Great Western Highway Upgrade:
Medlow Bath

Urban Design Concept, Landscape Character and Visual Impact Assessment Report

Revision I: Final REF Submission
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Existing view of the Hydro Majestic Hotel and the Great Western Highway from the Medlow Bath Rail Station Platform

Chapter 1

EXECUTIVE SUMMARY

1.1 BACKGROUND

The Medlow Bath Upgrade is a 1.2km section of approximately 34km Great Western Highway Upgrade Program between Katoomba and Lithgow. The purpose of the Great Western Highway Upgrade is to reduce congestion and deliver safer, more efficient and reliable journeys for those travelling in, around and through the Blue Mountains, while also better connecting communities in the Central West.

Medlow Bath is a town located between Katoomba and Blackheath and is approximately 115km West of the Sydney CBD. The Great Western Highway Upgrade Program - Medlow Bath proposal (Medlow Bath proposal) involves upgrading the existing single lane carriageway to a dual carriageway along the alignment.

1.2 PERFORMANCE OUTCOMES

The desired performance outcomes for urban design and visual amenity generally relate to the need for the proposal to:

- Develop an integrated design that fits with the existing high visual qualities, ecology and character of Medlow Bath and the Blue Mountains setting
- Minimise impacts to the integrity of heritage sites, significant trees and cultural values of the community within the proposal
- Create a road corridor that responds to the natural and cultural environment, enhancing local and regional connectivity to evoke the underlying character of Medlow Bath and the Blue Mountains
- Apply the principles stipulated in Transport urban design policies, procedures and design principles outlined in Beyond the Pavement and Around the Tracks.

1.3 OVERVIEW OF LANDSCAPE CHARACTER AND VISUAL IMPACTS

This assessment provides the basis for an integrated design process, and to ensure the implementation of the urban design principles and objectives during the detailed design of the proposal. The urban design objectives form the basis for the concept design, guiding the resolution of proposal elements. The urban design concept presented in this assessment would continue to be refined during detailed design (where relevant) to further minimise landscape character and visual impacts in response to feedback received during exhibition of the proposal's Review of Environmental Factors (REF).

Impacts on the landscape character of the study area would vary across the proposal area. Identified landscape character impacts include:

- Built form changes including the proposal infrastructure and proposed pedestrian bridge
- Impacts on non-Aboriginal heritage items
- Clearing of native bushland vegetation resulting in changes to the spatial character
- Changes to the spatial character more broadly, altering the outlook and views.

The proposal would result in a number of beneficial landscape character outcomes including:

- Enhanced access and connectivity to Medlow Village and Medlow Bath Station
- Safer realignment and implementation of traffic calming at Railway parade
- A more direct and continuous pedestrian and cycle route along the upgraded Shared User Path between Blackheath and Katoomba.
- Enhanced town centre amenity and character in Medlow Bath

Impacts of the proposal on views in the study area would vary throughout the study area. Higher impact ratings generally occur in instances where proposal elements would change a large portion of a view's composition, in particular where the altered portions of the composition are comprised of elements that would be highly sensitive to change. An example would be the removal of vegetation along the rail corridor and installation of the pedestrian bridge, which would impact the view toward bushland at Station Street.

1.4 MITIGATION MEASURES

A number of environmental management measures and urban design opportunities have been identified to mitigate landscape character and visual impacts, including a commitment to consider how major proposal elements such as bridges, abutments and walls can be refined to potentially further reduce the proposal's landscape character and visual impacts.

1.5 CONCLUSIONS

The proposal seeks to enhance access and connectivity in the study area with development of the design driven by the recognition of existing natural, built and community values to minimise adverse impacts of the proposal on the visual amenity of the built and natural environment (including public open space), while capitalising on opportunities to improve visual amenity. This has been achieved as the proposal has been located as much as possible within or near to existing road corridors, as well as the refinement of built elements to compliment their setting and where required, offer visual recessive design to make them less dominant.

Additional vegetation installed as part of the proposal would seek to further establish a village character of Medlow Bath and assist in integrating the proposal within the landscape setting and minimise impacts on views as it matures.

Transport would continue to develop the design in accordance with the urban design objectives and principles during detailed design of the proposal.

Existing refuge crossing across the Great Western Highway and the level crossing at the Medlow Bath Rail Station

Chapter 2
INTRODUCTION

2.1 INTRODUCTION

Transport for NSW (Transport for NSW) proposes to upgrade approximately 1.2 kilometres of the Great Western Highway at Medlow Bath between Railway Parade and approximately 330m south of Bellevue Crescent (the proposal). This upgrade is part of the Great Western Highway Duplication project between Katoomba and Lithgow which aims to provide a safer and more efficient link between Central West NSW and the Sydney Motorway Network for freight, tourist and general traffic. In addition to the road modifications, the proposal will also improve active transport links and public transport accessibility. The proposal is shown in Figure 2-1.

Key features of the proposal would include:

- Construction of a four lane divided carriageway with consolidated access points at upgraded intersections including
  - Upgraded Bellevue Crescent intersection to include three way traffic signals for safe access/egress
  - Provision of a U-turn bay for traffic turning east bound to west bound at Bellevue Crescent
  - Right turn bay in east bound carriageway median for Hydro Majestic Hotel (no right turn egress)
  - Improvements on Railway Parade to formalise parking provisions, U-turns and commuter parking
- Construction of full depth highway pavement and associated local road, driveway, footpath, kerb and gutter reconstruction work within the proposal area
- Construction of a new pedestrian bridge that connects Railway Parade, Medlow Bath Station and new indented bus bays on both sides of the Highway in line with Transport Access Program requirements
- Shared use (pedestrian/cyclist) path adjacent to westbound carriageway
- Retaining wall and traffic barrier construction adjacent to existing rail corridor
- Utility relocation and stormwater drainage upgrade as required over length of the project including water quality control measures in Railway Parade
- Provision of 6m raised landscaped median for trees protected with modified redirective kerb

2.1.1 TRANSPORT ACCESSIBILITY PROGRAM

The NSW Government is improving accessibility at Medlow Bath Station. This portion of the project is being delivered as part of the Transport Access Program (TAP), a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. As part of this program, the Medlow Bath Station Upgrade (part of the proposal) would provide a station precinct that is accessible to people with a disability or limited mobility, parents/carers with prams, and customers with luggage.

The key features of the TAP project included within the proposal are summarised as follows:

- construction of a new pedestrian footbridge including:
  - four new lifts to provide access between the footbridge, bus stops on the Great Western Highway, Station platforms and Railway Parade
  - provision of accessible paths between the lifts, stairs and bus stops on the Great Western Highway
- upgrade of the station entrance on Railway Parade including:
  - modifications to the commuter car park along Railway Parade, and provision of new accessible parking spaces
  - provision of a new accessible kiss and ride space on Railway Parade adjacent to the new station entry
  - provision of accessible paths between the footbridge entry, kiss and ride and accessible parking
- upgrade of the station power supply to provide adequate power for the new footbridge and lifts
- modifications to overhead wiring and HV at the station to accommodate the construction of the new footbridge
- internal station building work including:
  - minor building modifications that may be required to accommodate new or upgraded electrical equipment including a main switchboard, new or upgraded station communications equipment and other station services
- ancillary work including adjustments to lighting, relocation or replacement of existing customer facilities (platform seating, bins, payphone, Opal card readers, fencing) and improvement to station systems including additional closed circuit television (CCTV) cameras, hearing loops and wayfinding signage.

2.1.2 PROPOSAL OBJECTIVES (MEDLOW BATH)

As part of a staged upgrade program, the Medlow Bath proposal aims to deliver outcomes that address GWH Upgrade Program objectives.

Current problem	Program objective	Medlow Bath response
1. Economic development, productivity and recovery	Improve ability to drive regional economic development and freight productivity	Provide four lanes with dedicated turn lanes to separate heavy vehicle flow from locally turning traffic
2. Resilience and future proofing	Provide a dependable and adaptable transport network that enables continuity of transport and essential services	Make network provisions for emergency services and provide safe continuous access to transport services
3. Network performance	Improve transport network efficiency	Provide suitable capacity to reduce congestion during peak periods through Medlow Bath
4. Safety	Reduce actual and perceived safety risks	Separate traffic flows and user groups, upgrade intersections and provide safer facilities Remove trees that have reached end of life to address risk of falling trees along the highway and railway corridor
5. Movement, place and amenity	Maintain and enhance local amenity and character, and protect environmental and cultural assets	Improve active transport and local traffic connectivity along and across the corridors. Preserve local heritage assets and enhance local amenity and character through sensitive urban design

Table 2–1 Great Western Highway Upgrade program objectives and responses

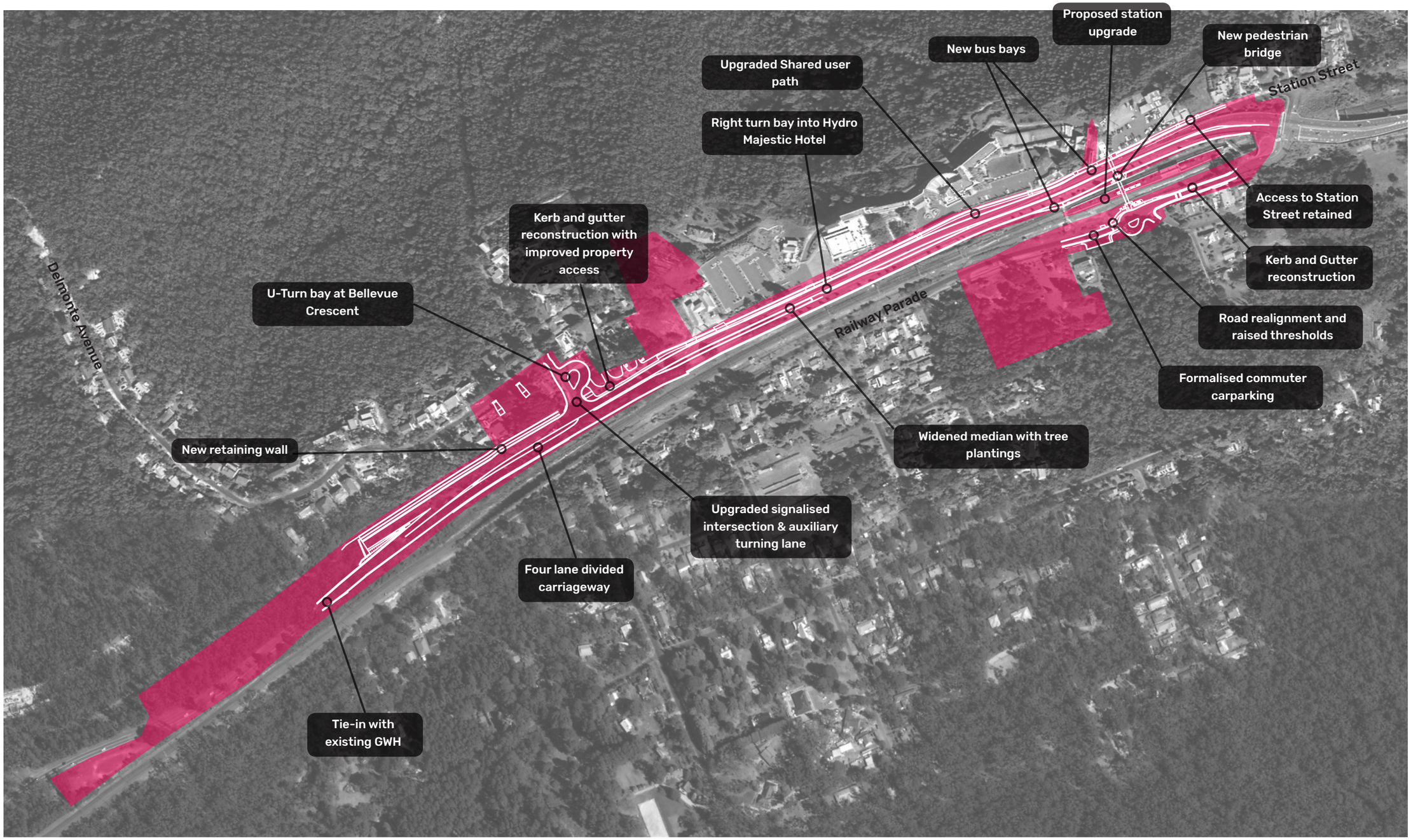


Figure 2–1 Key features of the proposal
Source: Adapted from SIX MAPS

2.2 DESIGN

The following sections provide a description of the design criteria, major design features and engineering constraints of the proposal. These features are based on the concept design and would be further refined during detailed design.

2.2.1 DESIGN CRITERIA

- The concept design for the proposal was prepared in accordance with the following standards:
- T HR CI 12030 ST Overbridges and Footbridges Design Standard (Transport for NSW, 2020)
- Australian Standards: amended by RMS Supplement (2012)
- Austroads Guide to Road Design (Austroads, 2009) and RMS supplements to the Austroads Guide
- Austroads Road Safety Audit Manual (Austroads, 2009)
- Beyond the Pavement 2020: Urban design approach and procedures for road and maritime infrastructure planning, design and construction (Transport for NSW Centre for Urban Design, 2020)
- NSW Speed Zone Guidelines (Roads and Traffic Authority of NSW, 2011)
- Road Safety Audit Manual and Checklist (Roads and Traffic Authority of NSW, 2011)
- RMS Delineation Manual (2012)
- RMS Road Design Guide (RMS, undated)
- Soils and Construction – Managing Urban Stormwater, Volume 1 (Landcom, 2004) and Volume 2D (Department of Environment and Climate Change, 2008). Guide to Road Design – Austroads (Austroads, 2009).
- Disability Standards for Accessible Public Transport 2002 (DSAPT)

2.2.2 MAJOR DESIGN FEATURES

Design features	Requirement
Number of lanes	Typical lane arrangement of two lanes in each direction with some turning lanes.
Lane widths	3.35m for through lanes and 3.30m for turn lanes (plus lane widening at curves, as required).
Design vehicle for main road Alignment	Main road alignment - TBC detail from traffic and transport assessment
Design vehicle at intersections	Station Street - TBC detail from traffic and transport assessment
	Bellevue Crescent - TBC detail from traffic and transport assessment
	Right hand turn bay into Hydro Majestic Hotel – TBC detail from traffic and transport assessment
Posted Speed Limit	Main road alignment - 60km/h
	Side roads – 50km/h
Design Speed	Main road alignment - 70km/h
	Intersection (at Bellevue Crescent) – 60km/h
	Turn in to side roads – 60km/h
Median width	Southern portion (at Bellevue Crescent intersection) – 5.10 metres southern approach and 1.8 metres for northern approach to allow for right hand turn bay at signals.
	Mid portion (at Hydro Majestic Hotel) – typically 5.10m raised median and 1.80 metres at right hand turn bay into the hotel.
	Northern portion (between Hydro Majestic Hotel and Railway Parade) – 1.8 metres
Pavement type	Pavement structure which would consist of asphalt over lean mix concrete (TBC on provision of noise and constructability assessments).
Footpaths/cycle paths and shared zones	Southern portion (at Bellevue Crescent intersection) – includes a shared zone for local traffic only (to access 100 to 104 Great Western Highway) and pedestrians and is typically 6.7 metres wide
	Mid portion (at Hydro Majestic Hotel) – 2.5 metre shared path on the western side of the road and pedestrian path from footbridge to bus stop on the eastern side.
	Northern portion (between Hydro Majestic Hotel and Railway Parade) – 2.5 metre shared path on the western side of the road
Pedestrian Bridge	To allow safe access to the area, a pedestrian bridge (including stairs and lifts) will be installed to span from Railway Parade to Medlow Bath Station and then across to the western side of Great Western Highway (as well as access to the eastern side of the Highway to enable use of bus stop serviced by east bound services).
Flood Considerations	Not considered to be within a flood prone area.
	One in 100 Average Recurrence Interval (ARI) Minor and Major Tributary flood under current climatic conditions.

2.2.3 CONSTRUCTION OF NEW PEDESTRIAN BRIDGE

The proposal includes the construction of a pedestrian bridge that spans about 60 metres, crossing from Railway Parade to the western side of Great Western Highway. This bridge includes stairs and lifts at Railway Parade, the Medlow Bath Station and on both sides of the Great Western Highway and will remove the existing pedestrian rail level crossing at the southern side of the station platform.

The incorporation of these lifts and stairs would significantly improve connectivity of the area for commuters and tourists in line with Transport Accessibility Program (TAP) requirements. This will provide safe all ability access to the public transport services including the Medlow Bath railway station and bus services on Great Western Highway and Railway Parade.

The design of the bridge be sympathetic to cultural and aesthetic characteristics of the area.

The proposed footbridge would be a three-span steel truss bridge with reinforced concrete piers and abutments. The structure would span the full width of the widened Great Western Highway, with abutments at the western side of the Great Western Highway and on Railway Parade. Piers are also located on the eastern side of the highway and on the railway station platform. The piers and abutments would be of reinforced concrete construction.

At each access/egress location on the structure there would be an independent lift structure, satisfying the requirements of T HR CI 12030 ST Overbridges and Footbridges Design Standard (TfNSW, 2020).

CONSTRUCTION OF INTERSECTIONS ON GREAT WESTERN HIGHWAY

The Proposal works to the Great Western Highway would incorporate intersection upgrades including:

- Three way signalised intersection lanes for access/egress at Bellevue Crescent which will also include:
  - a right hand turn bay for south bound vehicles from Great Western Highway into Bellevue Crescent
  - a left hand turn bay for north bound vehicles from Great Western Highway into Bellevue
  - U turn bay
- right hand turn bay on Great Western Highway for entry into the Hydro Majestic Hotel by south bound vehicles.

CONSTRUCTION OF BUS BAYS ON BOTH SIDES OF GREAT WESTERN HIGHWAY

The Proposal would include bays for local bus services to connect with the area and train station. This would include one on the north bound carriageway and one on the south bound carriageway of the highway adjacent to the pedestrian bridge and lifts. The school bus stop in Railway Parade used to collect school children from the linking train services would be removed due to the upgraded highway bus stops.

URBAN DESIGN AND LANDSCAPING FEATURES

Key urban design and landscaping features of the proposal are:

- Retaining existing tree plantings where possible along Great Western Highway
- Landscaped median / verges including:
  - native shrub and grass plantings with taller native trees to respond to nearby ecological features
  - ornamental shrub, groundcover plantings and trees to respond to other cultural aspects.

DRAINAGE DESIGN

The proposal includes drainage infrastructure along the Great Western Highway. This includes cross-drainage structures and features such as:

- Reinforced box culverts
- Reinforced concrete pipes
- Pavement drainage pit and pipe system
- Swales and drainage along the main road alignment
- Transverse drainage across driveways/property access points
- Scour protections at drainage outlets
- Bridge deck drainage.

2.3 STRUCTURE OF THE REPORT

The report has been structured to identify design responses and strategies, and show compliance within the scope of work requirements, which includes:.

- Chapter 1: Executive Summary - provides an overview of the Proposal's Landscape character and visual impact assessments,
- Chapter 2: Introduction – Introduces the Proposal, outlines the scope, provides a background of the work undertaken to date, provides a definition of the proposal, objectives and proposal elements,
- Chapter 3: Contextual Analysis - Provides a brief contextual analysis focusing on urban design relevant issues,
- Chapter 4: Urban Design & Landscape Strategy - Presents the urban and landscape strategies including; the design of the bridge and strategy plans and identifies the design objectives, key principles for the proposal,
- Chapter 5: Landscape Character Assessment,
- Chapter 6: Visual Impact Assessment,
- Chapter 7: Landscape Design & Drawings,
- Chapter 8: Mitigation Measures

2.4 PURPOSE OF THE REPORT

This Landscape Character and Visual Impact Assessment supports the REF for the Medlow Bath portion of the Great Western Highway Upgrade. It documents the Urban Design and Landscape concept, landscape character and visual impacts of the Proposal outlined in Figure 2-1 and includes the following:

- The existing natural landscape including landform, soil, water and biodiversity
- The existing cultural landscape including heritage values, land uses, and places of interest
- Urban Design objectives and principles
- Urban Design and Landscape strategy
- The landscape character and character zones
- The sensitivity of the setting
- The magnitude of change as a result of the proposed elements
- The visual impact of all proposed surface elements.
- Measures to mitigate visual impacts of proposed elements.

2.5 REFERENCE DOCUMENTS

The design is guided by the overarching best practice urban design principles as set out in:

- *'Beyond the Pavement – Urban design policy, procedures and design principles'*, TfNSW , updated 2020
- *'Around the Tracks'* - TfNSW Urban Design for heavy and light rail Guidelines, December 2016, interim issue
- *Urban Design Framework for the Great Western Highway*, Katoomba to Mount Victoria, TfNSW May 2019
- *The Great Western Highway, Katoomba to Mount Victoria Urban Design Strategic Design Development Report,* TfNSW February 2021
- *Great Western Highway - Urban Design Framework*, Blue Mountains – Lapstone to Katoomba, Roads and Traffic Authority, November 2006
- *'Guidelines for landscape character and visual impact assessment No. EIA-N04'*, December 2020
- *Great Western Highway - Urban Design & Landscape Strategy, Mount Victoria to Lithgow*, Roads and Maritime, June 2010.

Further relevant urban design guideline documents include (Figure 2-2):

- *'Landscape design guideline- Design guideline to improve the quality, safety and cost effectiveness of green infrastructure in road corridors,'* Roads and Maritime, December 2018
- *'Bridge Aesthetics – Design guideline to improve the appearance of bridges in NSW'*, Centre for Urban Design, February 2019
- *'Shotcrete Design Guideline – Design guidelines to improve the appearance of shotcrete in NSW'*, Roads and Maritime, March 2016
- *Water sensitive urban design guideline-Applying water sensitive urban design principles to NSW transport projects*, May 2017
- *'TAP Urban Design Plan'* - TfNSW Guidelines, June 2018, draft issue

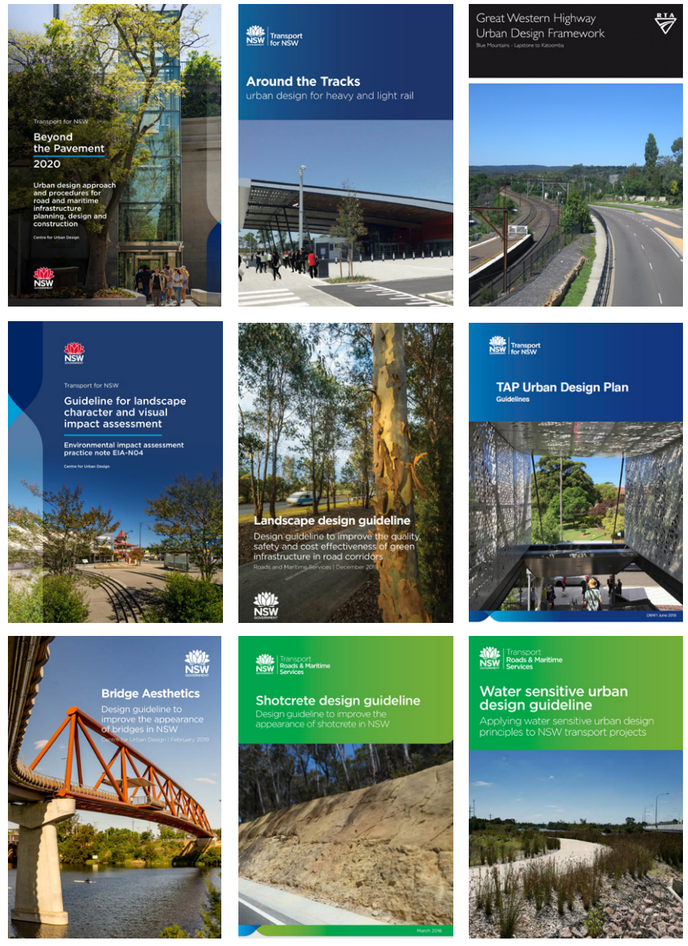


Figure 2–2 TfNSW Design Guidelines
Source: TfNSW NSW Government

2.6 ASSESSMENT METHODOLOGY

2.6.1 INTRODUCTION

The following guideline for landscape and visual impact has been used for the methodology of this assessment:

- *Environmental Impact Practice Note: Guideline for Landscape Character and Visual Impact Assessment (LCVIA)* Note EIA-N04 by Roads and Maritime Services (2018)

Transport for New South Wales (TfNSW) Practice Note (TfNSW) is a well-developed and widely used visual impact assessment methodology in NSW, predominantly on transport infrastructure. There are two main components within this visual assessment: Landscape Character Assessment and Visual Impact Assessments, which are described below.

2.6.2 LANDSCAPE CHARACTER ASSESSMENT

Landscape character, as described by TfNSW (2020), is the 'combined quality of built, natural and cultural aspects that make up an area and provide its unique sense of place'.

The assessment of landscape character involves the identification of the diverse landscape character zones within the Proposal area (defined by distinctive combinations of factors), and an assessment of the sensitivity and magnitude of the Proposal for each zone. The study area and areas adjacent are divided into zones that classify the character and spatial qualities to assist with the assessment. The methodology for this involved analysing aerial imagery to distinguish distinct vegetation communities and growth patterns as well as topography, geology, water and infrastructure. A site visit confirmed the boundary of each zone through experiencing the landscape on foot, and in a car.

Sensitivity refers to how susceptible the environment is to the proposed change. The assessment is informed by background research, including, the quality of the landscape, its' cultural and historical importance to the community, scenic quality, and the overall composition of the place and its users. Additionally, sensitivity considers the landscape's inherent capacity to absorb change. For example, an area with a pristine natural character would be more sensitive to change than an area that has existing built infrastructure such as a road or building.

Magnitude refers to the type of Proposal and its compatibility with existing landscape character, including; scale, form and material composition of elements, as well as their location or setting. Moreover, magnitude considers the influence of the physical presence of the Proposal area. For example, a sizeable above-ground building would have a greater magnitude of change than an access road through the same landscape.

Landscape character impact is the combined evaluation of the sensitivity and magnitude of change caused by the Proposal, in accordance with the Impact Assessment Grading Matrix in Table 2-2.

2.6.3 VISUAL IMPACT ASSESSMENT

The assessment of visual impact requires the selection of viewpoints, overlooking the Proposal area. A collection of viewpoints is selected from different locations, distances and directions within the visual catchment of the Proposal area.

Selection of viewpoints

The selection of viewpoints begins with a desktop assessment of the Visual Envelope Map (VEM) for the Proposal, based on an analysis of the Digital Elevation Model (DEM). Viewpoint selection criteria must fall within the visual catchment defined by the Zone of Theoretical Visibility (ZTV), based on an eye-level of 1.5m above the ground. Each viewpoint is then adjusted to fall within a probable area of observation, including roadways, residential housing, a walking track or lookout. After all viewpoints have been defined, a site visit is undertaken to verify.

Onsite, the location of proposed elements of the design, as well as, viewpoints are visited and documented by staff. High definition photographs were taken using a fixed lens, Nikon AF-S DX NIKKOR 35mm f/1.8G (the digital focal length equivalent is 52.5mm). GPS coordinates and elevation heights were recorded using an accurate Geographical Positioning System (GPS) to verify each of the selected viewpoints. The GPS is accurate to within 10m.

Visual impact assessment

An assessment for the selected viewpoints highlighting any impacts the Proposal would have on sensitivity and magnitude is then carried out.

		MAGNITUDE			
		HIGH	MODERATE	LOW	NEGLIGIBLE
SENSITIVITY	HIGH	HIGH	HIGH-MODERATE	MODERATE	NEGLIGIBLE
	MODERATE	HIGH-MODERATE	MODERATE	MODERATE-LOW	NEGLIGIBLE
	LOW	MODERATE	MODERATE-LOW	LOW	NEGLIGIBLE
	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE

Table 2–2 Landscape character and visual impact rating matrix
Source: EIA-N04 Guidelines, 2018

The visual impact of the Proposal from each viewpoint is assessed using the sensitivity of the setting and the magnitude of change.

Sensitivity is the measure of visual quality and importance of the view and is dependent on the distance between the observer and the Proposal, the activity category of observer and the visible elements of the Proposal.

Magnitude of change on existing views refers to the nature and scale of the Proposal, and also the extent and proximity of the view to it. Magnitude represents the contrast in scale, form and type of Proposal to the location and context to which it is proposed.

The Visual impact is the combination of the sensitivity and magnitude rating in accordance with the Impact Assessment Grading Matrix in Table 2-2.

2.6.4 MITIGATION MEASURES

Mitigation measures are a series of strategies, principles or treatments recommended to improve the identified landscape character and visual impacts of the Proposal. They may include ways to lessen the magnitude of the proposed works and to maximise the integration with the surrounding setting. They may also include treatments to key view corridors to reduce contrast and/or screen the Proposal from certain viewpoints.

Existing view looking north along Great Western Highway from the United Petrol Station exit

Chapter 3

CONTEXTUAL ANALYSIS

3.1 INTRODUCTION

The following contextual analysis identifies elements that inform the urban design approach to the Proposal. Contextual information is based on desktop studies, planning frameworks and site investigations and material presented in the Great Western Highway, Katoomba to Mount Victoria Urban Design Framework (KI Studios).

The purpose of this chapter is to establish site conditions and values relevant to the planning and design of the Great Western Highway upgrade in Medlow Bath.

3.2 REGIONAL CONTEXT

The proposed Great Western Highway Upgrade at Medlow Bath is situated in the Great Dividing Range on the western edge of the Blue Mountains National Park, approximately 110km west of Sydney (Refer to Figure 3-1).

The Great Western Highway in this location, along with the Main Western Railway Line, form the primary transport corridors through the Blue Mountains, connecting Penrith to Lithgow, although a secondary route along the Bells Line of Road, occurs through the Upper Blue Mountains, connecting Windsor to Lithgow.

The villages along the Great Western Highway hold significant value given the vast and undisturbed views obtained over the Greater Blue Mountains World Heritage Area. The journey along the Great Western Highway through the Blue Mountains, crosses landscapes that have rich natural, cultural, scenic and historical values that enhance its attractive and picturesque setting. Generally, urban developments along the Highway are located along the ridgeline above and are discrete in nature and separated by natural bushland creating a repeating sequence of urban areas and natural bushland, sometimes referred to as a “string of pearls”.

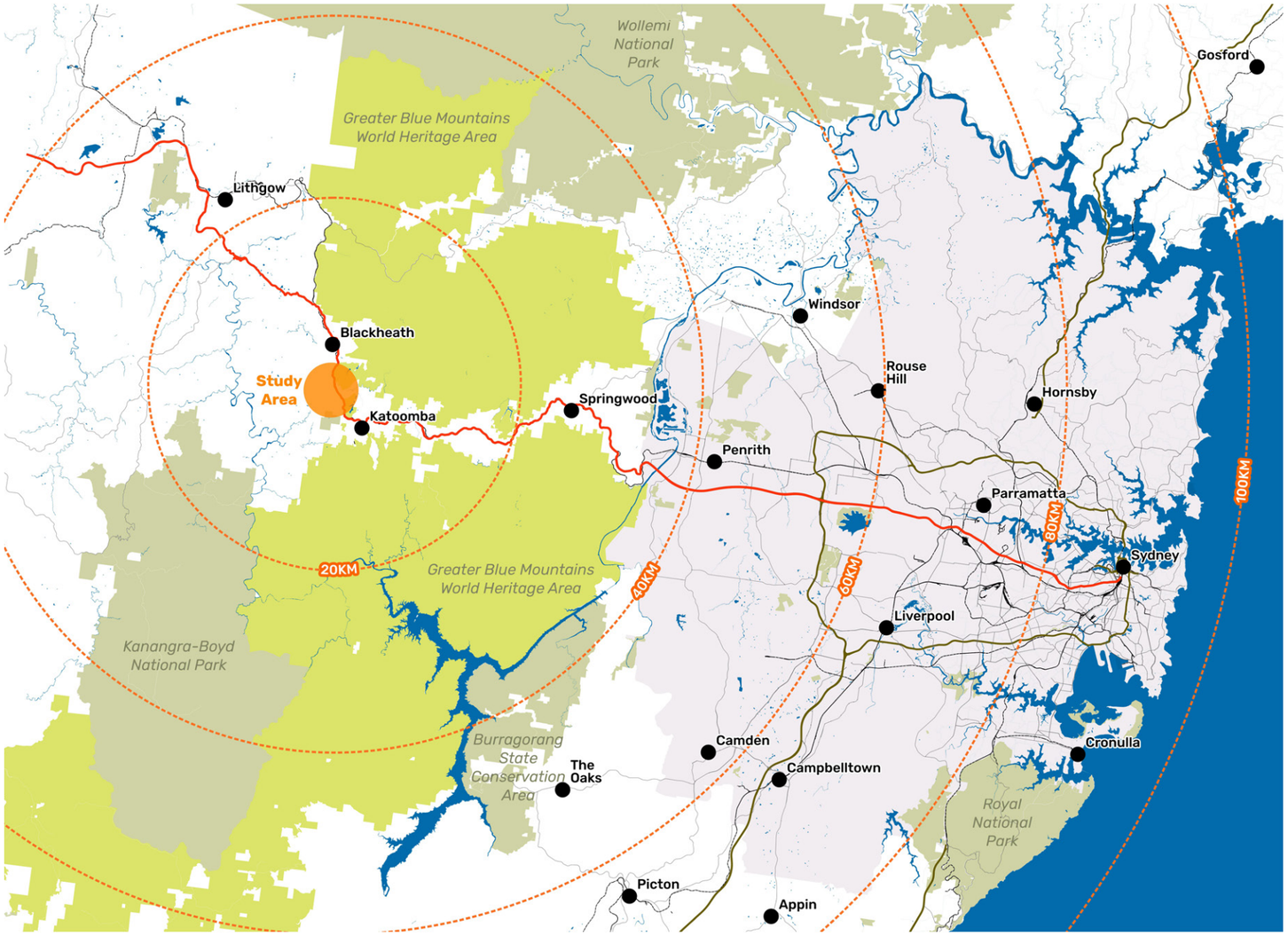


Figure 3–1 Regional context of the study area

3.3 LOCAL AREA OVERVIEW

The village of Medlow Bath is located between Blackheath, to the north, and Katoomba, to the south. It is generally categorised by Environmental Living land use, consisting of single story dwelling interspersed with guest-houses and retreats. Great Western Highway and the Main Western Railway line form a central spine around which the village is situated.

The western edge of the Great Western Highway is physically and visually dominated by the Hydro Majestic Hotel, which is positioned atop the Megalong Valley escarpment. This spectacular escarpment is locally protected due to its high scenic values. The escarpment protection has been implemented by Council, with objectives that aim to preserve and enhance visual, scenic, cultural and ecological values of the escarpment systems in the Blue Mountains, through the conservation of bushland between villages, sympathetic development design and visual mitigation of the highway corridor through indigenous plantings.

To the east of the Great Western Highway, vegetation creates a buffer between Medlow Bath residential tree lined streets and the existing highway and rail corridor. Further east, low density housing backs onto the national park, creating a plateau of urban development between the natural setting of the Blue Mountains.

Within the Medlow Bath Village and to the east of the railway line, there is one public open space facility at Medlow Bath Park, adjacent to the Rural Fire Brigade station which provides public amenity in the form of a playground, picnic tables and landscaped gardens. Additionally, surrounding the village, there are several popular bushwalking tracks that provide valuable recreational facilities for locals and tourists, as well as regional and local cycle routes that link to the Blue Mountains Trail and Mountain Bike Trails to Point Pilcher.

Figure 3–2 Great Western Highway Medlow Bath, The Hydro Majestic Hotel & Megalong Valley
Source: K2MB Strategic Design Plan Report

Figure 3–3 View of Ellington Manor along Great Western Highway from Medlow Bath Station

Figure 3–4 The Great Western Highway and Medlow Bath Station
Source: K2MB Strategic Design Plan Report

Figure 3–5 Medlow Bath Village
Source: K2MB Strategic Design Plan Report

3.4 CONTEXTUAL ANALYSIS

3.4.1 SITE

The Proposal area is located within the Great Dividing Range in NSW, on the western edge of the Blue Mountains. The upgrade of the Great Western Highway at Medlow Bath will be approximately 1.2 kilometres, between Railway Parade and approximately 330 metres south of Bellevue Crescent.

The Great Western Highway follows a narrow and difficult alignment constrained by the Blue Mountains National Park, steep topography, a railway line and existing towns for which the highway acts as the main street. The rugged terrain, combined with its natural beauty, makes it a challenging proposal area susceptible to change.

Within Medlow Bath Village the Great Western Highway acts as a major thoroughfare with several established existing businesses situated along the route, including, Blue Mountains Mazda, the Hydro Majestic Hotel, the Boiler House Restaurant and United Medlow Bath.

Located away from the main thoroughfare, low density residential buildings predominantly form the character of Medlow Bath with local roads to the east of Medlow Bath Rail Station filled with coloured foliage of deciduous trees.

Although much of the terrain in Medlow Bath is flat, views exist in areas toward the west and south west, overlooking the Megalong Valley, with views in the east filtered by existing established vegetation.

Figure 3–6 Contextual Analysis - Site Context
Source: Base adapted from SIX Maps

3.4.2 LANDFORM & HYDROLOGY

The landform of the Proposal area is typical of the Great Western Highway in the Blue Mountains, sitting atop a ridge that overlooks the Megalong Valley via a steep escarpment to the west, with a relatively flat crest across the Proposal area and to the east. The general landform on approach to Medlow Bath from Katoomba is undulating with a steep dropoff to the east between the road and rail corridor, enclosed by bushland. Toward the north of the Proposal area, and on approach from Blackheath, the topography again becomes undulating, lending very introverted views and partially revealing the character of the mountains as motorists traverse through the journey.

The Proposal sits atop a ridge line, with drainage considered important given the Great Western Highway also sits upon the Hawkesbury / Nepean water catchment areas which both feeds into Pulpit Hill Creek to the west and Adams Creeks to the East (Refer Figure 3-7).

RELEVANCE TO URBAN DESIGN

- Undulating topography toward the south of the Proposal area provides an opportunity to sensitively integrate the upgrade within the landform
- Elevated Proposal elements provide an opportunity to create new views or vantage points over the landscape
- There is a need to consider the Proposal areas impact on existing views, given the relatively flat nature of Medlow Bath and the height of the pedestrian bridge and peripheral elements.

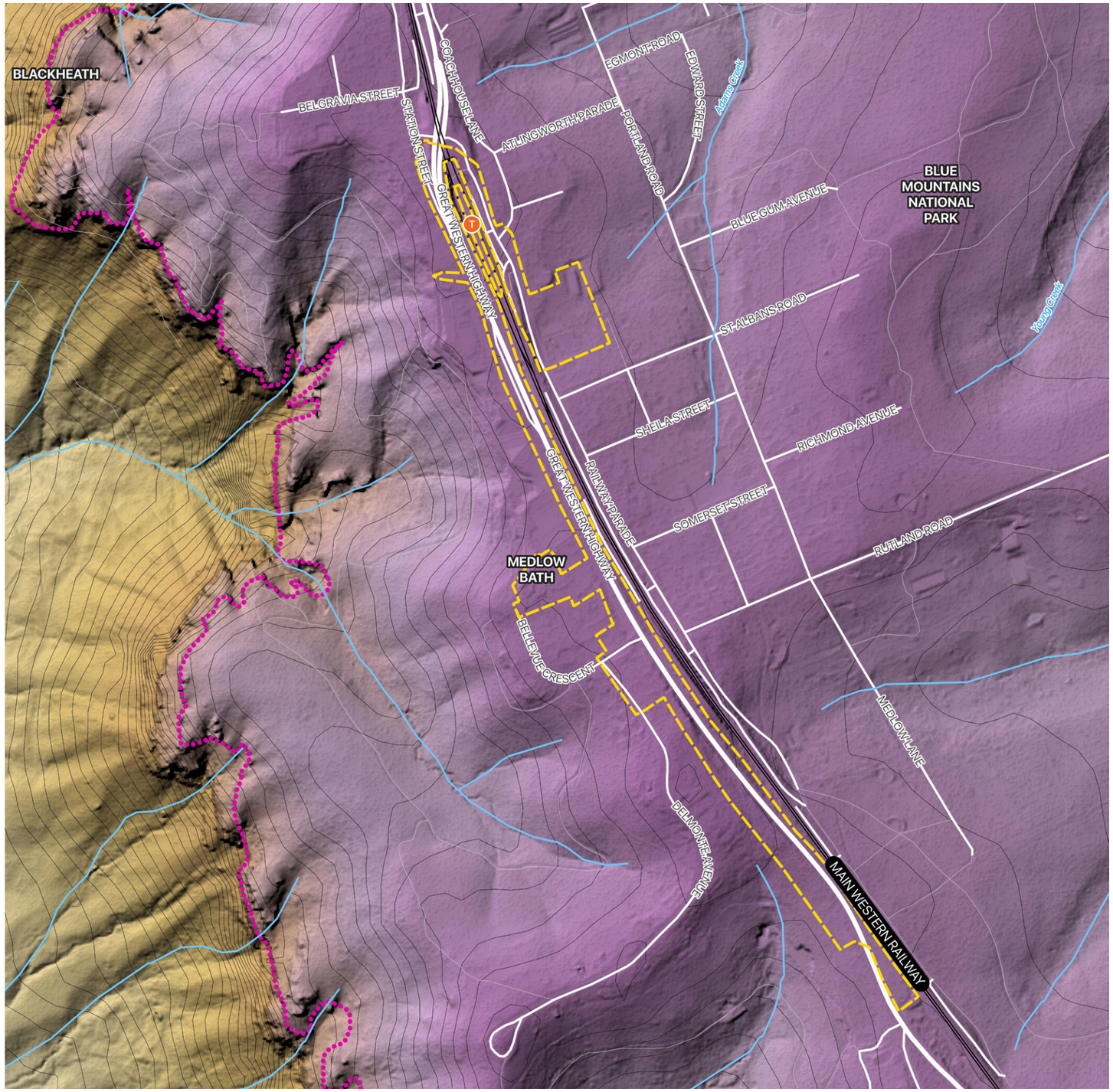


Figure 3-7 Contextual Analysis - Landform and Hydrology

3.4.3 GEOLOGY & SOIL LANDSCAPES

The Geology of the Proposal area consists of the Narrabeen Group, with small outliers of Hawkesbury Sandstone in some occurrences.

Medlow Bath consists predominantly of the Medlow Bath soil landscape, which is characterised by gently undulating to rolling rises and low hills on sandstone plateau surfaces, with soils that have very low fertility, very high aluminium toxicity, moderate erodibility and localised rock outcrops and shallow soils. As a result, vegetation within the Proposal area consists mainly of partially cleared open-forest and open-woodland communities. Urban development and bushfires playing a significant role in impacting the existing soil and geology, resulting in soil susceptibility to erosion when the groundcover is disturbed (Refer to Figure 3-8).

RELEVANCE TO URBAN DESIGN

- The soil typology along with the landscape topography should inform the species selection for the landscape design
- Cleared open-forest areas along the ridge line provide an opportunity to create new views or vantage points within the Proposal area
- Opportunity for the Proposal area to utilise both endemic and native species that are tolerant of shallow, sandy soils to improve soil structure and reduce erodibility.

Figure 3-8 Contextual Analysis - Soil landscapes

3.4.4 VEGETATION

The proposal area is heavily disturbed by urban development and consists of a layering of deciduous exotics and partially cleared open-forest and open-woodland communities. Adjacent areas to the proposal area and entries into Medlow Bath are heavily vegetated, as outlined by *Tozer et al* (2010) and the *RMS Great Western Highway PEI (Preliminary Environmental Investigation)* the two dominant vegetation communities throughout the Proposal area are the *Eucalyptus sieberi*, or Black Ash and the *Eucalyptus oreades*, or Blue Mountains Ash. Additionally, other vegetation communities may exist on the fringes of the proposal area that include the Blue Mountains Swamps. Understorey planting consists of a mix of native shrubs and groundcovers (Refer to Figure 3-9).

Given Medlow Bath is in close proximity to World Heritage landscapes within the Blue Mountains National Park, the incorporation of indigenous species, endemic to the area, in revegetation strategies is essential to achieve a high level of biodiversity, allowing for the natural bush setting and high fauna and flora quality to be maintained.

RELEVANCE TO URBAN DESIGN

- The species selection within the Proposal area should contribute to the visual outlook and experience for motorists travelling along the Great Western Highway and assist in creating a sense of identity for Medlow Bath
- Opportunity to integrate the landscape approach with the existing vegetation character of the surrounding streets including the gardens at the Hydro Majestic Hotel
- Opportunity for the landscape design to incorporate indigenous species to improve the biodiversity of the vegetation and fauna communities that exist on the fringes of the Proposal area
- Enhance the natural bush setting of the area

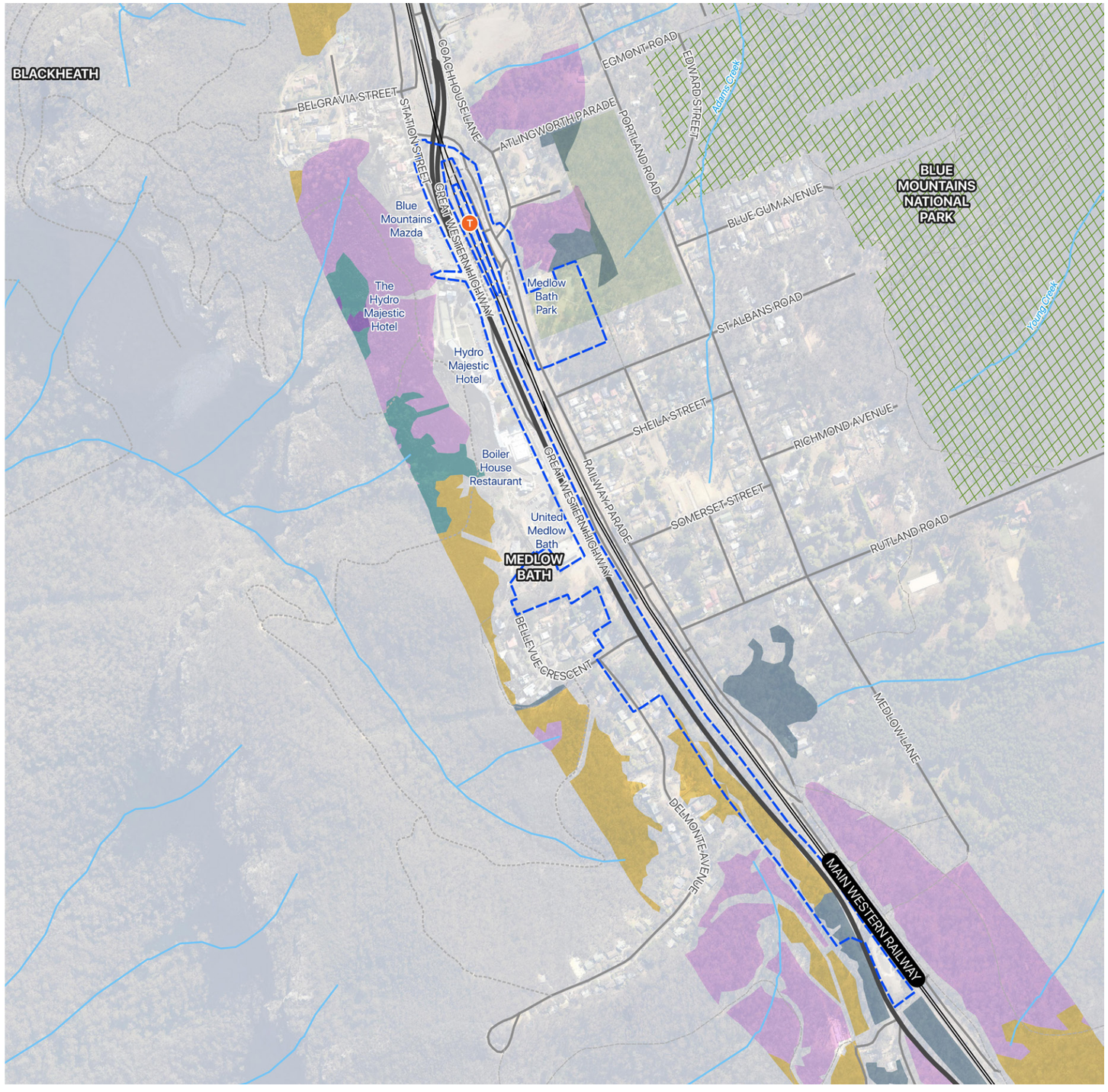


Figure 3–9 Contextual Analysis - Biodiversity mapping
Source: Base adapted from SIX Maps

3.4.5 SETTLEMENT PATTERNS

The *Great Western Highway Urban Design Framework*, Blue Mountains - Lapstone to Katoomba identifies the settlements along the Great Western Highway as a settlement pattern that should reinforce the 'string of pearls' formation. Figure 3-10 highlights the settlement pattern of Medlow Bath, displaying the transition of zones between enclosed bushland and the main village area. It is important to differentiate each village along the 'string of pearls' in order to identify each village's character, in order to protect and enhance the area. By protecting and nurturing natural and cultural scenic qualities and integrating heritage values, a memorable fabric can be created that creates a visual identity for Medlow Bath, whilst respecting the existing cultural identity.

RELEVANCE TO URBAN DESIGN

- Incorporate the natural and cultural scenic qualities of the area into the urban and landscape design to enhance the visual identity of Medlow Bath
- Utilise landscape elements within the Proposal area to differentiate and highlight the character of different transition zones that highlight settlement patterns along the Proposal.

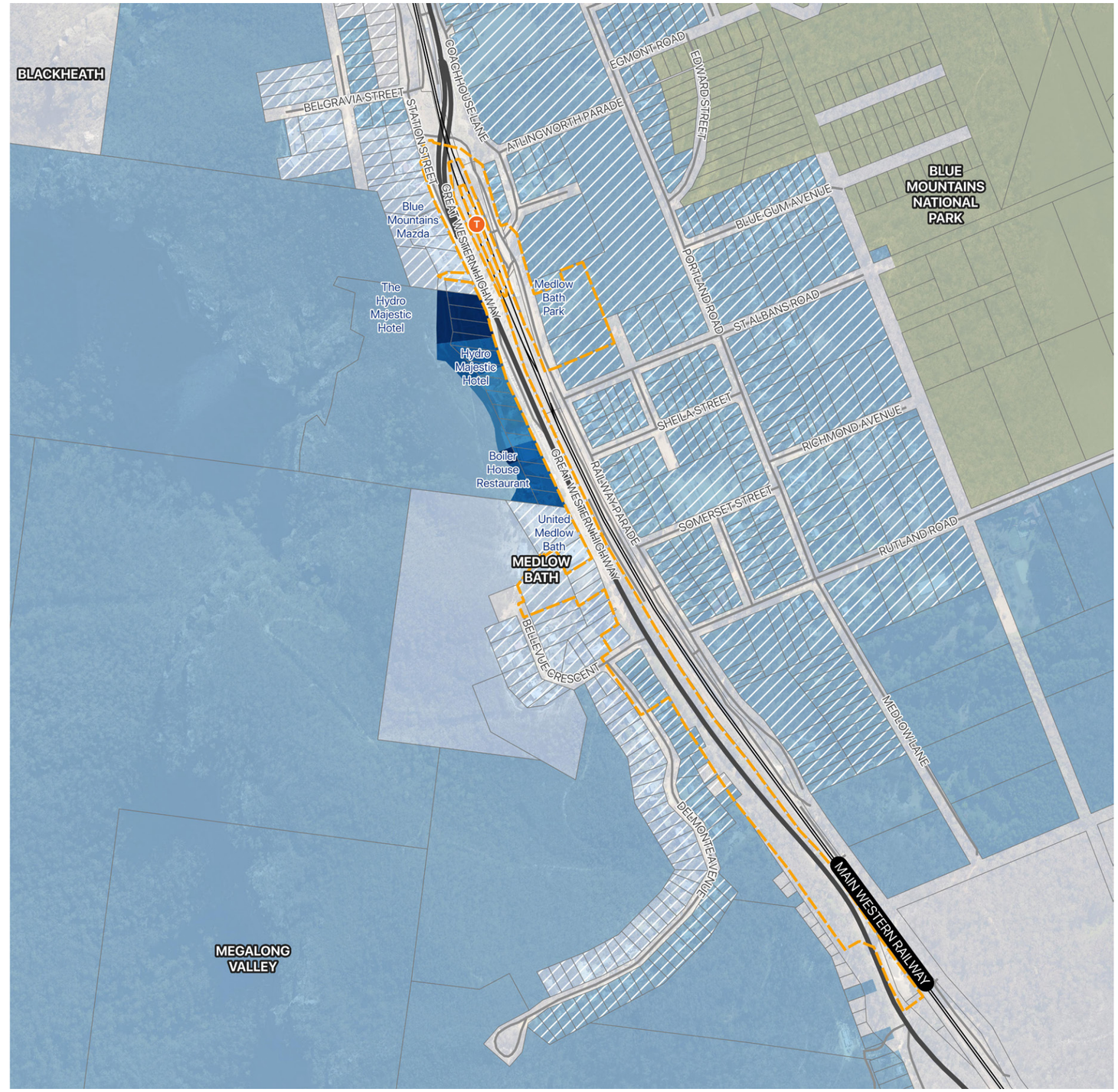


Figure 3–10 Contextual Analysis - Settlement patterns
Source: Base adapted from SIX Maps

3.4.6 LAND ZONING

Predominantly, Medlow Bath and the surrounding area has a land use that reflects its links to the environment. Much of Medlow Bath is currently zoned as Environmental Living (E4) and made up of low density residential development that has a prominent bushland character. As a result, new development needs to be in keeping with this form and siting, whilst being complementary with the surrounding bushland character. In addition to the Environmental living zones, Medlow Bath Park, along Railway Parade provides Medlow Bath with public amenity in the form of a local outdoor space, with consideration required to ensure pedestrian linkages to the rail station and proposed pedestrian bridge across the Great Western Highway.

Although the Great Western Highway corridor and adjacent rail corridor is deemed Infrastructure (SP2) from a zoning perspective, given its location through Medlow Bath and adjacent to significant Environmental Zoning, consideration must be given to the development of these areas to fit sensitively with the existing zones adjacent.

RELEVANCE TO URBAN DESIGN

- The Proposal area should carefully consider the interface with existing land use close to the Proposal area, to minimise impacts on sensitive receivers, such as, residential neighbourhoods and tourism businesses including the Hydro Majestic Hotel and surrounding accommodation and retreats
- Maintain pedestrian, cycleway and vehicular connections between urban areas and public amenity areas to ensure healthy, cohesive and well-connected local community
- Integrate the Proposal with the landscape setting by reinforcing the villages prominent bushland character.

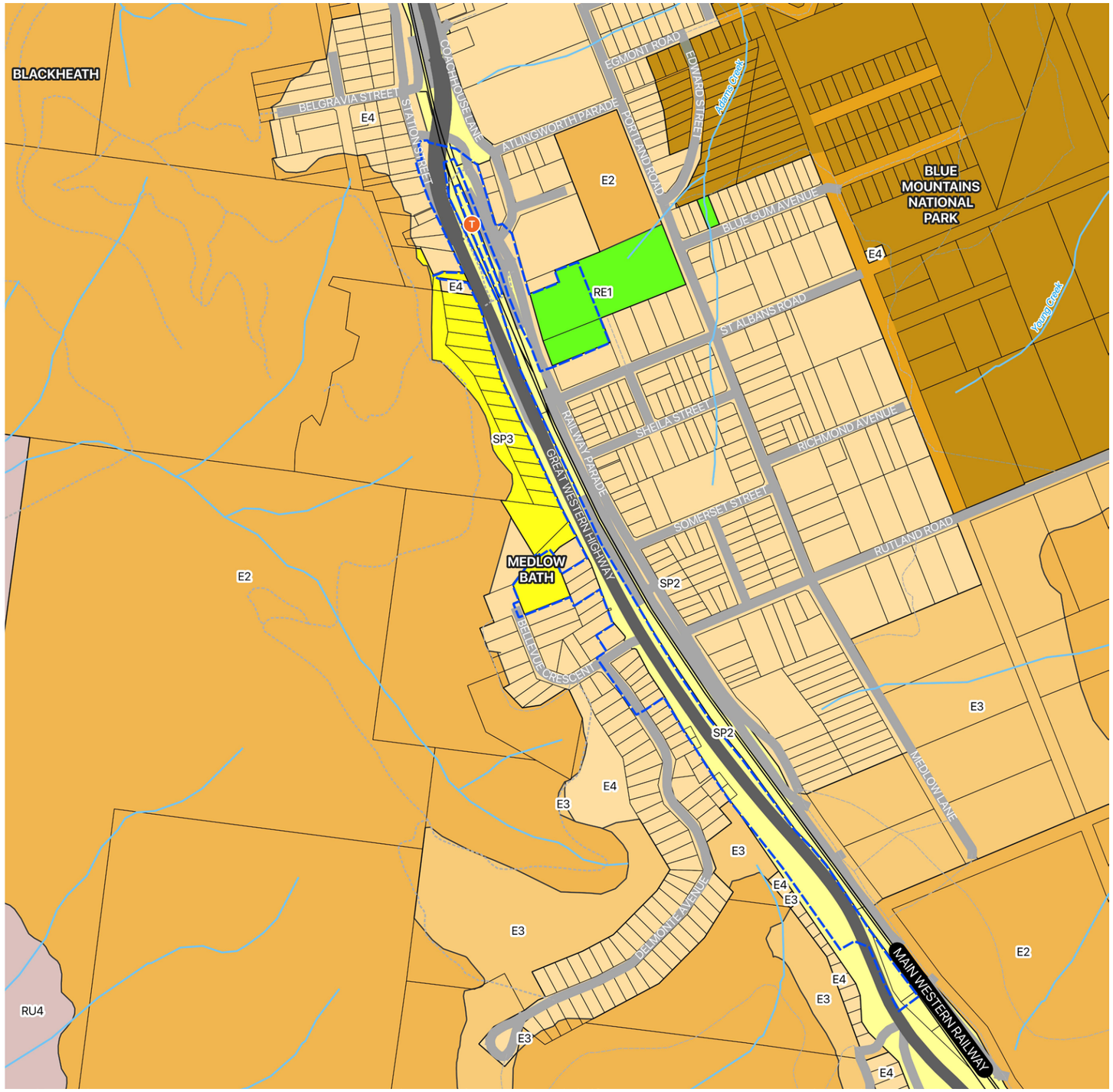


Figure 3–11 Contextual Analysis - Local zoning

3.4.7 CULTURAL AND SCENIC VALUES

Areas that hold significant cultural and scenic value are outlined within Figure 3-12. As part of the Blue Mountains LEP, local provisions are in place to protect areas that are environmentally sensitive and contain high scenic values. Within the Proposal area, there are several areas that are deemed to be protected as land between towns or protected escarpment areas.

The protected escarpment areas are defined to maintain and preserve the visual, scenic, cultural and ecological values of the escarpment systems in the Blue Mountains. As a result, these areas restrict significant development, hard surfaces in proximity of the escarpment and vegetation clearing to minimise impacts on natural features. Given that the Proposal sits in a portion of this protected escarpment area, council requires a LCVIA, as presented in Section 5 to determine the visual impact of the Proposal.

Land that is protected between towns is identified to safeguard the natural bushland character upon entry into Medlow Bath from Pulpit Hill and Katoomba. This maintains the concept of the Great Western Highway as a string of pearls, where villages rich in character and history sit along the Highway, providing welcoming destinations along the undulating journey. The protection of these bushland areas aims to shield the villages from the surrounding bushland, through a series of restrictions around built development and requires the sensitive integration of built elements with minimal visual impact.

RELEVANCE TO URBAN DESIGN

- There is a need to consider the Proposal area's impact on existing views across the protected escarpments to preserve the visual, scenic and cultural values of these areas
- Consider the Proposal areas impacts of incorporating new hard surfaces and vegetation clearing near the protected escarpment areas
- There is an opportunity to integrate the Proposal sensitively into the protected bushland and escarpment areas as well as the unique character of the Medlow Bath to contribute to and enhances these scenic and cultural values.

Figure 3–12 Contextual Analysis - Cultural and scenic values
Source: Base adapted from SIX Maps

3.4.8 HERITAGE

The key heritage items within the Proposal area and their surroundings are highlighted in Figure 3-13. There are several items of significance in the vicinity of Medlow Bath including the Blue Mountains National Park to the east and north-east. Part of the Blue Mountains National Park was inscribed on the World Heritage List in 2000 and is now one of 20 World Heritage listed places within Australia.

There are several items that are listed in the Blue Mountains Council LEP and or listed through the NSW Heritage Division as heritage items, which lie within and directly adjacent to the Proposal, (Figure 3-13). A comprehensive range of non-Aboriginal heritage sites are located across the greater study area, including historic travel routes, buildings, cemeteries, as well as natural heritage and landscapes. There are no known Aboriginal heritage items within the proposal footprint.

Specific State Heritage listed items include:

- Medlow Bath Rail Station

Specific LEP listed items include:

- Hydro Majestic Original Walking Track Conservation Area
- Stone Walling adjacent to the Hydro Majestic Hotel
- Avenue of Radiata Pines (some of the trees have been removed and replaced)
- Hydro Majestic Hotel.

RELEVANCE TO URBAN DESIGN

- The Proposal needs to consider physical and visual impacts on heritage items within or in close proximity to Proposal area, including changes to views to and from heritage items
- There is an opportunity for the Proposal to draw on the history and heritage of the area in the development of design treatments for Proposal elements.

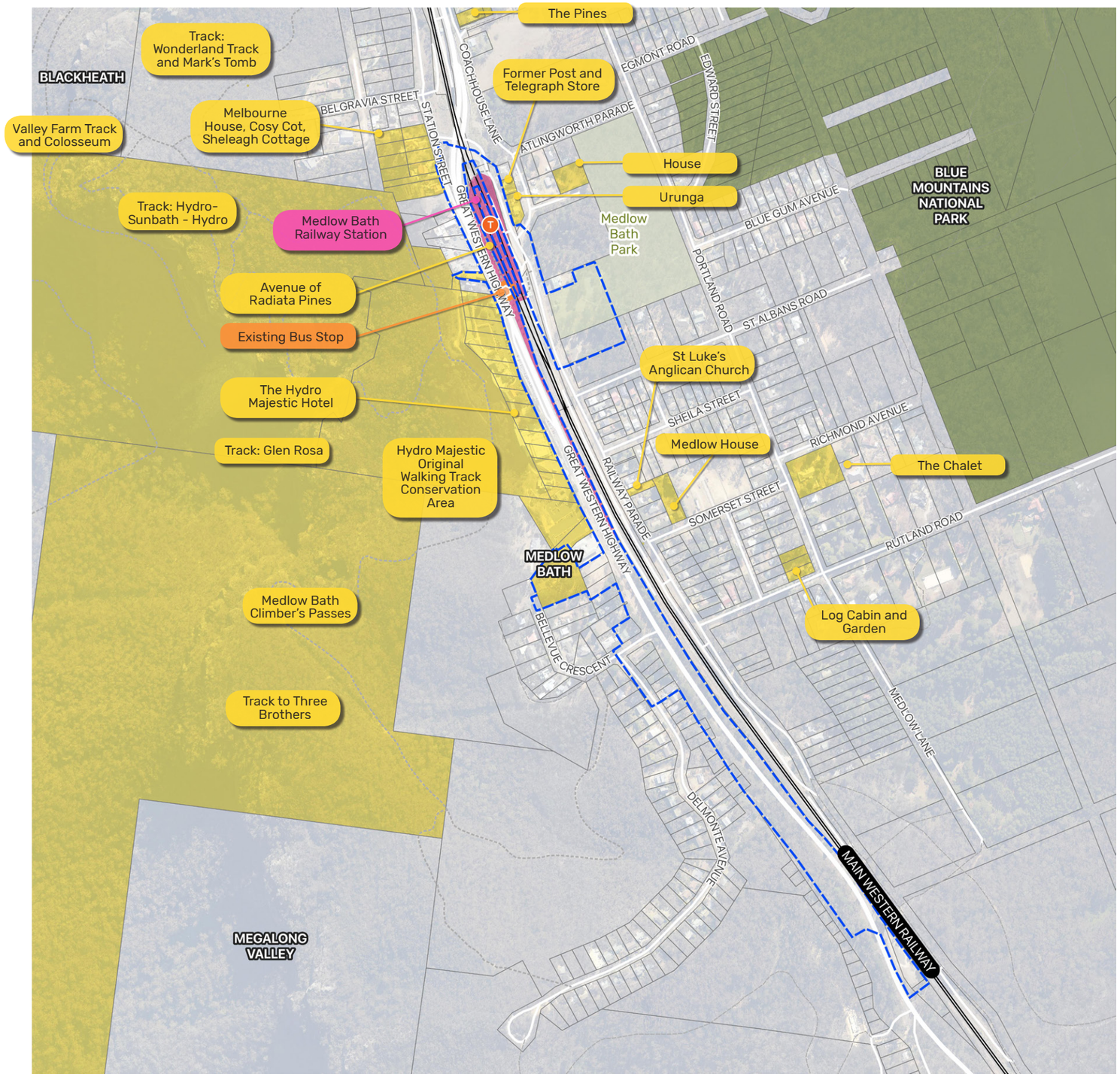


Figure 3-13 Contextual Analysis - Heritage mapping
Source: Base adapted from SIX Maps

3.4.9 LOCAL ACCESS AND MOVEMENT

Key infrastructure through Medlow Bath includes the Great Western Highway and the Main Western Railway Line. Throughout the Proposal the relationship between the rail corridor and road corridor are closely tied together, following the ridgeline. Within Medlow Bath, the road corridor and rail corridor both place a significant role in linking the community to local and regional centres, supporting the livelihood of the community through connectivity and tourism. Additionally, bus routes also connect the Blue Mountains villages along the Great Western Highway with one bus stop westbound and eastbound in Medlow Bath with existing school bus facilities located on Railway Parade.

Existing cycle and pedestrian links are located along the Great Western Highway in the form of the Blue Mountains Trail which provides recreational links to the Greater Mountains Area. Although pedestrian access is well patronised in the form of bushwalkers and recreational walkers, safe pedestrian amenity is lacking around Railway Parade and local roads to the east; with accessible links to the existing Medlow Bath Train platform only exist via a level crossing at the southern end of the platform.

RELEVANCE TO URBAN DESIGN

- Retain the functionality and connectivity of public transport services for residents and visitors during construction and completion
- The Proposal provides an opportunity to improve east-west pedestrian and cycleway connectivity and safety for residents, recreational walkers and tourists visiting Medlow Bath.

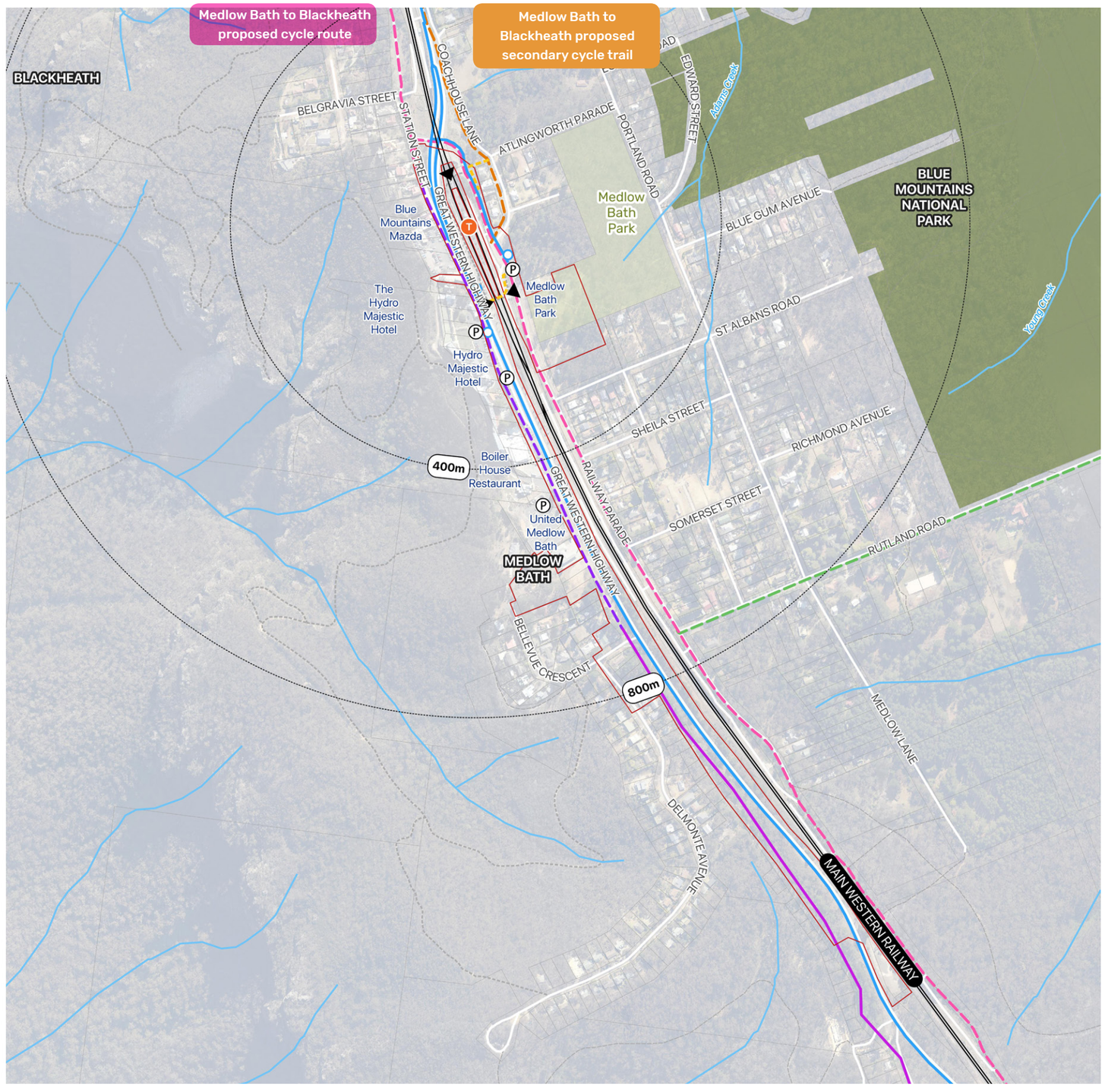


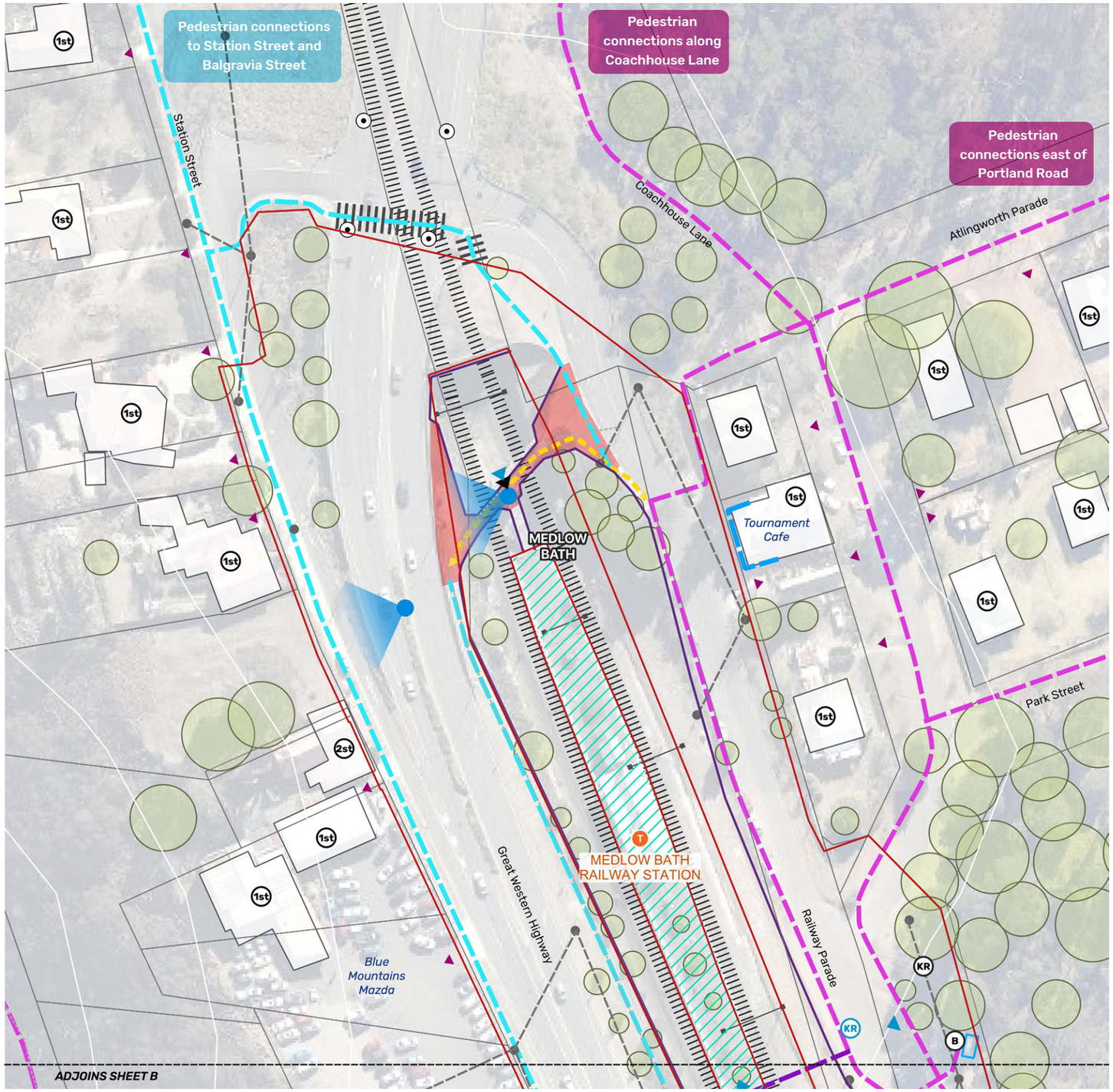
Figure 3–14 Contextual Analysis - Local access and movement

3.4.10 ACCESS & MOVEMENT WITHIN THE PROPOSAL AREA

Access to the Medlow Bath rail station from the adjoining village areas, currently exists in two locations: via an existing pedestrian bridge and a level crossing. To the north an existing pedestrian bridge provides an entry point to the station linking the Great Western Highway and western side of the Highway via a refuge crossing. The existing bridge location provides partially screened views toward the south west toward the Megalong Valley. The northern entry to the station also provides an entry point along the desire line for residents to the north east and west of the station with through-site links along an easement that connects Coachhouse Lane and Portland Road to the station entry. To the south of the Medlow Bath rail platform, exists a level crossing which enables a non compliant accessible route to the platform, whilst linking desire lines to Medlow Bath Park, Public Parking along Railway Parade, existing School Bus drop offs, an informal kiss and ride and residences toward the south-east of Medlow Bath.

Within the vicinity of the station, pedestrian facilities in the form of footpaths and furniture, as well as, cycling facilities in the form of bicycle parking, is lacking, with opportunities existing around the station to improve the convenience and utility for DDA accessible patrons, cyclists and pedestrians accessing the station.

Along the eastern edge of the station, overhead electrical cables and buried services provide a challenge to the implementation of raised structures over the station.



Cadastre
Contours
Pedestrian Crossing
Existed Signalised Intersection
Railway Station
Rail Line
Station Entry
Proposed Station Entry
Vehicle access
Station Platform
Overhead wire structures
Existing fences
Existing Bus shelter
Electricity Pole
Active Retail frontages
DDA Parking
Building height
Existing Carpark
Existing Kiss & ride
Proposed Kiss & ride
Existing Bus Stops
Existing View over the Megalong Valley
Main Station Entry
Existing Trees
Existing & Proposed Pedestrian Links
Existing East-West Access
Existing Footpath
No Footpath (Desire line)
Proposed Pedestrian Bridge Location

Scale 1:1000
0 10 20 30 40 50 m

Figure 3-15 Local context - Sheet A
Source: Base adapted from SIX Maps

RELEVANCE TO URBAN DESIGN

- There is an opportunity to improve pedestrian amenity and connectivity along the Proposal to maximise safety and DDA accessibility
- The Proposal should provide clear and legible pedestrian and cycleway connections points between the main alignment, urban areas and other activity areas to ensure the Proposal improves accessibility and connectivity
- Opportunity to improve pedestrian and cycleway amenity at the stations entry points to encourage the use of active transport.

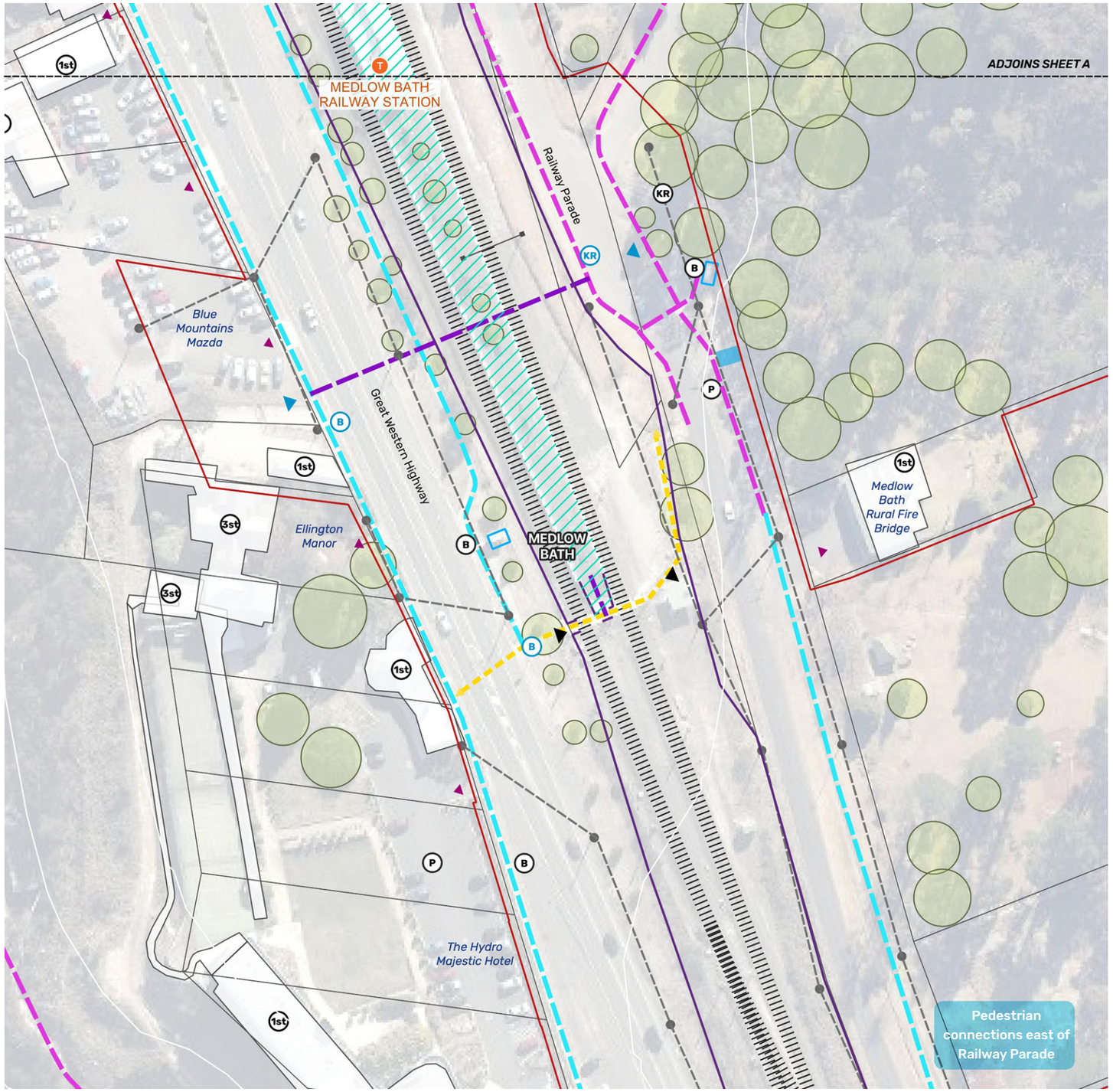


Figure 3-16 Local context - Sheet B
Source: Base adapted from SIX Maps

Existing view looking south from existing pedestrian path along GWH

Chapter 4

URBAN DESIGN & LANDSCAPE STRATEGY

4.1 OVERALL PROPOSAL OBJECTIVES

4.1.1 INTRODUCTION

The urban design vision, objectives and principles have been developed to guide the assessment process and the design for the Proposal based on:

- The Proposal objectives (refer Chapter 2)
- The principles outlined within *Beyond the Pavement* (refer Chapter 8)
- The objectives and principles outlined within *TfNSW Around the Tracks* (refer Chapter 8)
- *The Great Western Highway, Katoomba to Mount Victoria Urban Design Framework (GWHUDF)* (KI Studios) (refer Chapter 2)
- *The Great Western Highway, Katoomba to Mount Victoria Urban Urban Design Strategic Design Development Report* (KI Studios)
- The contextual analysis of the existing environment (refer Chapter 4).

The following Urban Design objectives and principles will ensure the Proposal is sensitively integrated; physically, visually, and operationally within the surrounding environment and existing natural, built and community values.

4.2 URBAN DESIGN VISION

4.2.1 PROPOSAL-SPECIFIC URBAN DESIGN VISION

The GWHUDF vision has been amended for the Proposal for a number of reasons including:

- The study area's character and setting as a key point in the journey's transition along Great Western Highway from bushland to village
- The significant history and heritage values in close proximity to the Proposal
- The Proposal will facilitate the implementation of safer pedestrian connections across the Great Western Highway and Medlow Bath Train Station
- The Proposal will formalise and enhance adjacent space to upgrade and consolidate public amenity and connections.

The urban design vision adopted for the Proposal is:

Within the context of the rugged terrain and bushland setting of the Blue Mountains and the unique natural and cultural landscapes and precincts through which it passes, the Great Western Highway should:

Reinforce the journey sequence of bushland and village; Evoke a sense of its history and heritage; Provide connectivity and permeability for pedestrians; Provide views and a clear sense of orientation for users; Maximise the amenity of the public domain; Create a road design that integrates urban design and engineering.

4.3 URBAN DESIGN OBJECTIVES AND PRINCIPLES

These Proposal-specific objectives and principles provide a broader understanding of the existing landscape and urban values of the area and the landscape and urban design issues that affect, or are affected by the Proposal. These broader values include the understanding that the Proposal should integrate with the immediate and surrounding context, minimise impacts on heritage and cultural values, whilst enhancing and benefiting the community of Medlow Bath.

The areas should be kept liveable, walkable, cycle-able, well-scaled, visually attractive and safe. The visual qualities and ecological biodiversity should be protected and used to contribute to the unique character of the place, whilst maintaining and enhancing recreational uses, connectivity to the station, public amenity and the overall sustainability of the Proposal. The Proposal urban design objectives are to:

- Develop an integrated design that fits with the existing high visual qualities, ecology and character of Medlow Bath and the Blue Mountains setting
- Minimise impacts to the integrity of heritage sites, significant trees and cultural values of the community within the Proposal
- Contribute to the functionality of public spaces and enhance local and regional connectivity

Figure 4–1 Existing character of the Great Western Highway looking north toward the Medlow Bath Station

Figure 4–2 Existing character of the Great Western Highway looking north toward Station Street

OBJECTIVE 1:

DEVELOP AN INTEGRATED DESIGN THAT FITS WITH THE EXISTING VISUAL QUALITIES, ECOLOGY AND CHARACTER OF MEDLOW BATH AND THE BLUE MOUNTAINS SETTING

Design Principles:

- Integrate the road into existing vegetation communities to maintain a sense of place and assist in maintaining existing landscape character, ecology and biodiversity
- Minimise the removal of vegetation to maximise opportunities to mitigate visual impacts through the refinement of retaining walls and assessment of new landscape treatment opportunities at cuttings and embankments
- Maximise the use of endemic vegetation through bushland areas in verges, medians and adjacent areas
- Consolidate the road and rail corridor as much as possible in areas where there are limited landscape buffer zones along critical verges, such as the Hydro Majestic Hotel
- Consider the intrusion of road-related elements (fencing, water quality control measures, signage and lighting) on the local landscape, and assess whether the introduction of road barriers can minimise vegetation clearing
- Develop landscape treatments and strategic planting to enhance existing views out over the escarpment and towards local landmarks and heritage items to improve place-making and location recognition
- Strengthen the landscape character at the north and south entry points into Medlow Bath, with locations for accent plantings, art and/or interpretive elements to assist in place-making and the formation of cultural identity recognition, to enhance a sense of welcome and arrival
- Enhance placemaking and recognition within the town centre through the use of deciduous trees to provide summer shade, winter sun and seasonal colour/variation, as well as, evergreen trees to provide links to the character of Medlow Bath
- Maximise the area for verges to allow for a buffer between the shared path and highway throughout Medlow Bath and where space permits, the incorporation of street trees and endemic shrub planting to strengthen village character and user amenity
- Ensure that any new lighting will strike a balance between illumination for safety and the context of Medlow Bath and its adjoining bushland areas
- Where possible consider the use of landscape planting to screen the railway lines to minimise the visual impact on sensitive receivers
- Consider the use of form, texture and colour for retaining walls facing bushland to enhance visual recession
- Design rock cuttings to appear natural and unobtrusive rather than 'engineered'. Cuttings should allow for a landscape zone at the base of the cutting, where space permits
- Consolidate overhead power lines into Aerial Bundled Cable or locate them underground to improve the visual setting of the village
- Design spaces that interface with the upgrade, to successfully integrate the design into the public realm, including adjacent public transport, accessibility upgrades and formalised parking along Railway Parade
- Limit the extent of hard surfaces, such as the consolidation of private driveway access and shared paths through a shared zone at Bellevue Crescent
- Avoid the use of shotcrete in cuttings. Where unavoidable, shotcrete would be used in locations where unstable geology is discovered during investigations/site excavations and implemented following *Transport Shotcrete Design Guidelines, Landscape Design Guidelines, Bridge aesthetics Design Guidelines, Noise Wall Design Guideline, and Water Sensitive Urban Design guidelines*
- Carefully consider maintenance issues and access, as these may require additional impacts on the environment.
- Consider WSUD principles to assist the management of stormwater within the Proposal, consider the capturing and treatment of stormwater within the Proposal and the use of medians to assist with treatment
- Integrate detention basins and water quality ponds to be easily maintained, retain the natural character appropriate for individual contexts and in keeping with the Blue Mountains environment

Figure 4–3 Existing character of Station Street residences

Figure 4–4 Existing character Railway Parade looking south

OBJECTIVE 2:

MINIMISE IMPACTS TO THE INTEGRITY OF HERITAGE SITES, SIGNIFICANT TREES AND CULTURAL VALUES OF THE COMMUNITY WITHIN THE PROPOSAL

Design Principles:

- Enhance heritage identity by using suitable materials within the landscape that enhance the character of Medlow Bath and the Blue Mountains
- Avoid or minimise the adverse impact of road engineering on indigenous and non-indigenous heritage, historic and culturally significant contexts and settings, items and artefacts
- Maintain views to heritage and cultural elements where possible to enhance Medlow Baths cultural identity
- Preserve and protect significant trees where possible, and adhere to REF requirements for replacement trees
- Consider the use of borrowed landscapes and the planting of mature trees on private property along the Great Western Highway and Railway Parade to assist with visual impact mitigation.
- Ensure materials used in public gathering spaces are complementary to Medlow Bath conditions and character, are robust and easily maintained and deter graffiti or at least allow for easy graffiti removal.
- Consider incorporation of heritage interpretation and potential art opportunities in consultation work with relevant stakeholders.

OBJECTIVE 3:

CONTRIBUTE TO THE FUNCTIONALITY OF PUBLIC SPACES AND ENHANCE LOCAL AND REGIONAL CONNECTIVITY

Design Principles:

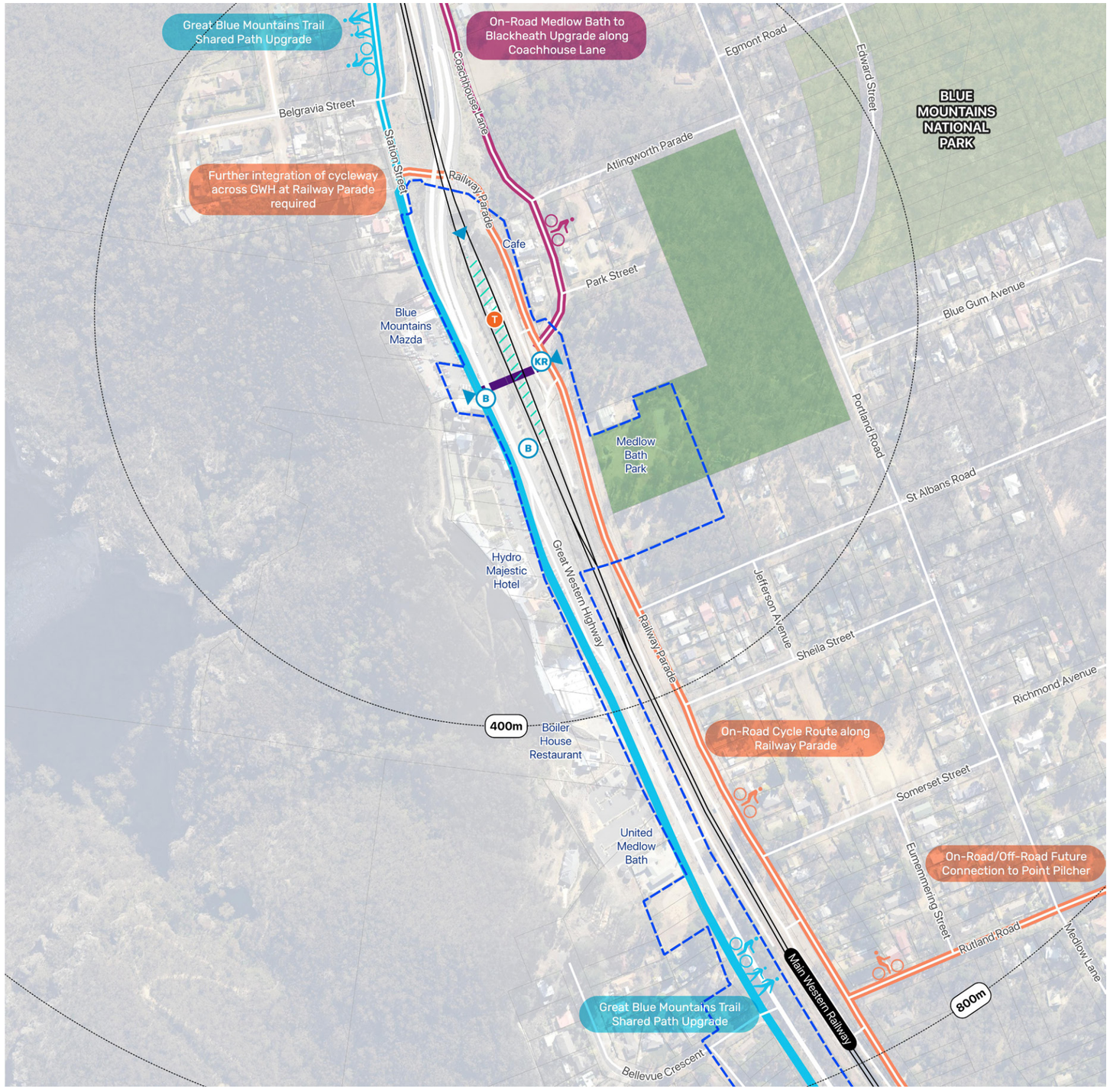
- Maintain appropriate safety criteria and sightlines to strengthen village character and protect users of the proposed shared path along the Great Western Highway
- Ensure views toward Medlow Bath Station entries are retained to allow for clear sightlines to access infrastructure
- Provide safe, direct and obvious connections between the proposed pedestrian bridge and existing and proposed pedestrian and cycling circulation and access networks within Medlow Bath and its surrounds
- Enhance the ease of transfer between different modes of transportation by facilitating easy and equitable transition of connections and wayfinding along the Great Western Highway and Railway Parade
- Maximise access and connectivity to the existing train station and alignment with desire lines based on user needs, to maintain access flexibility and links to residential and retail areas of Medlow Bath
- Maximisation of opportunities to link fragmented natural, cultural and economic zones through improvements to pedestrian connectivity
- Consider the microclimate in the design of public spaces to ensure summer shade, winter sun and protection from inclement weather conditions is provided
- Consider opportunities for placemaking within the proposal corridor to enhance recognition of local identity through public spaces
- Consider wayfinding locations and methods, to assist in building local awareness and enhancement of regional route connectivity knowledge.

4.3.1 ACTIVE TRANSPORT CONNECTIONS

The proposal incorporates a 2.5 metre upgrade of the existing Great Blue Mountains Trail shared user path that runs along the western side of the Great Western Highway. The Great Blue Mountains Trail connects Blackheath to Leura predominantly along the Great Western Highway, and allows for recreational walkers and cyclists to enjoy the upper Blue Mountains. The intrinsic link between bicycles and the rail corridor is further highlighted with bicycles permitted on trains off peak, free of charge, displaying the need for accessible links to the rail platform along the corridor.

The proposal also offers a link to Blackheath along the eastern side of Railway Parade, with an upgrade of an existing trail, part of the future upgrade link between Blackheath and Medlow Bath, via an on-road link at Coachhouse lane. Existing on-road cycle routes following Railway Parade link due to lower vehicle numbers and Rutland Road on approach to a future connection at Point Pilcher.

Although there are several route connections that currently exist through Medlow Bath, there are no cycling facilities at the station, discouraging active transport connections for commuters.



Proposal Extents
Cadastre
Railway Station & Line
Existing pedestrian through site links
Rail Platform Extent
Proposed Station entries

Active Transport Links
Proposed Great Blue Mountains Trail Upgrade
Proposed Pedestrian Bridge Cross Link
Proposed Medlow Bath to Blackheath Trail Link
Proposed On-Road Cycle Route

Scale 1:4500
0 50 100 150 200 250 m

Figure 4–5 Proposed Active transport connections

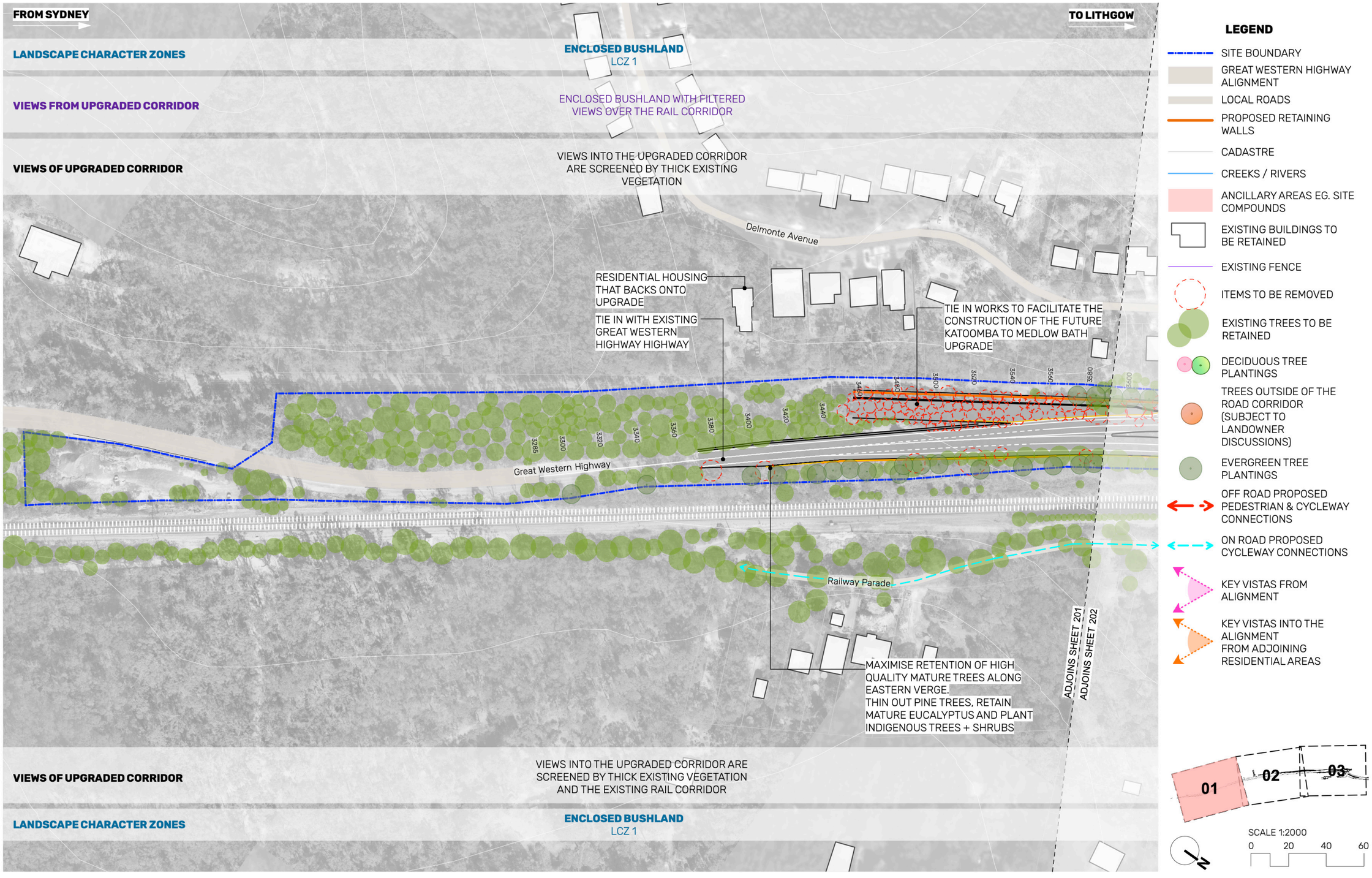


Figure 4–6 Urban Design Strategy Plan 1

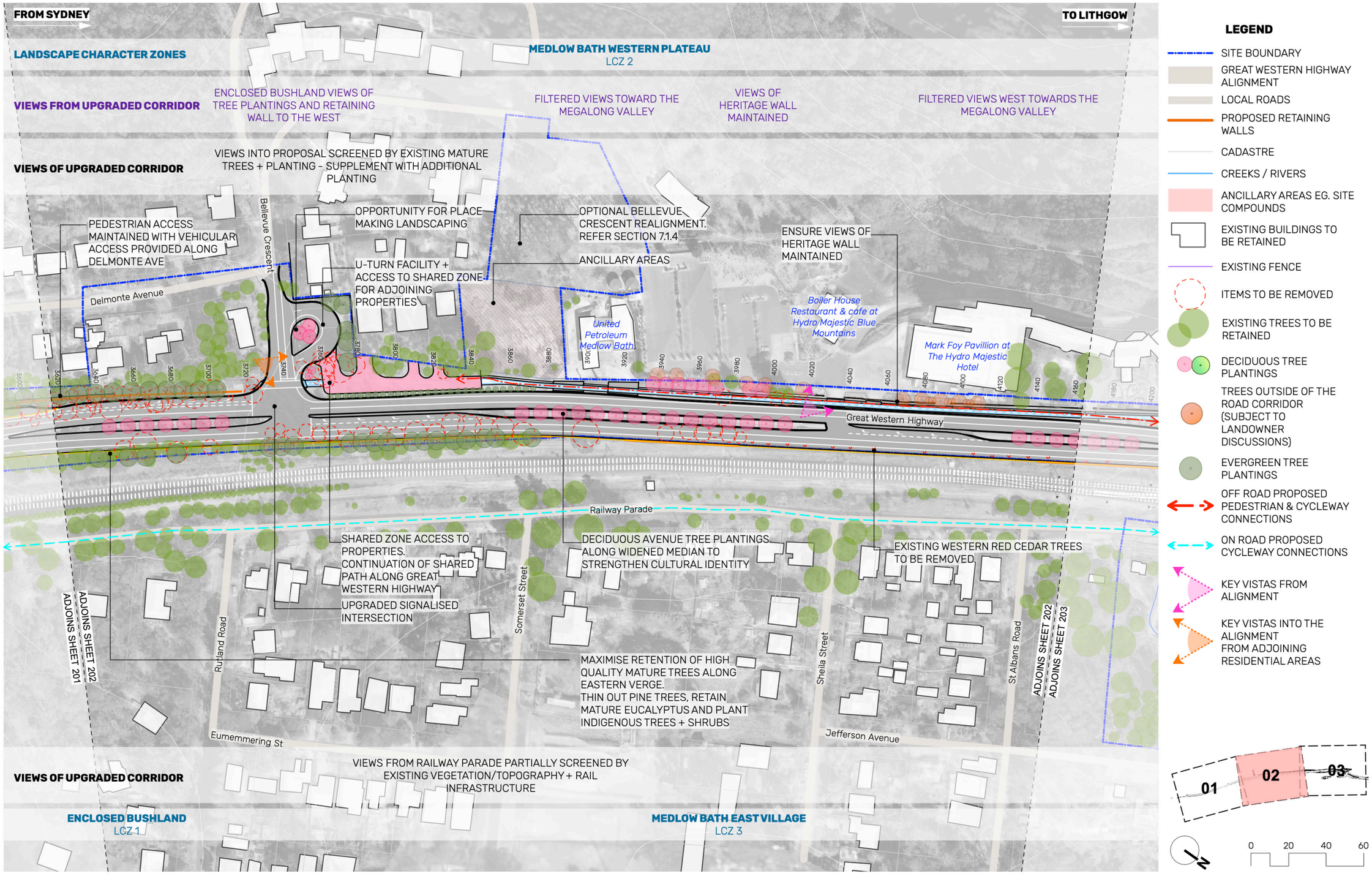


Figure 4–7 Urban Design Strategy Plan 2

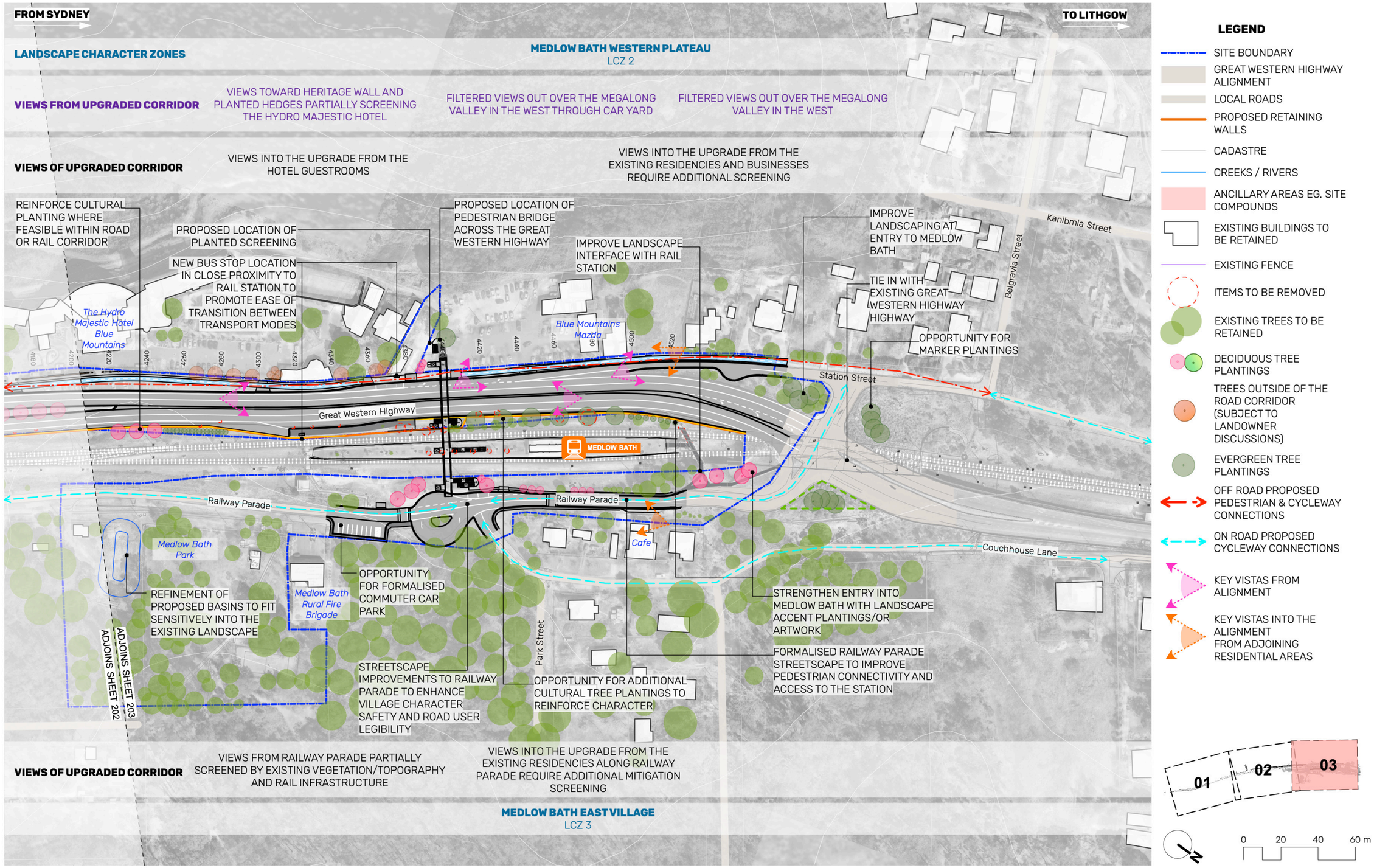


Figure 4–8 Urban Design Strategy Plan 3

4.4 BRIDGE DESIGN OBJECTIVES AND PRINCIPLES

The proposed bridge over the Great Western Highway and Main Western Rail Line will be a prominent structure in the village of Medlow Bath and will become a notable landmark on the journey through this part of the Upper Blue Mountains. As a result, the design of this bridge is an important task for this Proposal.

Specific architectural objectives and principles, to supplement the *Transport Bridge Aesthetics Design Guidelines* are set out below. These objectives and principles address the placement, and siting of the proposed pedestrian bridge, whilst also highlighting specific detail of individual bridge elements.

OBJECTIVE 1:

PLACEMENT, SITING AND CHARACTER

DESIGN THE PEDESTRIAN BRIDGE TO BE WELL SITED AND CONSIDERED IN RELATIONSHIP TO THE GREAT WESTERN HIGHWAY, MEDLOW BATH AND THE BLUE MOUNTAINS LANDSCAPE SETTING.

Design Principles:

- Ensure that the design of the pedestrian bridge considers the prominent position it will occupy and its potential landmark qualities in the setting
- Ensure that the new pedestrian bridge has a simple, visually uncluttered and strong linear geometry, so that it is considered to be an elegant form within the landscape setting
- Ensure the design and character of the pedestrian bridge and associated roadworks are well integrated with the character of Medlow Bath and the Blue Mountains setting, including the NSW State Heritage listed Medlow Bath Railway Station and Hydro Majestic Hotel
- Ensure detailed refinement of the pedestrian bridge, its abutments and constituent parts occurs to achieve a high-quality outcome as a response to its prominence within the village setting
- Consider the alignment of the pedestrian bridge to better align with the station platform, minimising the angle when seen on approach by motorists, cyclists and pedestrians.

OBJECTIVE 2:

PEDESTRIAN BRIDGE STRUCTURE

THE PEDESTRIAN BRIDGE SHOULD BE EXPRESSED AS AN UNCLUTTERED HORIZONTAL FORM

Design Principles:

- Reduce the visual complexity of the pedestrian bridge by investigating options to further refine the bridge design
- Consider the potential to refine the design of major elements such as lifts and stairs, to reinforce a composition which is balanced and well proportioned
- Maximise viewing opportunities for users of the pedestrian bridge through integration of a bridge allows for more expansive views of the surrounding landscape
- Consider the use of a fine gauge and dark coloured tensile mesh for the throw screens and integrated design of safety screens to assist in visual permeability
- Ensure that the design incorporates visual permeability and passive surveillance (CPTED)
- Ensure the pedestrian bridge deck is designed to the minimum height allowed to reduce the overall visual impact and maximise accessibility for users
- Consider the use of consistent truss members across spans to provide visual continuity.

OBJECTIVE 3:

PEDESTRIAN BRIDGE MATERIALITY

ALL MATERIALS SHOULD BE SELECTED FOR THEIR ROBUSTNESS AND DURABILITY, CONSIDERING THEIR TENDENCIES TO DEVELOP A PATINA AS THEY AGE.

Design Principles:

- Consider pedestrian bridge materiality to respect heritage values of the setting and minimise bulkiness of the structure
- Choose visually lightweight materials such as steelwork, where possible, and refine bulky forms
- Ensure that material selection considers the contextual setting in terms of compatibility and appropriateness to the surrounding structures
- Where special finishes are desired, consider them as an integral component of the construction method, rather than an applied finish
- Select materials that are robust, low maintenance and suitable for its purpose and place

OBJECTIVE 4:

PEDESTRIAN BRIDGE PIERS

THE PIERS SHOULD EXPRESS, THROUGH THEIR STRUCTURE, THE FORCES THAT ARE TRANSFERRED FROM DECK TO THE FOUNDATIONS

Design Principles:

- Design piers for compliance with structural and collision requirements and to minimise their bulk and proportions to viewers. Piers should have curved edges and be as slender as possible. i.e. the proportion of their vertical height to width should be controlled such that the piers appear tall and fine, rather than squat and bulky
- Consider the design of the piers in relation to their dominant visual presence from the Great Western Highway, Railway Parade and the train station platform
- Consider the views through the pier structures from the Great Western Highway and Railway Parade, as well as access from the lift structure beneath the pedestrian bridge
- Use the placement, material character and finish of the piers to discourage vandalism and graffiti.

OBJECTIVE 5:

PEDESTRIAN BRIDGE ELEMENTS - PERIPHERAL

DESIGN PERIPHERAL BRIDGE ELEMENTS INCLUDING STAIR ALIGNMENT AND LIFT STRUCTURES TO INTEGRATE WITH ADJOINING PEDESTRIAN UNDERCROFT AND CREATE FUNCTIONAL AND SAFE CIVIC SPACES

Design Principles:

- Refine the bridge, its abutments and constituent parts and details to confirm a high-quality outcome response to its prominence within Medlow Bath and the Blue Mountains setting
- Reduce the physical bridge footprint and scale where possible, rotating it to better align with the station platform, to minimise the angle and peripheral bridge elements including lift shafts and stairs, seen on approach by motorists and pedestrians
- Ensure safe and logical pedestrian links from the pedestrian bridge stairs and lifts to existing footpaths and pedestrian routes
- Enhance Railway Parade pedestrian facilities, provision of generous pathways, weather protection and seating, as well as, and safer connectivity through the formalisation of kerb and gutter and footpaths to improve connectivity to surrounding residences and businesses
- Avoid the use of barriers and fences to increase visual access and pedestrian permeability in civic spaces
- Consider landscape character when deciding appropriate landscape and architectural treatments.

4.5 URBAN DESIGN AND LANDSCAPE STRATEGY

This section describes the Urban Design and Landscape strategy, developed from the objectives and principles, to achieve a holistic concept design for the proposed motorway. The strategy design presented in Figure 4-6 to 4-8 includes elements such as pedestrian bridge locations, retaining walls, cuttings, fill embankments, bicycle and pedestrian connections and vegetation that will be integrated into the proposed design to keep with the existing character of the local area.

An integrated design approach has been adopted for the Great Western Highway at Medlow Bath to ensure that the best possible outcomes are achieved for the village and for the Medlow Bath Train Station. As part the design approach, an urban design strategy has been developed to provide urban design input to the overall concept design for the proposal. The purpose of the strategy is to articulate how urban design can contribute to the successful achievement of the overall Proposal objectives.

While the urban design strategy endeavours to address all of the Proposal objectives, the key areas that urban design can directly influence are: catering for the mix of through, local and visitor traffic; and being sensitive to the area's natural environment, heritage and local communities.

Further mitigation measures are identified in Chapter 8 of this report, which describes opportunities to better integrate the project into the Medlow Bath surrounds within the detailed design and documentation of works. Works would be the subject of comprehensive consultation with a range of stakeholders including State government agencies, Blue Mountains City Council and the Medlow Bath community.

The urban design strategy has directly influenced key engineering aspects of the concept design to date, including:

- Road Design Elements
- Roadside Furniture
- Pedestrian, Cyclist & Public Transport Connections
- Landscape Elements
- Crime Prevention through Environmental Design

The intention is that the urban design strategy would influence the development of the proposal, as it proceeds to detailed design and construction.

4.5.1 ROAD DESIGN ELEMENTS

Road elements are categorised as follows:

- Structures - including bridges, retaining walls that are necessary to achieve the road alignment within its surroundings
- Earthworks formations - including cuttings and embankments that are necessary to achieve the road alignment within its surroundings
- Drainage and water quality structures - including basins and open channels that are necessary in order to sensitively drain the works and ensure safe operation of the highway

Roadside elements - such as safety barriers, signs and noise attenuation walls that are necessary for the effective operation of the highway.

Design approach

The approach to the design of road elements is to adhere to the functional requirements for the safe and efficient operation of the highway while also being appropriate to their location. The design and implementation of the road elements is required to satisfy the requirements of Austroads and Transport for NSW design guidelines and practice notes.

Respect for the character of the local area and heritage will not be achieved by the appropriation of stylistic cues or fashions from another era, but through sensitive consideration of the location, placement and scale of the new elements.

The following approach has been taken for the design of road elements:

- Integration of the highway with the surrounding landscape
- Simplicity in the design expression of the elements relating to the highway, in order to allow the existing natural and cultural landscapes to provide the primary interest to the motoring experience
- Practicality for ease of construction and reduced long-term maintenance
- Site specific design that acknowledges and responds to the character of the local area, while not necessarily replicating existing features
- Consistency with the overall Great Western Highway and Medlow Bath, by using elements that are identifiably part of the highway experience in this region
- Integrity to the materials and method of construction in the final finish and appearance of the road elements.
- Improvements to pedestrian permeability and connectivity
- Maximisation of view opportunities and public amenity.

STRUCTURES

Pedestrian Bridge

The pedestrian bridge design has been developed from the schematic design and concept stage in an iterative process in collaboration with the project's structural engineering team, project architects and project managers.

The pedestrian bridge design adopted a number of design criteria in response to the pedestrian bridge design objectives and principles described in Section 4.4. Further description of this design can be found in the Detailed Design Bridge Report and Architectural Design Report.

While most of the design criteria have been carried through to the detailed design stage, some have been modified in response to additional factors identified within the site analysis constraints and opportunity identification in Sections 4.5.8 and 4.5.9, and further elaborated upon in the design option analysis in Section 4.5.10.

Retaining Walls

The Urban design approach to the design of retaining walls will be to:

- Utilise materials appropriate for the Blue Mountains setting, through the identification of a material heirachy based on situational precedents, for example, the use of sandstone block-work in highly visible retaining structures, combined with a planting buffer at the base of the structure.
- Applied finishes (such as painting) are to be avoided.

This is to create a site specific design response, which allows the wall to individually respond to the local landscape character, as well as, adhere to existing precedent along the rail corridor. Table 4-1 below outlines retaining wall types and indicative location examples. Refer Figure 4-12 for locations of each retaining wall.

Retaining Wall #	Retaining Wall Type	Use
RW01	Type 1	Highly visible retaining wall, requiring a high quality finish
RW02-05	Type 2	Standard Rail facing retaining wall with a half height F-Type Barrier

Table 4–1 Retaining Wall Summary Table

Figure 4–9 Type 1 - High quality finishes and slight incline used in highly visible settings along the Great Western Highway at Lawson

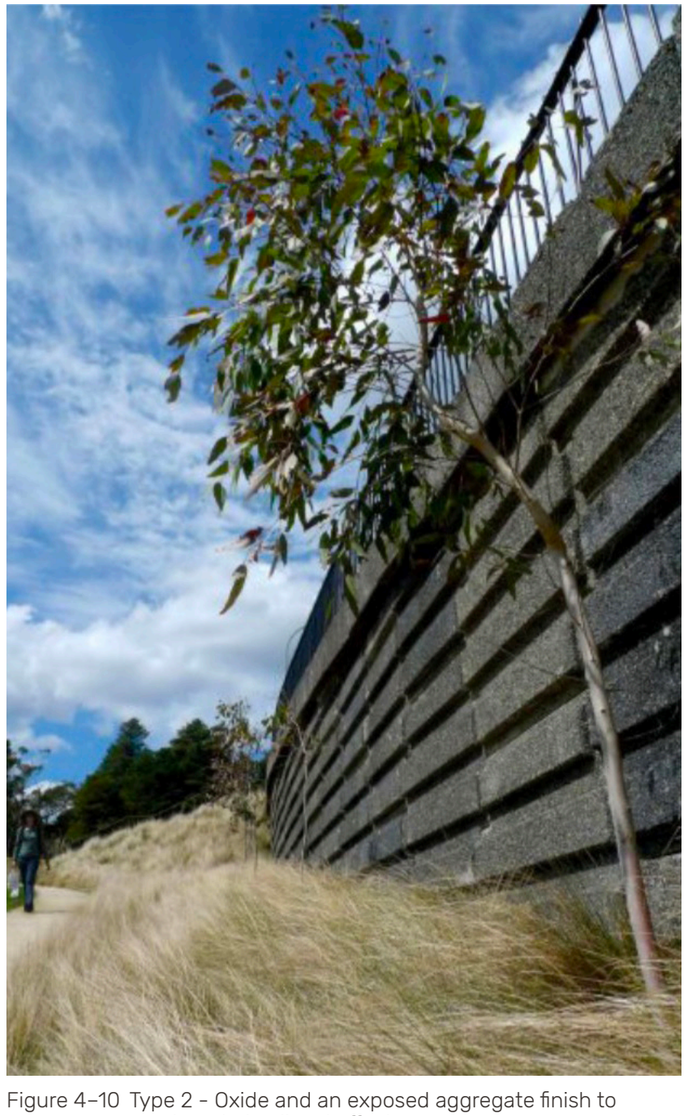


Figure 4–10 Type 2 - Oxide and an exposed aggregate finish to create a darker lineal effect

Source: K2MB Strategic Design Plan Report

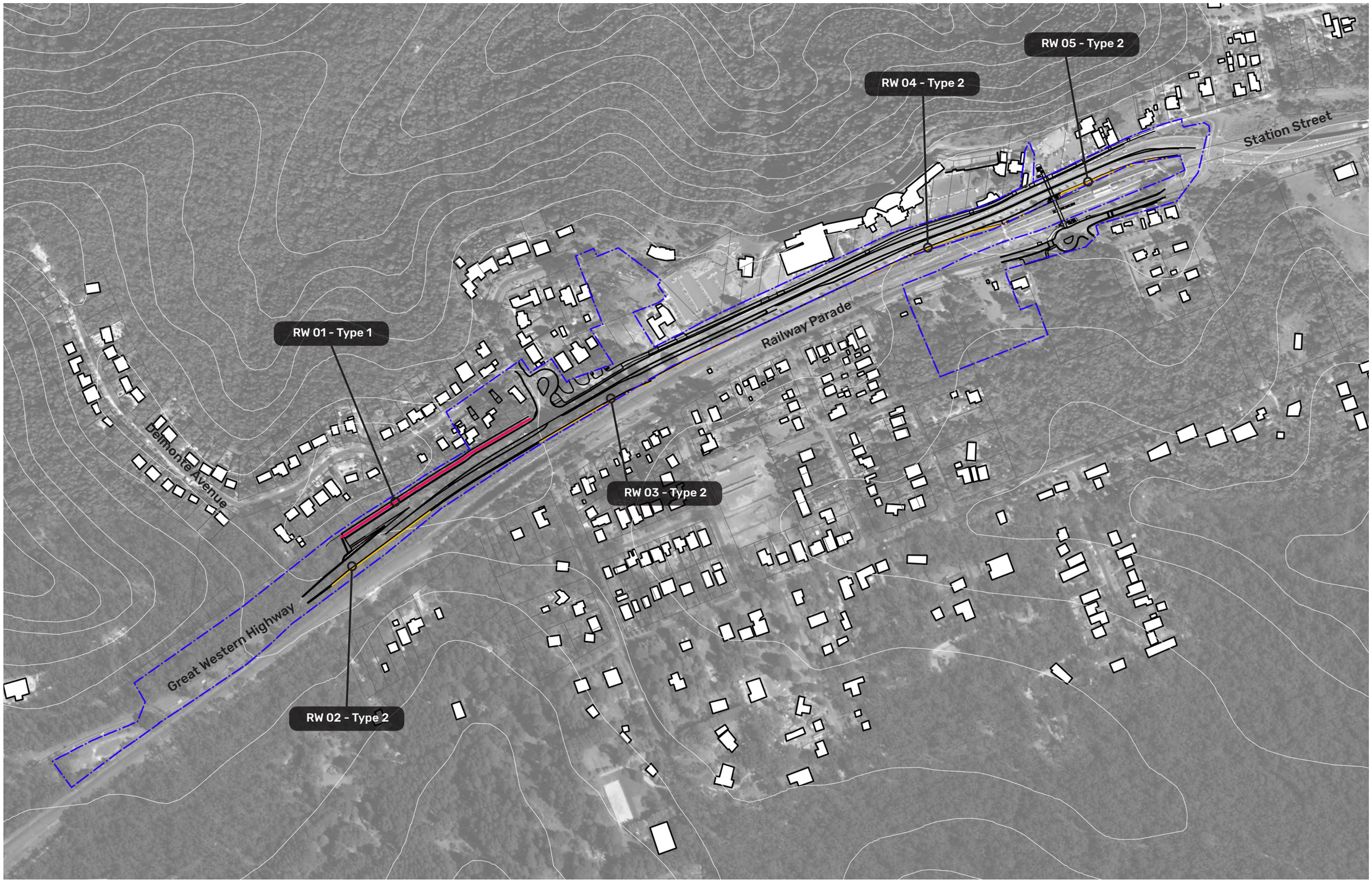


Figure 4–11 Retaining Wall Locations

Noise Walls

No noise walls locations have been nominated, however may be required on the project in order to mitigate the environmental constraints for the road user and local residents. If required, noise walls are to be designed in accordance with the Roads and Maritime Noise Wall Design Guidelines and the outcomes of acoustic studies undertaken.

Generally the approach taken is to design out the need for walls through the adoption of vegetated mounds.

EARTHWORK FORMATIONS

Only minor cuttings and embankments would be required along the proposal due to the relatively unchanged topography, with the exception of the entry into Medlow Bath, from Katoomba which requires a large cutting or retaining wall. Extents of cut batters and embankments will be confirmed during detailed design.

All slopes would be revegetated to integrate the project with the surrounding landscape. Slope stabilisation would be consistent with the Transport's Guideline for Batter Surface Stabilisation using vegetation (TfNSW, 2015).

Cuttings

Vegetation is the preferred treatment for cuttings, with the cut formations adopted for the project providing a slope that could be successfully vegetated. Rounding of the top edges of the batters would be applied to transition from batter slopes to natural ground. Together with vegetation, this would help to integrate the formation with the surrounding landscape.

Subject to geotechnical and soil conditions as well as utility constraints, vegetation of cut batters with vegetation would be the preferred outcome for the proposal in bushland areas, in order to maximise integration with surrounding bushland.

Where cut batters are in hard rock or where it is not reasonable and feasible to revegetate cut batters, they would be left as natural stone where stable. Any slope stabilisation treatments would be in accordance with Transport guidelines.

Shotcrete

Generally, the project would seek to avoid the use of shotcrete in cuttings. Shotcrete would only be used in locations where unstable geology unsuitable for vegetation is uncovered during detailed design investigations and/or site excavation and in accordance with Transport's Shotcrete design guideline (TfNSW, 2016a).

Embankments

Embankments are potentially highly visible, unnatural formations. To minimise the visual effect of embankments, the project has adopted the following strategies:

- Development of a project alignment that generally follows the existing Great Western Highway footprint
- Vegetating embankments to soften their appearance and to reflect and integrate with the surrounding landscape. The integration of topsoil into the design of batters would be critical to ensure long-term success of vegetation. The preferred installation technique for vegetation would be confirmed during detailed design, consistent with Transport's Guideline for Batter Surface Stabilisation using vegetation (TfNSW, 2015)
- Installation of trees on and at the bottom of embankments, where feasible
- Flattening out the toes of steep embankments would be flattened out to achieve better integration with the surrounding landform
- Flattening of batters where space permits.

DRAINAGE AND WATER QUALITY STRUCTURES

The project crosses the Hawkesbury and Nepean water catchment areas and feeds into Pulpit Hill Creek to the west and Adams Creeks to the East.

The design for the project flood management structures is responsive to the varying hydraulic characteristics for the two catchments that the proposal would traverse, given its location atop a ridgeline.

Water quality

Water quality management infrastructure for the project would include water quality controls such as basins and rain gardens. One permanent operational water quality basins would be required for the project, with the proposal integrating this basin adjacent to Medlow Bath park, with the existing piping below rail infrastructure upgraded.

Where possible, the proposal aims to identify areas where Water Sensitive Urban Design can be achieved, and through urban design input, aims to identify locations for rain gardens and reduce the size and better shape detention basins to fit cleared land and minimise impact.

ROADSIDE FURNITURE

The project would require a range of roadside furniture to support safety in operation. Roadside furniture would be typical of highway environments and would be placed in accordance with respective standards and guidelines. Roadside furniture would include:

- Safety screens (refer to Section 4.5.11 for drawings illustrating bridges and safety screens)
- Furniture associated with the proposed pedestrian bridge and bus stop relocation
- Systems for monitoring and managing rail operations
- Signage to enforce road rules and regulations, provide information on direction of travel, posted speed limit and parking restrictions
- Lighting poles (Locations to be confirmed)
- Road Barriers (Refer Figure 4-13) Half height F-Types with guard rails to allow for views to permeate across to heritage items, district views and feature planting. As well as road barriers with integrated fencing (Refer Figure 4-14) to restrict access to the rail corridor and other operational areas

Figure 4–12 F-Type Barriers with rails enable views to permeate through to views beyond (Lawson)
Source: Google Street View

Figure 4–13 F-Type Barriers with fencing atop to restrict access into the rail corridor (Bullaburra)
Source: Google Street View

4.5.2 PEDESTRIANS, CYCLISTS AND PUBLIC TRANSPORT

The project would provide a shared user path for the entire length of the upgrade along the western side of the Great Western Highway, in the form of an upgraded Great Blue Mountains trail, stopping at either side of the entrance to the proposed pedestrian bridge. The shared user path allows a continuation of access between Katoomba and Blackheath along the western side of the Great Western Highway, whilst upgrades to Railway Station enables provisional connections to future growth of an eastern link between Medlow Bath and Blackheath.

The proposal provides better east/west connectivity in Medlow Bath for residents, visitors and recreational users and allows for direct, DDA compliant access into Medlow Bath station. Additionally, the relocation of bus stops along the Great Western Highway allows for a simple transition between multiple modes of public transport, whilst the provision of seating within 60m of the proposed pedestrian bridge, adjacent Kiss and Ride and access to disabled car parking, enables compliance with DDA requirements.

In addition, the project would provide consistent shoulders for on-road cyclist use, resulting in a more direct route for cyclists between Katoomba and Blackheath.

4.5.3 LANDSCAPE ELEMENTS

Landscape elements include:

- Provide vegetative cover
- Stabilise the embankments and other areas disturbed by project construction to prevent erosion
- Complement adjoining cultural and natural landscapes and implementing memorable placemaking, assisting the integration of the proposal with the local area and mitigating the landscape character and visual impacts associated with the proposal
- Restoration of native plant communities to maximise integration with existing surrounding bushland, helping to reduce impacts on flora and fauna

Design approach

Within bushland and transitional zones, planting and revegetation design integrates the upgrade with the surrounding landscape, to mitigate potential visual and environmental impacts of the proposal. In the Medlow Bath Village setting, the planting approach aims to capitalise on the existing and historical character of Medlow Bath, through the implementation of deciduous and evergreen trees and attractive planting to promote a memorable journey through placemaking.

The following revegetation methods will be utilised:

- Bushland Revegetation and Planting

The revegetation strategy aims to minimise the potential ecological impacts of the highway upgrade by stabilising earthworks to prevent erosion, and reinforce existing habitats and ecological corridors through revegetation of substantial areas and species selection. Bushland planting will also be used in areas adjacent to the main village thoroughfare to strengthen the existing bushland character of these areas and allow for a pronounced entry into Medlow Bath Village.

- Village Planting

Planting within the village setting aims to enhance placemaking by responding to the existing character of Medlow Bath, both culturally and historically. Planting will aim to strike a balance between minimising the scale of built elements and identifying and providing a well vegetated corridor where possible, given tight corridor constraints. The use of deciduous and evergreen trees, along with splashes of colour within feature planting areas and the median, allow for a memorable journey experience for motorists, cyclists and pedestrians.

Please refer to Section 7 for Landscape design and planting species.

4.5.4 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

The proposal, through its urban design principles and objectives has made a commitment to the provision of safe connections for all users through the integration of CPTED principles. The following section outlines how the CPTED principles have been applied on the project to minimise the opportunity for crime by using design and place management principles.

SURVEILLANCE

The ability to provide good surveillance allows for a safer environment through crime deterrence. The proposal promotes deterrence by:

- Providing clear sightlines between public and private spaces, ensuring ensured that all publicly accessible areas of the project such as shared paths, the pedestrian bridge, bicycle parking, lifts and seating areas are connected by clear sightlines from travelling lanes or local roads, ensuring passive surveillance by motorists
- Vegetation that does not provide potential offenders with a place to hide or entrap victims by maximising sightlines and passive surveillance

The proposal also provides public spaces where people may gather at night, adjacent to the proposed pedestrian bridge, although these areas are highly visible from the highway and would be further illuminated by street lighting and pedestrian bridge lighting.

ACCESS CONTROL

Physical barriers minimise opportunities for crime and increase the effort required to commit crime by channelling or restricting the movement of people. However, care needs to be taken to ensure that the barriers are not tall or hostile, creating the effect of a compound. The proposal achieves effective access control through the use of fencing and barriers to create physical barriers that restrict access to:

- Private property, clearly delineating boundaries between public and private space
- Barriers between the road corridor and rail corridor
- High-risk areas including areas with limited passive surveillance.

Physical barriers are reinforced by signage provided as required in accordance with the relevant Transport guidelines and design standards to reinforce access control messages.

TERRITORIAL REINFORCEMENT

Community ownership of public spaces allows locals and visitors to feel welcome and promotes gathering. Within the proposal, these opportunities exist in the form of new public amenity; seating, planting and active transport hubs at the proposed rail forecourts along the Great Western Highway and Railway Parade, as well as, colourful and visually attractive planting allong the highway throughout Medlow Bath Village. These improvements aim to foster an interesting and enjoyable experience that integrates with surrounding communities. Project elements have been designed to allow for safe and cost-effective maintenance to ensure the proposal maintains a well-cared for appearance, consistent with this principle.

SPACE MANAGEMENT

Space management ensures that the spaces designed for the public are appropriately utilised and maintained. Space management strategies include site cleanliness, rapid repair of vandalism and graffiti, the replacement of burned out lighting and the removal or refurbishment of decayed physical elements. As outlined above, the project has been designed to facilitate ease of space management. Maintenance of the project would be carried out in accordance with work health and safety requirements and relevant Transport guidelines and specifications.

Further consideration and review would be carried out during the detailed design to ensure the continued integration of CPTED principles.

EXISTING PEDESTRIAN CONNECTIONS

Existing sealed pedestrian connections exist along the Great Western Highway between Bellevue Crescent and Station street, with access to Medlow Bath Rail Station via the northern entry and a level crossing accessible from Railway Parade and the western side of the Great Western Highway. Pathways around Medlow Bath Village are minimal are seen in Figure 4-9, with many of the secondary and local roads not having a footpath, opting instead for a widened turf verge or gravel path.

Pedestrian access to the existing commuter car park, bus stop and kiss and ride is via Railway Parade with non-compliant footpaths onto the station platform and no footpaths between the northern access and the accessible entry in the south along Railway Parade. Footpaths that exist along the Great Western Highway are mainly visually exposed with little to no shade or protection from the noise and high levels of traffic along the Great Western Highway.

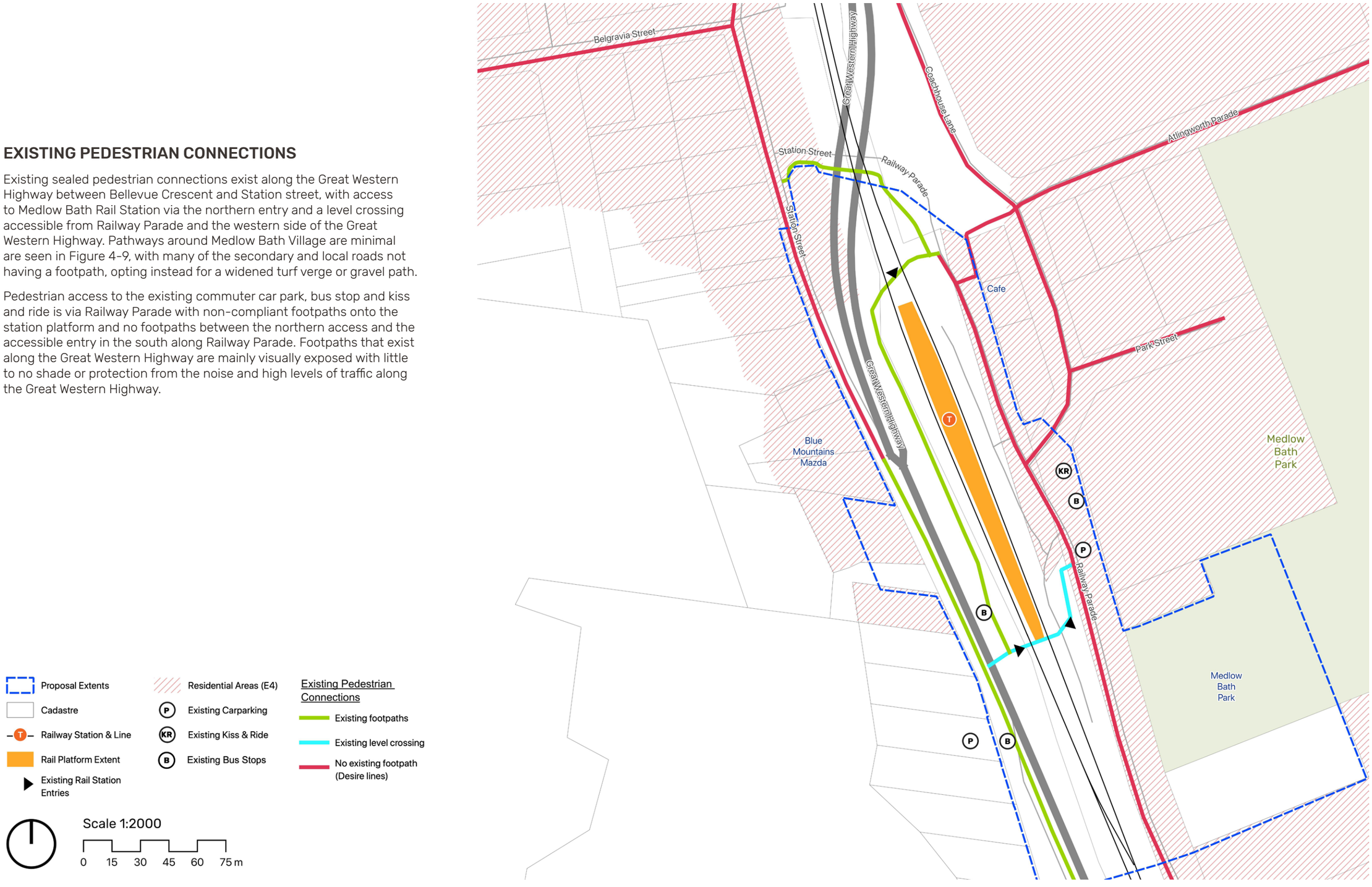


Figure 4–14 Existing Pedestrian transport connections

4.5.5 PROPOSED PEDESTRIAN CONNECTIONS

The improvement of pedestrian connections around Medlow Bath Rail Station will allow for increased pedestrian permeability to the station, promotes safe connections between residential and recreational land uses in the east and the commercial and recreational land uses in the west. Pedestrian upgrades also allow the opportunity for accessible transitions between modes of transport, safer kiss and ride drop offs and safer road legibility through traffic calming measures incorporated into landscaping and pedestrian path design.

The proposal includes the closing of pedestrian access along the eastern side of the Great Western Highway between the northern entry and the pedestrian bridge, to allow for additional placemaking opportunities to contribute to the character of Medlow Bath. The removal of this access will be offset by the addition of a 1.2 metre path along Railway Parade, with the potential to promote business growth along Railway Parade due to increased foot traffic. Pedestrian connections within the proposal aim to create easy, direct links to the rail station, contributing to the improvement of the surrounding precinct through simple pathways to nearby businesses, bus stops and car parking/drop off zones.

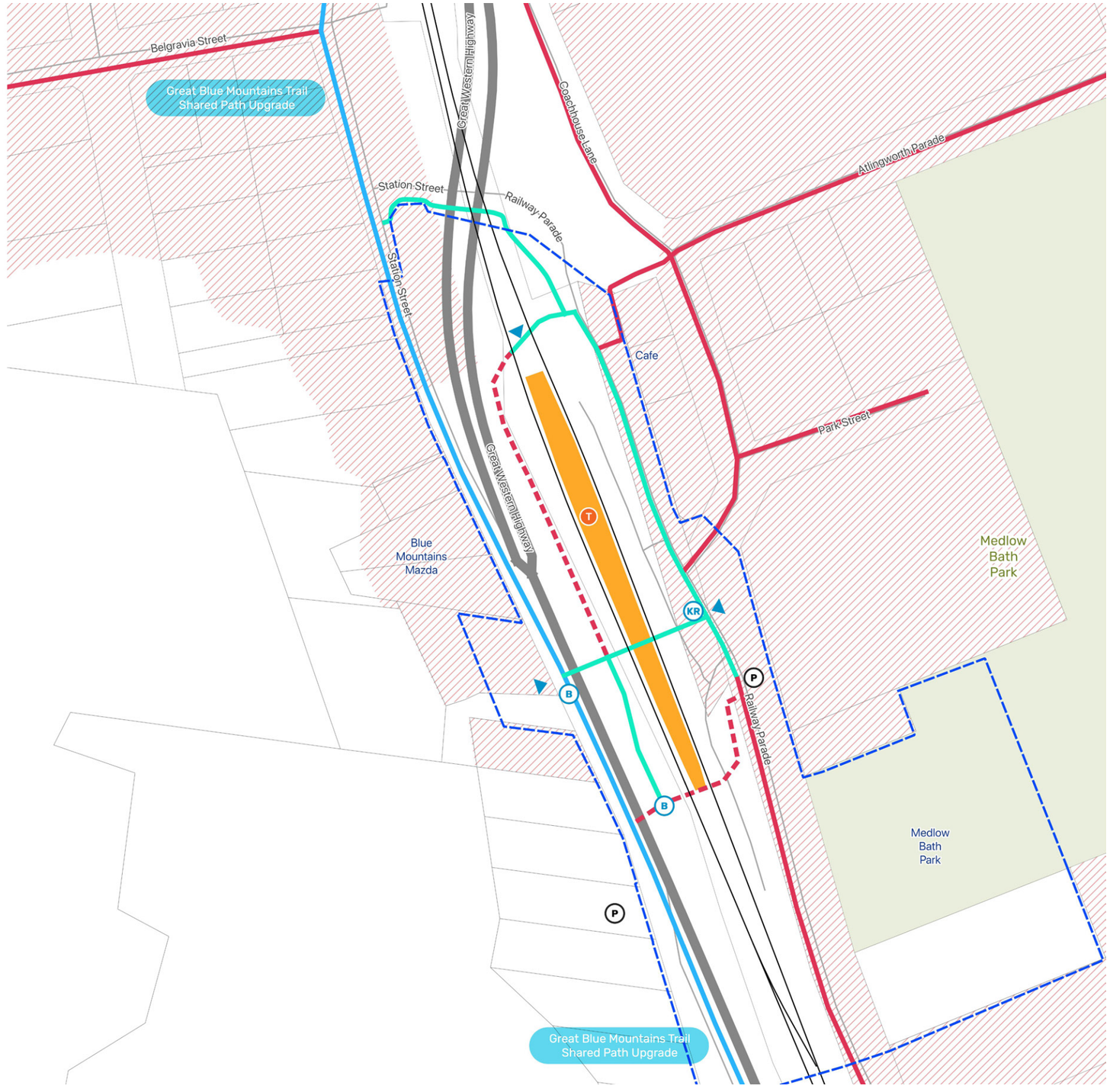
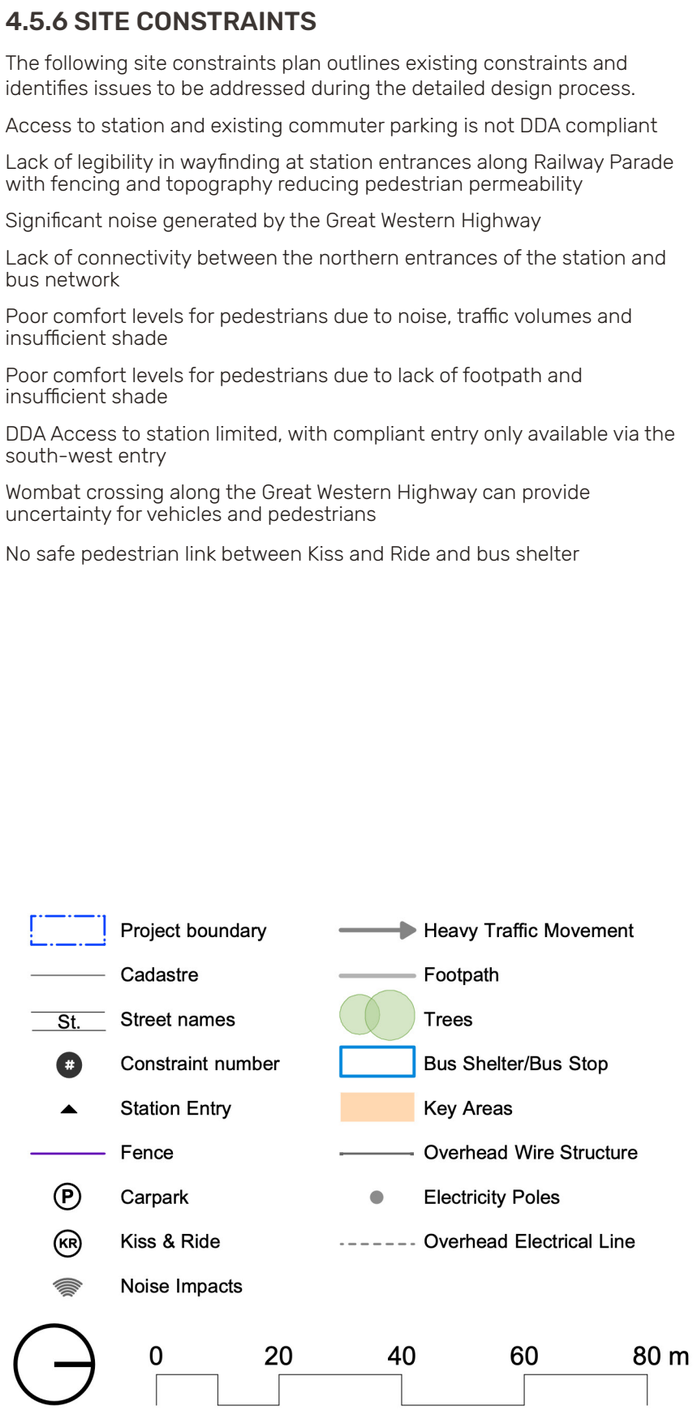


Figure 4–15 Proposed Pedestrian transport connections

4.5.6 SITE CONSTRAINTS

The following site constraints plan outlines existing constraints and identifies issues to be addressed during the detailed design process.

1. Access to station and existing commuter parking is not DDA compliant
2. Lack of legibility in wayfinding at station entrances along Railway Parade with fencing and topography reducing pedestrian permeability
3. Significant noise generated by the Great Western Highway
4. Lack of connectivity between the northern entrances of the station and bus network
5. Poor comfort levels for pedestrians due to noise, traffic volumes and insufficient shade
6. Poor comfort levels for pedestrians due to lack of footpath and insufficient shade
7. DDA Access to station limited, with compliant entry only available via the south-west entry
8. Wombat crossing along the Great Western Highway can provide uncertainty for vehicles and pedestrians
9. No safe pedestrian link between Kiss and Ride and bus shelter



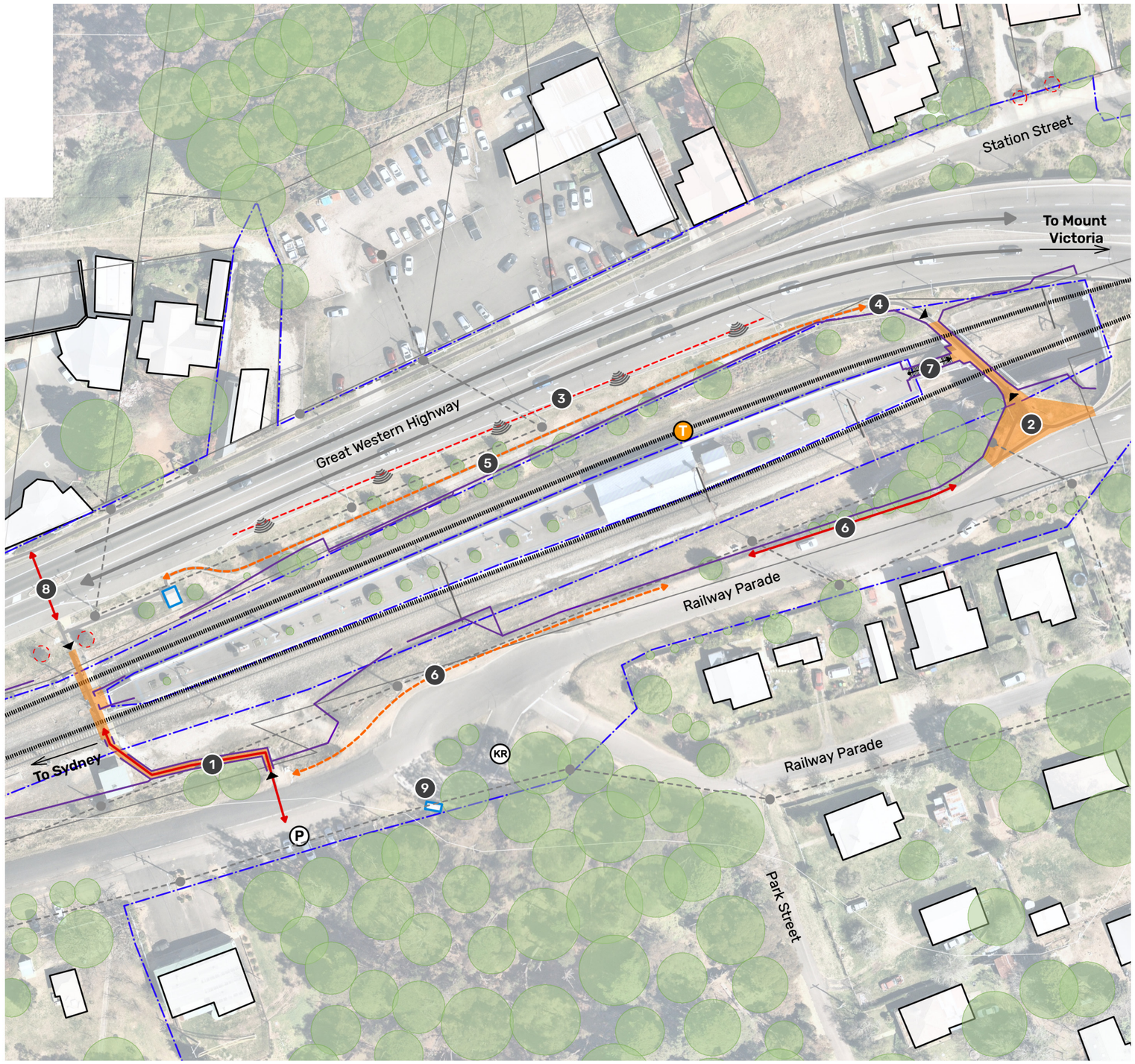
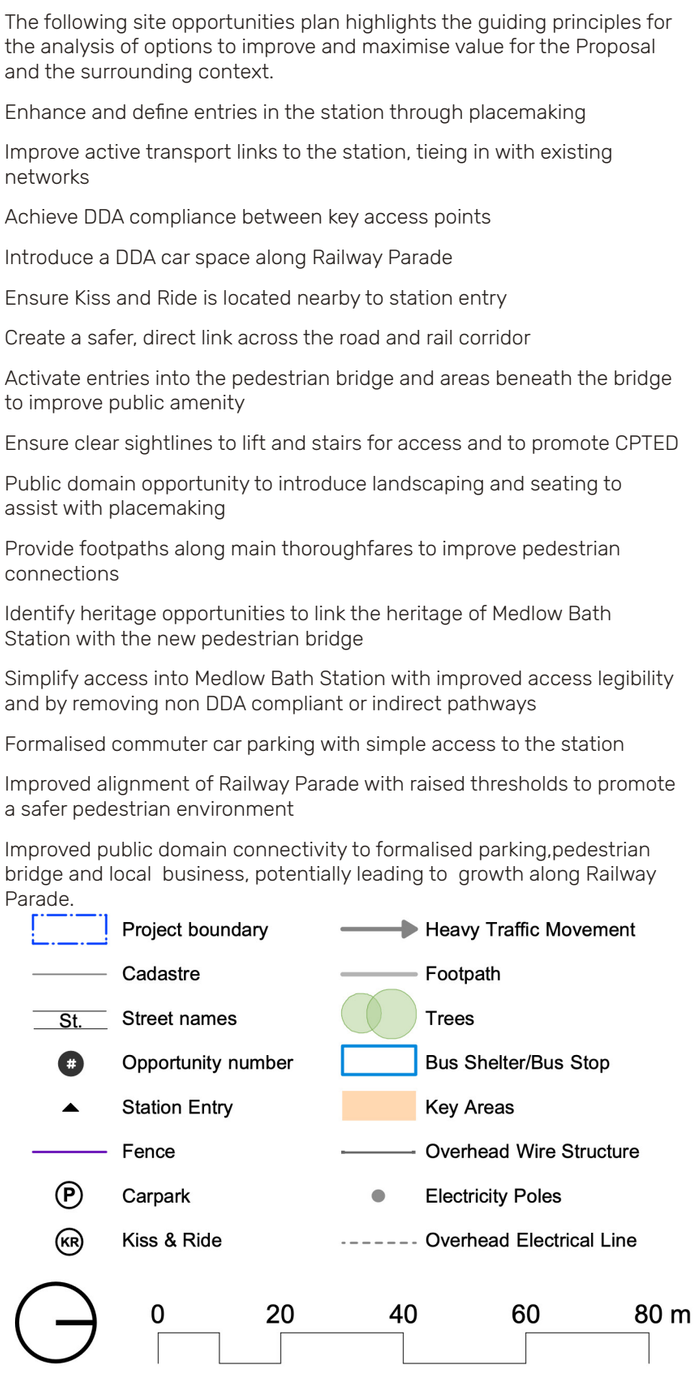


Figure 4–16 Site constraints of Medlow Bath Station

4.5.7 SITE OPPORTUNITIES

The following site opportunities plan highlights the guiding principles for the analysis of options to improve and maximise value for the Proposal and the surrounding context.

1. Enhance and define entries in the station through placemaking
2. Improve active transport links to the station, tieing in with existing networks
3. Achieve DDA compliance between key access points
4. Introduce a DDA car space along Railway Parade
5. Ensure Kiss and Ride is located nearby to station entry
6. Create a safer, direct link across the road and rail corridor
7. Activate entries into the pedestrian bridge and areas beneath the bridge to improve public amenity
8. Ensure clear sightlines to lift and stairs for access and to promote CPTED
9. Public domain opportunity to introduce landscaping and seating to assist with placemaking
10. Provide footpaths along main thoroughfares to improve pedestrian connections
11. Identify heritage opportunities to link the heritage of Medlow Bath Station with the new pedestrian bridge
12. Simplify access into Medlow Bath Station with improved access legibility and by removing non DDA compliant or indirect pathways
13. Formalised commuter car parking with simple access to the station
14. Improved alignment of Railway Parade with raised thresholds to promote a safer pedestrian environment
15. Improved public domain connectivity to formalised parking,pedestrian bridge and local business, potentially leading to growth along Railway Parade.



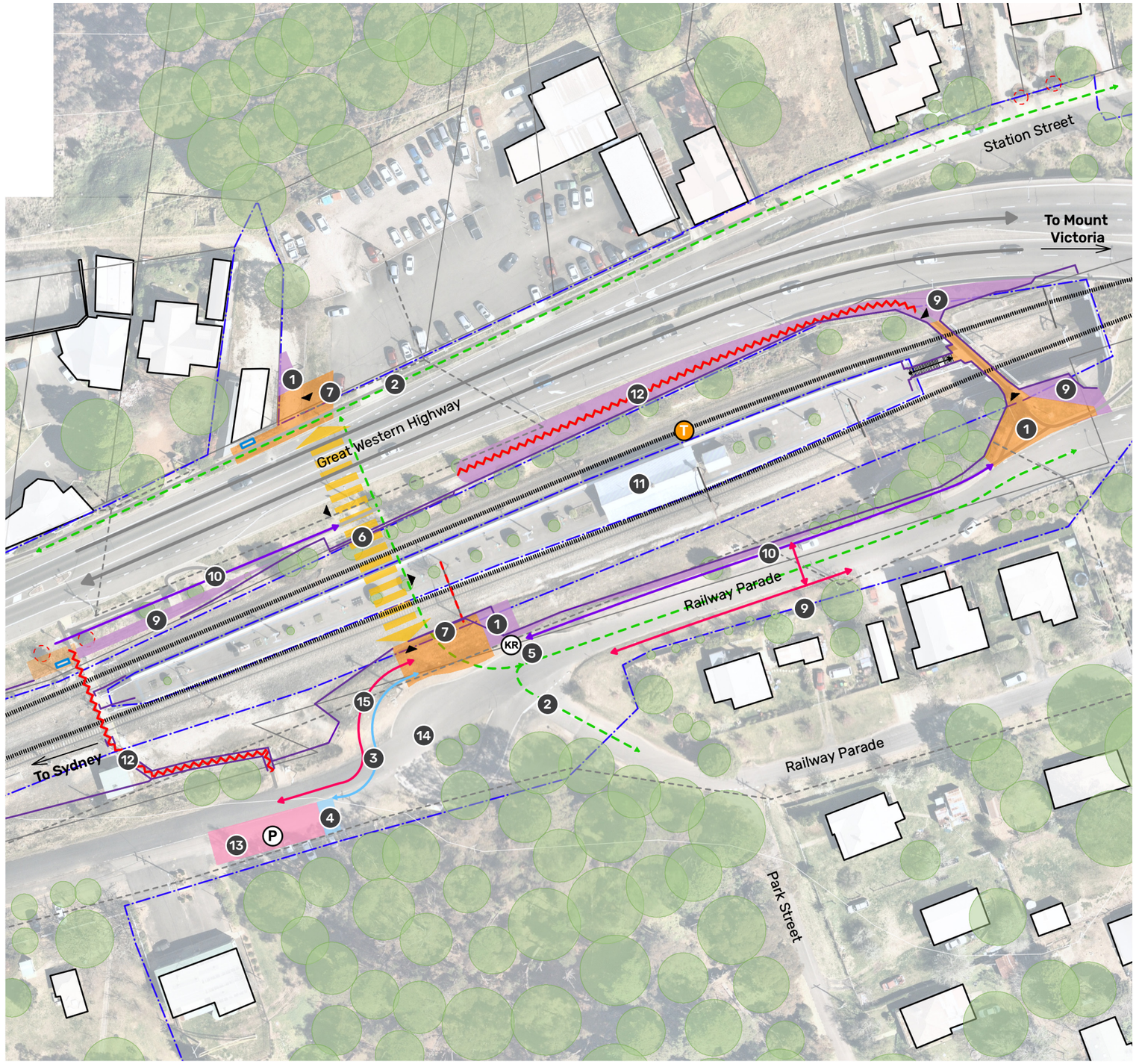
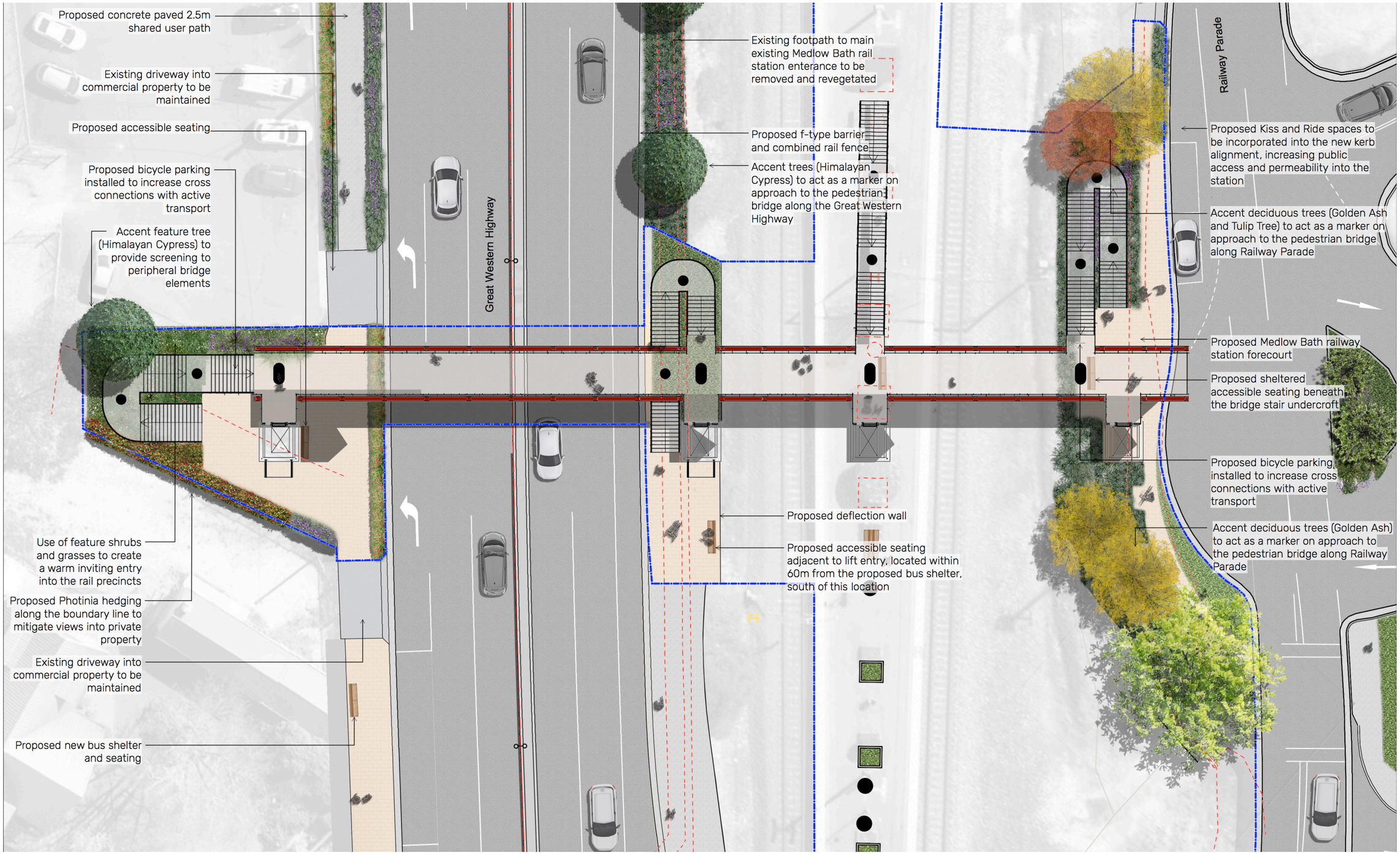
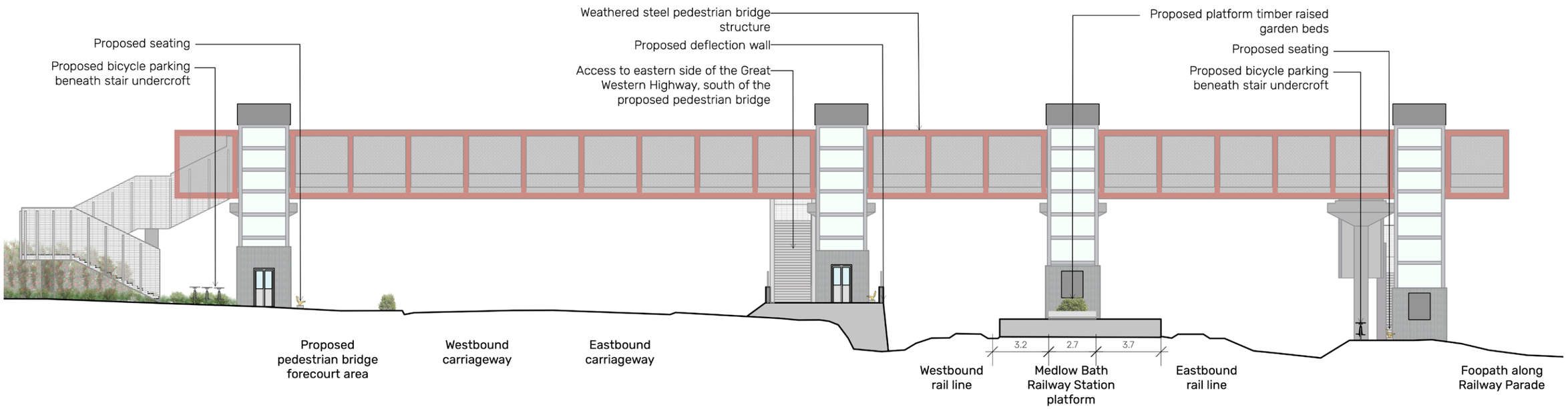


Figure 4–17 Site opportunities of Medlow Bath Station



Refer to Section 3 within the REF for further detail on the bridge design

Figure 4–18 Detailed Plan of the Pedestrian Bridge



Refer to Section 3 within the REF for further detail on the bridge design
Figure 4–19 Elevation of the Pedestrian Bridge Design

4.5.8 PEDESTRIAN BRIDGE DESIGN

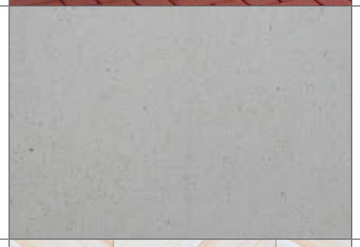
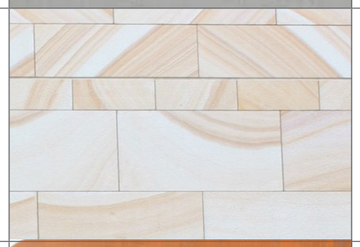
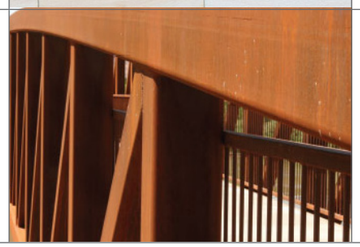
The bridge design improvements to the Medlow Bath Rail Station precinct include:

- Direct pathway connections to the rail station connecting Railway Parade, Station Street and Bellevue Crescent
- Clear sight lines to the stairs, bicycle parking, seating and lifts
- DDA improvements to car parking, kiss and ride and access to the station along Railway Parade
- Improvements along Railway Parade provide a link to local businesses and a more effective method of connectivity to residents in East Medlow Bath
- Safer pedestrian access between car parking, kiss and ride and local businesses along Railway Parade, including a safer realignment to the roadway and tree plantings to enhance as traffic calming
- Integration of Medlow Bath as a transport hub allows stimulation of commercial growth in key areas through formalised pathways, parking and increased functional amenity, increasing growth opportunities
- Creation of welcoming spaces through placemaking trees, landscape treatments, finishes and materials that are visually inviting
- New integrated civic spaces at the entries of the pedestrian bridge/ rail station that provide new seating, bus links within 60 metres, wayfinding signage and bicycle parking
- Improvements to user experience through improved landscaping and architecture that highlights colour, tree species and architectural elements of the bridge including lighting and safety screens
- New view angles created from the bridge structure across the Megalong Valley and enhanced by clear sightlines to and from the bridge
- Adjustment of the bridge rotation to move the stairs away from private property and reduce visual impact by aligning the bridge to the roadway, incorporating landscape treatments to screen properties from the stair alignment to further mitigate views into private property
- A balance of seasonal and evergreen tree plantings to assist with placemaking and to provide winter sun and summer shade for network users accessing the station and bus shelters
- Addition of mature trees at station entry points to enhance wayfinding and placemaking
- Adjustment of the bridge design to remove viewing galleries and seating on the bridge, creating a range of viewing opportunities without the risk of flow disruption

Refer to Figure 4-18 and 4-19 for a plan and elevation of the bridge design and proposed changes to the precinct.

4.5.9 PRELIMINARY MATERIALS PALETTE

The proposed preliminary Urban Design Materials palette in Table 4-1 below provides additional information on materials and finishes for the proposal.

Item	Material	Image	Colour	Finish
Footpaths | Shared paths	• Integral coloured concrete		• Medium Grey or Light Peach	• Exposed washed aggregate
Shared Zone	• Coloured Asphalt		• Red	• Stamped
Stairways	• Concrete		• Medium Grey with Anti graffiti coating	• Class 2
Stair abutments & Retaining walls 2m+	• Sandstone cladding		• Natural with anti graffiti coating	• Saw cut
Footbridge • Main Structure	• Weathered Steel		• Natural	• Weathered

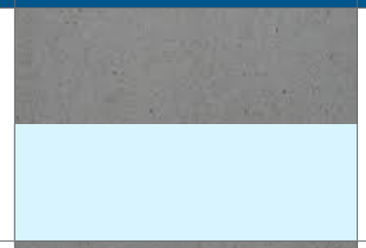
Item	Material	Image	Colour	Finish
Footbridge • Lift Structures	• Concrete base • Glass upper		• Dark Grey with Anti graffiti coating	• Class 2
Footbridge • Piers	• Concrete base • Weathered Steel upper		• Dark Grey with Anti graffiti coating • Natural	• Class 2
Bicycle Parking Hoops	• Stainless steel		• Stainless steel	• Brushed
Public Seating	• Concrete base • Timber upper		• Light grey with anti graffiti coating • Natural with anti graffiti coating	• Honed • Treated hardwood
Safety Screen	• Tensile Mesh		• Stainless steel	• Brushed

Table 4–2 Urban Design Material Palette

Existing view looking east from Blue Mountains Mazda

Chapter 5

LANDSCAPE CHARACTER ASSESSMENT

5.1 LANDSCAPE CHARACTER OVERVIEW

The landscape character of the study area is the product of the natural and cultural elements that have shaped it. Landform and vegetation, views and vistas, settlement patterns, landuse and built structures within and adjoining the study area all contribute to the landscape character.

The landscape character also considers historical layering or 'time depth' in the form of material remains of the past. These surviving features and their settings reflect the past interactions between people and places, which combine to present a visual record of the historical uses of the zones.

5.2 LANDSCAPE CHARACTER ZONES

Within the study area, three distinct landscape types have been identified (Figure 5-1) and are defined as Landscape Character Zones (LCZs).

Each LCZ reflects broadly homogeneous visual characteristics, particularly in terms of vegetation, landuse and landform.

The following provides a summary description and attributes associated with each Landscape Character Zone.

LCZ 1	Enclosed Bushland	High quality plant communities, heavily vegetated enclosed bushland with prominent rock cuttings, edged by roadside vegetation
LCZ 2	Medlow Bath Western Plateau	Plateau adjacent to the Megalong Valley escarpment, Rich in high visual and scenic qualities
LCZ 3	Medlow Bath East Village	Flat to gently undulating topography, predominantly low density housing surrounded by remnant stands of woodland vegetation and mature planted exotics

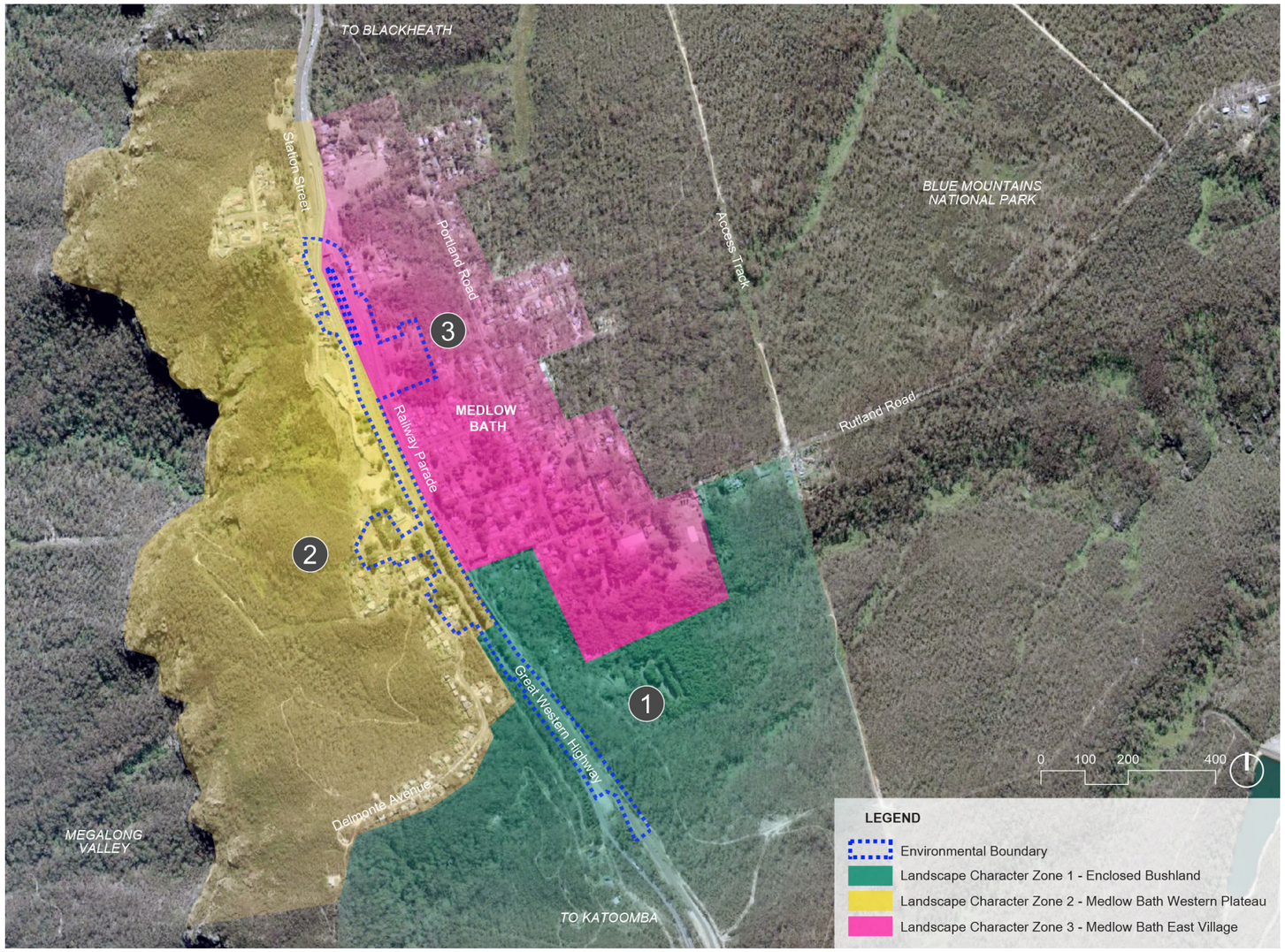


Figure 5-1 Landscape Character Zones

5.2.1 LCZ 1 – ENCLOSED BUSHLAND

EXISTING LANDSCAPE CHARACTER

The landscape character of LCZ 1 is that of enclosed bushland, spanning from Pulpit Hill to the southern section of the proposed upgrade. The existing highway cuts through heavily vegetated enclosed bushland with prominent rock cuttings along the western extent of the Great Western Highway.

Landform

Landform within LCZ 1 is undulating on approach to Medlow Bath with a steep dropoff to the east between the road and rail corridor.

Vegetation cover

The bushland sits adjacent to the road and rail corridor and is predominantly native vegetation open-forest and open-woodland communities. Given the enclosed nature of the vegetation, motorists have limited views with the focus on the roadway westbound and eastbound.

Built form and heritage

The buildings within this LCZ are predominantly low density, environmental living development, surrounded by dense vegetation. There are minimal views given the enclosed nature of this LCZ, however elevated areas to the west, along Foy Avenue, have filtered views to bushland in the east.

Spatial quality

Although the carriageway and rail corridor sit mostly on the ridgeline, this LCZ has a generally closed character due to surrounding bushland. However, openings to the east, through the roadside bushland allow for filtered views toward the rail corridor and bushland beyond.

Public domain

There are few public domain facilities in this LCZ. Mount Mark, prior to entering Medlow Bath, provides recreational bushwalking tracks that link pedestrians to the Greater Blue Mountains Trail.

Key activity areas

In addition to highway and railway travellers, the key activity in this area is a mix of bushwalking along the recreational tracks in heavily vegetated bushland, and cycling along the Great Western Highway shoulder, allowing cyclists to pass through the area connecting to surrounding destinations.

Connectivity and access

LCZ 1 is a key point of access into the proposal and is used as the connection between Katoomba and Blackheath, and acts as a natural bushland buffer between the Blue Mountain villages to the south and Medlow Bath. Access is westbound/eastbound via the Great Western Highway, with connections at Bellevue Crescent, Station Street and Railway Parade to adjacent environmental living areas.

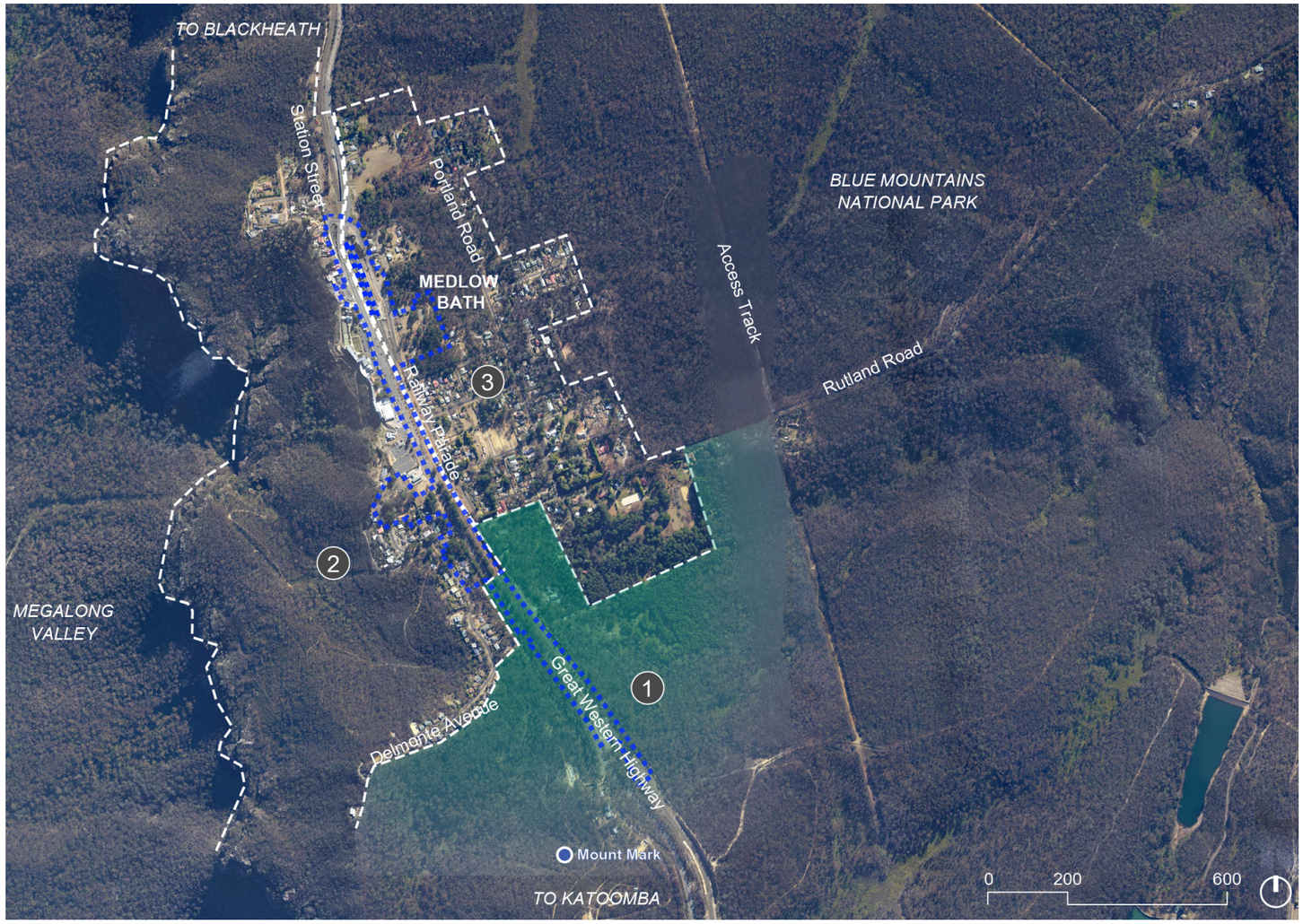


Figure 5–2 Landscape Character Zone 1

Figure 5–3 View westbound along the Great Western Highway at Pulpit Hill
Source: Google Street View

Figure 5–4 View East from Bellevue Crescent

Figure 5–5 View westbound along the Great Western Highway entering Medlow Bath
Source: Google Street View

THE PROPOSAL

Proposal elements

The major Proposal elements in LCZ 1 include:

- Tie in modifications to the existing GWH
- Roadside furniture and elements such as safety barriers, fences and signs
- Clearing of existing vegetation
- Road drainage and water quality control measures

PROPOSED LANDSCAPE CHARACTER

Landform

- The proposal would involve additional fill batters along the eastern carriageway, as well as drainage works altering the landform along the western carriageway within this LCZ.

Vegetation cover

- Removal of bushland vegetation within the operational footprint would result in clearing at the southern tie in. Revegetation as part of Proposal landscaping would partly reduce this change over time and improve legibility of Medlow Bath.

Built form and heritage

- Tie in to existing road infrastructure from the single carriageway at to the upgraded dual carriageway.
- There would be increased hardstand in this LCZ given the transition from a single to dual carriageway.
- The proposal would not impact on any non-Aboriginal heritage items

Spatial quality

- Localised change to the spatial quality where the proposal would widen the existing roadway and remove existing bushland vegetation, resulting in reduced spatial enclosure and the opening up of new view corridors.

Public domain

- The proposal would not result in any changes to public domain areas within this LCZ.

Key activity areas

- The proposal would not result in any changes to activity areas within this LCZ.

Connectivity and access

- Improved regional and national transport connectivity and travel times along GWH.
- Property access in this LCZ would not be affected

LANDSCAPE CHARACTER ASSESSMENT

Sensitivity

This heavily vegetated LCZ has a strong relationship with the surrounding National Park, road and rail corridor. Its undulating topography and windy nature of the Great Western Highway reveals the village of Medlow Bath village. Given bushland in this LCZ is important as a visual backdrop to the Great Western Highway and the spatial experience that is observed when travelling through the Great Western Highway, this LCZ is highly sensitive to change and would not be easily able to absorb changes to the existing mature vegetation that encloses the Great Western Highway.

The sensitivity of the Enclosed Bushland LCZ to change is considered to be **HIGH**.

Magnitude

The proposal would increase the amount of the road-related infrastructure in this LCZ. It would require clearing of mature bushland vegetation and result in changes to the natural landform to accommodate the Proposal's geometric requirements. The changes would affect the spatial character of this LCZ.

Beneficial outcomes from the Proposal would be the reduction of congestion and improvements to connectivity.

Overall, the assessment indicates the magnitude of impact of the proposal in this zone would be **MODERATE**.

Landscape Character Impact

The assessment indicates that the landscape character impact of the proposal in this zone is likely to be **HIGH-MODERATE**.

Landscape Character Impact Assessment LCZ 1	
Sensitivity	**HIGH**
Magnitude	**MODERATE**
LANDSCAPE CHARACTER IMPACT	**HIGH-MODERATE**

5.2.2 LCZ 2 – MEDLOW BATH WESTERN PLATEAU

EXISTING LANDSCAPE CHARACTER

The landscape character of LCZ 2, illustrated in Figure 5-6, is one of openness which creates views west over the Megalong Valley and toward the rail corridor to the east. Sitting atop an elevated plateau escarpment, LCZ 2 forms the western edge of Medlow Bath, adjacent to the steep escarpment of the Megalong Valley.

Landform

Landform within this LCZ is relatively flat, with Medlow Bath sitting atop a ridge that overlooks the Megalong Valley via a steep escarpment to the west. Along the GWH westbound, the existing roadway rises to a crest at the Railway Parade/Station Street, signalised intersection.

Vegetation cover

Surrounding bushland west of built elements consists of undisturbed native vegetation, open-forest and open-woodland communities. Streetscapes of the Great Western Highway and secondary roads including Belgravia Street and Bellevue Crescent contain a wide range of mature deciduous exotics including an avenue of Radiata Pines adjacent to the station which create a unique layering of vegetation, allowing for autumn colour and winter light for road users and pedestrians.

Built Form and heritage

Built form within this LCZ is a mix of low density environmental living development with commercial elements. The most dominant structure in this zone is the architectural Hydro Majestic Hotel, visible from the highway, which is surrounded by other forms of commercial buildings such as the Blue Mountains Mazda Dealer and a service station. The Great Western Highway and rail corridor define the eastern edge of this LCZ and provide a contrast to surrounding bushland. There are several Heritage items listed in the LEP in this LCZ, including the Hydro Majestic Hotel, Medlow Bath Rail Station, an Avenue of Radiata Pines, Melbourne House, Cosy Cot, Sheleagh and the Gatekeepers Cottages.

Spatial quality

LCZ 2 straddles the plateau, allowing for elevated views west over the escarpment into the Megalong Valley. It is characterised by a mix of open and closed views due to roadside plantings and bushland adjacent to built forms.

Public domain

There are few public domain facilities in this LCZ. Predominantly, they exist as walking trails in vegetated bushland along Sunbath Track, as a publicly accessible lookout adjacent to the Hydro Majestic Pavilion.

Key activity areas

Key activities in this area include bushwalking along the recreational tracks in bushland, recreational walkers along the existing footpath adjacent to the highway, as well as cyclists along the Great Western Highway shoulder.

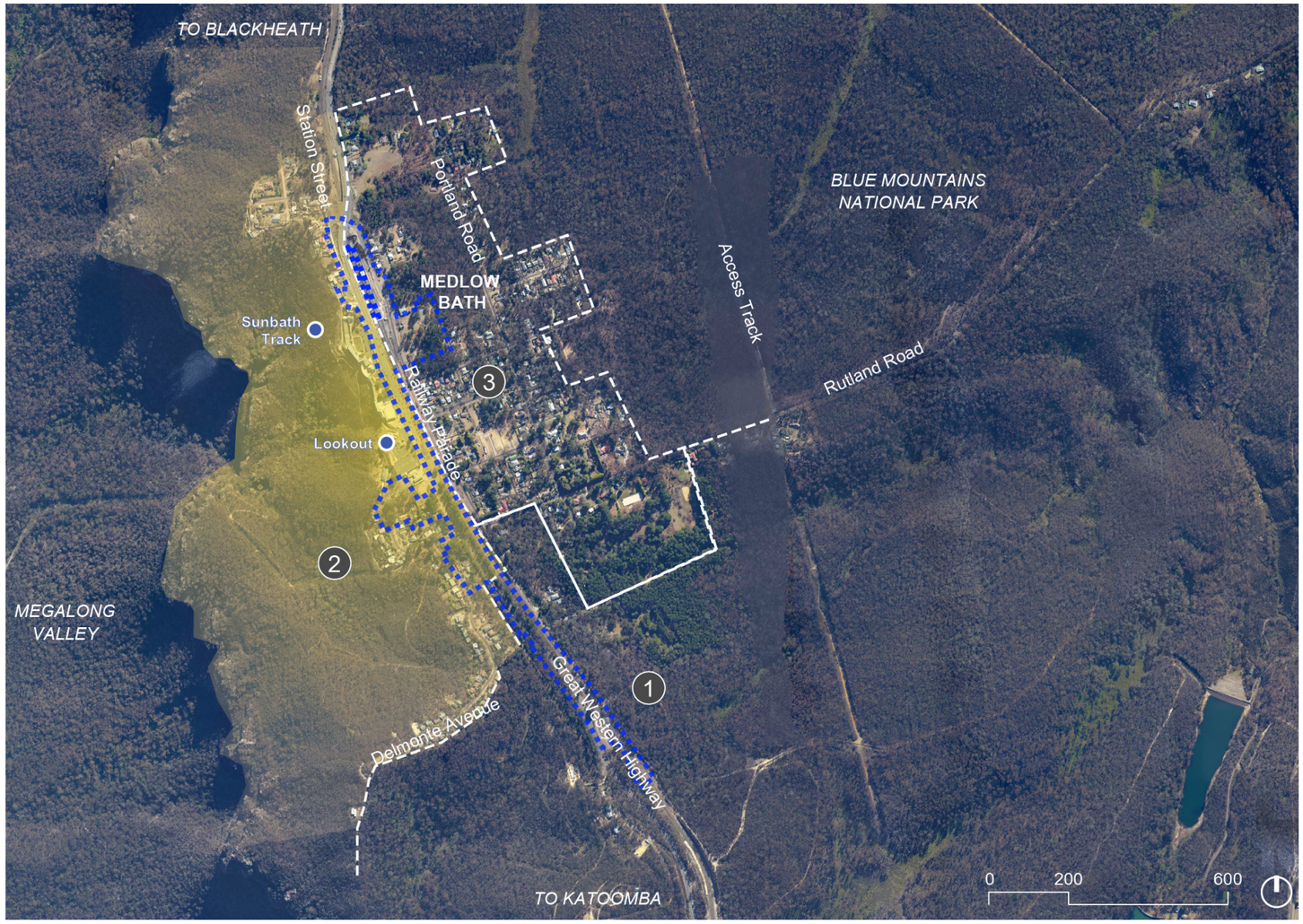


Figure 5–6 Landscape Character Zone 2

Figure 5–7 View south east from Medlow Bath Rail Station platform

Figure 5–8 Rich character in homes along Station Street with cottage gardens

Figure 5–9 View west from Station Street

Connectivity and access

The key access route through this LCZ is via the rail corridor which links Greater Sydney to the Mountains and the Great Western Highway, connecting Belgravia Street, Station Street, Bellevue Crescent and Delmonte Avenue residencies to Greater Medlow Bath, Katoomba and Blackheath. Formal pedestrian access is limited to the main thoroughfare of the Great Western Highway with secondary roads rarely containing any footpaths, opting for grassed verges for pedestrian access.

THE PROPOSAL

Proposal elements

The major Proposal elements in LCZ 2 include:

- Modifications to the Great Western Highway including the provision of a dual carriageway and widened shared path facility
- Modifications to Bellevue Crescent including a new U-Turn facility and signalised intersection
- Modifications to property access along the Great Western Highway
- Roadside furniture and elements such as safety barriers, fences and signs
- A new retaining wall adjacent to the western carriageway at Bellevue Crescent and along the eastern carriageway
- A new pedestrian bridge and associated works connecting the Western side of the Great Western Highway to Medlow Bath Rail Station and Railway Parade
- Road drainage and water quality control measures
- A new tree planted median
- Lighting upgrades (Locations TBC).

PROPOSED LANDSCAPE CHARACTER

Landform

- The addition of a new 3-4m retaining wall would result in significant change to the existing natural landform upon entry into Medlow Bath Village.
- Along the westbound carriageway fill batters will be required to maintain levels between the roadway and the Hydro Majestic Hotel carpark, the Hydro Majestic Hotel and the Mazda Dealership

Vegetation cover

- Localised vegetation removal may be required for the incorporation of the proposed retaining wall, works may impact on structural root zones, resulting in vegetation removal.
- Addition of median shrub, groundcover and feature tree planting to contribute to placemaking
- Entry accent plantings to be incorporated into this LCZ to enable a sense of arrival into Medlow Bath
- Tree plantings to be incorporated adjacent to the pedestrian bridge to allow for better integration of the bridge with the surrounding character.

Built Form and heritage

- Widened and reconfigured road infrastructure in area with existing road corridor
- Introduction of approx nine metre high pedestrian bridge over the road and rail corridor
- Addition of public amenity beneath the pedestrian bridge including seating, wayfinding and bicycle parking
- Views to existing non-aboriginal heritage items would be maintained and not impacted upon
- The proposal would not impact on any non-Aboriginal heritage items.

Spatial quality

The overall spatial qualities would be retained with some localised changes including:

- The widening of the existing roadway slightly and removal of localised planting where retaining walls are required, resulting in reduced spatial enclosure and the opening up of new view corridors,
- Increase in hardstand around the entrance into Bellevue Crescent, U-turn facility and shared zone, resulting in localised vegetation clearing. Revegetation as part of Proposal landscaping would partly reduce this change over time and improve placemaking upon entry into Medlow Bath.
- Increases to spatial enclosure through the introduction of median tree plantings, formalisation of kerbing and narrowing of carriageways allow for informal traffic calming measures to affect travel speed and safety.

Public domain

- The proposal would not result in any changes to public domain areas within this LCZ.

Key activity areas

- The proposal would result in a safer, wider route for pedestrians and cyclists travelling along the upgraded Great Blue Mountains Trail, also increasing traveller access and permeability to the Medlow Bath Rail Station and greater bus route and active transport connections.

Connectivity and access

- Improved regional and national transport connectivity and travel times along GWH
- Property access would be improved to allow a safer access point via an integrated shared zone; accessible from Bellevue Crescent
- Pedestrian property access to be maintained, with vehicular access provided for these lots on Delmonte Avenue.
- The proposed pedestrian bridge offers a safe, accessible route to improve access and circulation to surrounding areas
- Improved cycle connectivity through a more direct and continuous route for cyclists along the GWH, including integration with Medlow Bath Station and future cycling routes along Coachhouse Lane.
- Implementation of safe access onto the Medlow Bath Rail platform, with the removal of formal access west of the main station entry

LANDSCAPE CHARACTER ASSESSMENT

Sensitivity

The nature of the Western Plateau is one of both high visual amenity, overlooking the Megalong Valley and also contributing to the neighbourhood feel of Medlow Bath. Changes to this LCZ would be highly sensitive to the character and composition of the neighbourhood given the scale of the proposal. Although, the existing proximity to the road and rail corridor allows for this LCZ to absorb change more successfully through existing exposure to traffic and rail, the presence of residencies within the LCZ, the LCZ's high scenic value and the result of vegetation clearing with cultural and heritage value result in a higher sensitivity.

The sensitivity of the Medlow Bath Western Plateau LCZ to change is considered to be **HIGH**.

Magnitude

The proposal would result in an increase in road related infrastructure in the Medlow Bath Western Plateau LCZ. It would alter the existing amount of hard surfaces along the GWH and adjacent areas, however this would be somewhat reduced over time by new plantings provided as part of the Proposal landscape design, as well as, the works mostly occurring in the existing road and rail corridor. The proposal would remove one residential dwelling along Bellevue Crescent to allow for the introduction of a U-turn facility and access into the adjacent shared zone.

Beneficial outcomes from the proposal would be a reduction of congestion and the enhancement of town centre amenity for residential, business and community uses within Medlow Bath. The provision for pedestrians and cyclists along the proposal's adjacent shared path, as well as the new pedestrian bridge delivers active transport connectivity improvements for the Medlow Bath Rail Station, residential areas of Medlow Bath and for future expansion of the cycle network along Coachhouse Lane, connecting to Blackheath.

Overall, the assessment indicates the magnitude of impact of the Proposal in this zone would be **MODERATE**.

Landscape Character Impact

The assessment indicates that the landscape character impact of the proposal in this zone is likely to be **HIGH-MODERATE.**

Landscape Character Impact Assessment LCZ 2	
Sensitivity	**HIGH**
Magnitude	**MODERATE**
LANDSCAPE CHARACTER IMPACT	**HIGH-MODERATE**

5.2.3 LCZ 3 – MEDLOW BATH EAST VILLAGE

EXISTING LANDSCAPE CHARACTER

The landscape character of LCZ 3, illustrated in Figure 5-10, is characterised by flat to gently undulating topography with a varied vegetation pattern of remnant stands of woodland vegetation and mature planted exotics.

Landform

Landform within this LCZ is characterised by a relatively flat crest that slopes toward the east. There is a highpoint at the existing main entry into the Medlow Bath station at Railway Parade/Station Street, signalised intersection, which allows for clear sight lines and identification of access points.

Vegetation cover

Extensive areas of bushland exist along the eastern edge of this LCZ and is predominantly native vegetation open-forest and open-woodland communities within the edge along the Blue Mountains National Park. Streetscapes in this LCZ contain a range of deciduous exotics species with some native vegetation.

Built Form and heritage

The land uses in LCZ 3 are generally rural residential properties and small businesses including a cafe and various retreats and accommodation. The buildings within this LCZ are low density, environmental living development, surrounded by dense vegetation and backing onto the Blue Mountains National Park on the north-east and eastern edge. There are several Heritage items listed in the LEP in this LCZ, including the Former Post and Telegraph Store, currently in the location of the cafe on Railway Parade, Urunga, a house along Park Street, Medlow House and St Luke's Anglican Church along Railway Parade.

Spatial Quality

Given the enclosed nature of the surrounding bushland and the strong border to the west in the form of the rail corridor, this LCZ has a strong residential precinct enclave which feels separated from the adjacent infrastructure, leading to a relatively enclosed character.

Public domain

Public domain facilities in this LCZ offer amenity to residents and tourists in adjacent areas of Medlow Bath. Public domain, as with other LCZ's, includes bushwalking tracks to the east of the LCZ and into the World Heritage listed Blue Mountains National Park, as well as off road cycling routes that link to Point Pilcher. Additional public domain facilities exist in the form of Medlow Bath Park which offers picnic seating and a playground.

Key activity areas

Key activities in this area include the use of public amenity at Medlow Bath Park, in the form of picnic tables, playgrounds, seating areas and somewhat shaded walking tracks.

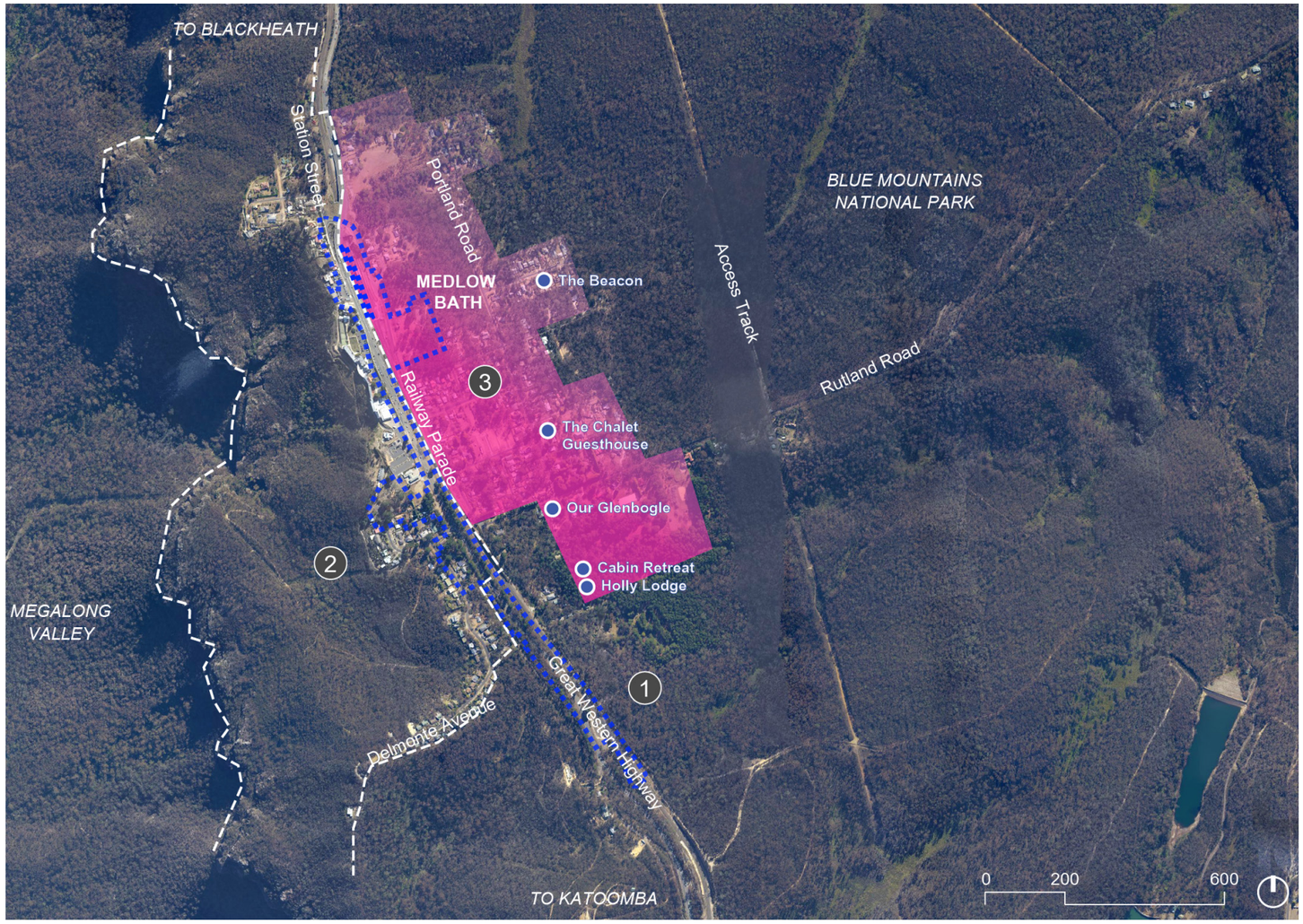


Figure 5–10 Landscape Character Zone 3

Figure 5–11 View north from Railway Parade

Figure 5–12 View along Portland Road
Source: Google Street View

Figure 5–13 View of the Medlow Bath station from Railway Parade

Connectivity and access

The main access point into this LCZ is via Railway Parade, for vehicles, cyclists and pedestrians. Pedestrian circulation onto and around the rail station exists at two points, a stairway on the northern end of the station platform, and a level crossing at the southern end of the platform. Formal pedestrian access is limited, with only the upper portion of Railway Parade having a pedestrian footpath with secondary roads rarely containing any footpaths, relying on grassed verges for pedestrian access.

THE PROPOSAL

The major Proposal elements in LCZ 3 include:

- Tie in modifications to Railway Parade and existing Great Western Highway
- Modifications to Railway Parade footpath and Medlow Bath Rail Station entrance
- A new pedestrian bridge and associated works connecting the Western side of the Great Western Highway to Medlow Bath Rail Station and Railway Parade
- Modifications to existing U-Turn facility on Railway Parade
- A new kiss and ride provision on Railway Parade
- Roadside furniture and elements such as safety barriers, bicycle parking, seating, fences and signs
- Clearing of existing vegetation
- Road drainage and water quality control measures
- Lighting upgrades (Locations TBC).

PROPOSED LANDSCAPE CHARACTER

Landform

- The proposal would not result in any changes to landform within this LCZ.

Vegetation cover

- Localised vegetation removal may be required for the incorporation of the proposed U-turn facility/Roundabout on Railway Parade
- Entry accent plantings to be incorporated into this LCZ to enable a sense of arrival into Medlow Bath from Blackheath
- Tree plantings to be incorporated adjacent to the pedestrian bridge to allow for better integration of the bridge with the surrounding character

Built Form and heritage

- Refinements and formalisation to existing road infrastructure along Railway Parade including the formalisation of commuter parking
- Introduction of approx nine metre high pedestrian bridge over the road and rail corridor
- Addition of public amenity beneath the pedestrian bridge including seating, wayfinding an bicycle parking
- Views to existing non-aboriginal heritage items would be maintained and not impacted upon
- The proposal would not impact on any non-Aboriginal heritage items.

Spatial quality

- Localised change to the spatial quality where the proposal would introduce additional tree plantings to help contribute to placemaking.

Public domain

- The proposal would not result in any changes to public domain areas within this LCZ.

Key activity areas

- The proposal would result in the provision of cycle connections between Blackheath and the proposed Coachhouse Lane cycleway.
- Additionally, providing a safer link between accommodation and businesses in the East of Medlow Bath, to recreational tracks and business in the West

Connectivity and access

- Improved regional and national transport connectivity by allowing for a U-turn facility along Railway Parade
- Reduced light traffic along Railway Parade by introducing a U-turn facility closer to the highway, constituting a beneficial change
- Property access in this LCZ would not be affected
- The proposed pedestrian bridge offers a safe, accessible route to improve access and circulation to surrounding areas
- Improved cycle connectivity through a more direct and continuous route for cyclists along the GWH, including integration with Medlow Bath Station and future cycling routes along Coachhouse Lane.

LANDSCAPE CHARACTER ASSESSMENT

Sensitivity

Medlow Bath East Village LCZ predominantly consists of low density residential housing, which would be highly sensitive to changes in character and composition. The east village LCZ has a reasonable ability to absorb change due to existing mature planting that separates the proposal with the rail corridor, as well as screened views through the rail corridor of the proposal already an existing condition. The village setting would be very sensitive to this new built element, given its height and prominence atop a ridge, the sensitivity of the Medlow Bath East Village LCZ to change is considered to be **HIGH**.

Magnitude

The proposal would increase the hard surfaces along Railway Parade, requiring localised vegetation removal to accommodate new pathways adjacent to the rail station and a formalised parking area adjacent to the rural fire station. Additionally, the introduction of a large structure in a prominent position within this LCZ would result in a change in spatial character for the area, given the existing conditions along Railway Parade and adjacent streetscapes are single story dwellings. Although these changes would be reduced slightly over time by vegetation provided as part of the Proposal.

Beneficial outcomes from the Proposal would be a reduction in traffic volumes on Railway Parade, improving connectivity and safety at the entrance point of Medlow Bath Station. Additionally, the proposal within this LCZ would enhance town centre amenity for residential, business and community uses within Medlow Bath, providing a formalised town centre that allows for connection to surrounding residential areas. The new pedestrian bridge delivers active transport connectivity improvements for the Medlow Bath Rail Station, residential areas of Medlow Bath and for future expansion of the cycle network along Coachhouse Lane, connecting to Blackheath.

Overall, the assessment indicates the magnitude of impact of the proposal in this zone would be **MODERATE**.

Landscape Character Impact

The assessment indicates that the landscape character impact of the proposal in this zone is likely to be **HIGH-MODERATE**.

Landscape Character Impact Assessment LCZ 3	
Sensitivity	**HIGH**
Magnitude	**MODERATE**
LANDSCAPE CHARACTER IMPACT	**HIGH-MODERATE**

5.3 LANDSCAPE CHARACTER IMPACT SUMMARY

The landscape character impact assessment of the Great Western Highway, Medlow Bath Upgrade is summarised in Table 5-1 below.

	Sensitivity	Magnitude	Impact
LCZ 1	**HIGH**	**MODERATE**	**HIGH-MODERATE**
LCZ 2	**HIGH**	**MODERATE**	**HIGH-MODERATE**
LCZ 3	**HIGH**	**MODERATE**	**HIGH-MODERATE**

Table 5–1 Landscape character and visual impact rating matrix

Chapter 6

VISUAL IMPACT ASSESSMENT

6.1 OVERVIEW

The method used to undertake this study follows the *'Guideline for Landscape Character and Visual Impact Assessment'* (Transport for NSW, 2020).

The extent from which the proposal would be visible from adjoining areas varies along the length of Medlow Bath. It is influenced by topography, vegetation and associated buildings. A detailed field and desktop assessment was undertaken in conjunction with a viewshed analysis of the site digital elevation model (DEM) to determine the area from where the proposal would be visible, defined as the Visual Envelope Map (VEM), as illustrated in Figure 6-1.

The visual receivers of the proposal include residents, tourists, recreational and park users, pedestrians, cyclists and motorists; with views of proposal elements generally constrained by existing mature established vegetation, existing topography and existing rail corridor infrastructure. Elements including the proposed pedestrian bridge and associated works are more likely to be seen from a greater distance given the approximate height of 9.1 metres. The seven viewpoints selected for the Proposal are illustrated in Figure 6-1 and assessed within this chapter.

Figure 6-1 Visual Impact Assessment viewpoint locations

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6.2 VISUAL IMPACTS

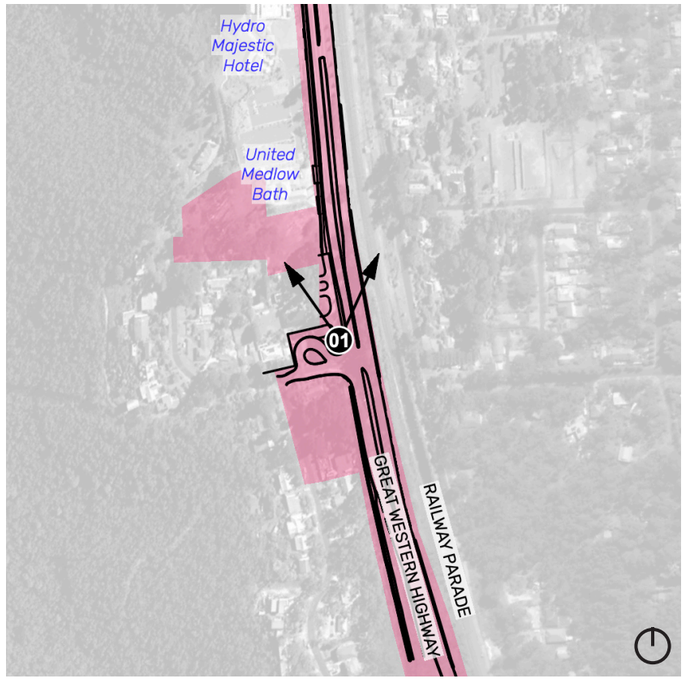

Figure 6–2 Viewpoint 1 location

Figure 6–3 Viewpoint 1

6.2.1 VIEWPOINT 1

Location:

Northern corner of Bellevue Crescent and the Great Western Highway, looking north towards the proposal. The viewpoint is representative of a number of views from residencies along this portion of the Great Western Highway.

Primary viewers

- Motorists travelling east, turning from Bellevue Avenue
- Motorists travelling north along the Great Western Highway
- Residential properties along the Great Western Highway
- Recreational walkers and cyclists along the Great Blue Mountains Trail.

Visible Proposal elements

- Pedestrian bridge
- Widened dual carriageway
- Signalised intersection at Bellevue Crescent
- Upgraded shared user path
- Shared zone
- Turning area along Bellevue Crescent
- Widened median and tree plantings
- New tree, shrub and groundcover vegetation
- Roadside lighting (Location TBC).

Visual Impacts

- Increased hardstand
- Increased light spill

Sensitivity

The view from viewpoint 1 is illustrated in Figure 6–3. The existing road infrastructure consists of a large portion of the existing view composition, especially from the motorists' perspective when travelling along the road. Although the sensitivity of the existing road corridor to change would be low, the introduction of a large structure in the mid-ground view for residents along the Great Western Highway and Bellevue Crescent, and the removal of existing vegetation along the fringes of the corridor would provide a high level of sensitivity. Additionally, residencies along Bellevue Crescent would be highly susceptible to changes given the introduction of a turning area for larger vehicles in an existing residential location. Overall, the sensitivity of the viewpoint to change is **HIGH**.

Magnitude of change

The proposal would introduce the widening of hardstand in the foreground of this viewpoint resulting in required clearing between the existing road and rail corridors. Although vegetation within private property would contribute the green backdrop in this setting, the new bridge structure, widening of the roadway and subsequent shared property access, traffic signals and turning area would result in changes in a notable portion of this view. Vegetation installed as part of the Proposal landscape design would somewhat reduce the visual effect of change over time introducing formalised streetscape plantings and a succinct village character. Overall, the magnitude of change within this view would be **MODERATE.**

A visualisation illustrating the Proposal at viewpoint 1 is shown on Figure 6-5.

Visual Impact Summary

Sensitivity	Magnitude	Impact
HIGH	**MODERATE**	**HIGH-MODERATE**

Figure 6–4 Viewpoint 1

Figure 6–5 Visualisation at Viewpoint 1
Refer to Section 3 within the REF for further detail on the bridge design

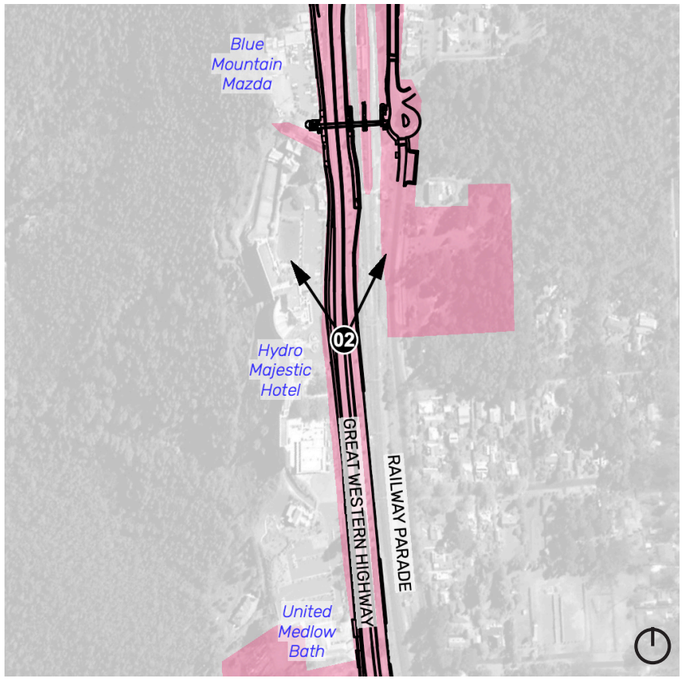

Figure 6–6 Viewpoint 2 location

Figure 6–7 Viewpoint 2

6.2.2 VIEWPOINT 02

Location:

Along the existing shared user path, adjacent to the Great Western Highway and Hydro Majestic Hotel, looking North toward the pedestrian bridge

Primary viewers

- Motorists travelling north along the Great Western Highway
- Recreational walkers and cyclists along the Great Blue Mountains Trail

Visible Proposal elements

- Pedestrian bridge
- Widened dual carriageway
- Upgraded shared user path
- Widened median and tree plantings
- New tree, shrub and groundcover vegetation
- Roadside lighting (Location TBC).

Visual Impacts

- Increased hardstand
- Increased vehicle movements and associated noise
- Increased light spill
- Removal of on street parking
- Removal of vegetation adjacent to roadway (Eastern side)

Sensitivity

The view from viewpoint 2 is displayed in Figure 6–7. The existing road infrastructure and associated perpendicular parking makes up a predominant proportion of the existing view. In particular, pedestrian views which are screened by existing vegetation and buildings to the west. Due to the combination of existing infrastructure, the transient nature of pedestrians, and the sensitivity of the existing heritage items and attractive planting, the sensitivity is considered to be **MODERATE**.

Magnitude of change

The proposal would introduce the widening of road pavement to the east of this viewpoint, resulting in the clearing of existing trees which partially screen the rail corridor. Additionally, within the mid-ground, the new pedestrian bridge would provide a dominant feature, given its scale and materiality when compared to surrounding elements; Proposal design would contribute to a better visual outcome, however it is a dominant scale within the landscape. Although peripheral elements would be partially screened by existing buildings, rail infrastructure and existing vegetation, the bridge itself would remain somewhat visible and contribute to the overall magnitude of change.

Vegetation proposed as part of the Proposal landscape design would reduce the visual effect of change over time, which introduces tree and shrub plantings along the median to introduce a succinct village character. Overall, the magnitude of change within this view would be **MODERATE**. A visualisation illustrating the Proposal at viewpoint 2 is shown on Figure 6-9.

Visual Impact Summary

Sensitivity	Magnitude	Impact
MODERATE	**MODERATE**	**MODERATE**

Figure 6–8 Viewpoint 2

Figure 6-9 Visualisation at Viewpoint 2
Refer to Section 3 within the REF for further detail on the bridge design

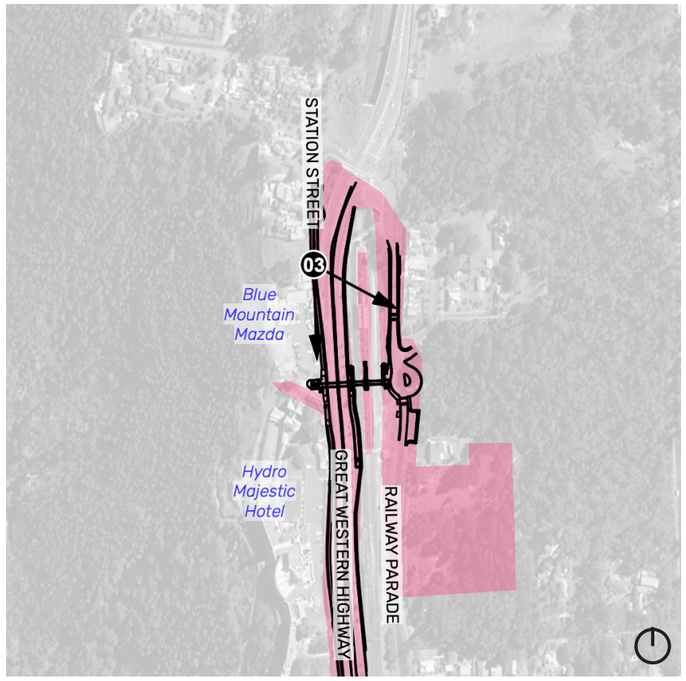

Figure 6–10 Viewpoint 3 location

Figure 6–11 Viewpoint 3

6.2.3 VIEWPOINT 03

Location:

Along the existing shared user path, adjacent to Blue Mountains Mazda, looking south toward the proposed pedestrian bridge

Primary viewers

- Commercial businesses including Blue Mountains Mazda

Visible Proposal elements

- Pedestrian bridge
- Widened dual carriageway
- Upgraded shared user path
- New tree, shrub and groundcover vegetation
- Roadside lighting (Location TBC).

Visual Impacts

- Increased vehicle movements and associated noise
- Increased light spill
- Removal of vegetation adjacent to roadway (Eastern side)

Sensitivity

Viewpoint 3 is shown in Figure 6-11, and highlights the view from Blue Mountains Mazda. Although the existing view is dominated road corridor and existing shared user path, it is exposed and does not offer much opportunity for the view to absorb changes. Overall, the sensitivity of the viewpoint to change is **LOW**.

Magnitude of change

The scale and material of the proposed pedestrian bridge result in a significant change to the existing view. Additionally, the alteration of existing vegetation which frames the view and partially screens the rail corridor would be only partially reinstated as part of the Proposal design landscape design, given the limited opportunity to introduce bridge screening opportunities. Soft edges in the form of planted verges will only minimal reduction in impact. Overall, the magnitude of change within this view would be **MODERATE**.

A photomontage illustrating the Proposal at viewpoint 3 is shown on Figure 6-13.

Visual Impact Summary

Sensitivity	Magnitude	Impact
LOW	MODERATE	MODERATE-LOW

Figure 6–12 Viewpoint 3

Figure 6–13 Visualisation at Viewpoint 3
Refer to Section 3 within the REF for further detail on the bridge design

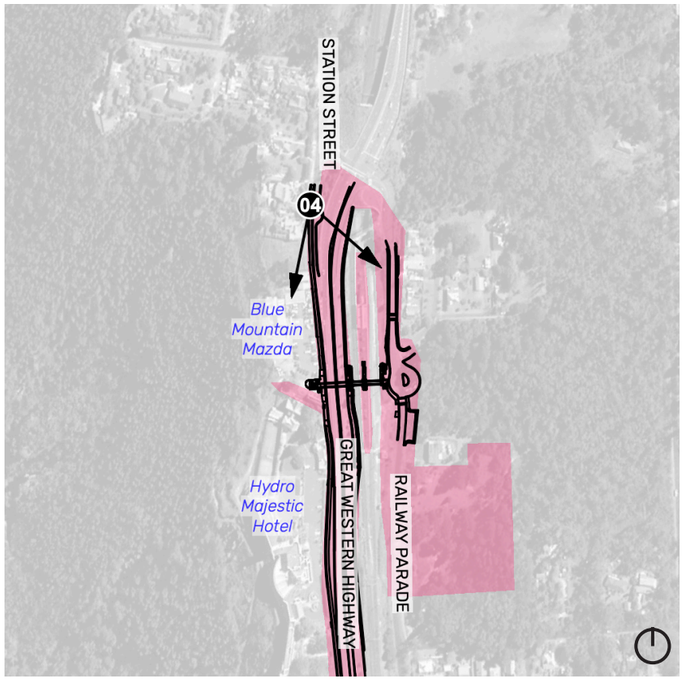

Figure 6–14 Viewpoint 4 location

Figure 6–15 Viewpoint 4

6.2.4 VIEWPOINT 04

Location:

Station Street looking south toward the proposal. The viewpoint is representative of a number of views from residencies along this portion of the Great Western Highway/Station Street

Primary viewers

- Residents along Station Street

Visible Proposal elements

- Pedestrian bridge
- Widened dual carriageway (in the distance)
- Upgraded shared user path
- New tree, shrub and groundcover vegetation
- Roadside lighting (Location TBC).

Visual Impacts

- Increased hardstand
- Increased light spill

Sensitivity

Viewpoint 4, illustrated in Figure 6–15, shows the existing view of the Great Western Highway from the residential properties. The view is comprised of built elements associated with the road infrastructure including an existing retaining wall, light posts, hardstand and existing gravel trail, as well as an equal amount of vegetation including grasses and small trees providing a buffer between the highway and Station Street. The view would have a **HIGH** sensitivity given the disruption of the existing green backdrop, proximity to existing heritage residential buildings in the immediate area and changes to the existing conditions and composition of the view through the the introduction of a large structure in the midground of this view.

Magnitude of change

The combination of hardstand widening, the proposed shared path and pedestrian bridge would result in the magnitude being assessed as **MODERATE**. Over time, the Proposal landscape design would contribute to a reduction in magnitude.

A photomontage illustrating the Proposal at viewpoint 4 is shown on Figure 6-17.

Visual Impact Summary

Sensitivity	Magnitude	Impact
HIGH	MODERATE	HIGH-MODERATE

Figure 6–16 Viewpoint 4

Figure 6–17 Visualisation at Viewpoint 4
Refer to Section 3 within the REF for further detail on the bridge design

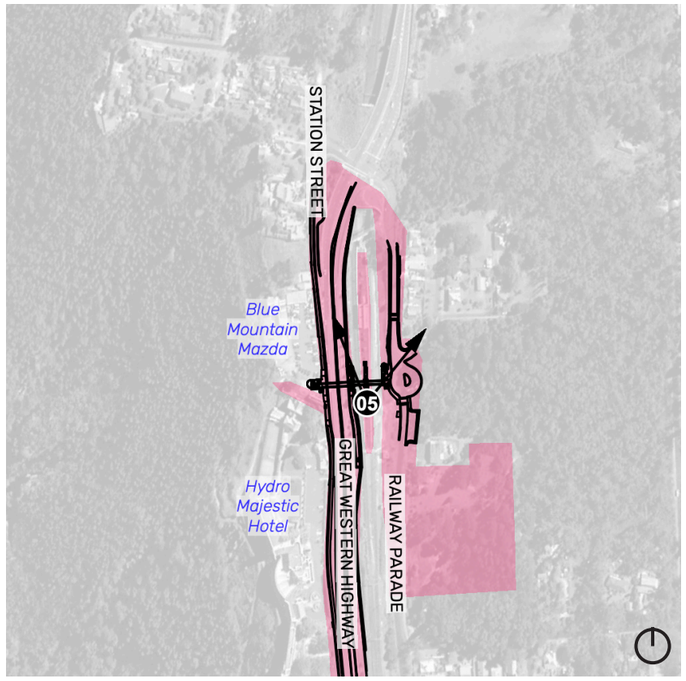

Figure 6–18 Viewpoint 5 location

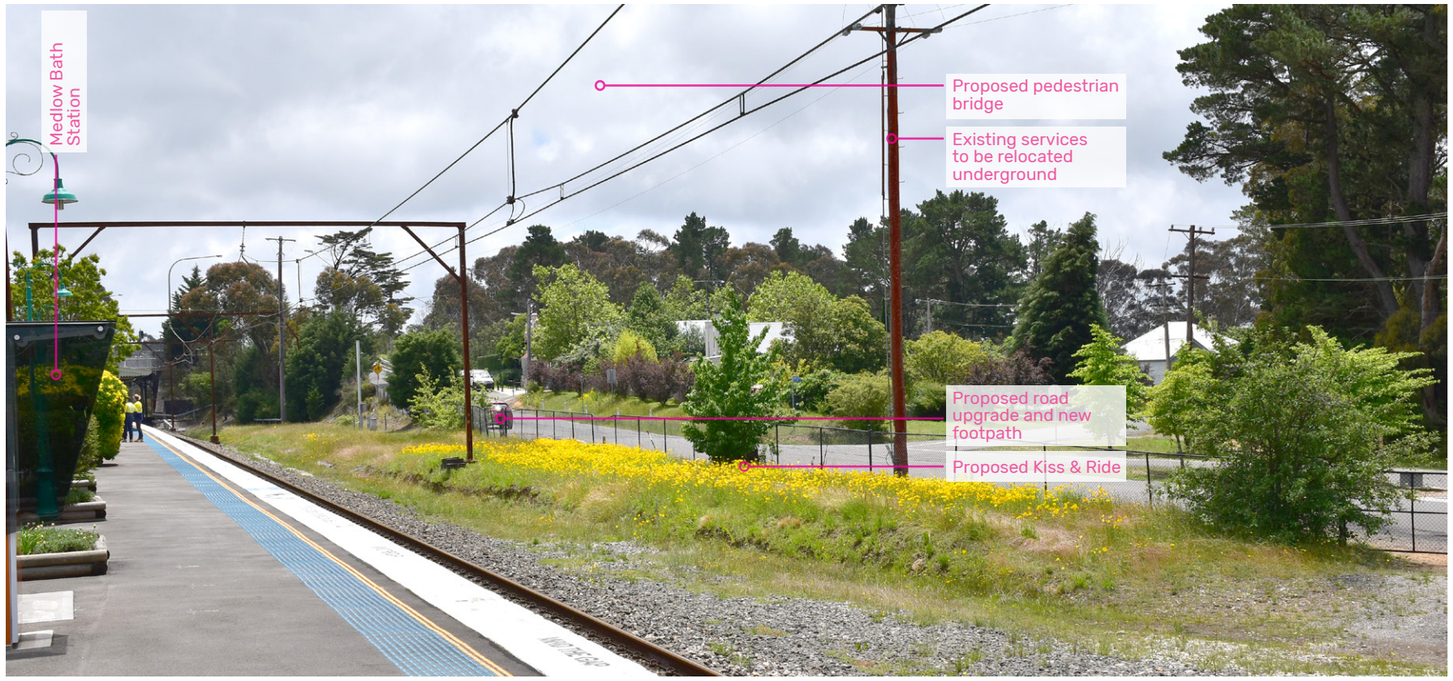

Figure 6–19 Viewpoint 5

6.2.5 VIEWPOINT 05

Location:
Medlow Bath Railway Station platform looking north toward the pedestrian bridge and Railway Parade.

Primary viewers
- Users of the rail line

Visible Proposal elements
- Pedestrian bridge
- Widened dual carriageway
- Railway Parade road formalisation and new footpath
- New tree, shrub and groundcover vegetation.

Visual Impacts
- New access point navigation
- Increased hardstand

Sensitivity
The view from viewpoint 5 is illustrated in Figure 6-19. Existing rail and road infrastructure comprises a large portion of the existing view composition, especially from patrons of the rail station. Although the large scale of the new pedestrian bridge would impact this view, given the existing infrastructure, the sensitivity of the viewpoint to change would be **MODERATE**.

Magnitude of change
The proposed pedestrian bridge would sit in the foreground of this view, dissecting the background landscape and rail corridor. Its scale and materiality is quite significant, however, planting, provided within the Proposal landscape design would contribute to a reduction in magnitude over time, adding to the improvement of character. The magnitude of the proposal from this view is considered **MODERATE.**

A photomontage illustrating the Proposal at viewpoint 5 is shown on Figure 6-21.

Visual Impact Summary

Sensitivity	Magnitude	Impact
MODERATE	**MODERATE**	**MODERATE**

Figure 6-20 Viewpoint 5

Figure 6–21 Visualisation at Viewpoint 5
Refer to Section 3 within the REF for further detail on the bridge design

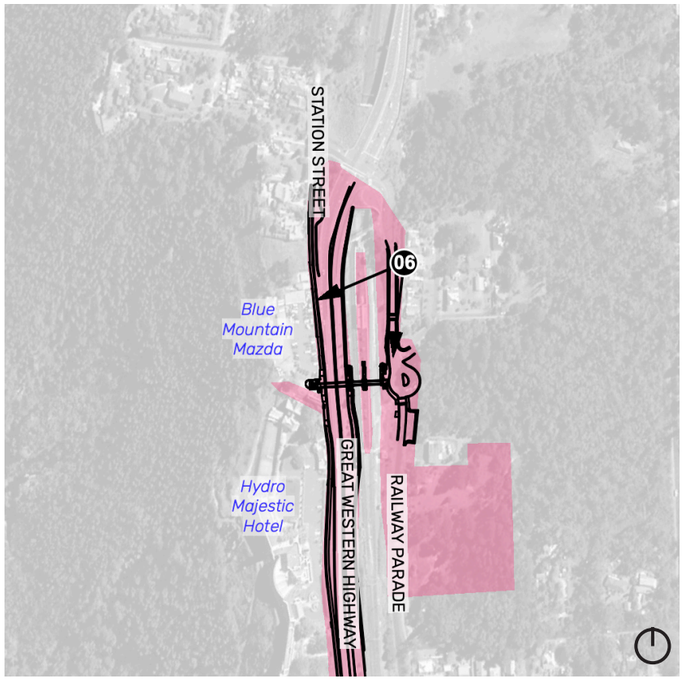

Figure 6–22 Viewpoint 6 location

Figure 6–23 Viewpoint 6

6.2.6 VIEWPOINT 06

Location:

Railway Parade looking south toward the proposal. The viewpoint is representative of a number of views from businesses and residencies along Railway Parade.

Primary viewers

- Commercial businesses including the existing Cafe
- Residents along Railway Parade
- Recreational walkers and cyclists connecting to district routes and trails

Visible Proposal elements

- Pedestrian bridge
- Railway Parade road formalisation & new footpath
- New tree, shrub and groundcover vegetation
- Roadside lighting (Location TBC).

Visual Impacts

- Increased hardstand
- Increased light spill

Sensitivity

The view present in viewpoint 6 is provided in Figure 6-23. The view is made up of street tree plantings, turf verges and road and rail infrastructure with fringe tree and larger shrub plantings along the fence-line. The sensitivity of this view to change is **MODERATE** given the existing spatial character would be sensitive to change, given changes in infrastructure would impact the visual connection to the green backdrop.

Magnitude of change

The proposed pedestrian bridge and peripheral elements sit in the mid to foreground of this view. The bridge provides a dominant built element, given its scale and materiality when compared to surrounding elements. Changes to lighting, around the proposed forecourt, will also contribute to increased magnitude of change at night. Vegetation installed as part of the Proposal landscape design would reduce the visual effect of change over time. Overall, the magnitude of change within this view would be **HIGH**.

A photomontage illustrating the Proposal at viewpoint 6 is shown on Figure 6-25.

Visual Impact Summary

Sensitivity	Magnitude	Impact
MODERATE	HIGH	HIGH-MODERATE

Figure 6-24 Viewpoint 6

Figure 6–25 Visualisation at Viewpoint 6
Refer to Section 3 within the REF for further detail on the bridge design

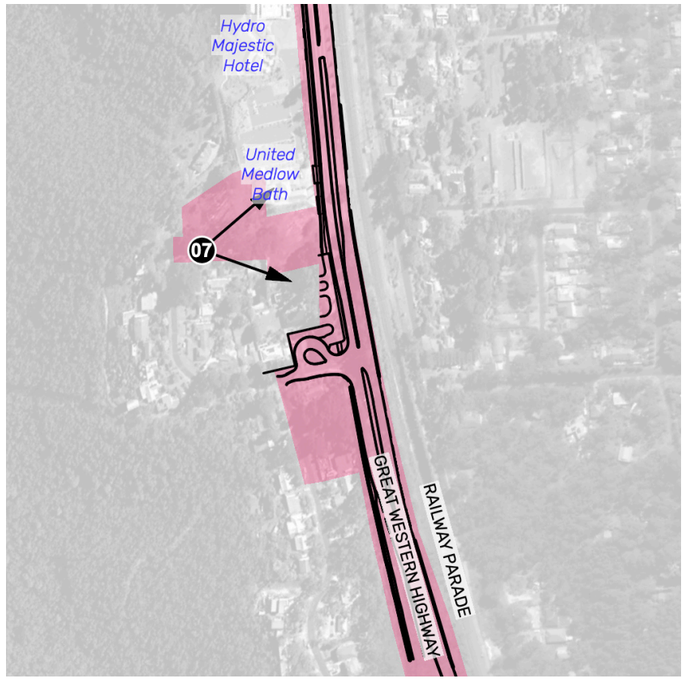

Figure 6–26 Viewpoint 7 location

Figure 6–27 Viewpoint 7 - Proposed Option

6.2.7 VIEWPOINT 07 - PROPOSAL OPTION

Location:

Bellevue Crescent, looking east toward the optional road realignment of Bellevue Crescent. The viewpoint is representative of a number of views from residencies along Bellevue Crescent

Primary viewers

- Residents along Bellevue Crescent

Visible Proposal elements

- New roadway
- Signalised intersection at Bellevue Crescent
- New tree, shrub and groundcover vegetation
- Roadside lighting (Location TBC).

Visual Impacts

- Increased hardstand
- Increased light spill
- Removal of vegetation

Sensitivity

The view present in viewpoint 7 is provided in Figure 6-27. The view is predominantly made up a vegetated landform with a strong presence of larger tree plantings. The sensitivity of this view to change is **HIGH** given the majority of the existing view is made up of vegetation with only a small portion of built form resulting in a significant change to the character and landuse of this view for residents along Bellevue Crescent.

Magnitude of change

The proposed realignment of Bellevue Crescent sits in the foreground of this viewpoint and provides a dominant built element in place of significant existing vegetation, which acts as a buffer between the Great Western Highway and residents. The removal of trees in this location would be significant and given the increase of hardstand and significant increase in traffic in this location the overall magnitude of change within this view would be **HIGH**.

Visual Impact Summary

Sensitivity	Magnitude	Impact
HIGH	**HIGH**	**HIGH**

Figure 6–28 Viewpoint 7

6.3 SUMMARY OF VISUAL IMPACT ASSESSMENT

The visual impact assessment comprised the assessment of seven representative viewpoints selected in accordance with the methodology in Chapter 2. This assessment has considered the mitigation measures as part of the urban design and so has identified residual visual impacts. The assessment of viewpoints is summarised in Table 6-1. The range of visual impact ratings were determined to be:

- One viewpoint would have a high visual impact
- Three viewpoints would have a high-moderate visual impact
- Two viewpoints would have a moderate visual impact
- Three viewpoints would have a moderate to low visual impact

Viewpoint Number	Visible Proposal Elements		Sensitivity	Magnitude	Rationale		Visual Impact
1	• Pedestrian bridge • Widened dual carriageway • Upgraded shared user path • Shared zone • Turning area along Bellevue Crescent	• Widened median and tree plantings • New tree, shrub and groundcover vegetation. • Roadside lighting (Location TBC).	HIGH	MODERATE	• Increased hardstand across proposal extents • Proximity to proposal • Time before landscape mitigation can be effective	• Changes to character • Dissection of distant bushland views due to scale, size and materiality of pedestrian bridge in the distance • Removal of existing vegetation	HIGH-MODERATE
2	• Pedestrian bridge • Widened dual carriageway • Upgraded shared user path	• Widened median and tree plantings • New tree, shrub and groundcover vegetation. • Roadside lighting (Location TBC).	MODERATE	MODERATE	• Increased hardstand across proposal extents • Proximity to proposal • Minimal change to character	• Distance of pedestrian bridge and partial screening of peripheral elements • Removal of existing trees • Transient Viewers	MODERATE
3	• Pedestrian bridge • Widened dual carriageway • Upgraded shared user path	• New tree, shrub and groundcover vegetation. • Roadside lighting (Location TBC).	LOW	MODERATE	• Increased hardstand across proposal extents • Proximity to proposal • Limited opportunity for landscape mitigation	• Dissection of distant bushland views due to scale, size and materiality of pedestrian bridge in the foreground • Removal of existing vegetation	MODERATE-LOW
4	• Pedestrian bridge • Widened dual carriageway (in the distance) • Upgraded shared user path	• New tree, shrub and groundcover vegetation. • Roadside lighting (Location TBC).	HIGH	MODERATE	• Increased hardstand along existing gravel trail • Proximity to proposal • Marginal changes to character	• Dissection of distant bushland views due to scale, size and materiality of pedestrian bridge in the midground • Potential for landscape mitigation	HIGH-MODERATE
5	• Pedestrian bridge • Railway Parade road formalisation & new footpath	• New tree, shrub and groundcover vegetation. • Widened dual carriageway	MODERATE	MODERATE	• No change to existing character • Localised vegetation clearing • Proximity to proposal	• Scale, size and materiality of pedestrian bridge in the foreground • Potential for landscape mitigation • Transient Viewers	MODERATE
6	• Pedestrian bridge • Railway Parade road formalisation & new footpath	• New tree, shrub and groundcover vegetation. • Roadside lighting (Location TBC).	MODERATE	HIGH	• Proximity to the proposal • Scale, size and materiality of pedestrian bridge in the mid-foreground • Localised vegetation clearing	• Increase light spill • Minimal changes to character • Increased hardstand in foreground • Potential for landscape mitigation	HIGH-MODERATE
7	• Bellevue Crescent Realignment • New tree, shrub and groundcover vegetation	• Signalised intersection at Bellevue Crescent • Roadside lighting (Location TBC).	HIGH	HIGH	• Proximity to the proposal • Significant vegetation clearing • Increase light spill	• Change in landuse and character • Increased hardstand in foreground • Minor opportunities for landscape mitigation	HIGH

Table 6–1 Summary of visual impacts

Existing view looking north along Great Western Highway towards Station Street

Chapter 7
LANDSCAPE DESIGN

7.1 PLANTING DESIGN

The proposal aims to provide a well-vegetated gateway into Medlow Bath that integrates the roadway and pedestrian bridge structure with their surrounding landscape and provides motorists, as well as cyclists and pedestrians, with a 'sense of place'. In doing so, a delicate balance between screening of the proposed pedestrian bridge and widened carriageway from sensitive viewing locations and maintaining key vistas from the Great Western Highway over the Megalong Valley must be reached.

Planting and revegetation will respond to endemic vegetation communities within Bushland areas, as well as, colourful exotics to strengthen the existing character of the place with screen planting to be located adjacent to local residences and some open space areas when adjacent to the proposed pedestrian bridge.

By making use of Bushland Regeneration techniques, the quantity of planting can be minimised and restricted to specific locations. It also means that the quantity of imported materials can also be reduced, which reduces project costs and reduces the reliance on the transportation of materials. The process involves careful topsoil stripping and stockpiling, retention of existing seed within the topsoil, amelioration with the addition of nutrients and shredded mulch containing endemic seed and direct return of the topsoil to as near as possible to the location from where it was sourced. In specific locations, including the median, areas adjacent to the proposed pedestrian bridge, bus stops, entries in the Medlow Bath rail station, along Railway Parade and at the entry points of Medlow Bath, strategically placed new tree plantings will offer shade and colour, creating a sense of place and welcoming environment. The following section will identify landscape design principles and the treatments and mixes that have been selected to revegetate and enhance the proposal.

7.1.1 LANDSCAPE DESIGN PRINCIPLES

The landscape design is based on the following principles:

- Retain existing native vegetation where possible
- Vegetate all areas affected by the project and construction work. Areas within the construction footprint and outside of the operational footprint would generally be reinstated to their existing condition and would involve appropriate weed management
- Re-establish vegetation communities where disturbed to restore ecological and habitat values and help biodiversity protection and recovery, where feasible
- Provide large stock median tree plantings with species suitable to conditions
- Provide trees in verges where it is safe and feasible to do so, based on clear zone and sight line requirements
- Where appropriate and feasible, use vegetation to screen the proposal from sensitive receivers nearby
- Consider placement of vegetation and trees based on existing utility service assets and in accordance with the requirements of the respective asset owner such as water, stormwater, gas, power and communications services
- Use predominantly large-scale revegetation techniques such as seeding applications or bushland regeneration in bushland transitional zones. Planting or over-planting may be appropriate in select or highlight areas where an immediate established landscape effect is desired, in particular the Medlow Bath Village centre and Railway Parade. These areas would be further evaluated during the detailed design
- Maximise the use of locally sourced plant material for all native vegetation including locally collected seed and plants grown from locally collected seed and bushland regeneration techniques
- Exclude of all species on weed lists applicable to the Blue Mountains

At the detailed planting design stage, which would include further refinement of the plant species selection, particular consideration should be made for ongoing maintenance requirements. Principles include:

- Refinement of plant species that are robust, non-invasive and not fire promoting
- Use of local provenance plant material for native revegetation plantings
- Refinement to placement and species selection for planting within the proposal corridor (eg medians and verges) in accordance with clear zone and sight stopping distance requirements.

7.1.2 LANDSCAPE TREATMENT TYPES

BUSHLAND REVEGETATION TREATMENT

Bushland revegetation is a revegetation methodology that involves careful topsoil stripping and stockpiling, retention of existing seed within the topsoil, amelioration with the addition of nutrients and shredded mulch containing endemic seed and direct return of the topsoil to as near as possible to the location from where it was sourced. By making use of natural regeneration and natural materials, the quantity of planting and seeding can be minimised and restricted to specific locations. It also means that the quantity of imported materials can also be reduced, reducing project costs and the reliance on the transportation of materials (and resulting greenhouse emissions).

The benefits of this technique include:

- Environmental benefits include the surety that endemic species are regenerating into the project, a reduction in greenhouse emissions, as well as excellent weed and erosion control
- Visual benefits are that overtime, the landscape is more visually consistent with the existing landscape
- Project benefits include a reduction in materials and transportation costs.

The bushland section of the highway north and south of Medlow Bath provides an opportunity to undertake bushland reconstruction as the primary revegetation method. The treatment will be applied to cut batters and fill embankments. No additional revegetation treatments are applied to surfaces within bushland reconstruction areas, apart from cover crop hydroseeding.

BUSHLAND SEEDING AND PLANTING TREATMENTS

Planting treatments within the transition zones between dense bushland and Medlow Village provide opportunities to revegetate using planting and seeding methods to re-establish endemic vegetation communities. Species selection is based on the existing communities of *Eucalyptus sieberi*, or Black Ash and the *Eucalyptus oreades*, or Blue Mountains Ash and will contribute to the visual outlook and transitional experience of motorists when travelling through the areas between towns.

Bushland seeding and planting will be used as a secondary method of treating bushland areas, where bushland revegetation treatments are unsuitable, as well as areas away from the Great Western Highway to establish links to the surrounding bushland.

ACCENT TREE PLANTINGS

Tree planting along key points of the proposal including areas identified for placemaking, marker moments for proposed bus stops and station entries, would comprise of mature exotic deciduous trees and evergreen conifer species and adhere to Blue Mountains City Council weed list and street tree masterplan guidelines.

Deciduous tree plantings would aim to provide colour and foliage in the summer months and allow for light to permeate during the winter months. Accent tree species include; Crimson Sentry, Chinese Redbud, Swanes Golden, Himalayan Cypress, Green Beech, Golden Ash, Tulip Tree and Golden Elm.

The locations for these treatments as markers would need to have good sight distances in order to get the benefit of signalling key moments, while not impacting on motorist sightlines to infrastructure. Species selection would need to consider microclimatic conditions caused by aspect, slope, adjoining surfaces, and land use, as well as soil conditions.

VILLAGE MEDIAN PLANTING TREATMENTS

The planting within medians aim to evoke historical therapeutic treatments, for which Medlow Bath was known for during the 1900's. Median species would consist of massed colourful exotic shrubs and groundcovers, contrasting colour and texture to the existing bushland character of the Medlow Bath entries.

Accent plantings of Pride of Madeira and Lavender will provide splashes of intense seasonal colour and year round textural contrast to layers of Blue Flax Lily and Shore Juniper where sight lines are needed to be maintained. Species selection would need to consider micro-climatic conditions caused by aspect, slope, adjoining surfaces, and land use, as well as soil conditions.

VILLAGE FEATURE PLANTING TREATMENTS

Tree planting within medians aim to provide colour and foliage in the summer months and allow for light to permeate during the winter months, whilst also providing a canopy that allows for views to be maintained, in accordance with the Blue Mountains City Council street tree masterplan guidelines. The use of re-directive kerbs along the median provides an opportunity to use larger tree species, including the Acer platanoides 'Crimson King' within the median, to enable a richer sense of place and memorable journey, when travelling through the village of Medlow Bath.

To achieve consistency with the existing character of the study area, an indicative selection of plant species is provided. The proposed plant species are summarised in the next pages and has been reviewed against plant communities of the Blue Mountains, Blue Mountains City Council Weed Lists and in consultation with Blue Mountains City Council.

#	Botanical Name	Common Name	Mature Height	Mature Spread
TREE LIST 1 - EUCALYPTUS OPEN-FOREST/TALL OPEN FOREST				
Trees				
1	*Eucalyptus piperita*	Sydney Peppermint	20m	12m
2	*Eucalyptus sclerophylla*	Hard-leaved Scribbly Gum	20m	12m
3	*Eucalyptus sieberi*	Silvertop Ash	25m	10m
FEATURE TREES				
Median Tree Plantings				
4	Acer platanoides 'Crimson King'	Norway Maple	15m	8m
ACCENT TREE PLANTINGS				
5	Acer platanoides 'Crimson Sentry'	Crimson Sentry	7m	4m
6	*Cercis chinensis 'Avondale'*	Chinese Redbud	3.5m	3m
7	Cupressus sempervirens	Swanes Golden	5m	1.5m
8	Cupressus torulosa	Himalayan Cypress	45m	10m
9	*Fagus sylvatica*	Green Beech	20m	10m
10	*Fraxinus excelsior 'aurea'*	Golden Ash	7m	7m
11	*Liriodendron tulipifera 'Fastigiata'*	Tulip Tree	20m	4m
12	*Ulmus glabra*	Golden Elm	15m	20m

Table 7–1 Indicative Tree species list


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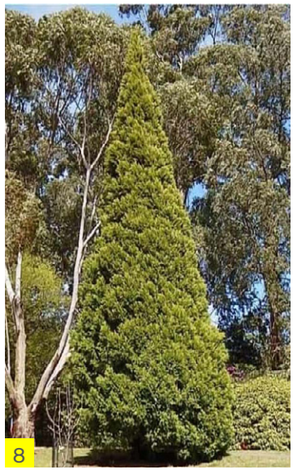
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#	Botanical Name	Common Name	Mature Height	Mature Spread
PLANT LIST 1 - VILLAGE MEDIAN PLANTING				
Shrubs & Grasses				
1	*Dianella caerulea*	Blue Flax-lily	1m	0.5m
2	*Echium candicans*	Pride of Madeira	1.8m	1.8m
3	*Lavandula dentata*	French Lavender	1m	1m
4	*Lavandula stoechas*	Spanish Lavender	1m	1m
Groundcovers				
5	*Juniperus conferta*	Shore Juniper	0.2m	1.5m
PLANT LIST 2 - BUSHLAND PLANTING NATIVE SHRUBS, GRASSES & GROUNDCOVERS				
Shrubs, Grasses & Sedges				
6	*Acacia aspera*	Rough Wattle	2m	3m
7	*Acacia pravissima 'Little Nugget'*	Little Nugget	1.2m	1.2m
8	*Callistemon viminalis 'Better John'*	Better John	1m	1m
9	*Grevillea juniperina 'Gold Cluster'*	Grevillea Gold Cluster	0.30m	1m
10	*Hibbertia pedunculata*	Stalked Guinea flower	0.2m	1m
11	*Lomandra longifolia 'Breeze'*	'Tanika' Mat Rush	0.5m	0.6m
12	*Lomandra hystrix 'Katie Belles'*	LHBYF Katie Belles	1.8m	1.5m
13	*Lomandra longifolia 'Tanika'*	'Tanika' Mat Rush	0.65m	0.65m
14	*Persoonia acerosa*	Needle Geebung	0.5m - 2m	2m
15	*Persoonia chamaepitys*	Mountain Geebung	0.2	2m
16	*Westringia fruitcosa 'Mundi'*	Mundi Westringia	0.4m	1.5m

Table 7–2 Indicative revegetation plant species list


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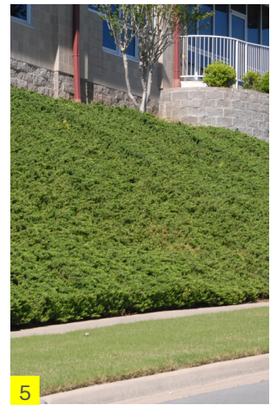
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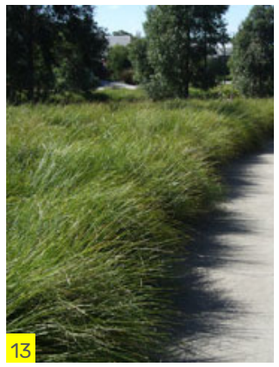
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#	Botanical Name	Common Name	Mature Height	Mature Spread
PLANT LIST 3 - VILLAGE FEATURE PLANTING				
Shrubs & Groundcovers				
1	*Armeria maritima*	*Sea Thrift*	0.3m	0.3m
2	*Autumn Empress x Rhododendron*	*Autumn Empress 'Conles'*	1m	1m
3	*Autumn Starlite x Rhododendron*	*Autumn Starlite*	1m	1m
4	*Calamagrostis × acutiflora*	Feather reed-grass	1m	1m
5	*Echium candicans*	Pride of Madeira	1.8m	1.8m
6	*Escallonia Pink Pixie*	Pink Pixie	0.8m	0.8m
7	*Liriope muscari*	Amethyst Liriope muscari	0.4m	0.4m
8	*Viola hederacea*	Native Violet	0.2m	2m
PLANT LIST 4 - VILLAGE VERGE PLANTING LOW GRASSES & GROUNDCOVERS				
Groundcovers				
9	*Juniperus conferta*	Shore Juniper	0.2m	1.5m
10	*Lavandula angustifolia 'Little Poppet'*	Lavender Little Poppet	0.3m	0.3m
11	*Liriope muscari*	Amethyst Liriope muscari	0.4m	0.4m
PLANT LIST 5 - HEDGING				
Groundcovers				
12	*Photinia* x Fraseri 'NP01'	Photinia Thin Red	3.5m	1.5m
13	Photinia x Fraseri 'CP01'	Photinia Red Fence	1.5m	1m

Table 7–3 Indicative revegetation plant species list


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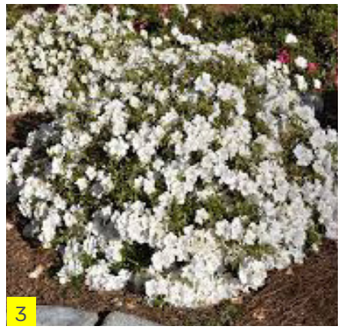
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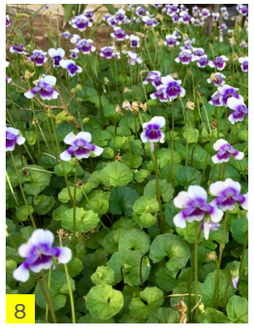
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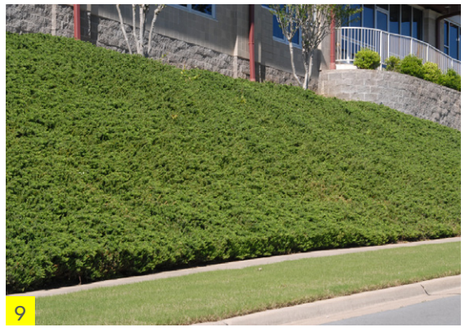
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#	Botanical Name	Common Name	Mature Height	Mature Spread
PLANT LIST 6 - WETLAND EPHEMERAL MIX - INFILTRATION AREAS				
Grasses & Sedges				
1	*Bothriochloa macra*	Red Grass	0.8m	0.5m
2	*Carex appressa*	Tall Sedge	1m	0.5m
3	*Isopelis nodosa*	Knobby Club Rush	1.5m	1.5m
4	*Juncus usitatus*	Common Rush	1.2m	1.5m
5	*Microleana stipioides*	Weeping Grass	1m	0.4m
PLANT LIST 7 - RAIL PLATFORM PLANTING				
Shrubs & Groundcovers				
6	*Autumn Empress x Rhododendron*	*Autumn Empress 'Conles'*	1m	1m
7	*Autumn Starlite x Rhododendron*	*Autumn Starlite*	1m	1m
8	*Gazinia rigens*	African Daisy	0.3m	0.3m

Table 7–4 Indicative revegetation plant species list


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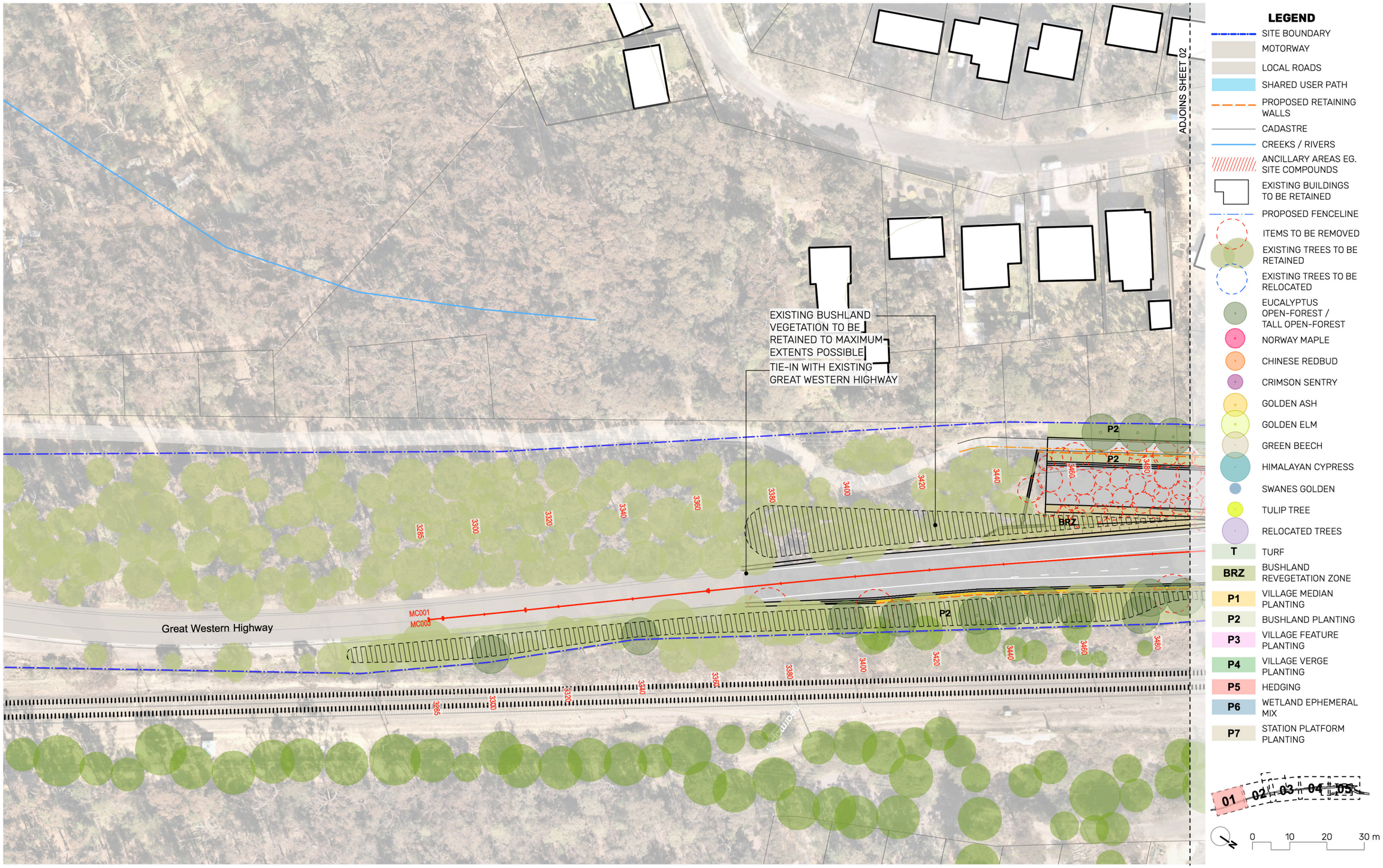

Figure 7–1 Landscape Plan 1

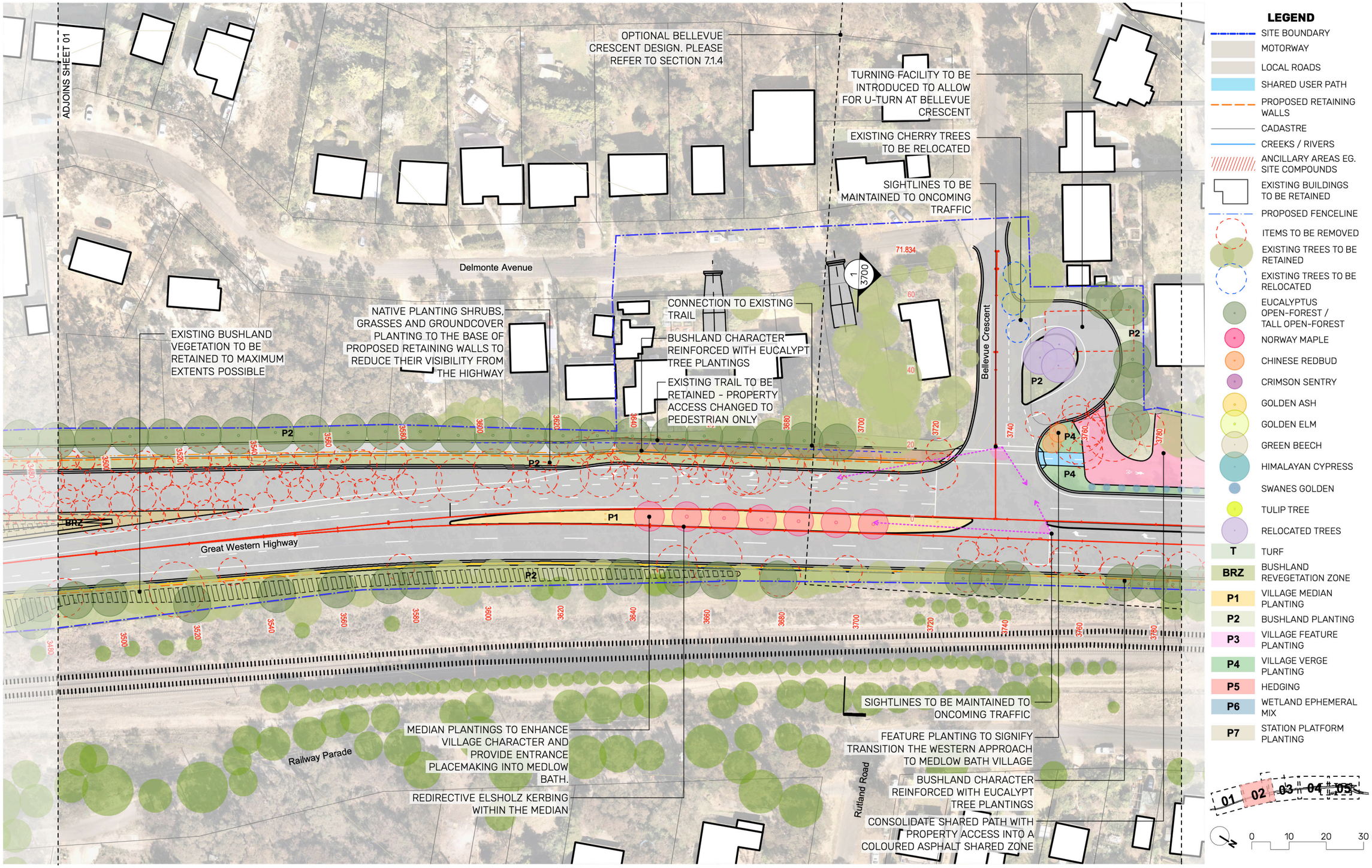

Figure 7–2 Landscape Plan 2

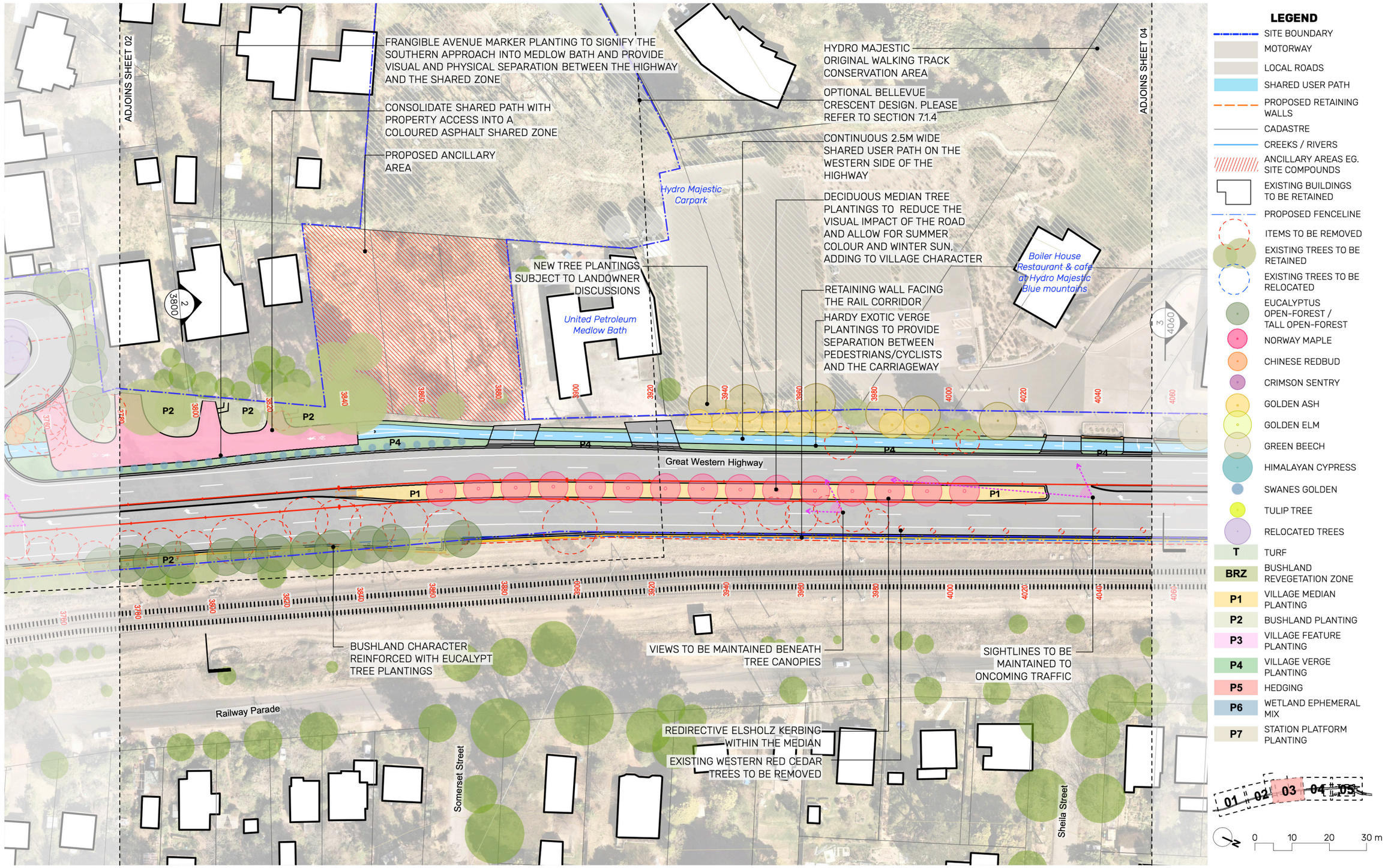

Figure 7–3 Landscape Plan 3

ADJOINS SHEET 03

ADJOINS SHEET 05

DECIDUOUS MEDIAN TREE PLANTINGS TO REDUCE THE VISUAL IMPACT OF THE ROAD AND ALLOW FOR SUMMER COLOUR AND WINTER SUN, CONTRIBUTING TO VILLAGE CHARACTER

HYDRO MAJESTIC ORIGINAL WALKING TRACK CONSERVATION AREA

MEDIAN SHRUBS, GRASSES AND GROUNDCOVERS TO COMPLEMENT THE VILLAGE CHARACTER. SIGHT LINES TO BE MAINTAINED

VIEWS TO BE MAINTAINED BENEATH TREE CANOPIES

REDIRECTIVE ELSHOLZ KERBING WITHIN THE MEDIAN

CONTINUOUS 2.5M WIDE SHARED USER PATH ON THE WESTERN SIDE OF THE HIGHWAY

EXISTING BUS SHELTER TO BE SALVAGED AND RELOCATED BY BMCC

PROPOSED RETAINING WALL AND HALF HEIGHT F-TYPE BARRIER

Hydro Majestic Hotel

Mark Foy Pavillion at The Hydro Majestic Hotel

EXISTING DRIVEWAY TO BE CLOSED

NEW TREE PLANTINGS SUBJECT TO LANDOWNER DISCUSSIONS

NEW TREE PLANTINGS SUBJECT TO LANDOWNER DISCUSSIONS

Great Western Highway

Railway Parade

Railway Parade

St Albans Road

VIEWS TO EXISTING HERITAGE GATE MAINTAINED

PLANTING SELECTED TO MAINTAIN VIEWS TO EXISTING HERITAGE WALL ALONG THE HYDRO MAJESTIC HOTEL

EXISTING BUS SHELTER TO BE SALVAGED AND REMOVED FOR REUSE. FINAL LOCATION TO BE DETERMINED IN CONSULTATION WITH BMCC.

EXISTING WESTERN RED CEDAR TREES TO BE REMOVED

VIEWS TO BE MAINTAINED TOWARD HERITAGE WALL

PROPOSED NEW BUS SHELTER

PROPOSED VEGETATED DETENTION BASIN

FORMALISED CAR PARKING BAYS WITH NEW KERB AND DDA COMPLIANT PARKING SPACE AND ACCESS

Medlow Bath Park

Medlow Bath Rural Fire Brigade

P1 P2 P3 P4 P5 P6 P7

LEGEND

- SITE BOUNDARY
- MOTORWAY
- LOCAL ROADS
- SHARED USER PATH
- PROPOSED RETAINING WALLS
- CADASTRE
- CREEKS / RIVERS
- ANCILLARY AREAS EG. SITE COMPOUNDS
- EXISTING BUILDINGS TO BE RETAINED
- PROPOSED FENCELINE
- ITEMS TO BE REMOVED
- EXISTING TREES TO BE RETAINED
- EXISTING TREES TO BE RELOCATED
- EUCALYPTUS OPEN-FOREST / TALL OPEN-FOREST
- NORWAY MAPLE
- CHINESE REDBUD
- CRIMSON SENTRY
- GOLDEN ASH
- GOLDEN ELM
- GREEN BEECH
- HIMALAYAN CYPRESS
- SWANES GOLDEN
- TULIP TREE
- RELOCATED TREES
- T TURF
- BRZ BUSHLAND REVEGETATION ZONE
- P1 VILLAGE MEDIAN PLANTING
- P2 BUSHLAND PLANTING
- P3 VILLAGE FEATURE PLANTING
- P4 VILLAGE VERGE PLANTING
- P5 HEDGING
- P6 WETLAND EPHEMERAL MIX
- P7 STATION PLATFORM PLANTING

01 02 03 04 05

N 0 10 20 30 m

Figure 7–4 Landscape Plan 4

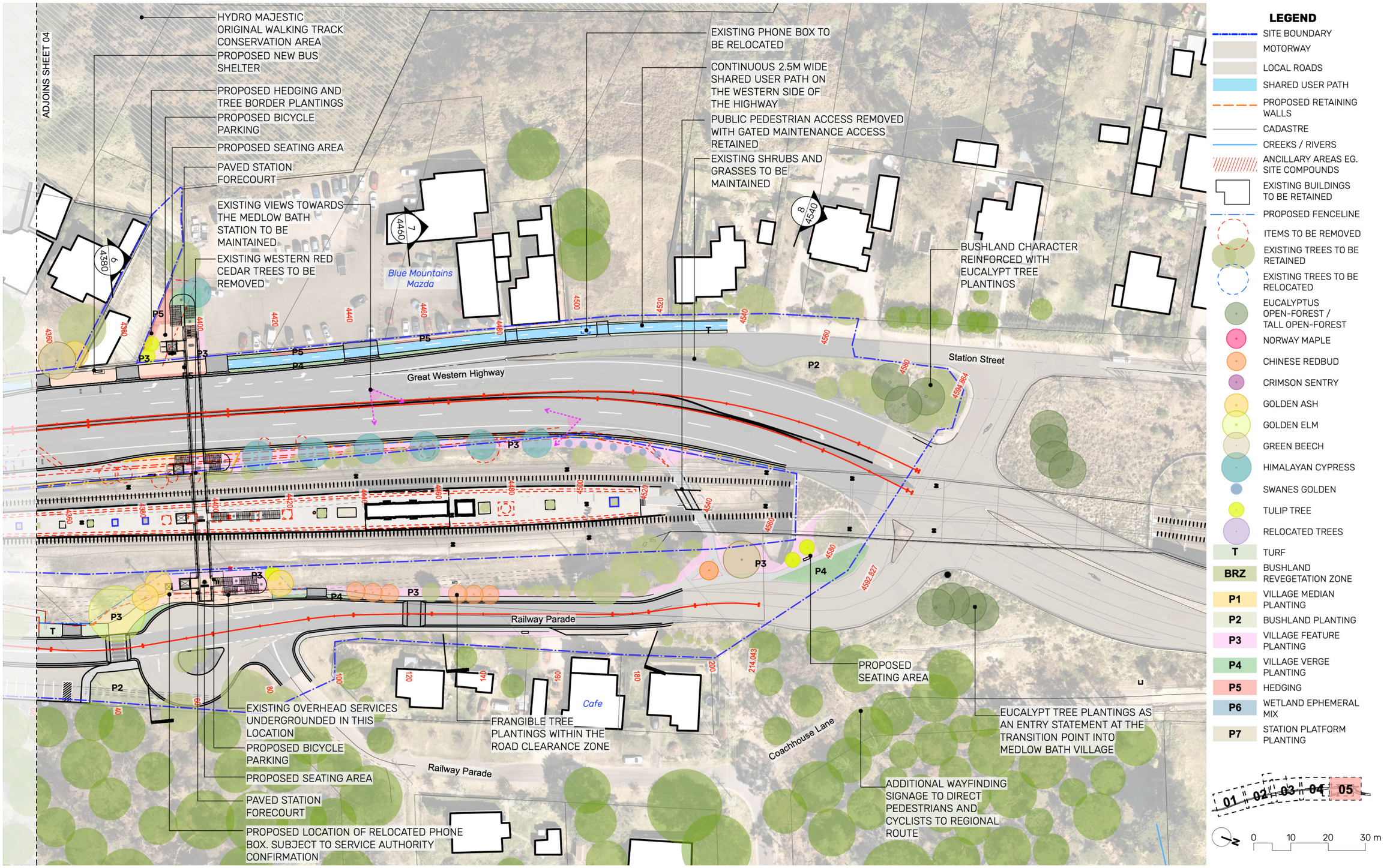

Figure 7–5 Landscape Plan 5

7.1.4 PROPOSED ALTERNATIVE INTERSECTION AT BELLEVUE CRESCENT

As part of the design for the proposal, a new alternative signalised intersection is being considered to the Great Western Highway with a new road through vacant Lots to connect to the existing Bellevue Crescent and approximately 25 metres south of the United Petrol Station (refer to Figure 7-11). At the time of writing of this report, an alternative design was being considered for Bellevue Crescent includes the following key design features:

- A signalised intersection will be built along the southern perimeter of the United Petrol Station in Medlow Bath utilising a corridor (anticipated to be 20 metres) through vacant Lots.
- Closing the existing Bellevue Crescent and Great Western Highway intersection but still maintaining a service road/shared zone for the properties fronting the highway
- Creating new access options from Bellevue Crescent to the petrol station Hydro Majestic Pavilion
- Allows left and right turns out of Bellevue Crescent on to the Great Western Highway (enabling west and east bound movement) and left turn into new Bellevue Crescent from Great Western Highway westbound

An analysis of the additional option for the realignment of the Bellevue Crescent intersection and landscape design is provided within Figure7-11. The option proposed in this location refines the proposed configuration of Bellevue Crescent to redirect traffic from the Great Western Highway, behind the existing residencies at Bellevue Crescent, and creates a realigned Bellevue Crescent that joins perpendicular to the Great Western Highway at the existing United Petrol Station.

As a result, the proposed turning circle currently located at 106 Great Western Highway, Medlow Bath would no be required, ultimately reducing the impact on residents, as well as reducing the removal of existing mature trees within this location. The proposed option would also provide a stronger entry gateway into Medlow Bath, through the use of mature trees planted at the entry to the previous entrance into Bellevue Crescent.

The visual impact of this proposal has been assessed within Section 6.2.7.

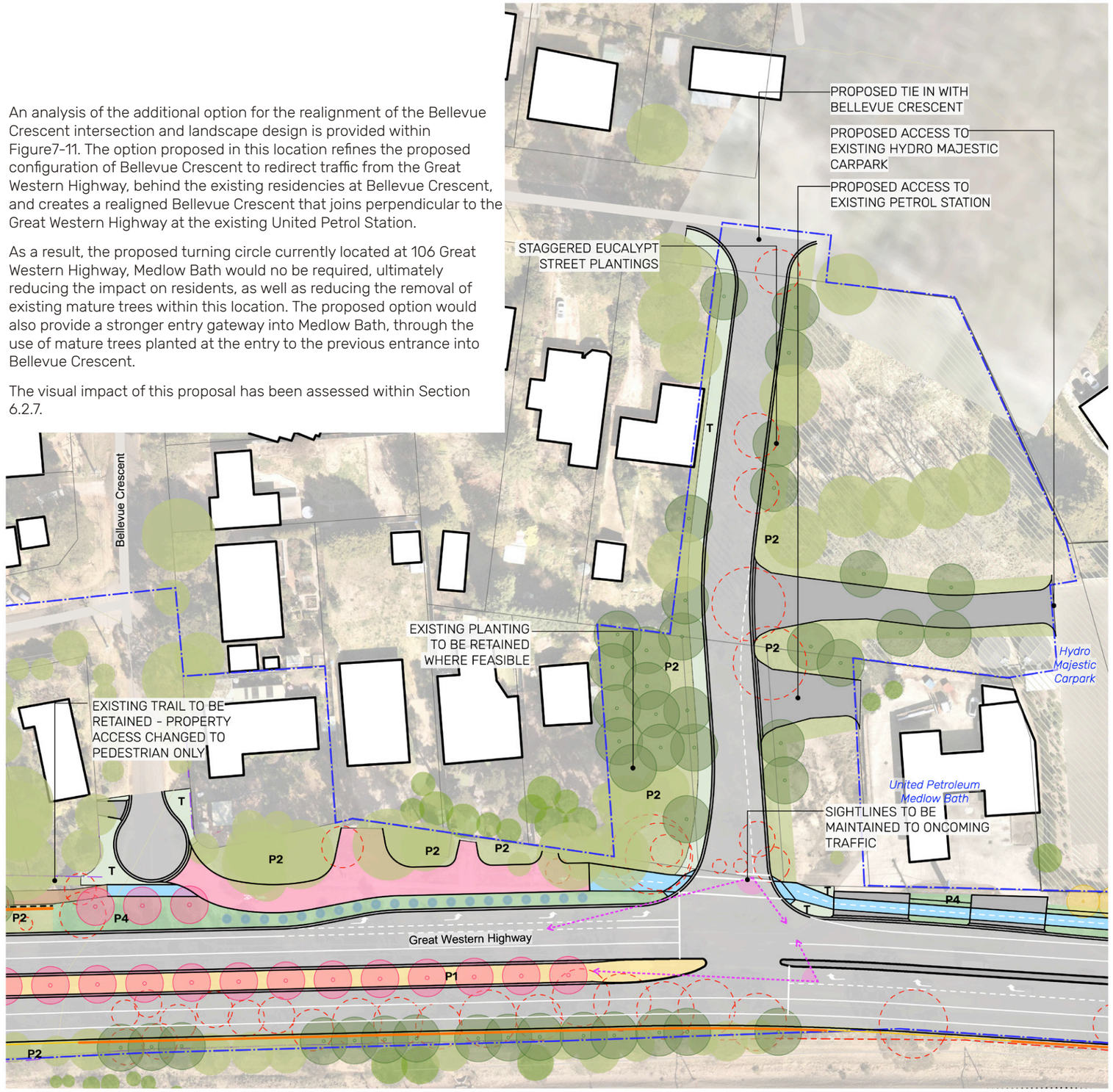

Figure 7-6 Option - Bellevue Crescent Realignment Detail Plan

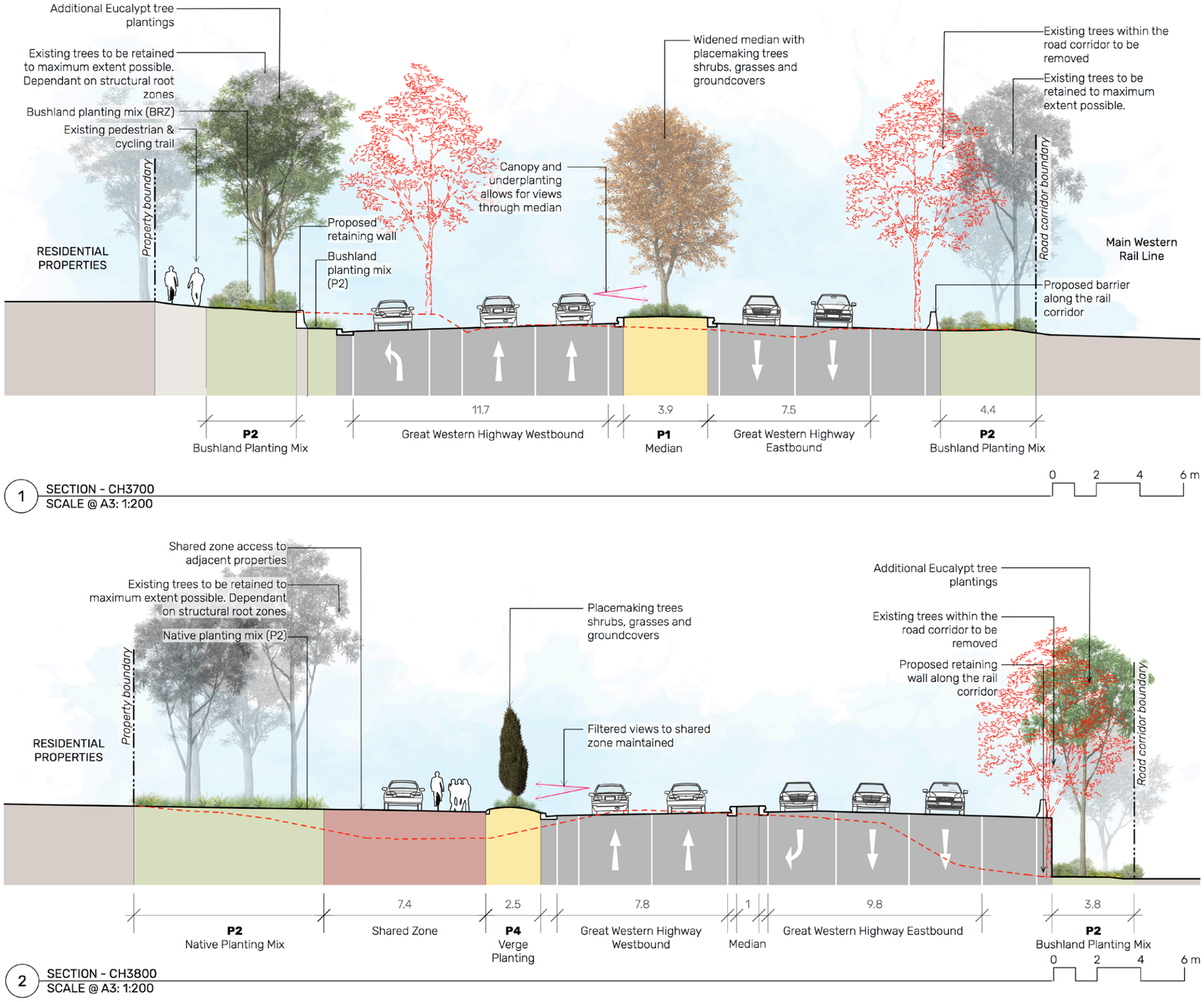

Figure 7–7 Landscape Sections

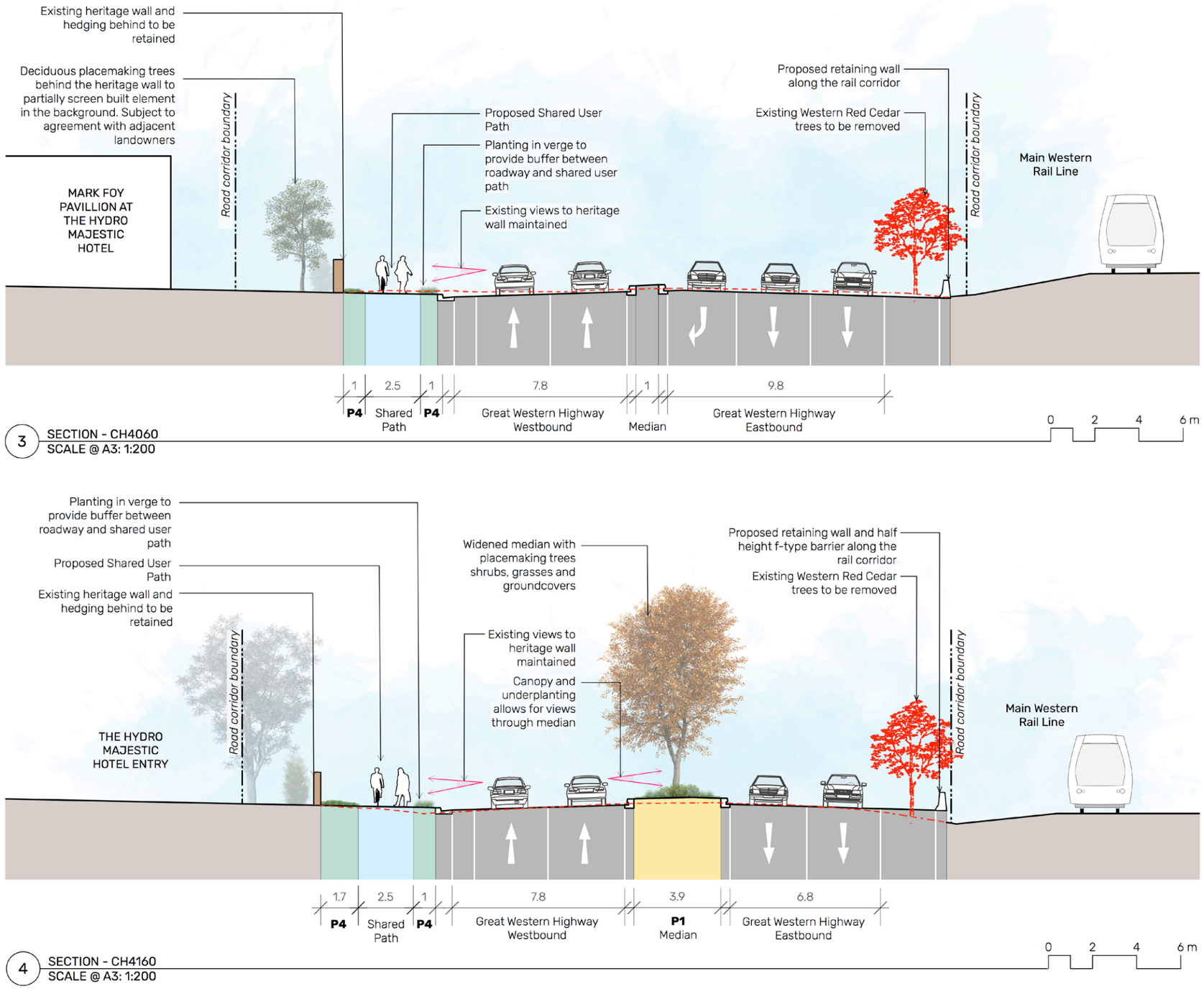

Figure 7–8 Landscape Sections

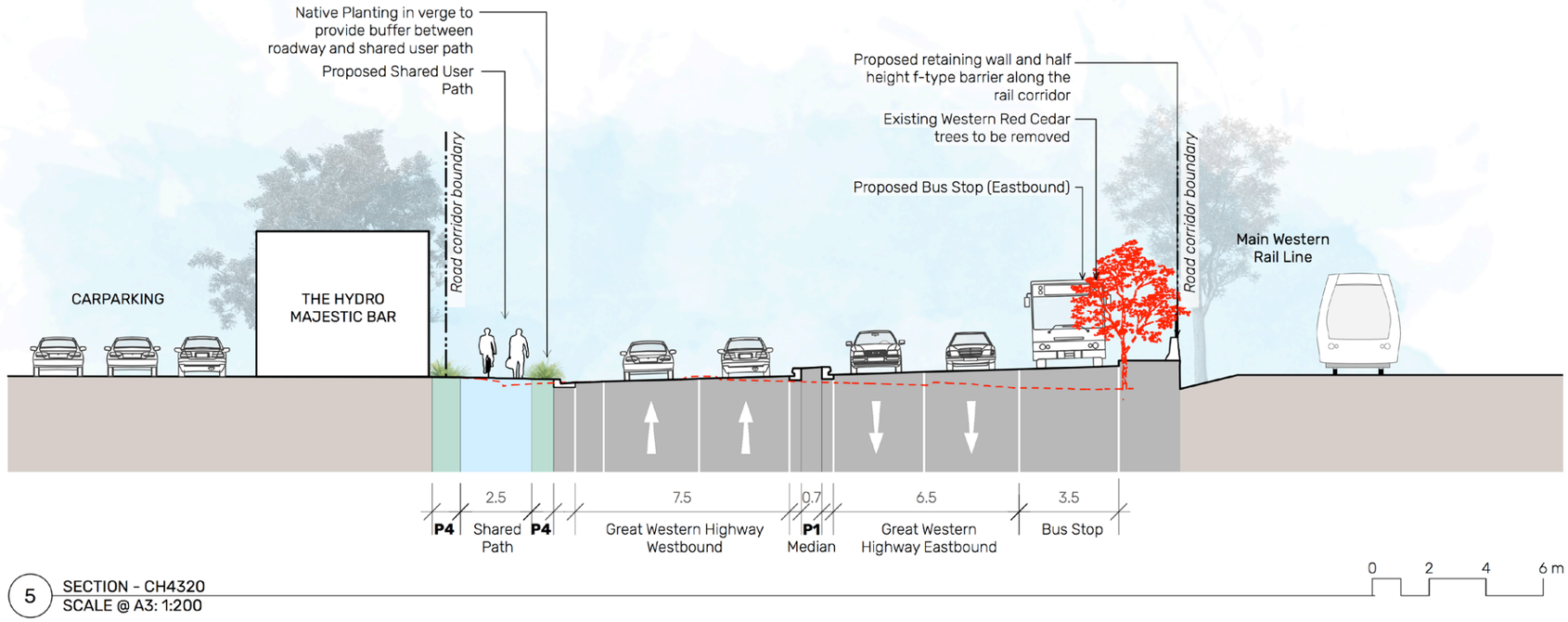

Figure 7–9 Landscape Sections

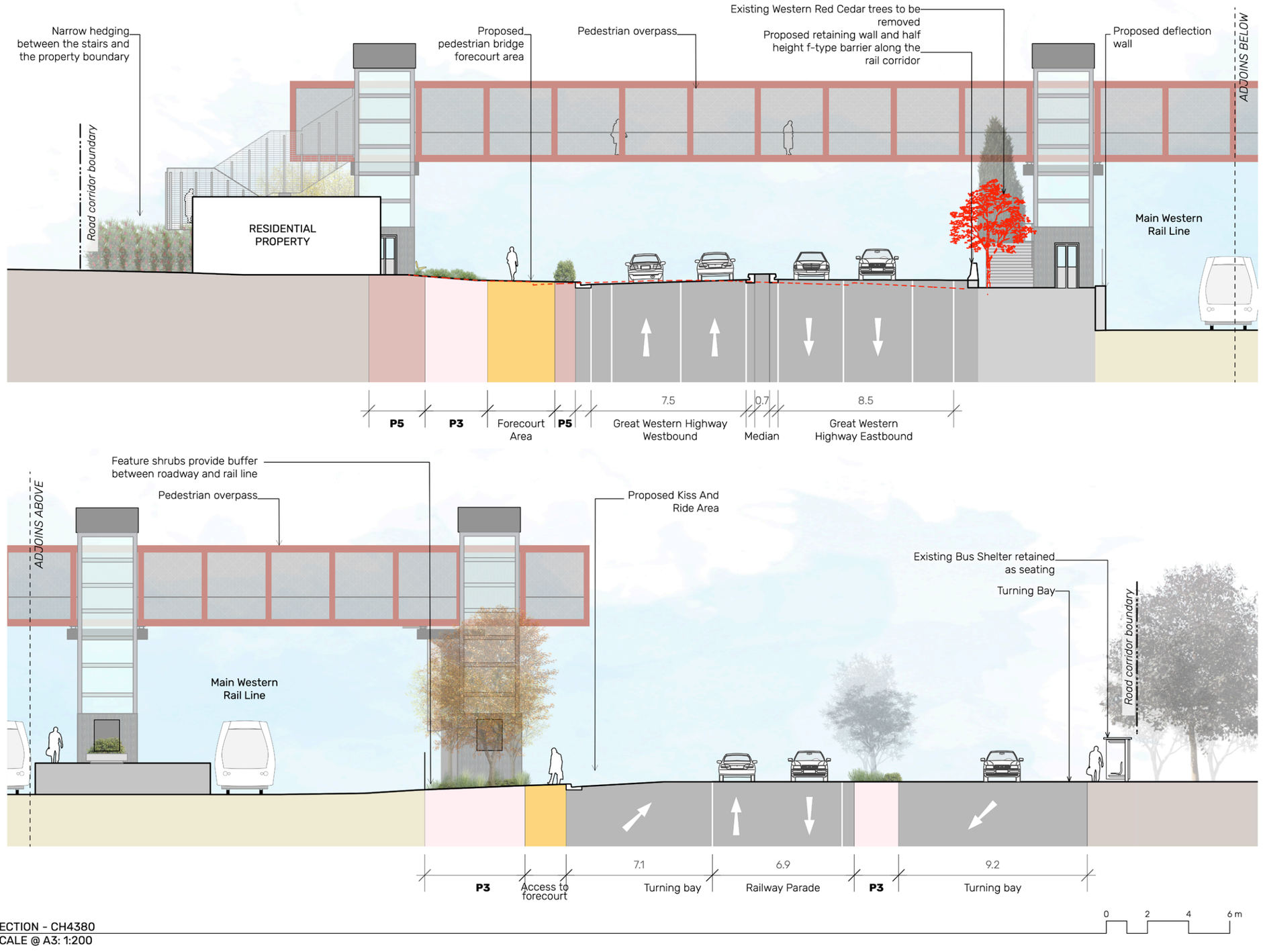

Figure 7–10 Landscape Sections
Refer to Section 3 within the REF for further detail on the bridge design

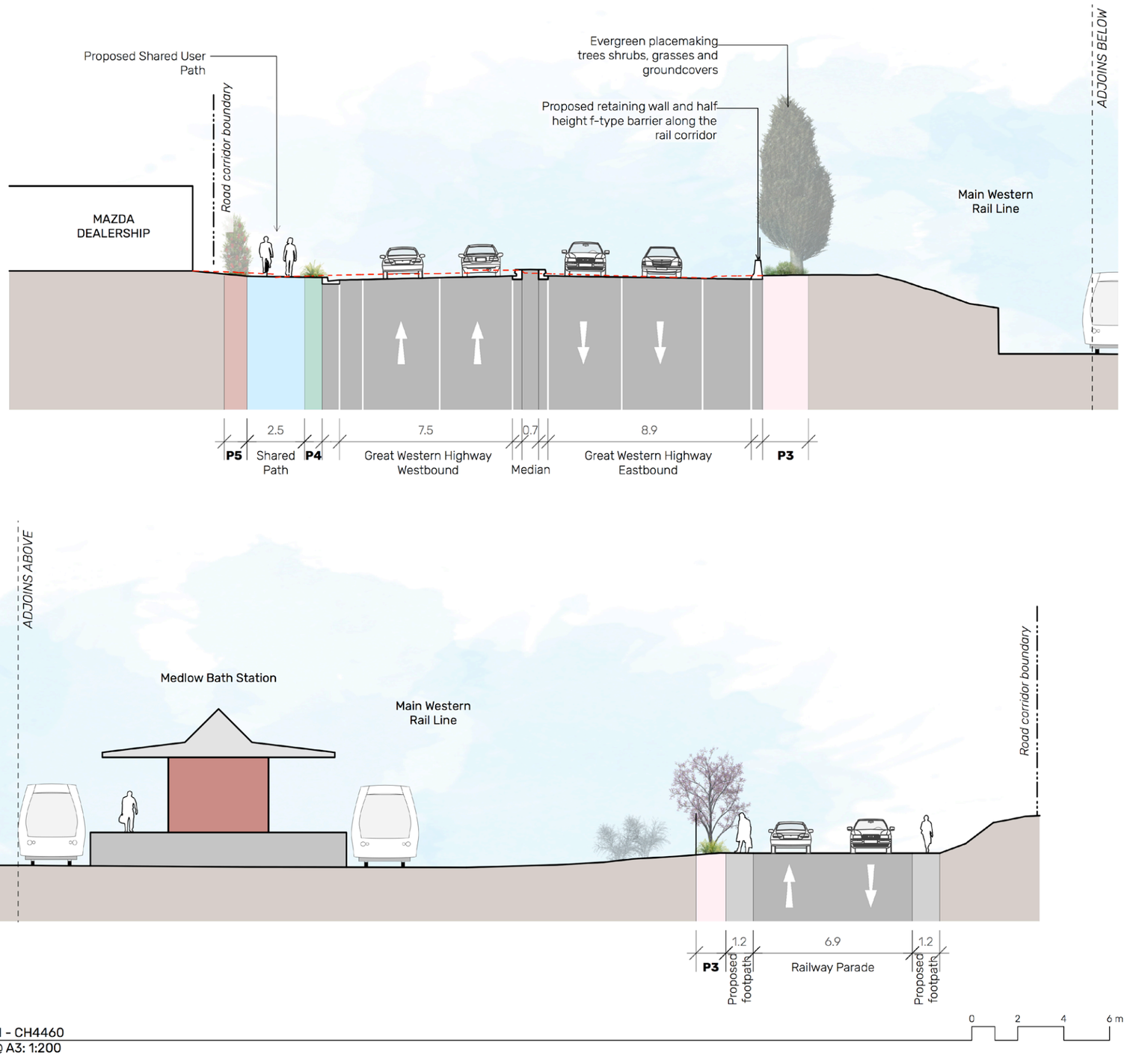

Figure 7–11 Landscape Sections

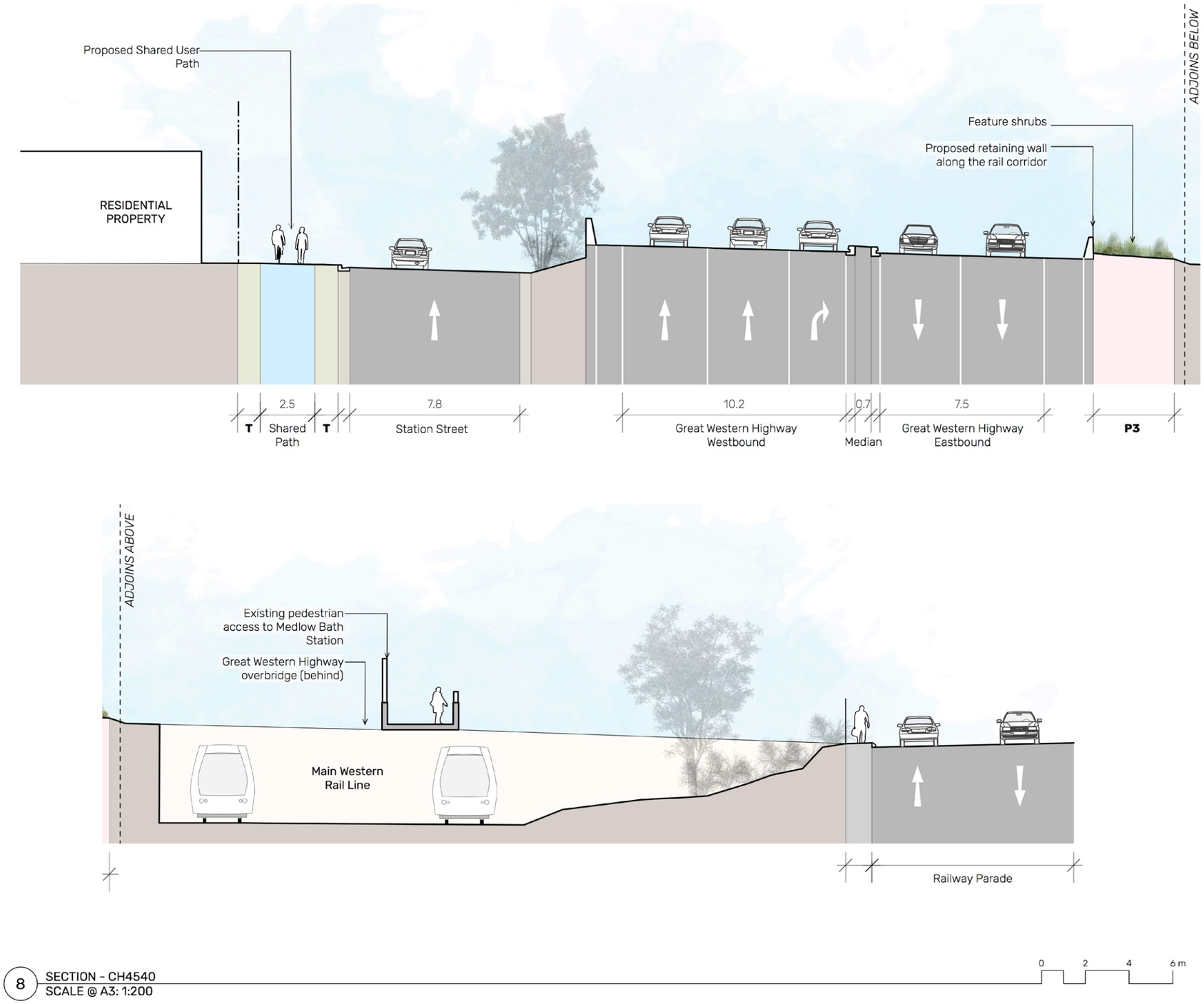

Figure 7–12 Landscape Sections

Chapter 8
MITIGATION STRATEGIES

8.1 MITIGATION STRATEGY & CONCLUSION

This chapter describes the mitigation measures that have been included as part of the proposed Proposal concept design, described in Chapter 3 of this report, as well as a summary of further mitigation measures to be considered during the detailed design and construction phases of the proposed Proposal.

They have been developed in accordance with the Urban Design and Landscape objectives and principles, outlined in Chapter 4. This chapter also presents a brief conclusion.

The integration of the engineering and performance objectives with urban and landscape design objectives for the proposed Great Western Highway upgrade at Medlow Bath aims to produce a design outcome that fits sensitively with the existing qualities and characteristics of the surrounding areas, whilst minimise impacts to the integrity of heritage sites and cultural values.

A number of urban design and landscape strategies have been incorporated into the proposal described above, to minimise impacts and improve the project for residents and motorists. These include:

Proposal Design

- The design of approaches to Medlow Bath Village to improve the motorists experience and attract people to town centre through the feature planting characteristic of the Blue Mountains area,
- The screening of rail infrastructure where possible, using shrubs and trees, both native and exotic depending on the location,
- The rounding of cut and fill batters to help integrate into the existing landform and create a more naturalised appearance,
- The exploration of opportunities to reduce the Proposal footprint and need for temporary and ancillary sites to reduce impacts on surrounding landscape areas,
- Consolidating barriers and fences to increase visual access and pedestrian permeability in civic spaces,
- The selection of lighting, signage and bus stops to compliment the Great Western Highway character,
- The retention of views to existing non-aboriginal heritage items identified in the contextual analysis.

Bridges

- The simplification of the bridge forecourts to enhance sightlines and access and enable equitable access for all users,
- The refinement of the pedestrian bridge design to reduce its visual impact, by increasing the visual permeability, the positioning of the bridge to reduce the required height and the visual elongation of the bridge through the design of the bridge truss bays that extend beyond the lift structures,
- Maximising of opportunities to increase public amenity within the bridge forecourt and between proposed bus shelter/bus stops to enhance the public domain.

Bicycle and Pedestrian

- Improvements to cyclist and pedestrian access through new and upgraded, footpaths and shared paths to create a complete network around Medlow Bath Station, connecting into the existing network along the Great Western Highway between Katoomba and Leura.

Structures

- The design of new retaining walls to have finishes of a high standard and quality, that is in keeping with the Great Western Highway character.

Landscape Implementation

- Planting strategies that respond to the existing historical and local context of Medlow Bath,
- The planting of feature trees at the entry into Medlow Bath village, and to highlight access into Medlow Bath Station and proposed bus shelters,
- The introduction of buffer planting in front of the retaining wall at the southern entry into Medlow Bath to minimise visual impacts,
- Maximising of new tree planting where possible; within medians turning facilities, and verges to reduce the scale of the proposal over time as the tree plantings mature. Consideration has been given to sight lines for motorists when identifying possible locations,
- Utilisation of native and endemic plantings along the highway outside of the village to consider pedestrians and cyclists using the existing trails as links to regional routes,
- Maximisation of revegetation with appropriate species along the highway to reduce perceived corridor width.

The Landscape Character and Visual Impact Assessment within this report is based on the current concept design, incorporating all of the above strategies. The ratings however highlight the degree of visual presence of the proposal and its impact on the existing environment. This visual impact of the proposal varies from a rating of moderate-low to high. The Detailed Design would need to ensure that a high degree of attention is paid to the final detailing of the various elements of the proposal including materials and finishes.

The following measures are to be adopted during the Detailed Design stage:

- All reasonable measures taken to minimise the loss of existing vegetation along the proposal corridor. Those measures will include minimise clearing of trees for construction access, rationalisation of maintenance access,
- Investigate the borrowed landscape and opportunities for additional tree plantings along the proposal corridor,
- Investigate opportunities to incorporate heritage qualities within the bridge design,
- Further opportunities investigated to increase landscape zones within the road corridor,
- Lighting and signage to be well-considered in its placement and should not detrimentally add to the visual impact,
- At locations where greater visual impacts have been identified, the specification and planting of more mature sized shrubs and trees would be adopted to help reduce the visual impact upon opening of the road since the proposed planting would take a number of years (approximately between 3 to 10 years) to establish at adequate height,
- Site compounds: rehabilitate to previous state.

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8.2 CONCLUSION

This working paper describes the urban design strategy and concept for the proposal. In addition, it assesses the landscape character and visual impacts associated with the proposal and defines a mitigation strategy that outlines Proposal directives to ensure the Proposal is fully integrated with its built, natural and community setting throughout the ongoing design process.

The proposal would introduce new road infrastructure into the study area. Its key features comprise of one pedestrian bridge over the Great Western Highway at Medlow Bath Station and 1.2 kilometres of road infrastructure along the Great Western Highway at Medlow Bath.

The proposal seeks to enhance access and connectivity in the study area with development of the design driven by the recognition of existing natural, built and community values to minimise adverse impacts of the proposal on the visual amenity of the built and natural environment (including public open space), while capitalising on opportunities to improve visual amenity. This has been achieved as the proposal has been located as much as possible within or near to existing road corridors, as well as the refinement of built elements to compliment their setting and where required, offer visual recessive design to make them less dominant, whilst maintaining key views to heritage items.

Additional vegetation installed as part of the proposal would seek to further establish a village character of Medlow Bath and assist in integrating the proposal within the landscape setting and minimise impacts on views as it matures.

Transport would continue to develop the design in accordance with the urban design objectives and principles during detailed design of the Proposal.

8.2.1 LANDSCAPE CHARACTER IMPACTS

The landscape character of the study area is varied. Three distinct landscape character zones were identified, based on the combination of natural, built and community factors. The Proposal would result in a number of changes to the existing landscape character of the study area as a result of:

• Vegetation clearing

• Changes to the landform and spatial character of the study area

• Changes to views

• Changes to accessibility and connectivity which are generally of a beneficial nature.

The magnitude of impact as a result of the proposal varies between landscape character zones based on the sensitivity of each zone and the degree of change within each zone. Overall, the landscape character impacts of the Proposal would be consistent with what would be expected of a proposal of this nature. They would be higher where the Proposal would introduce a pedestrian bridge close to residential areas such as Station Street. Where the proposal would be closely aligned with or within existing road corridors, landscape character impacts would remain in the low to moderate range. Over time, the implementation of the urban design concept would assist with integrating the Proposal into the surrounding environment.

8.2.2 VISUAL IMPACTS

Seven viewpoints were selected within the proposals visual envelope and represent a number of different viewers and view angles of the Proposal. Based on the sensitivity of the views to change and the magnitude of change to the view as a result of the proposal, the Proposal's visual impacts would vary in intensity. Higher impacts would result where elements that are sensitive to change would be altered by the proposal, such as removal of bushland for the road widening between Foy Avenue and Bellevue Crescent and in residential areas where new infrastructure will impact existing views.

The range of visual impacts from 'Moderate-Low' to 'High' reflects the landscape setting and the proposal elements impacts on the setting.

The introduction of the elevated pedestrian bridge and associated peripheral structures including stairs and lift shafts, retaining walls, new embankments and widened carriageway result in impacts, consistent with what would be expected of a proposal of this nature.

Given the relatively enclosed nature of the proposals location and mature existing vegetation surrounding the study area, viewpoints are confined within 800 metres of the proposed pedestrian bridge, despite the scale of the proposal.

Great Western Highway Upgrade:
Medlow Bath

Urban Design Concept, Landscape Character and Visual Impact Assessment Report

Prepared for

NSW GOVERNMENT | Transport for NSW

Prepared by

spackman mossop michaels

On behalf of:

MRB TECHNICAL SERVICES
CONNECTING COMMUNITIES ACROSS NSW