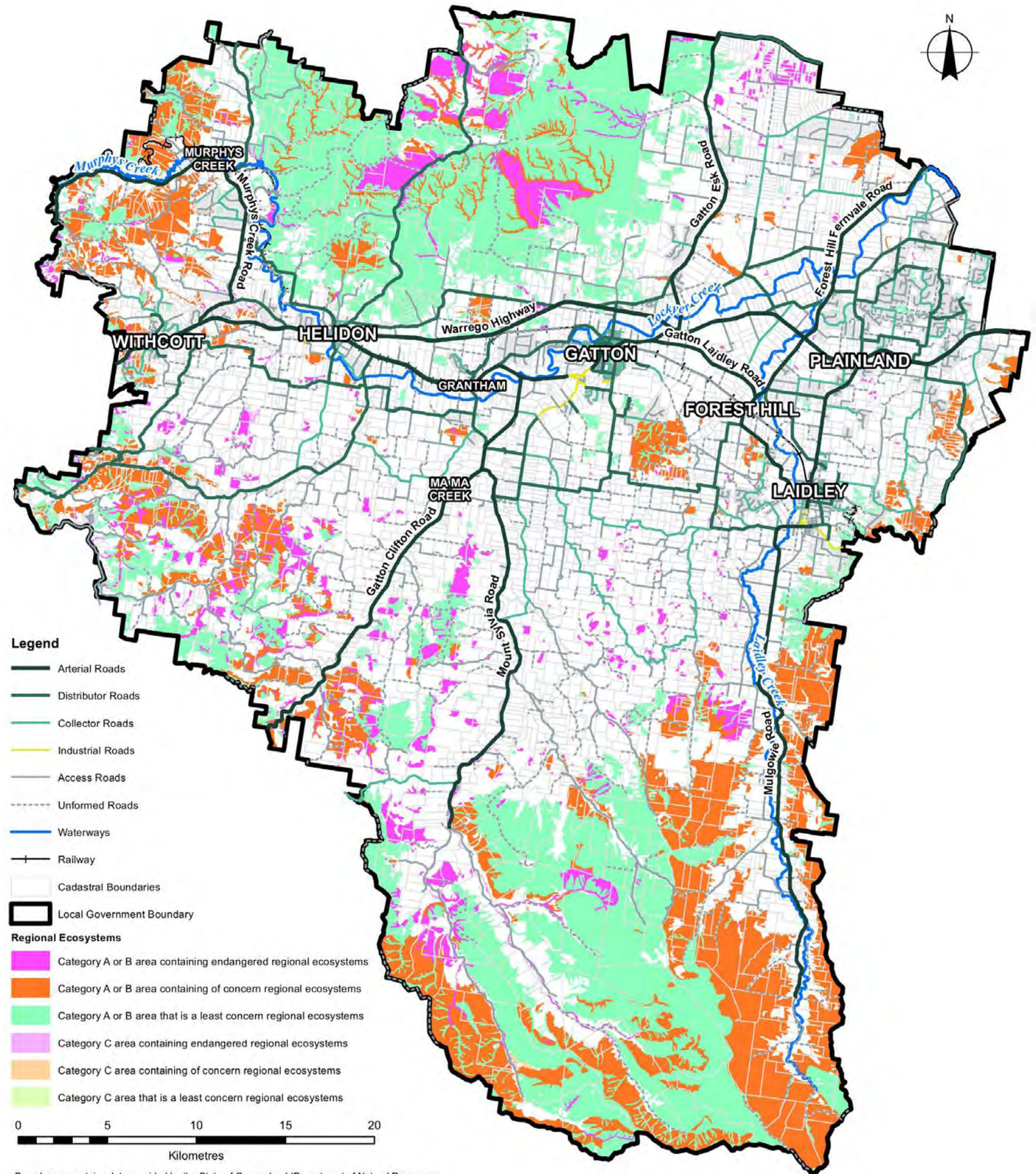


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# Regional Ecosystems

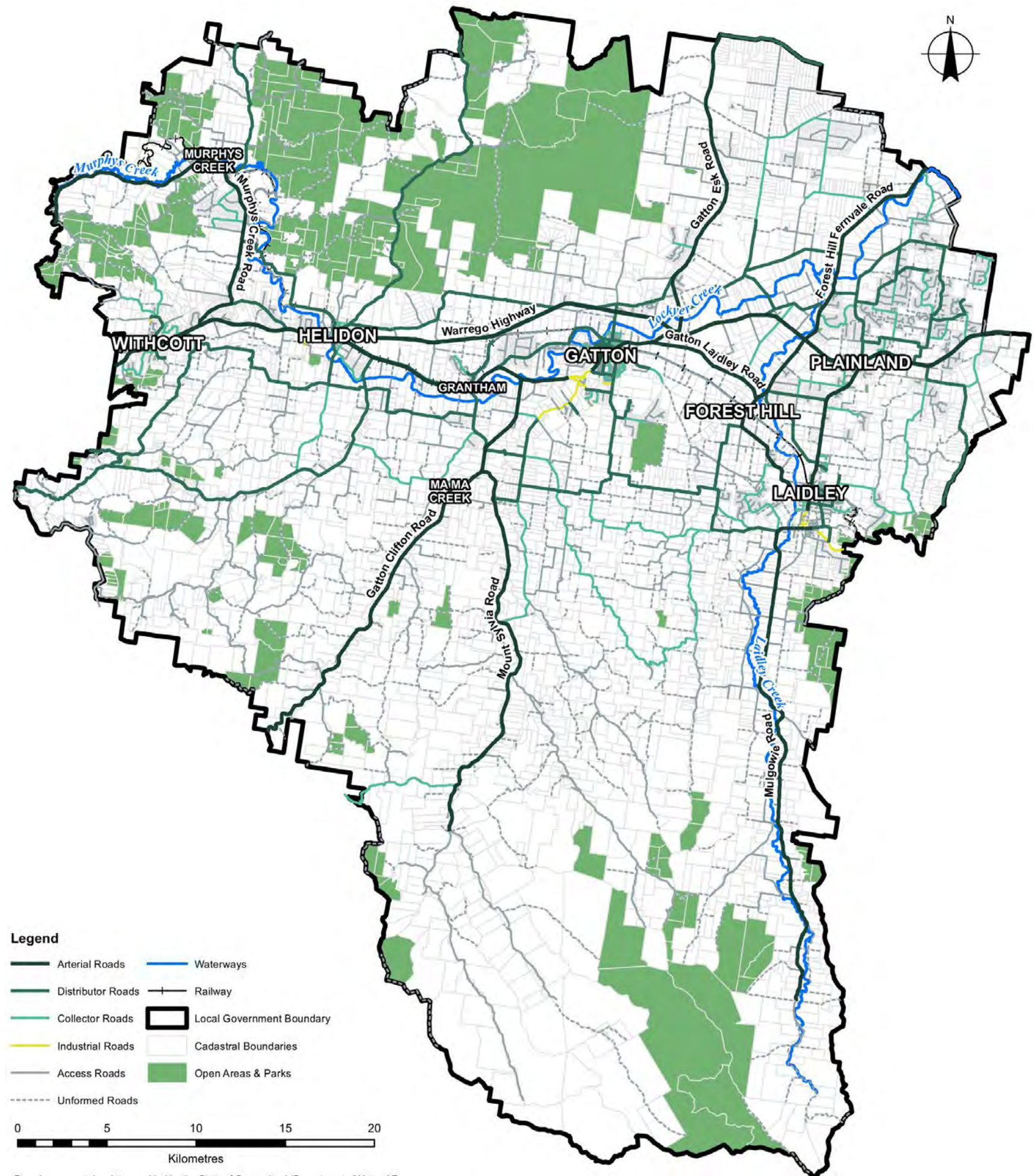


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# Open Areas and Parks

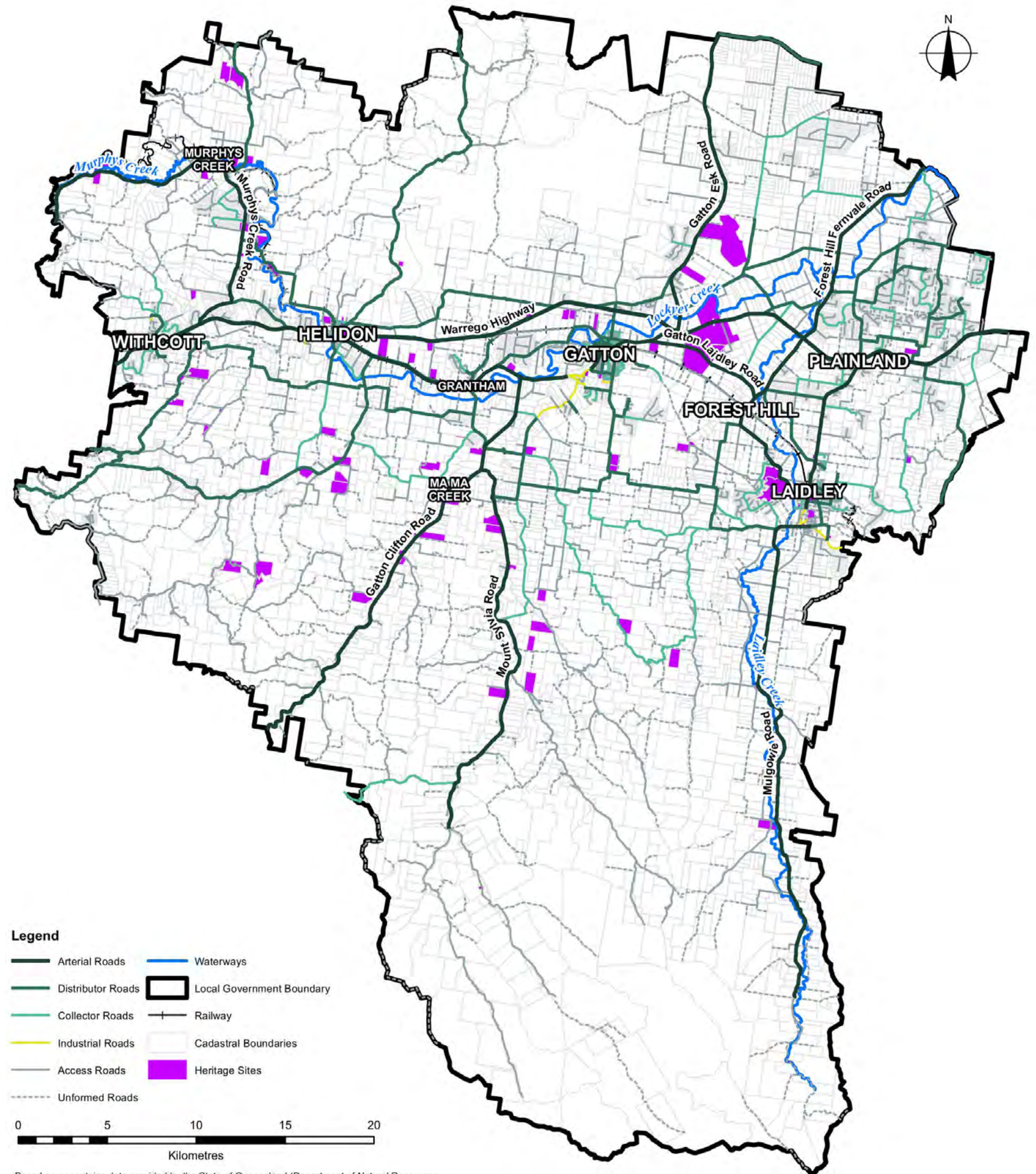


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# Heritage Places

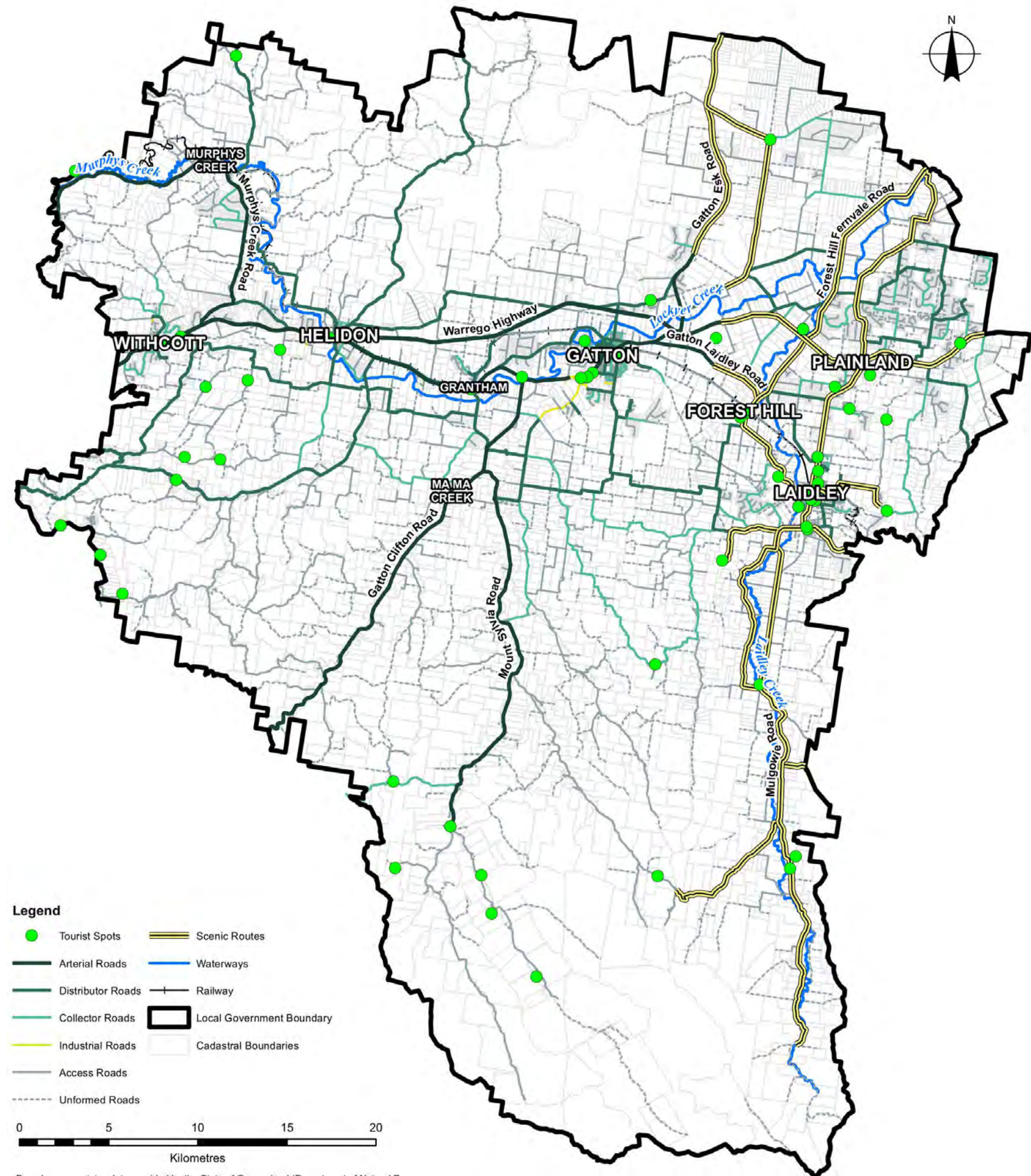


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# Scenic Routes

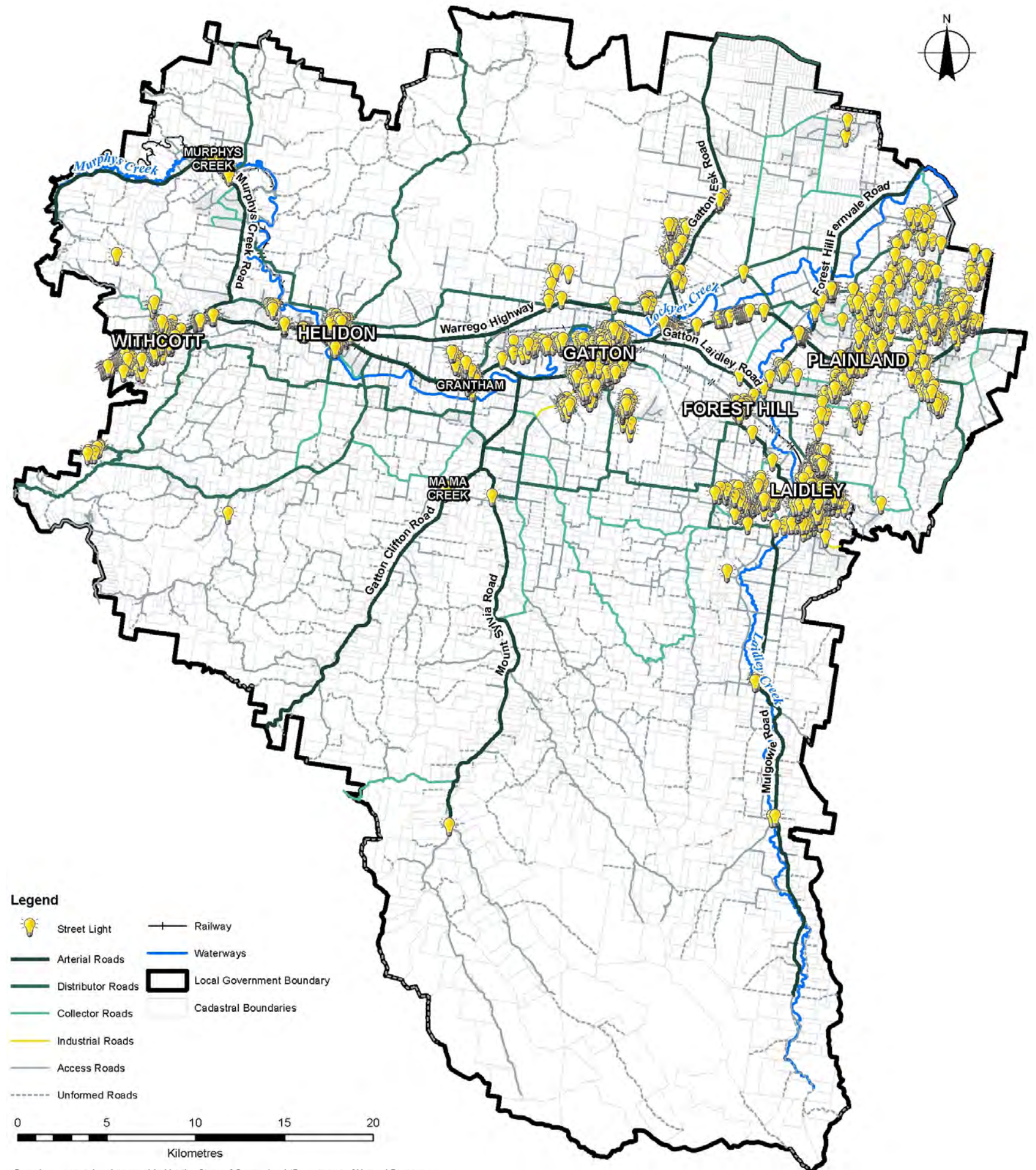


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# Street Lights



**Legend**

Street Light	Railway
Arterial Roads	Waterways
Distributor Roads	Local Government Boundary
Collector Roads	Cadastral Boundaries
Industrial Roads	
Access Roads	
Unformed Roads	

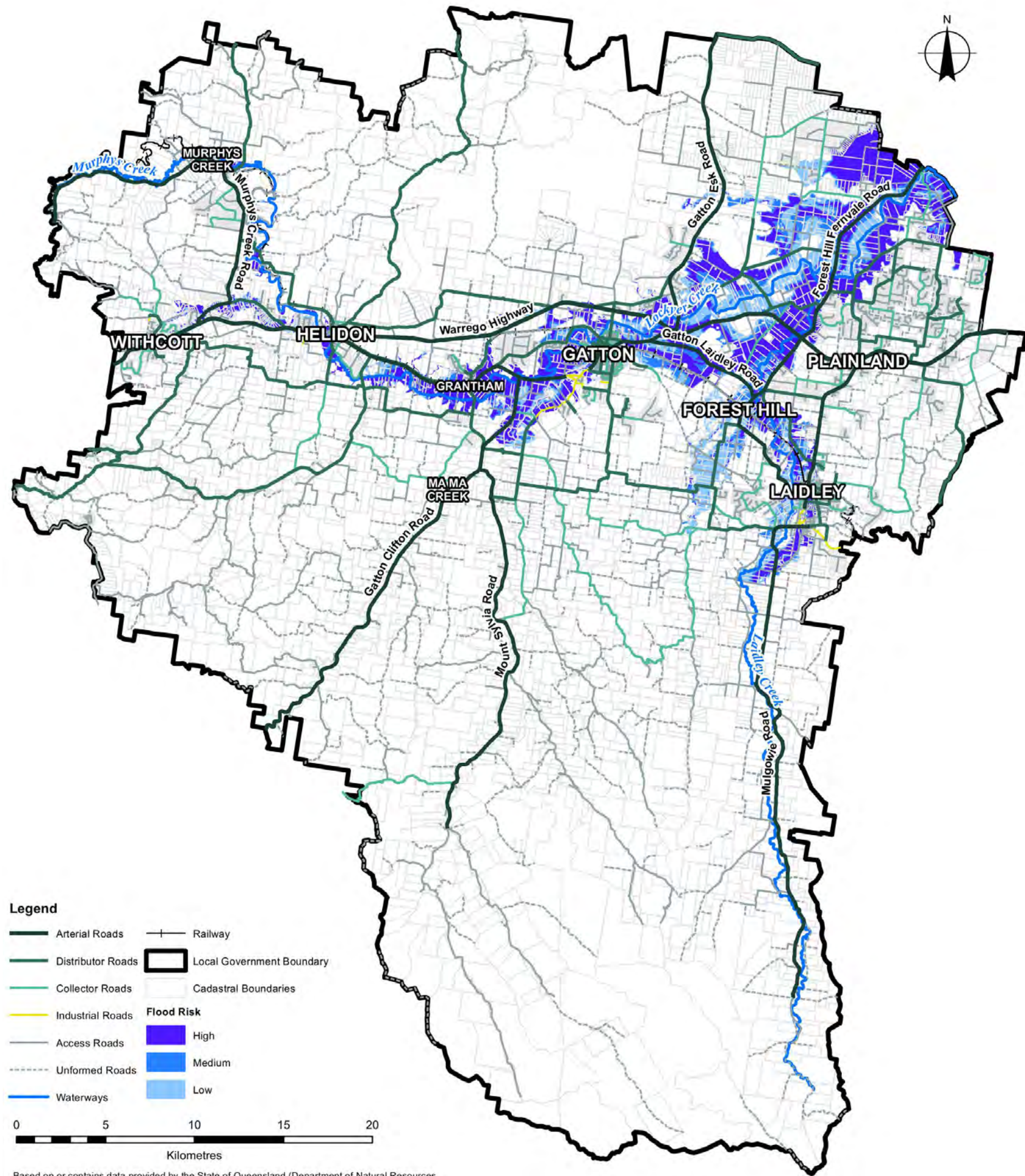
0 5 10 15 20  
Kilometres

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# Flood Risk

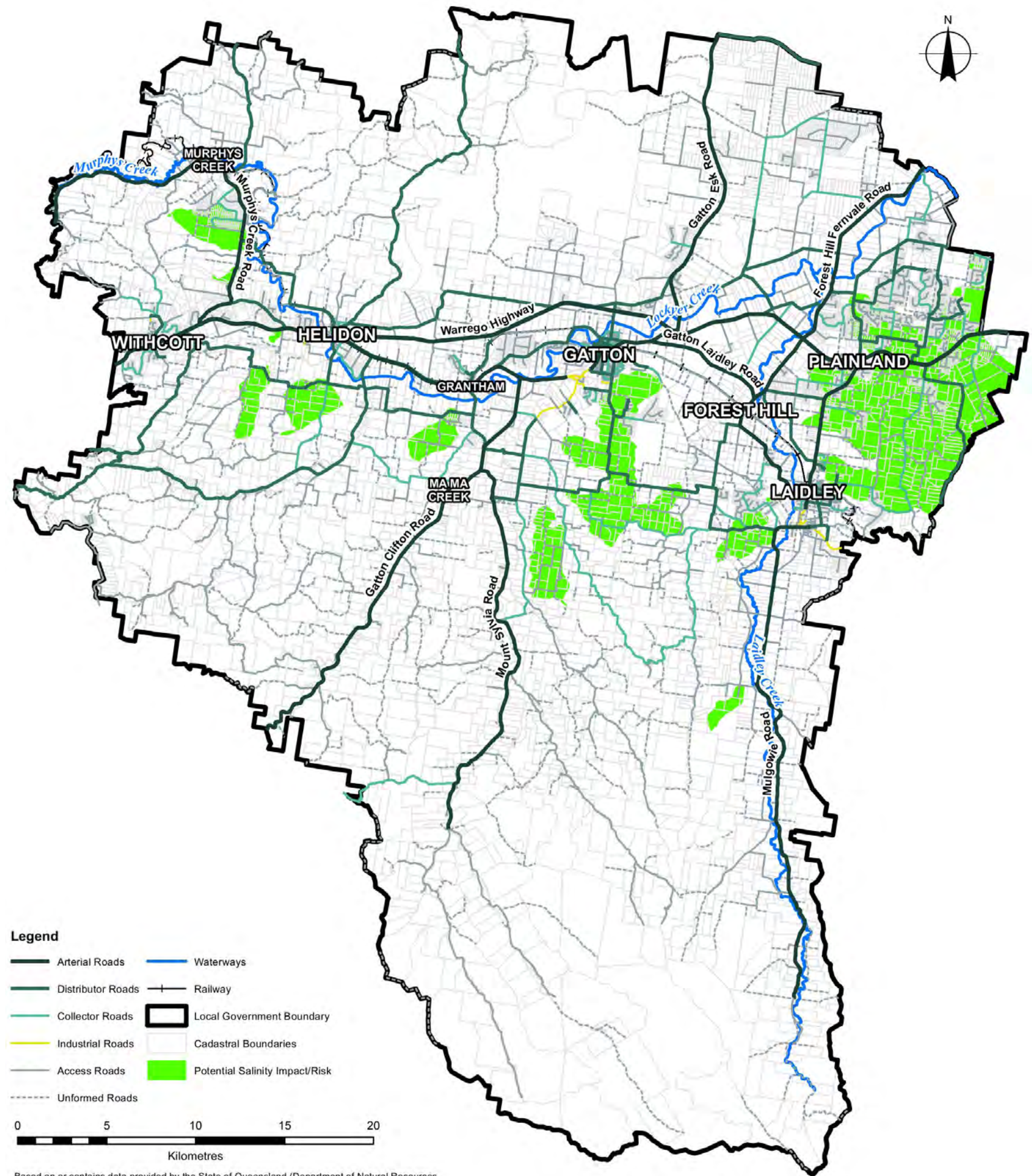


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# Salinity Risk



**Legend**

— Arterial Roads	— Waterways
— Distributor Roads	— Railway
— Collector Roads	▭ Local Government Boundary
— Industrial Roads	▭ Cadastral Boundaries
— Access Roads	■ Potential Salinity Impact/Risk
- - - Unformed Roads	

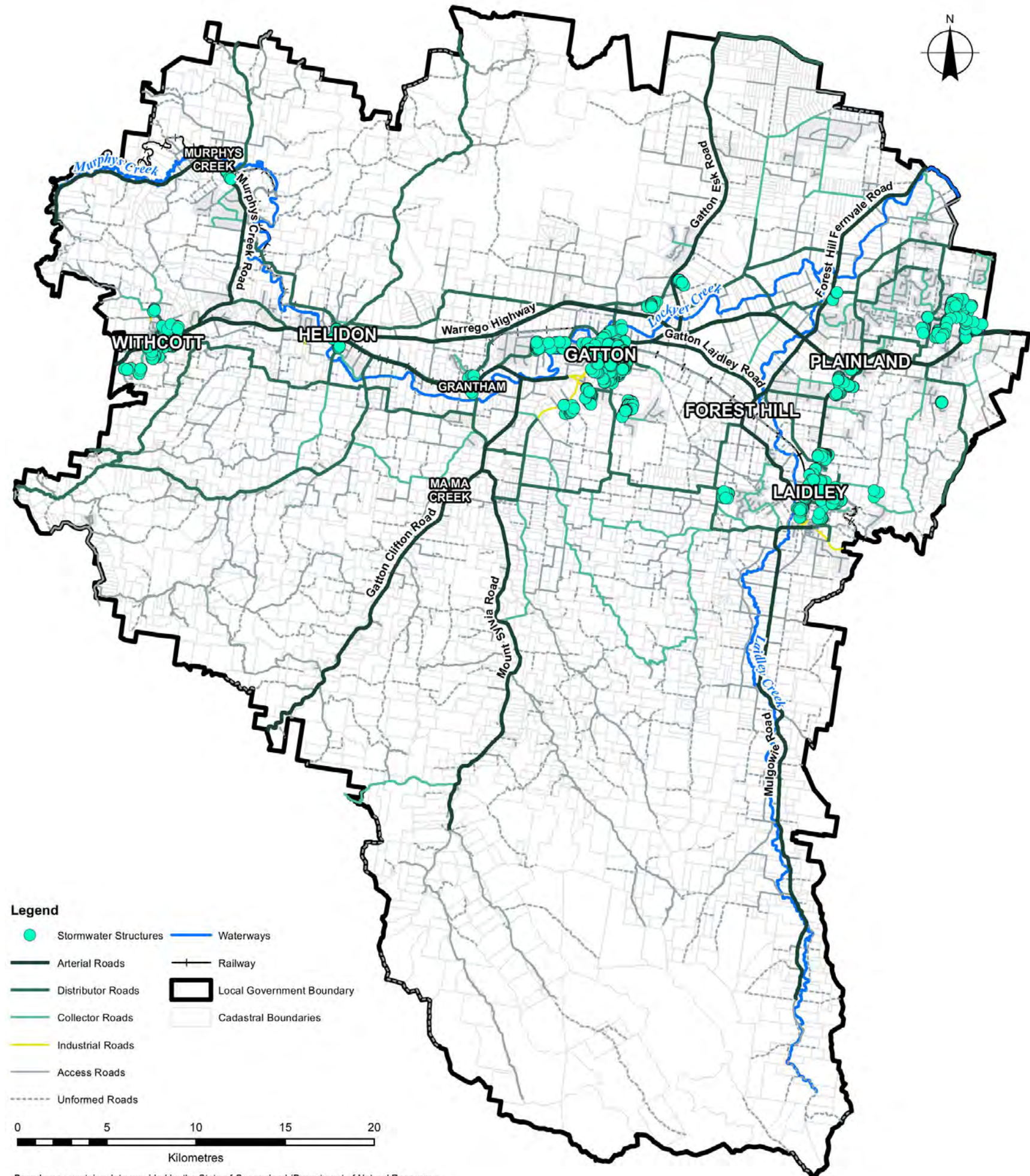
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# Stormwater Devices

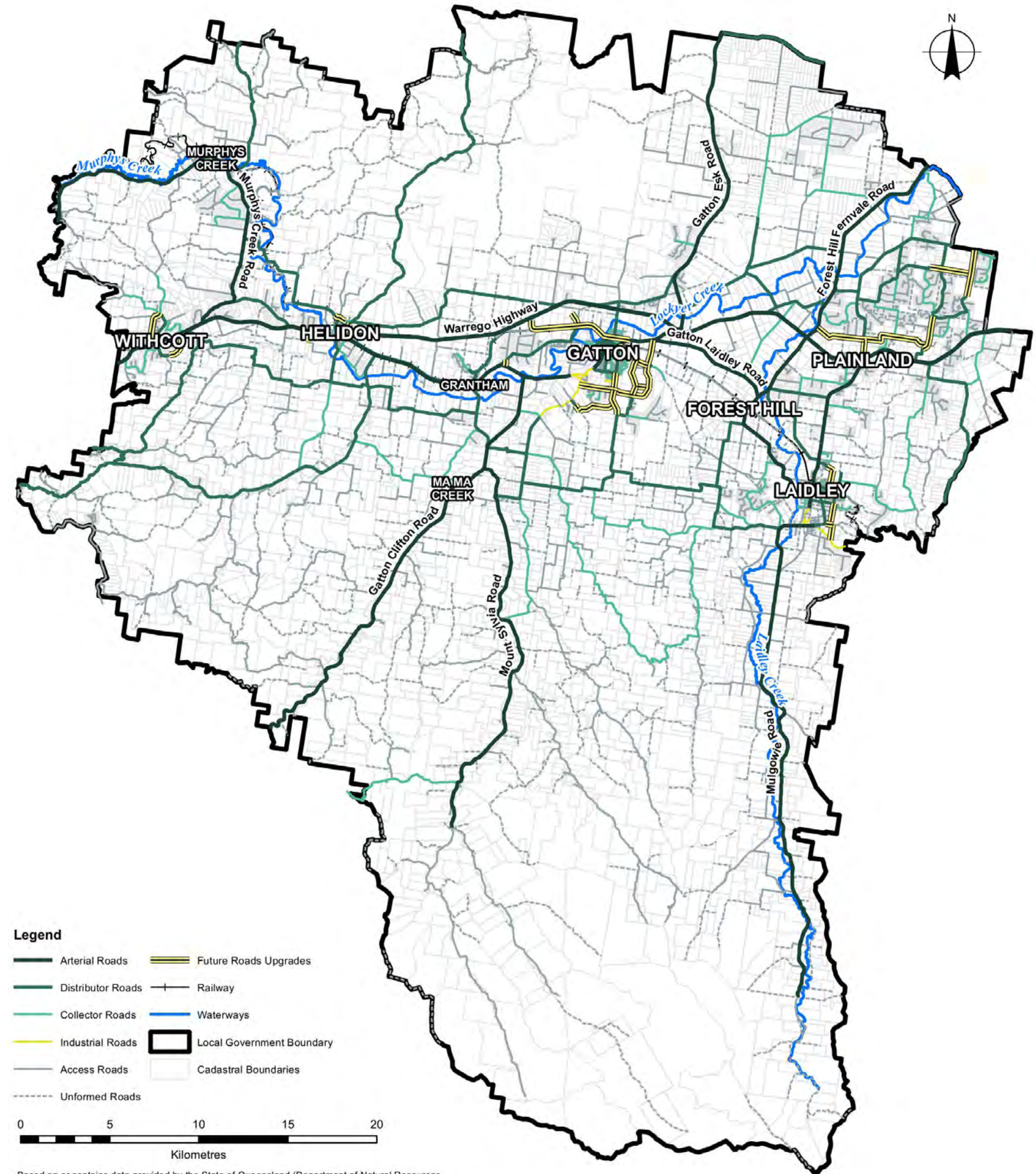


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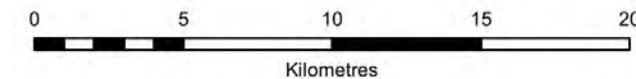
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# Future Road Upgrades



- Legend**
- Arterial Roads
  - Distributor Roads
  - Collector Roads
  - Industrial Roads
  - Access Roads
  - - - - Unformed Roads
  - == Future Roads Upgrades
  - + Railway
  - Waterways
  - ▭ Local Government Boundary
  - ▭ Cadastral Boundaries

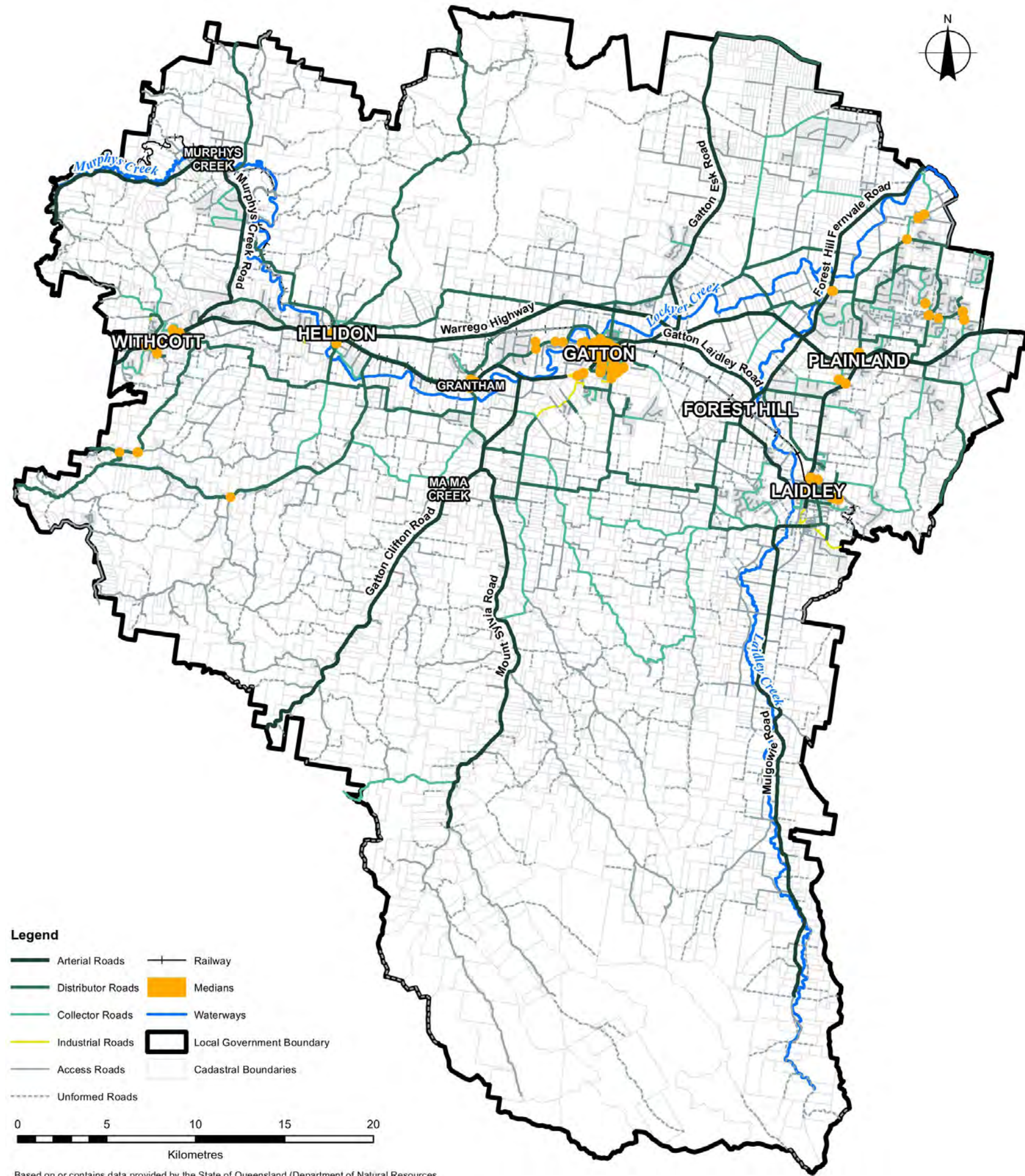


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# Median Locations

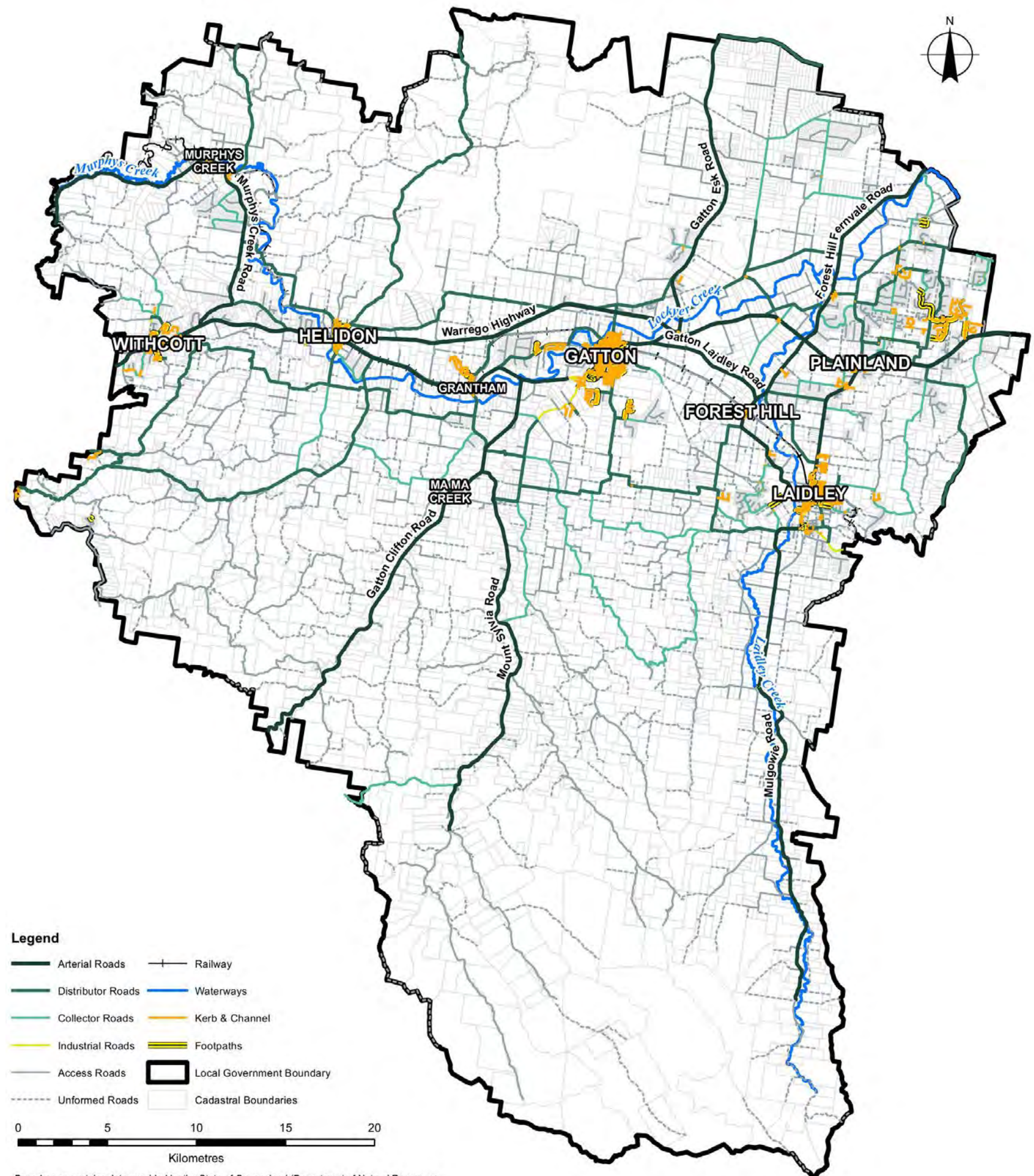


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