Appendix K

Urban Design, Landscape Character and Visual Impact Assessment

WSO Co Pty Ltd

Westlink M7 Widening

Urban Design, Landscape Character and Visual Impact Assessment

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Quality information

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Introduction

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1. Introduction

The Westlink M7 (formerly called the Western Sydney Orbital) is an existing 39-kilometre-long toll road connecting the M5 Motorway at Prestons, the M4 Motorway at Eastern Creek and the Hills M2 Motorway at Baulkham Hills (the approved project). A modification to the approved project is being sought by Transport for NSW (Transport) to widen part of the Westlink M7 in response to current and projected future traffic growth and to address reduced motorway efficiency and travel time performance and to enhance safety. The proposed modification would enable the construction and operation of an additional lane in both directions within the existing median of the Westlink M7 from about 140 metres south of the Kurrajong Road overhead bridge at Prestons at Richmond Road in the suburbs of Oakhurst and Glendenning, excluding the M4 Motorway (Light Horse) Interchange.

1.1 Proposed modification background

Transport as the proponent for the proposed modification, has submitted a request to the Minister to modify the project planning approval for the Western Sydney Orbital (now referred to as Westlink M7) under section 5.25 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The original approval (The Department of Planning and Environment (DPE) reference number SSI-663) was for the construction and operation of the four-traffic lane motorway. The approved project, with the implementation of the proposed modification, would permit the addition of a trafficable lane in both directions within the existing median of the Westlink M7, from about 140 metres south of the Kurrajong Road overhead bridge at Prestons (southern end) to Richmond Road in Oakhurst/Glendenning (northern end), excluding at the M4 Motorway/Westlink M7 (Light Horse) Interchange.

This technical assessment has been prepared to support the application for the proposed modification.

1.1.1 Study area

The construction and operational footprint shows the extent of the changes due to the proposed modification. The study area is the extent of the landscape surrounding the construction and operational footprint assessed for landscape character and visual impact within the report (refer to **Figure 1**). The study area comprises a one kilometer wide corridor of land offset 500 metres either side of the centre line of the Westlink M7 between the northern and southern extent of proposed modification (refer to **Figure 1**). The study areas does not include haulage routes.

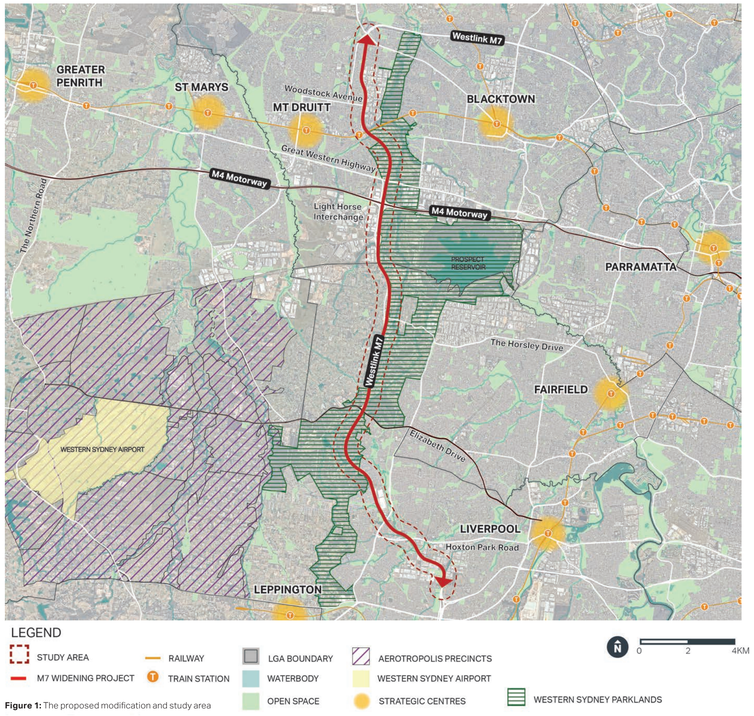

Figure 1: The proposed modification and study area

1.2 Proposed modification objectives

The proposed modification has been outlined in response to current and projected future traffic growth. The objectives of the project are to:

- Provide additional capacity on the Westlink M7 to meet future traffic growth, reduce congestion and improve connectivity and reliability
- Avoid and minimise impacts on the road network, the community and environment during construction
- Integrate with the new M12 Motorway, minimising disruption during construction and providing safe and efficient connectivity in the operations phase
- Deliver a design that integrates with and respects the existing urban design and landscape features of the Westlink M7
- Provide a cost effective / affordable solution.

Successful outcomes would see that the proposed modification, in accordance with *Beyond the Pavement - Urban design policy procedures and design principles* (Transport for NSW, 2020):

- Fits sensitively into the built and natural environments through which it passes and contributes positively to the character and function of the area
- Contributes to the safety, accessibility and connectivity of people within the region and communities
- Mitigates to the best of its ability any negative landscape or visual impacts that may be imposed on the community and the natural environment
- Considers the outcomes of the landscape character and visual impact assessment so they are iteratively fed into the concept design development process.

Good urban design means a safe, robust design and a diverse, sustainable landscape while deterring graffiti and vandalism, intricate, complex outcomes, and domestic scale approaches are not appropriate.

Urban design has been considered early in the concept design phase, integrated into the proposed modification at the initiation phase, and continued through the proposed modification's development, implementation, and finalisation phases.

This report further reinforces the underlining urban design strategy and objectives which build on the previous 'Westlink M7 Project Deed' design principles and objectives and how these translate to the current widening project.

1.3 Purpose of this report

The purpose of the Urban Design, Landscape Character and Visual Impact Assessment report is to:

- Address the relevant Secretary's Environmental Assessment Requirements (SEARs) for the modification, provided by the NSW Department of Planning Industry and Environment (DPIE) (reference number SSI-663)
- Describe the site and locality and understand the surrounding urban design, landscape and place context through which the proposed modification passes, including future urban expansion areas
- Establish a series of objectives and principles, based on a review and update of the original urban design strategy, to guide the holistic design outcomes for the proposed modification, and communication / integration of these objectives and principles within the project design team
- Outline and update the existing urban design strategy so that it reflects the landscape qualities and values of the Westlink M7, is considerate of the existing and desired future context and achieves a seamless and integrated design outcome for motorists, the community and recreational users
- Develop/update the high-level landscape concept design along the Westlink M7 that responds to the urban design strategy and identifies the urban design, landscape operational components to achieve an integrated outcome
- Assess the impact of the proposed modification on the surrounding landscape character and views and visual amenity experienced by receptors
- Provide mitigation measures and strategies to offset remaining impacts on landscape character and views after the integration of the urban design strategy to the design
- Prepare photomontages to illustrate the seen elements of the proposed modification from representative viewpoints.
- Ensure landscape character and visual impact are considered during the road design of the proposed modification as an integrated engineering and urban design outcome.

1.4 Description of proposed modification

The proposed modification to the Westlink M7 would enable the following components (refer **Figure 2**, **Figure 3** and **Figure 4**):

- Widening into the existing median for a length of about 26 kilometres along the Westlink M7 to accommodate an additional lane travelling in either direction from about 140 metres south of the Kurrajong Road overhead bridge at Prestons (southern end) to the Westlink M7/Richmond Road interchange in Oakhurst/Glendenning (northern end)
- Establishing a two lane exit (increase from the existing one lane exit) from the Westlink M7 northbound to the M4 Motorway westbound
- Widening of some existing Westlink M7 bridges within the median alignment (centre of bridges)
- Utility works and upgrades to drainage infrastructure
- Use of temporary construction ancillary facilities along and near to the Westlink M7
- Intelligent Transport System installations to cover the new lane configurations, including toll gantry adjustments, relocation of Variable Speed Limit Signs and Variable Message Signs and new traffic loops to cover the new lanes.
- Mitigate operational noise traffic impacts in specific locations where the urban context surrounding the corridor have changed recently or are currently changing

Figure 2: Elements of the proposed modification (3 of 8)

Figure 3: Elements of the proposed modification (3 of 8)

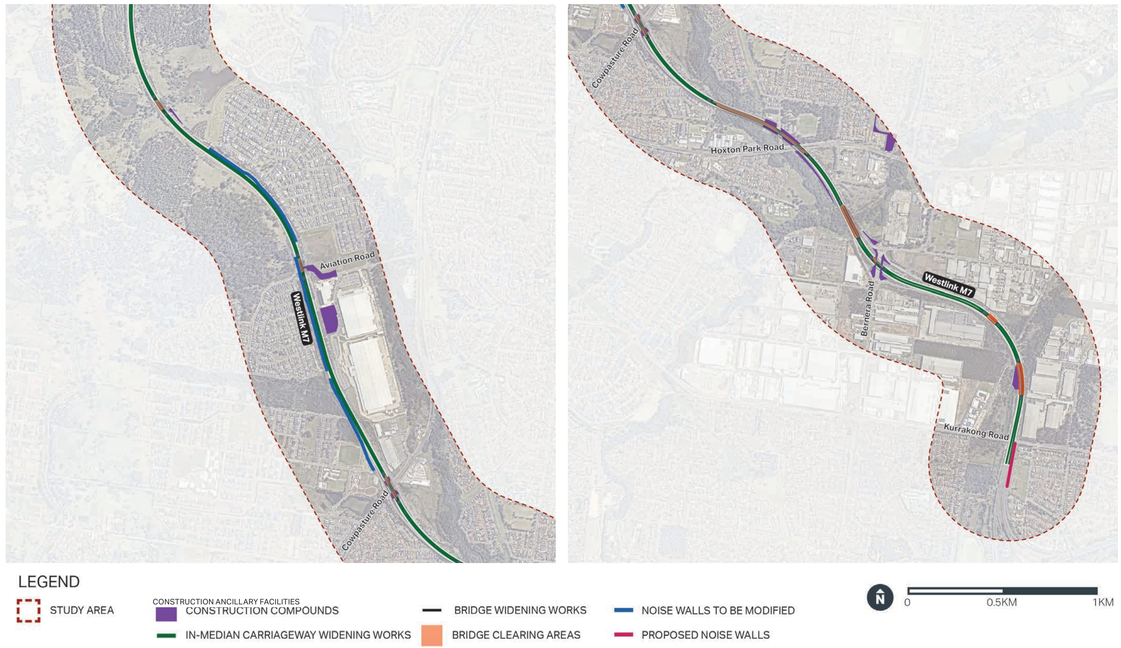

Figure 4: Elements of the proposed modification (2 of 8)

1.4.1 Operational features

1.4.1.1. Alignment and interchanges

In addition to increasing the number of lanes on the Westlink M7, the proposed modification would also result in the following changes at the southern and northern extents of the operational footprint:

- At the southern (M5 Motorway) connection on the northbound lanes, the entry ramp from the M5 Motorway becomes the rightmost lane on the Westlink M7, while the leftmost lane terminates. The proposed modification would provide three lanes from where the M5 Motorway ramp enters the Westlink M7
- At the southern (M5 Motorway) connection on the southbound lanes, the existing three lanes would continue up to the dual lane exit to the M5 Motorway, after which the Westlink M7 would continue as a two-lane carriageway, as it currently does
- At the northern (Richmond Road) connection on the northbound lanes, the left lane would become the exit ramp, after which the remaining two lanes would shift laterally to tie into the existing two-lane carriageway
- At the northern (Richmond Road) connection, on the southbound lanes, the existing southbound lanes would shift laterally toward the median and the entry ramp from Richmond Road would become the left lane.

Old Wallgrove Road to M4 Motorway (M4 Motorway (Light Horse) Interchange)

The proposed widening would stop south of the M4 Motorway (Light Horse) Interchange and then continue north of this interchange. The layout of this intersection is illustrated in **Figure 5**.

M12 Motorway/Elizabeth Drive Interchange

The design of the proposed modification has considered the interface with the approved M12 Motorway/Elizabeth Drive Interchange. It is intended that the Westlink M7 interchange works for the approved M12 Motorway be constructed at the same time as the proposed modification as there are potential social and environmental benefits in ensuring that the intersection of these arterial roads is delivered in an integrated manner and minimises disruption during construction and operation.

The approved M12 Motorway would connect the Westlink M7 to the approved Western Sydney International Airport. The approved M12 Motorway would extend west from the Westlink M7 at Elizabeth Drive at Cecil Park. Construction of the approved M12 Motorway is expected to begin in 2022 and conclude in 2025 (with commissioning potentially occurring into the first quarter of 2026).

The construction of the approved M12 Motorway will necessitate reconfiguration of the Westlink M7/Elizabeth Drive interchange. The approved M12 Motorway works in this location include:

- Reinstating stopping bays
- Modifying road furniture
- Modifying drainage and water quality basins
- Modifying signage and line marking
- Utility works
- Provision of a heavy vehicle stopping bays.

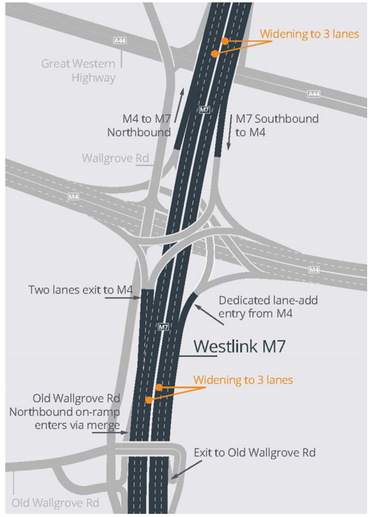

Figure 5: Proposed modification interface with the M4 Motorway (Light Horse) Interchange

1.4.1.2. Bridges

As part of the proposed modification, existing bridges along the Westlink M7 would also require widening. A total of 23 single or twin bridges. The widening of bridges would occur towards the median.

The proposed widening required at each bridge would vary between three to four metres. The construction process for bridge widening would typically include the establishment of new substructures (such as piers) and superstructures (such as decks and barriers).

The design for each bridge widening location would match with the existing bridge type at that location. Existing ground access to creek lines and the shared path below the bridges would be maintained following construction.

1.4.1.3. Noise mitigation

Noise mitigation treatment would be subject to further detailed design, and would generally involve a combination of the following measures:

- Increasing the height and/or length of some of the existing noise walls fronting the Westlink M7
- Installing one new noise walls fronting the Westlink M7
- Undertaking 'at-receiver' treatments to individual buildings.

The design intent is for the noise walls to match the existing noise wall design and typologies as per the original 'Westlink M7 Project Deed'.

Further information relating to the positioning and type of noise walls is provided within this report.

Westlink M7 Shared Path

Areas where the Westlink M7 shared path would be impacted by construction activities would be reinstated on a 'like-for-like' basis (or similar).

In general, no operational changes are proposed to the location and overall alignment of the shared path along the Westlink M7 as part of the proposed modification. The only exception is at the M4 Motorway interchange. There will be the need to restrict cyclists from riding on the mainline of the M7 during construction and operation of the widening area.

1.4.1.4. Roadside furniture, line marking and lighting

A new median barrier would be installed next to the additional lanes to match existing. A wire rope barrier would be installed along most of the median except at bridge approaches and departures, and other places where appropriate.

Median cross overs would be reinstated at existing locations following construction.

Existing road signs in the median, on the road shoulder and on existing structures would require relocation and adjustment. New signs would also be required on existing sign structures.

The full width of the carriageways in each direction would be re-sheeted. All line and pavement marking would be reinstated, matching the existing. New line and pavement markings would also be installed to ensure that drivers have enough advance warning of lane changes once the proposed modification is operational.

The Westlink M7 has road lighting at interchanges next to the outside lane and generally, lighting poles would not be directly impacted by the proposed modification.

Widening of the bridge structures crossing over local roads would impact street lighting within the affected local roads, and similar impacts may occur to shared path lighting where extended bridge structures cross the shared path. Changes to road lighting in these locations would be undertaken in accordance with road lighting standards and consistent with existing lighting conditions.

1.4.2 Construction

Construction of the proposed modification would generally include the following activities as described in **Table 1**.

It is expected that many of these construction activities would occur consecutively across different locations within the construction footprint. More information about the main components of these construction activities is described further in the following sections.

1.4.2.1. Construction ancillary facilities

Construction ancillary facilities would be required at different locations across the construction footprint to support the construction of the proposed modification (refer to **Figure 2**, **Figure 3** and **Figure 4**).

The construction ancillary facilities would generally comprise:

- Temporary buildings including offices and meeting rooms, amenities and first aid facilities
- Hardstand parking areas with sufficient space to accommodate the numbers of construction workers expected at any site
- Materials laydown, storage and handling areas, including purpose-built temporary structures as required and appropriately bunded storage for hazardous and non-hazardous substances
- Secure perimeter fencing, including visual screening of construction ancillary facilities where necessary
- Bridge construction and median widening support areas
- Workshops with appropriate safety and environmental controls for servicing plant and equipment.

Larger construction ancillary facilities would be located on leased vacant, farmland, parkland, commercial office space or industrial land near the Westlink M7, given the relative lack of available land next to the existing carriageway within Westlink M7 land. It is proposed to use some construction ancillary sites approved under the approved M12 Motorway project which are located near the Westlink M7 at Cecil Hills.

1.4.2.2. Vegetation removal

The existing vegetation within the median and bridge widening footprint would be required to be permanently removed as part of the widening works. Some vegetation would also need to be removed from the construction ancillary facilities to provide a clear area for access to site facility buildings, vehicle and plant movements.

Table 1: Construction activities

Component	Typical Activities
Site establishment and enabling works	– Vegetation clearing and removal – Temporary removal of some areas of the M4 Motorway (Light Horse) Interchange artwork – Establishment of construction ancillary facilities and access, installation of site offices and crib rooms – Installation of safety and environmental controls, site fencing, hoarding and temporary noise attenuation measures – Establishment of temporary pedestrian and cyclist diversions as required – Demolition of existing buildings and structures, where required.
Utility works	– Site investigations to identify and mark up utilities requiring relocation and protection – Utility relocation and protection
Earthworks	– Top soil stripping – Excavation of cut areas and placement to fill areas – Construction of required retaining structures – Establishment and stabilisation of new ground levels
Bridge works	– Construction of piers and abutments – Installation of girders/beams – Construction of bridge decks, slabs and associated barriers
Drainage works	– Construction of new pits and pipes where required along road carriageway – Connection of new drainage to existing network and adjustments to existing drainage infrastructure to tie into new drainage infrastructure
Pavement works	– Placement of selected material zone and pavement layers – Installation of road pavement surfacing and construction of pavement drainage
Finishing works	– Carry out earthworks to establish the finished landform – Carry out landscape reinstatement, including plantings – Reinstatement of M4 Motorway (Light Horse) Interchange artwork – Construction and adjustment of noise walls, reinstatement of cyclist and pedestrian facilities – Line markings on road surfaces and erection of signage – Site demobilisation and rehabilitation.

1.5 Secretary's Environmental Assessment Requirements (SEARs)

The SEARs require an assessment of Landscape Character, Visual Impact and Urban Design to be undertaken in accordance with the commitments in Attachment 2 of the M7 Motorway (SSI 663) – Project Modification lodged 6 May 2022 (detailed in **Table 2**).

Table 2: Requirements for urban design and for assessing landscape character and visual impact

Environmental assessment requirement	Where addressed
– Assessment of the impact of construction and operation of the modification on: - views and vistas; - streetscapes, sites and buildings; - heritage items including Aboriginal places and environmental heritage; and - the local community.	Sections **6.3** and **6.4**
– The assessment will include: - photomontages would be prepared from viewpoints showing the proposed modification.	Section **6.3**

SEARs for the project relevant to urban design, landscape character and visual impact are outlined and responded to in **Table 3** and **Table 4**.

Table 3: Urban Design and LVIA responses to General SEARs

General SEARs: Desired Performance Outcome	Requirement		Where addressed
1. Modification Report – The modification is described in sufficient detail to enable clear understanding that the modification has been developed through an iterative process of impact identification and assessment and project refinement to avoid, minimise or offset impacts so that the project, on balance, has the least adverse environmental, social and economic impact, including cumulative impacts.	1.	The Modification Report must include, but not necessarily be limited to, the following: (j) a demonstration of how the modification design has been developed to avoid or minimise likely adverse impacts	Sections **3.3**, **4.3** and **4.5**
	(o)	an assessment of the relevant cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed	Sections **5.3** and **6.6**
2. Assessment of Key Issues – Key issue impacts are assessed objectively and thoroughly to provide confidence that the project will be constructed and operated within acceptable levels of impact or with appropriate offsets.	2	For each key issue the Proponent must: a) assess the issue and address and undertake the requirements specified in section 2 – Key Issue SEARs b) describe the biophysical, social and economic environment, as far as it is relevant to that issue, including substantiated baseline data that is reflective of current guidelines where relevant; c) describe the legislative and policy context, as far as it is relevant to the issue; d) identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst case scenario) of the impact (comprehensive risk assessment), the impacts of concurrent activities within the proposal and cumulative impacts (parallel and sequential) with other projects; e) demonstrate how potential impacts have been avoided (through design, construction or operation); f) detail how likely impacts that have not been avoided through design will be minimised, and the predicted effectiveness of these measures; g) detail how any residual impacts will be managed or offset, and the approach and effectiveness of these measures.	b) & c) Chapters **2** and **3**. d) is addressed in Chapters **5** and **6**, e), f) & g) are addressed in Chapter **7**

Table 4: Urban Design and LVIA responses to Key Issues SEARs

Key Issue and Desired Performance Outcome	Requirement	Where addressed
8. Other issues	1. An assessment of the following issues must be undertaken in accordance with the commitments in Attachment 2 of the M7 Motorway (SSI 663) – Project Modification letter submitted 9 May 2022 (via Major Projects Portal): – Landscape character, visual impact and urban design Extract from Attachment 2 of the M7 Motorway (SSI 663) – Project Modification letter submitted 9 May 2022).	– The effect of the project on landscape character and views has been considered in Chapters **5** and **6** – Urban Design has been considered in Chapters **3** and **4** – Opportunities to increase planting and green infrastructure have been identified in Chapter **4**. (planting within the urban design chapter) and within chapter **7** – Clearing and tree planting (and therefore final trees to be removed and those planted) would be finalised during detailed design.
	Assessment of the impact of construction and operation of the modification on:	
	a. views and vistas;	– The assessment of the impact of construction and operation of the modification on views and vistas has been considered in Chapters **5** and **6**.
	b. streetscapes, key sites and buildings;	– The assessment of the impact of construction and operation of proposed modifications to streetscapes and key sites within the M7 Motorway corridor has been considered in Chapters **5** and **6**. There are no buildings impacted by construction and operation of the modification to be assessed.
	c. heritage items including Aboriginal places and environmental heritage; and	– Heritage items including aboriginals and environmental heritage are identified in Chapter **2**. Impacts to the M4 Motorway (Light Horse) Interchange are addressed in Chapter **4**.
	d. the local community.	– The assessment of the visual impact of construction and operation to the local community has been considered in Chapters **5** and **6**. This assessment is limited to visual impacts within the M7 Motorway corridor and associated construction ancillary facilities only.
	The assessment will include:	
	a. photomontages would be prepared from key viewpoints	– Photomontages from key viewpoints are provided in Chapter **6**.
	b. visualisations of the proposed modification.	– Visualisations of the proposed modification have not been prepared as part of this assessment and would be undertaken as part of the design phase.

1.6 Report methodology

This UD&LVIA report has been undertaken in accordance with *Beyond The Pavement*, and the TfNSW *Environmental Impacts Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment EIA-N04 (2020)*. It has also been produced in accordance with the SEARs for the proposed modification, provided by the DPE.

Steps in the development of the Urban Design, Landscape Character and Visual Impact Assessment are:

1. **Contextual analysis** - An analysis of the regional and local context of the proposed modification and the strategic background of the approved project.
2. **Urban design strategy** – Provide an updated set of urban design principles that align with the overall vision based on the existing urban design strategy for the approved project that reflects the landscape qualities and values of the Westlink M7, is considerate of the existing and desired future context and achieves a seamless and integrated design outcome for motorists, the community and recreational users.
3. **Urban design concept** – Develop/update the high-level urban design concept along the Westlink M7 that responds to the updated urban design strategy, any potential impacts to landscape character and views, and identifies the urban design and landscape operational components to achieve an integrated outcome
4. **Landscape character impact assessment** - An evaluation of the existing landscape character within the study area to inform the early stages of the urban design process and to assess the anticipated landscape impacts as a result of the final design outcome.
5. **Visual impact assessment** - An evaluation of the existing views and visual amenity within the study area to identify and assess possible impacts placed on the community by the proposed modification.
6. **Mitigation** – Design outcomes and mitigation measures to avoid, reduce or mitigate adverse impacts that the proposed modification may impose within the study area, developed in collaboration with the project team and Westlink M7 operations team.

1.6.1 Contextual analysis

The contextual analysis includes a broad description of the landscape within which the proposed modification is located, which is used for identification of elements and features relevant to assessment of the proposed modification, including site setting, topography, land use, landscape and heritage values.

1.6.1.1. Desktop analysis

A desktop analysis of the strategic and environmental context of the proposed modification was undertaken. Strategic analysis of the proposed modification included a review of:

- *Western Sydney Orbital Project Deed, Architectural and Landscape Design for Westlink Motorway* (Roads and Traffic Authority of NSW, 2002)
- *M12 Motorway Urban Design Framework* (Transport for NSW, 2020)
- *Southern Parklands Landscape Framework* (Tyrrell Studio, 2018).

Other data has been gathered and reviewed, including:

- available information on sensitive viewpoints, design drawings, and photos of similar examples of infrastructure elements
- GIS mapping, including zone of theoretical visibility (ZTV) mapping, zoning / land use, topography and heritage information
- Google Earth and Google Street View.

Using this data, a preliminary assessment of the landscape and visual resource is undertaken and used to inform a subsequent site inspection. The existing environment is detailed, including topography and hydrology, land use, review of heritage aspects and Landscape Character Zones (LCZs).

1.6.1.2. Project visibility

The likely visibility of changes due to the proposed modification (during construction and at operation) from surrounding areas is broadly mapped to define the visual catchment of the proposed modification. This provides an indication of which parts of the proposed modification are likely to be visible from surrounding areas.

The mapping was created using GIS software showing the proposed modification elements such as new and modified noise walls, construction ancillary facilities, median widening locations and bridge modifications, combined with Google Earth and Google Street View to draw the extents of the likely visibility of proposed modification elements.

1.6.1.3. Site inspection

The purpose of the inspection is to:

- Confirm initial reporting on landscape and visual resources and existing environment
- Identify existing successful components of the Westlink M7 as outlined in the *Western Sydney Orbital Project Deed, Architectural and Landscape Design for Westlink Motorway* (Roads and Traffic Authority of NSW, 2002) and identify any areas that require updating
- Identify views from sensitive viewpoints within publicly accessible locations
- Assess landscape character
- Undertake site photography to record representative views and landscape character.

1.6.1.4. Landscape Character Assessment

Drawing from the desktop analysis and the site inspection, a landscape character assessment is undertaken. This identifies what makes a place distinctive and assesses its sensitivity to the proposed change. It considers the way different components of the environment, both natural (e.g. the influences of geology, soils, climate, flora and fauna), and cultural (the historical and current impact of land use, settlement, enclosure and other human interventions), interact together and are perceived to form a distinct pattern, which gives its particular sense of place.

To provide a framework for more clearly describing the area, and assessing how the proposed modification would affect the elements that make up the landscape (including the scenic and perceptual aspects of the landscape and its distinctive character), distinct parts of the overall landscape have been separately defined and mapped as Landscape Character Zones (LCZs).

1.6.2 Urban design strategy

1.6.2.1. Establishment of design objectives and principles

Establishing design objectives and principles will direct further development of the design, based on the original *Western Sydney Orbital Project Deed, Architectural and Landscape Design for Westlink Motorway* (Roads and Traffic Authority of NSW, 2002) and *Beyond the Pavement* (Transport for NSW, 2020).

The objectives and principles further detailed in **Chapter 3** of this report should be communicated and integrated throughout the future design development of the project. In particular, the design should consider the following components:

- Road alignment, to ensure it optimises the retention of existing landscape character and minimises impacts to placemaking elements and features along the road corridor.
- Interchanges, to ensure they are legible, distinctive and maintain simplicity in their arrangement, in particular at the Westlink M7 / M12 Motorway interchange and the M4 Motorway (Light Horse) Interchange.
- Bridges, to ensure they retain their original design intent and appearance, without looking like they've been structurally altered / widened
- Integration at interfaces they have with the approved M12 Motorway interchange works.
- Any requirement for noise walls in that location is to ensure they match the design of the original design and are integrated with the surrounding context along the road corridor. It is also to be ensured the noise walls do not become visual/physical barriers and are aligned with Crime Prevention Through Environmental Design (CPTED) principles.
- Integration of new and/or modified drainage infrastructure required to service the additional road pavement with existing.
- Safety barriers, signage, gantries and other road furniture components such as lighting to ensure the maintenance of the visual simplicity and coordination of the original design.

1.6.2.2. Development of urban design strategy

The development of a detailed urban design strategy would aim to:

- Respect the original design intent of the Westlink M7, consider Transport's vision for the proposed modification (including the approved M12 Motorway), and respond to the existing and desired future context
- Identify critical urban design and placemaking opportunities that reinforce the landscape character and maintain active transport connectivity along and across the Westlink M7
- Respond to the landscape character, visual amenity, and user experience (motorists, the community, and recreational users) to envisage a distinctive, safe and seamless road corridor integrated with the site context
- Develop standard design guidelines for urban design and landscape elements impacted by the widening, including bridges, noise walls, retaining walls, interchanges, and landscape design intent. A concept plan would be prepared to illustrate where the design would implement these elements along the Westlink M7.

1.6.3 Landscape character impact assessment

Assessment of impact on landscape character considers the impact of change due to the proposed modification on the landscape. As the construction phase is temporary, impact of the proposed modification on landscape character is assessed at operation.

The consideration of potential impact on landscape character is determined based on the each LCZs sensitivity to change (refer **Section 1.6.1.4**) and the magnitude of change that is likely to occur. Sensitivity and magnitude are both assigned a rating based on a series of criteria, and then a matrix is used to combine the ratings to determine an overall impact rating.

Sensitivity

The sensitivity of a LCZ to the proposal is assessed and rated as being High, Moderate, Low or Negligible. The rating is based on:

- Susceptibility to change - the ability of the landscape to accommodate the proposal without undue consequences for the maintenance of the existing situation or the achievement of landscape planning policies and strategies
- the value of landscape.

Criteria for the assessment of sensitivity of LCZs have been defined using a combination of the physical environment of the LCZ and policy and planning documents that relate to it. The following would influence the susceptibility of the LCZ to change:

- Does the proposal lie within or adjacent to the LCZ?
- Is the proposal similar in characteristic of other elements within the LCZ?
- Is the proposal compatible with land zoning and anticipated future characteristics?-The following would influence the value of the landscape:
- The geological, topographical, natural drainage and ecological characteristics and land cover of an area
- The agricultural qualities of an area and how these contribute to character
- The Aboriginal and non-Aboriginal heritage and cultural qualities of the area whether they are formally designated in planning documents, including the presence of individual items and broader conservation areas or reflect local traditions around community, cultural practice, stories, prior occupancy and significant events
- The planning designations of an area relating to landscape character (including desired future character)
- If available, the conclusions of the 'Movement and Place' assessment of the road corridor carried out prior to the commencement of the project.
- How the settlements fit into their natural setting and topography
- The built form of the towns and cities, the composition of buildings, open space, civic and business areas and transport networks
- The character and quality of parks and other open space throughout the area
- The contribution of green infrastructure and vegetation
- The main cultural and recreational elements of an area
- The demographics of an area and how that influences of character
- The style of architecture, the materials, forms, historical mixes and design qualities
- The infrastructure environment including the scale and pattern of rail, footpaths, roads, active transport, bridges, electricity pylons, dams etc.
- Major economic or industrial features such as factories, quarries etc
- The spatial qualities of an area, i.e. how enclosed or open it is, as defined by ridge lines, vegetation and built form
- Sensory or spiritual aspects of a place (for example its scenic quality)
- How the area changes daily and seasonally, e.g. due to substantial night time activity, peaks which coincide with holiday periods or climatic conditions.

Magnitude

Magnitude of change is assessed and graded as being High, Moderate, Low or Negligible. The magnitude of the impact of the proposed modification on a landscape is based on:

- The size or scale of change:
  - Does the proposed modification result in the loss or addition of an element within the LCZ? Are any new elements introduced into the landscape in contrast with the existing condition?
  - Are any scenic or perceptual aspects of the landscape altered by change due to the proposed modification?
- Geographical extent of impact:
  - Is the change perceivable at site level only (i.e. within the development site itself), effect the immediate setting of the site, or at the scale of the LCZ within which the proposed modification lies (or several LCZs)?
- Duration and reversibility of impacts
  - Would the changes be felt in the short term (0-5 years), medium term (5-10 years) or over a long term (10-25 years)?
  - Would the change be permanent within the landscape?

Overall impact of change

A matrix is then used to combine the ratings for sensitivity and magnitude (refer **Table 5**) to determine an overall rating of landscape character impact.

Qualitative assessment of change

A rating for the quality of the change to the LCZ due to the proposal is provided for each LCZ, being Beneficial, Adverse or Neutral. This rating is assigned based on professional judgment, but considers:

- The degree to which the proposal fits within existing / proposed and desired landscape character
- The contribution to the landscape that the proposal may make through its inherent design quality.

Table 6: Overall significance of landscape character and visual effects

SENSITIVITY	MAGNITUDE OF EFFECT				
		High	**Moderate**	**Low**	**Negligible**
	High	High	High to Moderate	Moderate	Negligible
	Moderate	High to Moderate	Moderate	Moderate - Low	Negligible
	Low	Moderate	Moderate - Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

1.6.4 Visual Impact Assessment

1.6.4.1. Selection of viewpoints

A series of viewpoints are selected from which to assess the visual impact of the proposed modification using a combination of information gathered from:

- Desktop analysis, including visual catchment mapping
- Meetings with Transport and WSO Co Pty Ltd
- The site visit.

Viewpoints were selected from locations which were deemed to experience either:

- The greatest potential impacts from the proposed modification, e.g viewpoints positioned closest to the proposed modification or areas that are expected to have highly sensitive views
- From areas that would experience typical changes due to the proposed modification to illustrate the most common changes seen due to the proposed modification, e.g. from along typical stretches of the Westlink M7 from within the carriageways or on the shared path.

Factors such as proximity to the proposed modification, number of visual receptors at each location and the type of visual receptors were taken into account when selecting viewpoints. Viewpoints were chosen to assess the changes due to the proposed modification from publicly accessible locations, although some viewpoints were used to approximate these changes when seen from private locations such as residences, areas of employment or community facilities.

These viewpoints were then used to assess the visual impact experienced due to the proposed modification.

1.6.4.2. Assessment of views

The assessment of potential impacts on visual amenity is based on the sensitivity of the viewpoints to change and the magnitude of change arising from the proposed modification. Sensitivity and magnitude are both assigned a rating based on a series of criteria, and then a matrix is used to combine the ratings to determine an overall visual impact rating.

For each viewpoint several criteria have been considered that contribute to the assessment of visual impact, including:

- the location, nature and characteristics of the viewpoint
- viewpoint rationale
- the type and relative number of visual receptors likely to be affected
- visual characteristics of the existing view, including the nature and extent of the skyline, aspects of visual scale and proportion, any horizontal or vertical emphasis, foci
- elements within the view such as landform, buildings or vegetation which may interrupt, filter or otherwise influence view.

The impact of the proposed modification on views has been assessed for the construction and operational phases of the proposed development.

Sensitivity

The sensitivity of a viewpoint to the proposed modification is assessed and rated as being High, Moderate, Low or Negligible. The rating is based on:

- susceptibility to change, which is a function of:
  - the occupation or activity of the visual receptors experiencing the view
  - the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations
- value attached to the view experienced, for instance, indicators of value attached to views, e.g., appearing on tourist maps or providing facilities for their enjoyment (such as parking places, sign boards, and interpretative material).

More sensitive viewpoints may include:

- residential areas with views to the proposal
- locations where people are engaged in outdoor recreation where the quality of the landscape or the views are intrinsic to their enjoyment of the activity
- locations where there are views of heritage assets, where views are an important contributor to the experience
- communities where views contribute to the landscape setting of the area.

Magnitude

The magnitude of change to views and visual amenity depends on:

- size or scale of change in the view with regard to the:
  - loss or addition of features in the view and changes in its composition
  - degree of contrast or integration of any new features with the existing landscape, in terms of form, scale and mass, line, height, colour and texture
  - nature of the view of the proposed modification in terms of amount of time it would be experienced, and whether the views would be full, partial or glimpses.
- geographical extent of the visual impact with different viewpoints including the:
  - angle of view in relation to the main activity of the receptor
  - distance of the viewpoint from the proposed modification
  - extent of area over which the changes due to the proposed modification would be visible.
- duration and reversibility of visual impacts, e.g duration in terms of short term (0-5 years), medium term (6-15 years) or long term (16-30+ years).

The extent of magnitude is assessed and graded as being High, Moderate, Low or Negligible.

Overall impact of change

A matrix is used to combine the ratings for sensitivity and magnitude to provide an overall rating of visual impact (refer **Table 5**). This rating does not contain a value judgment regarding the nature of the visual change (i.e. if the change is a positive or negative impact on views).

Qualitative assessment of change

A rating for the quality of the change to views seen from each viewpoint due to the proposal is provided, being Beneficial, Adverse or Neutral. This rating is assigned based on professional judgment, but considers:

- The degree to which the proposal fits within existing / proposed views
- The contribution to the view that the proposal may make through its inherent design quality.

1.6.4.3. Cumulative impact assessment

A cumulative impact assessment has been undertaken for both construction and operation to assess the potential cumulative impacts of the proposed modification with other projects in the area, including the M12 Motorway, the Elizabeth Drive Upgrade, the Western Sydney (Nancy Bird Walton) International Airport and the Western Sydney Aerotropolis.

1.6.4.4. Creation of panoramas

A series of photographs are arranged to produce a panorama from some of the viewpoints. These provided a baseline from which to assess changes arising from the proposed modification.

1.6.4.5. Creation of visual simulations

Visual simulations are a type of photomontage which provides the most accurate representation of relative position and size of the proposal at 2-3 years after completion from a chosen viewpoint. They were produced from some viewpoints to illustrate the nature of the change, but are not explicitly necessary for undertaking an assessment of visual impact.

1.6.5 Assumptions

In order to assess the changes to landscape character and views, the following assumptions have been made:

- Vegetation under bridges to be widened would only be cleared within the central area between the northbound and southbound carriageways, not from either side of the Westlink M7 bridges
- There would be no replacement planting of trees under Westlink M7 overpass bridges due to bridge maintenance requirements, only shrubs and grasses
- Trees removed from the central median where it batters down at bridges would not be replaced
- Where shrub plantings in the central median have been removed, replacement of similar shrubs is assumed, pending investigation into safety requirements
- Turf would be planted in the central median where it is wide enough to mow, otherwise native grasses that do not require mowing or slashing would be used
- At the M4 Motorway (Light Horse) Interchange, the design outcome is subject to further detail design and consultation with stakeholders. To inform the preparation of this report it was assumed the removal of up to six Fig trees at the farthest extents from the centre of the interchange. All other Fig trees would either be retained and protected during the construction phase, or replaced if they were unable to be retained due to placement too close to either carriageway
- The Light Horse Sculpture Parade on the Westlink M7 would be partially and temporarily removed during construction and replaced at completion of the lane widening
- New and increased height noise walls would match the existing noise walls along the Westlink M7, with no further decoration or articulation.

1.6.6 Mitigation of impact

Typically, during the design phase, outcomes of contextual analysis, urban design strategy development and landscape character / visual impact assessment are fed back to the wider project team. This prompts mitigating measures to be undertaken within the concept design phase to avoid or reduce potential impacts of the proposed modification on landscape character, views and visual amenity. An existing urban design response had been prepared for the original project deed, with a review and confirmation of design fundamentals outlined for the proposed modification to the M7 Motorway. The urban design and landscape response addressed landscape and visual impact during their development.

A set of mitigation measures are aimed at reducing or avoiding any remaining adverse impacts of the proposed modification during construction and at operation on identified sensitive receptors. These final mitigation measures typically comprise a range of techniques including, but not limited to, appropriate lighting design, staging or construction method, material and colour selection, and landscape planting.

1.6.7 Conclusion

A final conclusion is provided, summarising the overall impact of the proposed modification and the urban design outcomes.

Contextual Analysis

02

2. Contextual Analysis

2.1 Policy context

Design reference documents and guidelines relevant to urban design, landscape, and visual amenity in the vicinity of the proposed modification have been reviewed to ensure an understanding of existing and future aspirations for the area and the role of the proposed modification within this context. The concept design has been undertaken in the context of planned urban growth and change in the Western Parklands, as described in the following documents.

2.1.1 Beyond the Pavement 2020 (Transport for NSW, 2020)

The document provides physical objectives that road and maritime infrastructure projects should achieve, including:

1. Projects should fit sensitively into the built, natural, and cultural environment in urban and rural locations
2. Projects should contribute to the accessibility and connectivity of communities and a general permeability of movement through areas by all modes of movement
3. The design and management of projects should contribute to the overall design quality of the public domain for the community, including transport users
4. Projects should help revitalise areas and contribute to the local and broader economy.

Projects should meet the objectives in a cost-effective, safe, and sustainable manner. Cost-effective, safe, and sustainable performance of infrastructure needs to be an integral part of project planning, design, building, and maintenance and should not be an afterthought.

In addition to a policy and process, design principles provide direction for projects and help them achieve Transport's aims. They also help define the project outcome and the criteria for success. Projects outcomes should:

1. Contribute to urban structure, urban quality, and the economy
2. Fit with the built fabric
3. Connect modes, communities and promote active transport
4. Fit with the landform
5. Contribute to green infrastructure and respond to natural systems
6. Allow for Connecting to Country and incorporating heritage and cultural contexts
7. Design an experience in movement
8. Design self-explaining roads that respond to their role and context
9. Achieve integrated and minimal maintenance design.

2.1.2 Guideline for landscape character and visual impact assessment (Transport for NSW, 2020)

This document has been prepared to guide the preparation of landscape character and visual impact assessments for road and maritime work following *Beyond the Pavement* (Transport for NSW, 2020). It relates to broader planning, design exercises, and environmental assessment investigations undertaken iteratively to inform project teams about the effects of a proposed modification. It informs environmental approval processes defined by the EP&A Act. It sets down the terminology, process, and methodology for assessment to ensure assessment is carried out consistently to a high standard, is appropriately integrated with other environmental and design efforts and is also coordinated with the project management processes described in the Infrastructure Life Cycle Management System.

The document provides guidelines to assess the qualities of a place using the landscape character assessment methodology, which is a requirement of the design process set down in Beyond the Pavement.

There are two primary purposes of landscape character and visual impact assessment:

1. To inform the development of the preferred route or concept design so the proposed modification can avoid and minimise impact to places it passes. It must be commenced early in the project life cycle to achieve this goal and be integrated with the design process
2. To inform Transport, other agencies, and the community about the landscape character impact and visual impact of the proposed modification and what avoidance, management, and mitigation strategies have been and would be implemented if the proposed modification was approved.

2.1.3 Western Sydney Orbital Project Deed, Architectural and Landscape Design for Westlink Motorway (Roads and Traffic Authority of NSW, 2002)

This document comprehensively creates a matrix within which the Westlink M7 carriageways, the shared path, and all of the approved project's built elements are designed and operated.

The design principles include:

- Landscape design should be used to further the goals of linear identity and lateral integration
- Create a memorable, legible, and enjoyable experience for motorists, passengers, and shared path users
- Minimise the destruction of existing indigenous vegetation through its identification and protection during roadwork
- Manage views to and from the Westlink M7
- Use natural physical characteristics of the corridor and region as landscape design generators
- Interpret heritage significance through planting strategies.

Further specific landscape design principles were established and include:

- Integrate landscape design with environmental, earthworks and road engineering, bridges, noise walls, and other structures and road furniture
- Understand the existing landscape features and character of the route and integrate them into the design
- Ensure the safety of motorway and shared path users through careful placement of plants and ongoing maintenance following guidelines on clear zones and sightlines
- Minimise erosion of embankments, cuttings, and creek lines through the successful establishment of appropriate plant material
- Use on-site materials in an environmentally responsible and sustainable manner
- Eliminate or minimise the use of imported soil
- Ensure that the constructed outcome is practical and maintainable.


Westlink Motorway Orbital Project Deed

EXHIBIT A

SCOPE OF WORKS AND TECHNICAL CRITERIA

Appendix 22
Company's Architectural and Landscape Design

Roads and Traffic Authority of NSW

2.2 Reference Documents and Design Guidelines

The proposed modification is also guided by several initiatives as outlined below, which further describe the vision, objectives, and principles for the area within which the Westlink M7 lies.

2.2.1 M12 Motorway Place, Design and Landscape Plan (Transport for New South Wales, 2020)

The M12 Motorway Place, Design and Landscape Plan (PDLP) aims to help develop and assist the implementation of an integrated urban design and engineering outcome that achieves urban design assurance and consistency across the M12 Motorway proposal. The five principles that underpin the PDLP comprise:

1. The Past: create a unique and distinct identity interpreting the rich sense of place.
2. The Future: positively influence the structure of the Western City Parkland.
3. The People: create an active community and enhanced user experience.
4. The Land: protect and re-establish natural systems.
5. The Project: creating infrastructure as art and celebrating naturalistic landforms and features to inform materials.

The overarching vision for the PDLP is 'Connection to Country', which seeks to create a distinctly unique and memorable piece of infrastructure that establishes the gateway to western Sydney.

Relevance to Westlink M7

The PDLP identifies critical items with relevance to Westlink M7, including:

- Maintain and integrate into existing pedestrian and cycle links such as the Western Sydney Parklands Trail andM7 shared user path
- The design of the M7 Motorway interchange bridges have been developed to belong to both the M12 Motorway family of elements whilst being consistent with the existing suite of bridges on the M7 Motorway.

2.2.2 Western Sydney Parklands Plan of Management (Western Sydney Parklands, 2018)

The *Western Sydney Parklands Plan of Management* outlines a plan to define the Trust's vision, principles and objectives, and the resources and methods to achieve them.

Sixteen precincts are identified within the Western Sydney Parklands, with boundaries defined by their character, context, land use, and functions. Management guidelines for each precinct have been developed in consultation with stakeholders and the community. These guidelines detail the desired future character; existing and potential land uses; lease opportunities; enhancement of the natural environment; access; and the identification of proposed programs and activities.

Relevance to Westlink M7:

The *Western Sydney Parklands Plan of Management* identifies critical items with relevance to Westlink M7, including:

- The importance of the Nurragingy Precinct, including the Eastern Creek floodplain, Nurragingy Reserve, and agistment lands in the north. The precinct is defined by the Westlink M7 in the north, Knox Road to the east, Glendenning Road to the west, and the Western Railway line to the south
- The Westlink M7 is a robust visual boundary to the west of the Eastern Road Precinct, with the Bungarribee residential area bordering the precinct to the east
- Deliver a cohesive and robust image for the Abbotsbury Precinct along Horsley Drive, Westlink M7, and critical entrances
- The significance of the natural systems and environmental values associated with the Cecil Park North precinct. This precinct is a small area of bushland and rural residential lands isolated from the central Parklands corridor by the Westlink M7, the approved M12 Motorway, and Elizabeth Drive
- The Cowpasture precinct is a hilly backdrop to residential development and a vital vegetation buffer to the Westlink M7
- Through the Cecil Park precinct, build and enhance awareness of the Western Sydney Parklands through design, signage, and other opportunities, especially where viewed from the Westlink M7 and approved M12 Motorway.

2.2.3 Southern Parklands Landscape Framework Final Report (Tyrrell Studio, 2018)

The *Southern Parklands Landscape Framework Final Report* (the Landscape Framework) provides a long term physical plan for the development of the 1500 hectare Southern Parklands.

The Landscape Framework takes both the existing 'vision' and the overall *Western Sydney Parklands Plan of Management* (NSW Government, 2019) and generates a plan that fits the aspirations of the vision. The Landscape Framework presents landform analysis, soils, hydrology, vegetation, surrounding urban development patterns, and regional recreation and tourism demand.

The Landscape Framework locates different land uses in appropriate sizes and locations. A circulation strategy for vehicular access, parking, cycling, and pedestrian circulation responds to these land uses.

Finally, a higher level of design resolution is brought to the 'unstructured recreation' areas developed and managed by the Western Sydney Parklands Trust. The Landscape Framework includes proposals for accommodation, art, events, heritage interpretation, and land uses to increase visitation to the Southern Parklands and protect its unique landscape.

Relevance to Westlink M7:

The Landscape Framework identifies critical items with relevance to Westlink M7, including:

- The M12 Mirror Dam Cycleway: a unique gateway to the Southern Parklands. The design proposed modification aims to take cyclists from the Westlink M7 shared path directly across the Southern parklands and would perform the role of the M12 Motorway cycleway.
- One of the best views within the Southern Parklands is in the far north of the northern precinct, along the ridge that rises to support significant water towers. This location could serve as a four-star eco-lodge as the proposed location is a landmark that drivers on the Westlink M7 could view.

2.3 Environmental context

2.3.1 Regional context

The Westlink M7 is a 39 kilometre major connecting road on Sydney's orbital motorway network. It connects the Hills M2 to the M4 and the M5 motorways. The proposed modification is located along 27 kilometres of the Westlink M7 between Richmond Road, Glendenning to just south of Kurrajong Road, Prestons (refer **Figure 6**), extending in a north-south orientation within the proposed modification extents and spanning three LGAs:

- Blacktown to the northern extent of the study area
- Fairfield in the central section of the study area
- Liverpool to the southern extent of the study area.

Large regional centres surrounding the proposed modification include Parramatta to the east (one of the three cities envisaged for Sydney known as the Central River City, the other two being the Eastern Harbour City and the Western Parkland City), Penrith to the north west, and Liverpool to the south east.

South west of the Westlink M7 is the proposed Western Sydney Aerotropolis, within which lies around the Western Sydney International (Nancy-Bird Walton) Airport at Badgerys Creek. Tied to this development are several infrastructure upgrade projects, including the proposed upgrade of Elizabeth Drive, the upgrades of Bringelly Road and the Northern Road, and the development of the approved M12 Motorway and Sydney Metro - Western Sydney Airport.

Larger parcels of open space typically align with major watercourses, the largest in the region being the Western Sydney Parklands (WSPs). The WSPs extend over 27 kilometres, lying adjacent on the eastern side of the Westlink M7 between Rooty Hill and Cecil Hills, then flanking the Westlink M7 on either side between Cecil Hills and Elizabeth Hills before extending south and away from the Westlink M7 to Leppington. The WSPs comprise a range of recreational open spaces, including bushland, parks and gardens, sporting facilities and playgrounds.

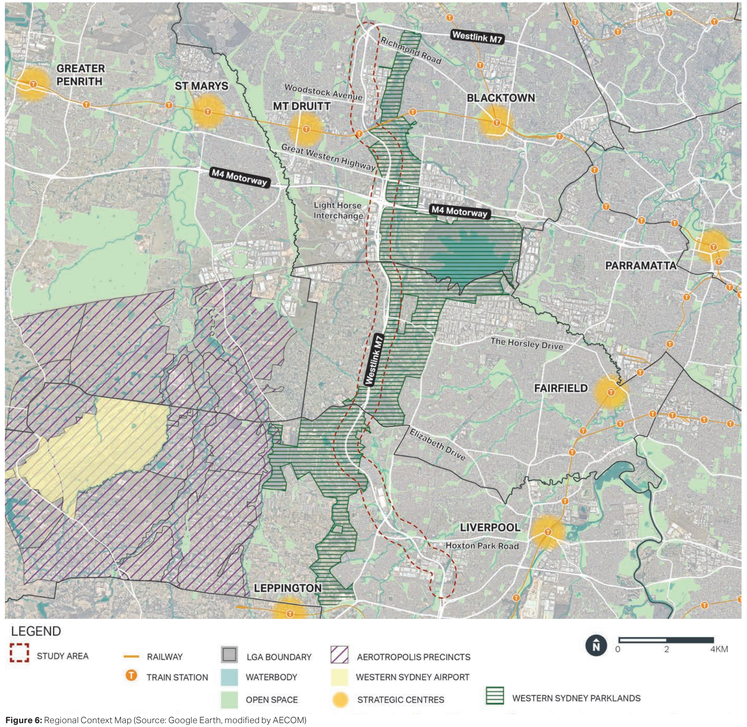

Figure 6: Regional Context Map (Source: Google Earth, modified by AECOM)

2.3.2 Local context

The Westlink M7 is a dominant infrastructural landmark within the landscape. The visual prominence of the road corridor from the surrounding landscape changes along its length primarily due to the topography and vegetation cover of the surrounding land, however, it creates a physical barrier which separates the landscape on either side, bridged intermittently by road overpasses and underpasses.

The Westlink M7 passes through a landscape typified by expanses of low density residential suburbs with suburbs dominated by industry. The former patchy rural landscape bisected by tracts of Cumberland Plain bushland (refer **Figure 9**) is still visible in the land adjacent to the Westlink M7, particularly within the Western Sydney Parkland landscape.

The landscape within the Westlink M7 corridor is often visually contained by planting and noise walls, with views to the surrounding landscape seen from locations where the Westlink M7 crosses creeklines and lower lying areas via bridge.

The recreational opportunities of such a road corridor have been maximised by the Westlink M7 shared path (the shared path), which runs the length of the motorway, positioned either within the road corridor or in adjoining streets (refer **Figure 8**). The shared path can be accessed via numerous entry paths which join to nearby roads (refer **Figure 9**), and cross the carriageways via overpass (refer **Figure 10**) and underpass along the corridor.

Individual elements that contribute to overall landscape character are described in the following sub chapters, including:

- Geology and soils
- Topography and drainage
- Land use
- Flora and fauna
- Aboriginal and European heritage.

Figure 7: Noise wall at M7 / M5 Interchange

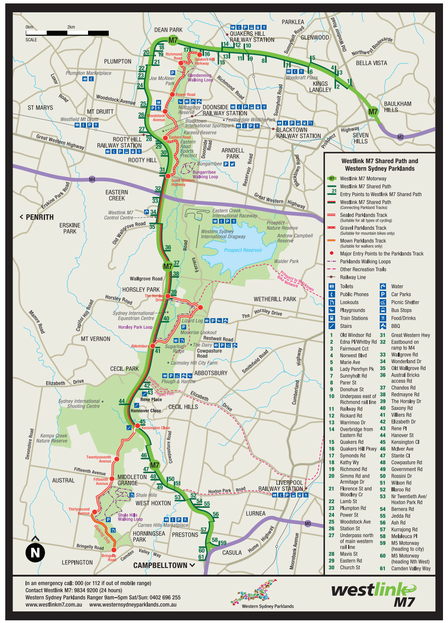

Figure 8: Westlink M7 shared path Map (source: Westlink M7)

Figure 9: Neighbouring land to the Westlink M7 at Horsely Park

Figure 10: Entry point to shared path near Chandos Road at Horsley Park

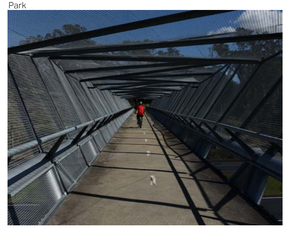

Figure 11: Overpass where shared path crosses over the Westlink M7 at Cecil Hills

2.3.3 Geology and soils

Figure 12 shows the underlying geology within the landscape setting of the proposed modification. The proposed modification is almost entirely underlain by Bringelly Shale from the Wianamatta Group of rocks. Clastic sediment comprising Quaternary alluvium deposits are located along creeks and streams.

The proposed modification is located within the following soil landscapes:

- Luddenham (erosional): undulating to rolling hills on Wianamatta Group Shales
- South Creek (fluvial): flood plains, valley flats and drainage depressions of channels on the Cumberland Plain
- Blacktown (residual): gently undulating rises on Wianamatta Group shales.

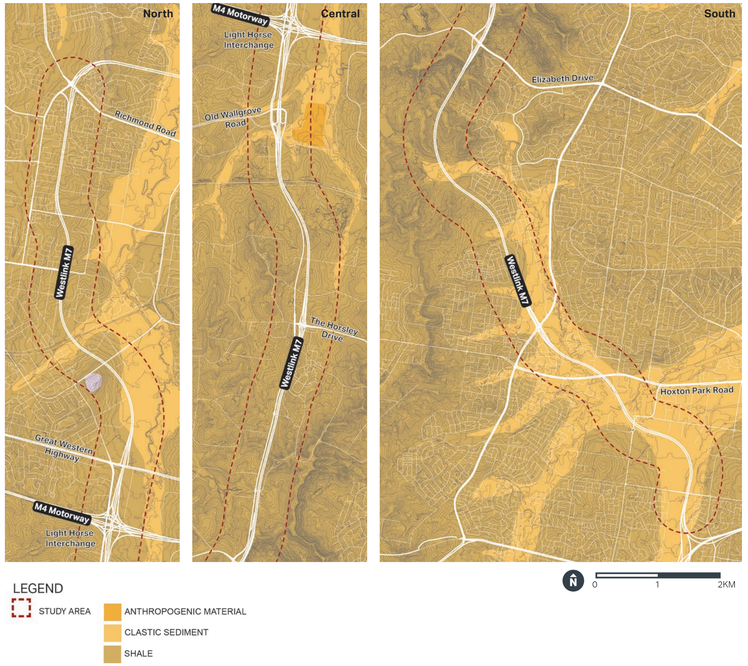

Figure 12: Geology within and surrounding the study area

2.3.4 Topography and drainage

The topography within the study area is shown in **Figure 13**, with the lowest points located at the northern and southern extents, at Glendenning in the north and Prestons in the south.

At the northern extent of the study area the landscape typically lies between 25 and 50 metres AHD. The topography falls to the Eastern Creek riparian corridor, which lies to the north east of the study area. The landform gently undulates, with Angus Creek crossing under the Westlink M7 near the rail corridor to the north of the Great Western Highway.

The landform rises to the south of the M4 Motorway (Light Horse) Interchange from the point where Reedy Creek crosses the Westlink M7 near the intersection with Old Wallgrove Road, culminating in a high point near Elizabeth Drive, where a ridge line extending from north east of The Horsley Drive to south west of Elizabeth Drive. The Ropes Creek catchment is bounded by the ridge line, with Ropes Creek draining from east to west under the Westlink M7 north of Elizabeth Drive.

Heading south from Elizabeth Drive, the landform falls towards the south east to the Hinchinbrook Creek corridor, which then drains to Cabramatta Creek to the east. Hinchinbrook Creek crosses the Westlink M7 in two locations, once at Elizabeth Hills and once further south at Hoxton Park. Cabramatta Creek and Maxwells Creek cross the Westlink M7 flowing from west to east south of Jedda Road in Hoxton Park.

The proposed modification is located within three drainage catchments:

- Cabramatta Creek, a major tributary of the Georges River catchment
- Ropes Creek, a major tributary of South Creek
- Eastern Creek, also a tributary of South Creek.

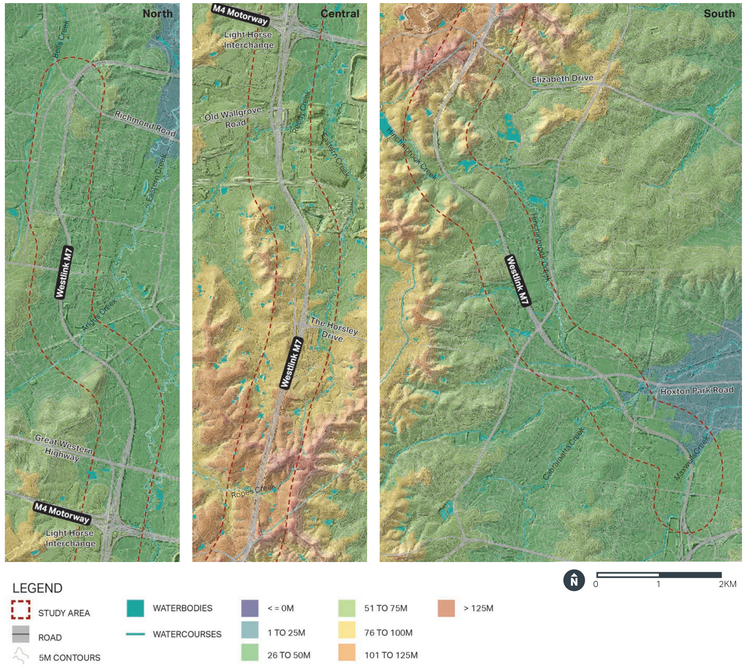

Figure 13: Topography and drainage within and surrounding the study area

2.3.5 Vegetation

Figure 14 shows vegetation communities within and surrounding the study area, including Threatened Ecological Communities (TECs) as protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Biodiversity Conservation Act 1999* (BC Act). Vegetation communities within the study area comprise:

- Shale Plains Woodland (protected by both the EPBC Act and BC Act)
- Alluvial Woodland (protected by the EPBC Act and BC Act)
- Castlereagh Shale-Gravel Transition Forest (protected by the EPBC Act and BC Act)
- Cumberland Riverflat Forest (protected by the EPBC Act and BC Act)
- Cumberland Shale Plains Woodland (protected by the EPBC Act and BC Act)
- Cumberland Shale Hills Woodland (protected by the EPBC Act and BC Act)
- Weeds and exotics (not protected).

Vegetation within the area typically comprises large areas of rural and urban exotic vegetation with patches of bushland typically clustered around riparian corridors (Alluvial Woodland and Cumberland Riverflat Forest) and steeper, hillier areas (Cumberland Shale Plains Woodland and Weeds and Exotics). Bands of Shale / Gravel Transition Forest are also clostered around riparian corridors.

Figure 15: Threatened Ecological Communities within the study area: image to the left shows Castlereagh Shale-Gravel Transition Forest surrounding a sports field at Hoxton Park Reserve; the image on the right shows Cumberland Riverflat Forest within the Hinchinbrook Creek riparian corridor

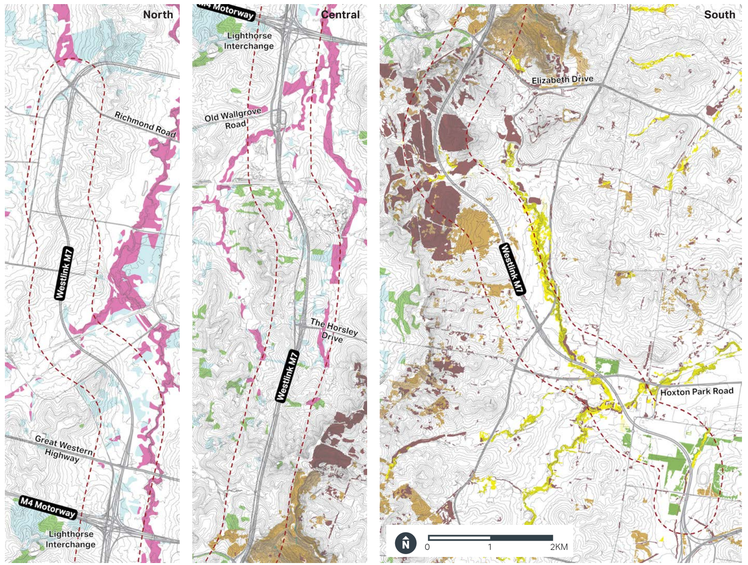

Figure 14: Threatened Ecological Communities within and surrounding the study area

2.3.6 Aboriginal and non-Aboriginal heritage

Aboriginal heritage is described in the *Aboriginal Cultural Heritage, Stage 2 PACHCI - Archaeological Survey Report* (AECOM, 2022).

The proposed modification is located within the traditional country of the Darug people. There is a rich and diverse record of past Aboriginal occupation of the Cumberland Plain, with open artifact sites, open camp sites and artifact scatters being the most common and widely distributed forms, a high concentration of which have been found along watercourses.

Two valid Aboriginal sites within the study area were located via desktop research, one would be partly within the construction footprint and the other would not be impacted by the proposed modification.

Non-Aboriginal heritage items are described in more detail in the *Non-Aboriginal Heritage Impact Assessment* (AECOM, 2022).

In the northern section of the study area, the northern-most item listed in the State Heritage Register is the site of the Blacktown Native Institution on Richmond Road, Oakhurst (refer (1) in **Figure 16**).

Further south within the northern section of the study area, the Rooty Hill Government Farm lies to the west of the Westlink M7, north of the Great Western Highway. This land was a government run stock farm, with the house built and modified between 1810 and 1822 (refer (2) in **Figure 16**).

The Upper Canal System intersects the study area between the northern and southern sections of the study area (refer (3) in **Figure 16**). Constructed between 1880 and 1888, the Upper Canal System forms a part of the Upper Nepean scheme, supplying water to Sydney. The structure comprises a series of tunnels, canals, aqueducts and the presence of the air shaft in the Westlink M7 median where the tunnelled section of the canal passes under the existing project. The structure transfers water via gravity feed from the four major Nepean dams: Cataract, Cordeaux, Nepean and Avon Rivers, into the Prospect Reservoir.

While not listed as a heritage item (although listed on the NSW War Memorial Register), the M4 Motorway (Light Horse) Interchange at the intersection of the M4 Motorway and the Westlink M7 is Australia's largest interchange and has memorial features which are visually prominent within the landscape (refer (4) in **Figure 16**). The M4 Motorway (Light Horse) Interchange was named in honour of the Australian mounted military units who had a training camp at Wallgrove Road.

The Light Horse Sculpture Parade has a 55 metre high central mast topped with a reflective crown, and 4 sets of radiating markers positioned within the median of the M4 Motorway and the Westlink M7. All the sculpture elements are red, the colour of the Flanders Poppy and symbolic of the blood shed in war. The markers radiating out from the central mast each have a white band symbolising the innocence of the soldiers leaving for war, and the abstract plumage attached to each marker representing the emu plumes attached to the Light Horsemen's slouch hats.

Figure 16: Aboriginal and Non-Aboriginal heritage features within and surrounding the study area

2.3.7 Land use zoning

Within the study area land use typically comprises four main land types: residential, industrial, rural and recreational (the Western Sydney Parklands). More specifically, land zoning within the study area is described below (refer **Figure 17**):

- Low density residential (R1) with scattered parks (RE1), largely characterised by single detached housing, to the east and west of the Westlink M7 north of Lamb Street
- Low density residential (R1) with scattered parks (RE1), largely characterised by single detached housing, to the west of the Westlink M7 and Industrial (IN1 and IN2), largely characterised by warehousing facilities to the east of the Westlink M7 between Lamb Street and the rail corridor at Rooty Hill
- The Westlink M7 is flanked by the Western Sydney Parklands on either side between the rail corridor at Rooty Hill and the Great Western Highway
- The Western Sydney Parklands lie to the east of the Westlink M7 with industrial to the west between the Upper Canal System in Rooty Hill and Dobroyd Drive, Elizabeth Hills.
- Heavy Industry (IN3) forms much of the land use in the southern section of the study area.

The Westlink M7 and major intersecting roads are zoned SP2 (Infrastructure), including the M4 Motorway (Light Horse) Interchange at the intersection with the M4 Motorway. The Westlink M7 shared path roughly aligns with the motorway along its entire length, providing a linear recreational corridor adjoining the Westlink M7.

It is anticipated the low density residential (R1) and the Western Sydney Parklands will carry a greater level of sensitivity to changes in the landscape as they are exposed to greater access by the general public. The light industrial or industrial areas will have a sensitivity related to the operational character of the land use.

The structure and distribution of land uses along the corridor plays a big contribution for the establishment of the urban fabric and the definition of the landscape character zones as seen in 2.3.8.

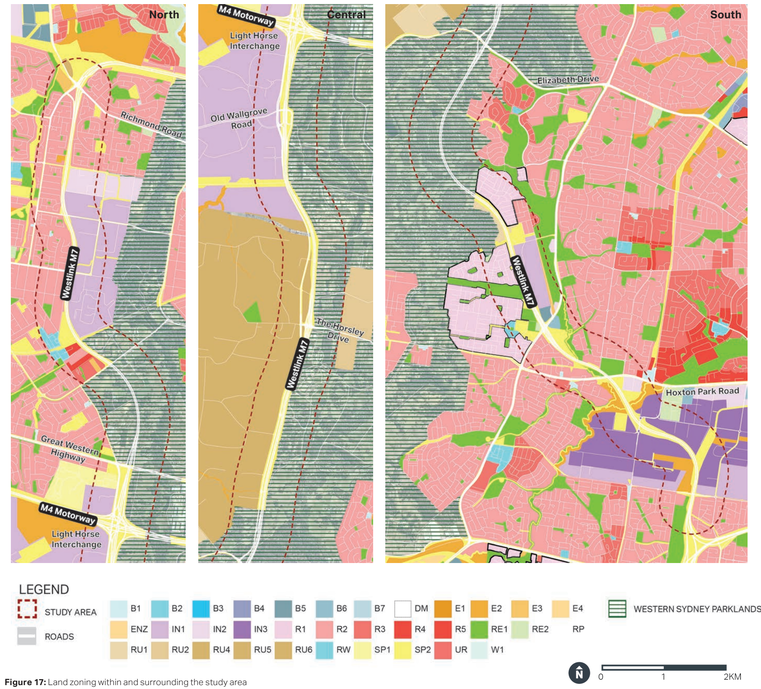

Figure 17: Land zoning within and surrounding the study area

2.3.8 Landscape Character Zones

Five (5) Landscape Character Zones (LCZs) have been identified within the study area, with one split into to two sub categories for assessment (LCZ 1):

- LCZ 1
  - LCZ 1a: Transport Corridor
  - LCZ 1b: M4 (Light Horse) Interchange
- LCZ 2: Industrial
- LCZ 3: Recreation and Bushland
- LCZ 4: Residential
- LCZ 5: Rural.

Refer to **Figure 18** for the location of LCZs in relation to the proposed modification.

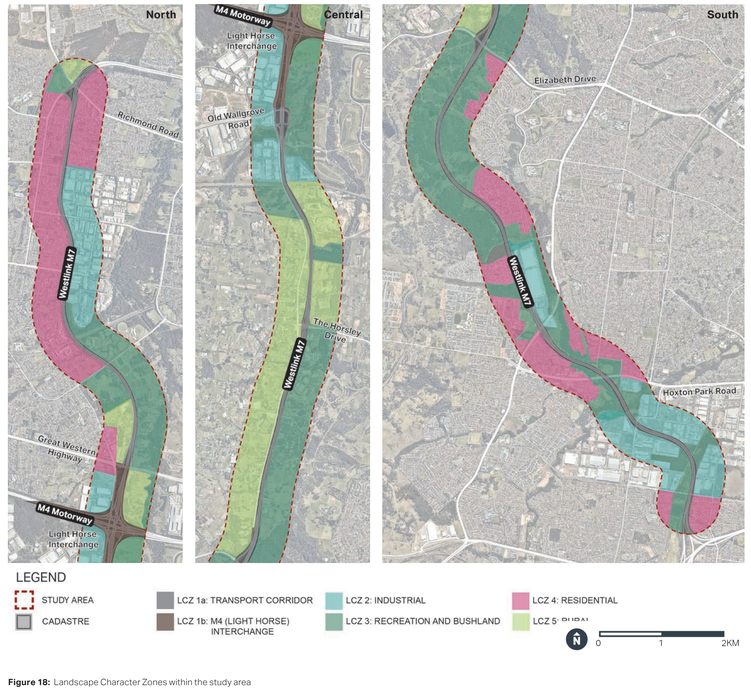

Figure 18: Landscape Character Zones within the study area

2.3.8.1. LCZ 1

LCZ 1 comprises major road infrastructure within the study area but has been split into two sub categories for assessment due to the landmark qualities of the M4 (Light Horse) Interchange.

LCZ 1a: Transport Corridor

This LCZ includes the Westlink M7 but excludes the intersection with the M4 Motorway (M4 Motorway (Light Horse) Interchange) The LCZ is a linear corridor widening at major intersecting roads.

Typical characteristics of LCZ 1: Transport Corridor include the spatial form of the overall LCZ, comprising narrow, linear elements bisecting the greater landscape. The LCZ travels over land of differing topography, but maintains as flat a grade as possible with the use of embankments, bridging and cuttings into the surrounding landscape (refer to **Figure 19**). Internally, the linear motorway corridors widen and narrow due to the external landscape, including where the corridor intersects creeks and other roads, or where the corridor travels through cuttings where the landscape outside the LCZ is at a higher grade than the road pavement, or where the road is fringed by noise walls protecting and screening adjoining residential neighbourhoods (refer to **Figure 20**). At the highest point in the LCZ, views along the road corridor to the horizon may be seen (refer to **Figure 19**).

The LCZ is used as transport corridors for vehicles (including cars and heavy vehicles such as larger trucks) and for active transport (cycling and walking). Vegetation includes turf and pasture grasses in medians and verges, with patches of taller vegetation fringing the verges of the Westlink M7. Where the Westlink M7 passes over intersecting creek corridors via twin bridges, tree canopies are present between the carriageways in the middle of the motorway, as well as on either side of the road (refer to **Figure 21**). Patches of lower flowering shrubs are planted intermittently in the median strip.

Component	Description
Land Use	SP2 Infrastructure
Topography and drainage	Gently undulating, with a high point near Elizabeth Drive in the southern portion of the study area, and intersected by numerous creek corridors which pass under the Westlink M7.
Vegetation	Typically turf or pasture grass with patches of trees on the verges, some shrubs in the medians, and thicker canopy vegetation surrounding creeks and drainage lines.
Built Form	Gantries, noise walls, lighting, signage, bridges, bunding, guard rails and safety fencing.
Spatial Form	Linear, spatially enclosed from the surrounding landscape by topography (e.g. batters and cuttings), bands of tree plantings, noise walls and bridges.

Sensitivity: Moderate

The susceptibility of this LCZ to change due to the proposed modification is influenced by:

- The operational footprint of the proposed modification lies wholly within this LCZ and along a majority of the Westlink M7
- The proposed modification would effect the length of the LCZ within the study area, particularly due to the narrow, linear shape of the LCZ.

While the sensitivity of transport corridors are often low due to the utilitarian focus of their design, elements of what make this transport corridor unique (particularly the recreational shared path and vegetation at creek crossings that provide an indication of the landscape beyond) will be impacted due to this proposed modification.

The Westlink M7 has picturesque moments within the corridor, particularly where the road passes through a high point near Elizabeth Drive, providing a view over the surrounding landscape framed within the road corridor.

This LCZ does not contain heritage items or areas with cultural value.

The likely level of consistency of the proposed modification with the overall landscape character of the zone is high, with the proposed modification resulting in the widening of an existing high speed transport corridor into the existing median, but little to no change to the outer edges of the corridor.

Figure 20: Noise walls that separate the Westlink M7 from adjoining residential neighbourhoods

Figure 19: Westlink M7 where the carriageways are adjoined by cuttings

Figure 21: Tree canopies visible on either side of the Westlink M7 as well as in the gap between the carriageway bridges spanning a creek corridor

LCZ 1b: M4 (Light Horse) Interchange

This LCZ comprises the M4 Motorway (Light Horse) Interchange (refer **Figure 22**), where two major transport corridors (the Westlink M7 and the M4 Motorway) intersect to create a landmark moment within each motorway. The interchange is named in honour of Australia's mounted military units and features the Australian Light Horse Sculpture Parade.

The sculpture is integrated with and complemented by a formal planting of Moreton Bay Fig (*Ficus macrophylla*) trees which aimed to create a commemorative garden. The Australian Light Horse Sculpture Parade artwork comprises a central mast within the interchange and sets of markers stretching approximately1.6 kilometres within the central median of the Westlink M7. The markers represents the troops who served in the Australian Light Horse Brigade, and their horses that could never return to Australia. The colour of the markers is representative of the Flanders Poppy and poppies that bloomed throughout Palestine and is symbolic of the blood that was shed. The stainless-steel plumes attached to each marker represent the emu feather attached to each Light Horsemen's hat.

While the built elements of embankments, bridges and cuttings are shared by both LCZ 1a and 1b, within LCZ 1b these elements are substantially larger in scale, particularly the two 'tiers' of bridges that curve overhead, linking the carriageways of the two major transport corridors. Additional built elements comprising the Light Horse sculpture add to the landmark experience at this interchange and include the red markers in the medians 'counting down' to the red, 55m mast with reflective 'crown' positioned at the central intersection point of the two motorways.

Vegetation within the LCZ is similar to that of LCZ 1a and includes turf and pasture grasses in medians, with patches of taller vegetation fringing the verges. In the approach to the M4 Motorway (Light Horse) Interchange from both the north and south on the Westlink M7, a row of fig trees positioned between the linear sculpture markers and indicate the approach to the interchange (refer to **Figure 23**). The M4 Motorway median does not feature any trees, with the markers positioned within the turf median (refer **Figure 24**).

Figure 22: Aerial photo showing the M4 Motorway (Light Horse) Interchange

Figure 23: Linear rows of fig trees and the sculpture in the median approaching the M4 Motorway (Light Horse) Interchange on the Westlink M7

Component	Description
Land Use	SP2 Infrastructure
Topography and drainage	The M4 Motorway is typically flat, while the Westlink M7 rises gently to a bridge over the M4. Medians of both motorways act as drainage swales.
Vegetation	Typically turf medians and verges with shrubs and trees. Fig avenue leading to the intersection of the motorways.
Built Form	Lighting, signage, bridges, bunding, guard rails and safety fencing and the Light Horse Sculpture Parade markers and mast.
Spatial Form	Spatially enclosed from the surrounding landscape by topography (e.g. batters and cuttings) but with sweeping bridges projecting above the road corridors.

Sensitivity: High

The susceptibility of this LCZ to change due to the proposed modification is influenced by:

- Part of the footprint of the proposed modification lies within this LCZ
- The proposed modification would effect a small but important area within the LCZ
- This LCZ comprises a landmark moment within both the M4 Motorway and the Westlink M7, both due to the Light Horse Sculpture Parade and the monumental architecture of the interchange.

While the sensitivity of transport corridors are often influenced by the utilitarian focus of their design, the monumental scale of the road infrastructure, landmark nature of the interchange and the memorial value of the Light Horse Sculpture Parade and memorial fig planting increase the landscape value of this LCZ.

Figure 24: The Light Horse sculpture in the median of the M4 Motorway without the fig tree plantings (source: www.studiocolpol.com.au)

2.3.8.2. LCZ 2: Industrial

Three occurences of this LCZ are identified within the study area: one in the northern portion of the study area in Glendenning, one area south of the M4 Motorway (Light Horse) Interchange at Eastern Creek, and one in the southern portion of the study area at Prestons.

LCZ 2: Industrial is characterised by relatively flat topography, large lot sizes with large, 'big box' built form such as warehouses and factories (refer to **Figure 25**). The streets are typically wide, with limited verge planting. Built form is set back from the street to include hardstand areas for parking and vehicle movement.

Land within this LCZ is typically zoned for industrial usage (IN1, IN2 and IN3). Land use includes light and heavy industrial such as warehouses, factories and distribution centres, utilities (such as electrical infrastructure, as seen in Prestons, refer to **Figure 26**) and some pockets of commercial uses, including small shopping villages such as the Landmark Shopping Village on Cowpasture Road.

Vegetation in this LCZ is typically limited to some trees in turf planted in the streetscape, some lots have small amounts of planting within their frontages.

Component	Description
Land Use	Industrial (IN1, IN2 and IN3)
Topography and drainage	Typically flat to gently undulating, often adjacent to drainage corridors but drainage collected in pits and piped within the lots
Vegetation	Limited to some streetscape vegetation and very limited exotic landscaped areas in some lot frontages
Built Form	Large warehouse or factory buildings with large amounts of hardstand for parking or vehicular movement
Spatial Form	Large, rectangular blocks of land, course grained development

Sensitivity: Low

The susceptibility of this LCZ to change due to this proposed modification is low, partly due to the operational changes of the proposed modification are located outside this LCZ within the Westlink M7 (LCZ 1: Transport Corridor) and also due to the physical separation between the two LCZs by noise walls, embankments, retaining walls and plantings.

The value of the landscape is low, based on:

- The utilitarian character of the landscape, designed for functionality of industrial uses rather than scenic qualities
- There are no heritage items within the LCZ
- the lack of areas with cultural / recreational values.

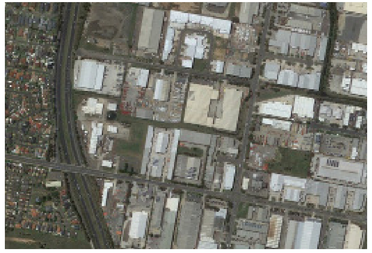

Figure 25: Course grained development pattern, with large lots located on typically flat development sites.

Figure 26: Industrial estate of Bernera Road, positioned near a high voltage electricity transmission easement between local electrical substations

2.3.8.3. LCZ 3: Recreation and Bushland

This LCZ comprises areas used for public and private recreational purposes (e.g. sports facilities, parks and public reserves), and riparian corridors. The largest areas of this LCZ lie within the Western Sydney Parklands.

The topography of this LCZ ranges from lower, flatter floodplain areas with riparian corridors to the steeper high points within the Western Sydney Parklands near Elizabeth Drive (refer **Figure 27**). Vegetation within the LCZ also varies greatly, from open, highly managed sports ovals (refer **Figure 28**) and other sporting facilities, to parks and playgrounds, with open areas fringed by patches of bushland vegetation, to densely vegetated tracts of bushland as seen within the riparian corridors (refer **Figure 29**).

Built form within this LCZ is typically limited to a few club houses and amenity buildings, such as change rooms and toilet blocks, however, larger sports parks (such as Blacktown Sportspark) have larger groupings of buildings housing associated amenities. Recreational open space in the study area also contains a large number of walking and cycle paths which are often highly engineered structures where they bridge creeks (refer **Figure 30**).

A few heritage items lie within this LCZ. The landscape has recreational and cultural values and scenic qualities, particularly as picturesque green spaces within more urban, built up parts of the landscape. Riparian corridors are likely to have Aboriginal cultural values.

Component	Description
Land Use	RE1 Public Recreation, RE2 Private Recreation and SEPP Western Sydney Parklands
Topography and drainage	Low and relatively flat to steeper hills and ridgelines. Drainage lines typically contained within this LCZ as heavily vegetated riparian corridors.
Vegetation	Managed / mown turf with taller periphery vegetation / trees, patches of remnant and regrowth bushland including Threatened Ecological Communities.
Built Form	Typically limited to amenities buildings, but some bridges and other scattered built forms
Spatial Form	Open sporting facilities to heavily vegetated bushland patches and corridors

Sensitivity: Moderate

The landscape value of the LCZ is related its recreational and environmental values, including:

- The LCZ contains landscapes valued at a statewide level and protected by SEPP (Precincts - Western Parkland City) 2021
- Part of the environmental value of this LCZ is due to patches of Threatened Ecological Communities (TECs), such as Cumberland Riverflat Forest or Alluvial Woodland, which lie within the LCZ. The size and unbroken connections of habitat that these areas of bushland create contribute to their environmental values, therefore, fragmentation due to clearing would threaten these values (and potentially degrade the quality of the bushland landscape) even if this clearing lay outside this LCZ.

However, the LCZ would have a reduced susceptibility to change due to the size of the LCZ and the fact that the proposed modification would predominantly occur outside of the LCZ. The overall sensitivity of the LCZ is considered to be Moderate.

Figure 27: Entry gates to the Western Sydney Parklands on Saxony Road, with the remnant bushland patches seen within the parkland

Figure 28: Hoxton Park Reserve, with the open sports ground fringed with bushland vegetation

Figure 29: Riparian corridors are more heavily vegetated than the adjoining landscape which has often been cleared for historical rural pursuits

Figure 30: Riparian vegetation within the Hinchinbrook Creek corridor

2.3.8.4. LCZ 4: Residential

Residential development within the study area typically comprises older residential areas of housing to the north of the M4 Motorway (Light Horse) Interchange, with newer residential suburbs in the southern suburbs within the study area (refer **Figure 31**). The predominant development in this LCZ is low density housing, with single, detached houses on individual blocks.

The topography of this LCZ is typically flat to gently undulating, with the arrangements of blocks and streets responding to the landform. The LCZ has a fine grain of development, with small to medium sized blocks uniformly arranged around a legible street hierarchy. Houses typically cover most of the blocks, with older suburbs typically containing larger front and rear garden spaces surrounding the houses. Streets are often quite wide, with two lanes and parking available on either side (refer **Figure 32**).

Formalised verges have concrete kerb and gutters, pedestrian footpaths and turf with street trees. Street trees are typically smaller species such as Bottlebrush (*Callistemon sp.*) (refer **Figure 33**), with larger tree species on main roads or near parks (refer **Figure 34**).

Built form within this LCZ comprises one and two storey residential homes, typically brick veneer or rendered. Housing is typically more uniform in design, construction materials and colours in newer suburbs such as Middleton Grange (refer **Figure 32**) or Elizabeth Hills (refer **Figure 34**) than seen in older residential areas, with homes often built by few developers within each estate. Buildings have a uniform setback from the street with small, landscaped front gardens. '

Spatially, views are typically contained within the streets. Small pockets of bushland, parks and playgrounds are scattered throughout the suburbs. Some pockets of commercial development occur along main roads within these areas.

Component	Description
Land Use	Residential, mostly R1
Topography and drainage	Typically flat to gently undulating, often adjacent to drainage corridors but drainage collected in pits and piped to the receiving waterways
Vegetation	Streetscape vegetation typically turf with street trees, exotic landscaped front and rear yards, patches of recreational open space with some bushland remnants
Built Form	One and two storey residential housing with uniform setback from the streets.
Spatial Form	Fine grained development pattern, street network typically influenced by landform

Sensitivity: Low

The increase in height and length of some noise walls on the boundary of this LCZ would result in the modification of an existing piece of infrastructure adjacent to this LCZ.

The value of the landscape is moderate, based on:

- The residential setting, which is common within the study area, comprises large areas of land which are physically separated from the adjoining LCZs (particularly LCZ 1 where the proposed modification lies) by built form, including noise walls, fences and trees
- The size of the LCZ is undergoing changes as more land is released and the LCZ expands
- The LCZ contains elements of cultural importance (e.g. places of worship and community facilities)
- The landscape contains elements with recreational and environmental values scattered throughout.

The overall sensitivity of the LCZ (being the combination of the susceptibility to change and the value of the landscape) is considered to be Low.

Figure 31: Aerial photograph showing a typical area within the older suburb of Plumpton (left) and newer residential suburb of Middleton Grange (right) within the study area

Figure 32: Typical housing within Middleton Grange

Figure 33: Typical streetscape within the older suburb of Plumpton

Figure 34: Typical streetscape within the newer suburb of Elizabeth Hills

2.3.8.5. LCZ 5: Rural

This LCZ is predominantly positioned on the western side of the Westlink M7 between the Upper Canal System and Elizabeth Drive in the central section of the study area in the suburbs of Horsley Park and Cecil Park. It is zoned RU4, RU5 and RU6 and comprises medium to large lots with a range of horticultural, grazing or small agricultural pursuits (refer **Figure 35**). Some areas are more rural residential, with residential housing on acreage but not associated with commercial pursuits on the land (refer **Figure 36**).

Topography within this LCZ is typically flat to gently undulating, with small informal drainage lines intercepted by occasional dams. Larger creeklines are often more heavily vegetated and therefore fall within LCZ 3: Recreation and Bushland.

Vegetation within the LCZ is a mixture of cleared land with mown or grazed turf and occasional stands of paddock trees (refer **Figure 37**), some patches of remnant bushland, or irrigated fields of crops or pasture (refer **Figure 38**). Exotic gardens sometimes surround rural homesteads.

Built form comprises residential houses, rural outbuildings such as sheds, and long horticultural production greenhouses. Denser paddocks of chicken sheds are also common within the landscape. Built form is varied in materiality, placement on lots and density.

Component	Description
Land Use	Rural, RU 4, RU5, RU6
Topography and drainage	Typically flat to gently undulating, drainage lines are often intercepted by small dams
Vegetation	Typically large paddocks of cleared land with some bushland remnants. Exotic vegetation surrounding residences.
Built Form	Sparse residential homes, farm sheds and animal production sheds
Spatial Form	Large lots, open landscape with fringing vegetation

Sensitivity: Low

The susceptibility of this LCZ to change due to this proposed modification is low as the operational changes of the proposed modification lie outside this LCZ within the Westlink M7 (LCZ 1: Transport Corridor).

The value of the landscape is moderate to low. While predominantly utilitarian in design, in that the built form, spatial arrangement and elements within it are designed for function over aesthetics, the LCZ contains picturesque areas and small pockets of more residential landscapes with bands of indigenous vegetation.

There are few areas with cultural or recreational value within this LCZ.

The overall sensitivity of this LCZ is Low, comprising an overall rating of susceptibility to change and the value of the landscape.

Figure 35: Aerial photography showing the typical rural landscape to the west of the Westlink M7

Figure 37: Mown turf with scattered trees are typical of vegetation in the LCZ

Figure 36: Rural residential properties, where large homesteads are built on large cleared blocks of land

Figure 38: Irrigated fields and crops with farm outbuildings and occasional residences

Urban Design Vision, Objectives and Principles

03

3. Urban Design Vision and Principles

3.1 Introduction

The Western Sydney Orbital Project Deed, Architectural and Landscape Design for Westlink Motorway (Roads and Traffic Authority of NSW, 2002), hereafter 'The Project Deed,' outlines the existing design principles developed to guide the urban design approach for the original Westlink M7. The urban design strategy for the proposed modifications considers the existing Project Deed and *Beyond the Pavement - Urban design approach and procedures for road and maritime infrastructure planning, design, and construction* (Transport for NSW, 2020) to achieve an integrated built outcome.

The urban design strategy for the proposed modification largely builds on the provisions in the Project Deed with some refinements made to address known maintenance requirements and potential impacts associated with the proposed modification. It is however a key objective to maintain the design in keeping with the original Westlink M7 motorway where possible.

3.2 Design vision

'The Project Deed' outlines a clear design vision for the Westlink M7 that aims to provide:

'resolution of the relationship between consistency along the route and response to the local context.'

Figure 39: View of M7 approaching Kurrajong Road overpass

3.3 Design principles

The following design principles in 'The Project Deed' and the application to the proposed modification, as identified in **Table 6**, would enable a 'whole of corridor' design proposal integrated with the surrounding context.

Table 7: Comparison between 'The Project Deed' and Westlink M7 Widening Design Principles

Principle	Proposed Westlink M7 Widening Design Principles	Original Project Deed Design Principles	Alignment and relevance with the proposed modification
The road and its neighbour	**Equal weight is given to all elements, particularly landscape and noise barrier design, as seen from Westlink M7 and the local areas it traverses.**	The urban and landscape design of the project is to deliver a positive functional and aesthetic experience to both road users and the project's neighbours	The design treats the project corridor for its entire length and width. The project modification maintains the landscape design matrix embedded in the Westlink M7 and its built elements. Specific design strategies include: – The 'external landscape' zone: retain the existing endemic vegetation wherever possible and revegetation with Cumberland Plain Woodland Species to integrate the road corridor landscape into the existing surrounding landscape. – The 'internal landscape' zone: areas between noise attenuation devices, cut batters, and road pavement, to highlight different landscape themes, act as landmarks and generally provide a different form and colour along the corridor.
Linear identity	**The Westlink M7 is to have a continuous, consistent and unique identity for its full length.**	The motorway is to have a continuous, consistent and unique identity for its full length. It is important that the road has a distinctive character so that users will recognise and remember it. This facilitates orientation at the city-wide scale and helps differentiate regions within the metropolis enriching the urban experience	Linear identity is achieved by deploying the same basic design for Westlink M7 to certain critical elements along the route length. In addition to the pavement and its line-markings, these elements are: – Local road bridges over the Westlink M7 – Noise barriers on highway bridges (the Westlink M7 crossing over local roads and creeks) – Cladding panels over retaining walls Road furniture (crash barriers, gantries, light and sign poles, signage) – Shared Path bridges and lighting – Endemic planting in the 'external Landscape' zone defined above The proposed modification maintains consistent designs for local road bridges, noise barriers, cladding systems for retaining walls, signage and shared path bridges. Planting in the external landscape zone is consistent in that, at any point along the route, vegetation groupings will reflect the endemic Cumberland Plain Woodland species. Other means employed to establish linear continuity include horizontal expression lines in roadside structures and consistency in the proposed palette of materials and finishes for certain elements.
Lateral integration	**The Westlink M7 is to respond to its immediate context by relating the visual and experiential qualities of the corridor at any given point to the adjoining environment, both natural and man-made.**	The project is to respond to its immediate context by relating the visual experience and experimental qualities of the corridor at any given point to the adjoining environment, both natural and man-made. This makes the road a good neighbour and avoids the risk of monotony which is likely to result from the development of linear identity alone. The application of both design principles simultaneously is possible by applying them to different degrees to each of the project's different physical elements	Lateral Integration is achieved by developing varying designs for the following elements: – Highway bridges, as seen from the adjoining neighbourhood – Noise barriers other than those on highway bridges – Landscaping related to the immediate context within the 'internal landscape' zone – Selected materials and finishes for certain elements

Principle	Proposed Westlink M7 Widening Design Principles	Original Project Deed Design Principles	Alignment and relevance with the proposed modification
Route diversity	**Differentiation along the route to make the Westlink M7 legible and assists users in orientating themselves.**	This principle is largely the corollary of lateral integration. Particularly in the urban situations, the humanisation of a motorway project requires that its scale be broken down by creating variation along its length. Differentiation along the route make the road legible and assists users to orient themselves	This is still achieved through the design of elements listed under lateral integration above in response to local context and by uniquely individual treatment of interchanges.
Landmarks	**The creation of memorable landmark features along the route is a particular means of furthering route diversity and is intended primarily to facilitate orientation.**	The creation of memorable landmark features along the route is a particular means of furthering route diversity and its intended primarily to facilitate orientation	The Westlink M7 creates several memorable highway experiences which will be retained as part of the proposed modification, including the deep cuttings in the Parkway section north of Cecil Hills, the complexity of the M4 Interchange and the sweeping curve just north of Richmond Road. In addition, several prominent, unique and memorable new items have been incorporated along the route, including the Lighthorse Interchange
Views:	**Views from the road that offer a positive visual experience and assist users in understanding the environment through which they are passing are to be maintained and enhanced.**	Views from the road which offer a positive visual experience and assist users to understand the environment through which they are passing are to be maintained and enhanced. Views to the road from sensitive adjacencies are to be designed to minimise adverse visual impacts	Views from the road will be enhanced and improved by the wider view angles the widening promote. Visual perception of the surrounding context will improve while traveling along the corridor.
Environmental considerations	**The incorporation of specific environmental features is used in the project using contemporary environmental design principles.**	The design is to respect and, where possible, enhance the natural environmental and ecological systems within the corridor and its related context. Existing indigenous vegetation unaffected by construction works will be retained. Design treatments are to facilitate the passage of wildlife along and across the route and provide or enhance ecological connections along the Western edge of the Sydney Metropolitain Area that do not exist at present.	The existing physical features of the Westlink M7 corridor and the proposed engineering design have been considered and analysed to determine the species types, vegetation groupings and treatment method.

Principle	Proposed Westlink M7 Widening Design Principles	Original Project Deed Design Principles	Alignment and relevance with the proposed modification
Environmental Generators	**The surrounding environment, and natural physical characteristics of the Westlink M7, such as topography, watercourses, and endemic vegetation, will be considered design drivers.**	Natural physical characteristics of the corridor and region, such as soil types, topography, watercourses and drainage patterns, endemic vegetation and microclimatic conditions are to be incorporated as design drivers, particularly for landscape design	The influence of the natural physical characteristics of the corridor and region are manifested in the specific planting treatments detailed in Section 4.3.
Residual land	**Incorporate adjoining public open space into the Westlink M7 corridor, and the landscape design provides seamless integration between the existing open space and its extension.**	Land within the corridor which is not required for the motorway or shared path and their associated engineering works (cuttings, embankments and interchanges) is to be integrated into local public open space systems or treated to make it useable for recreation, wherever possible.	Areas of the corridor beyond the motorway pavement which adjoin existing parks and other public open spaces are incorporated into them. The landscape design achieves integration between the existing open space and its extension.
Heritage:	**The interpretation of cultural, historical, and natural sites within and close to the Westlink M7 through planting strategies and urban design.**	Significant heritage items and locales are to be identified and are to be incorporated and interpreted within the design proposals.	The design strategies retained for the interpretation of culturally and historically important sites within and proximate to the Westlink M7 road corridor include planting design strategies that: – Protects significant, natural and cultural environments – Where appropriate provides interpretation – Avoids over-planting and seeding operations in heritage sites.
Lighting	**Inclusion of feature lighting to highlight essential elements of the design.**	Beyond functional requirements, lighting is to be used to facilitate orientation by highlighting project design features. Light spill into the night sky is to be minimised and adverse impacts on the road's neighbours are to be avoided.	Feature lighting is included and retained to highlight important elements of the design, including: – Median piers and fins on the abutments of bridges over the Westlink M7 – Flyover ramps and piers of the Lighthorse Interchange.

Urban Design Concept

04

4. Urban Design Concept

4.1 Introduction

The urban design intent for the proposed modification is based on the vision, objectives, and principles established in **Section 3** of this report. The objectives and principles align to 'The Project Deed,' which outlines the broader urban design strategy for the entire Westlink M7. The application of the findings from the contextual analysis informs the urban design concept.

'The Project Deed' expressed a fully coordinated, 'whole of corridor' and context-related road design. Critical design elements from the Westlink M7 are integrated with the proposed modification to provide consistency, continuity, and a cohesive design response. 'The Project Deed' and 'Beyond the Pavement' design guidelines were referenced to develop and refine the urban design concept.

4.2 Urban design concept

To deliver a whole of corridor approach, a multi-disciplinary design team must develop a shared design vision for the proposed modification, from design to procurement, construction, operation, and maintenance.

The adoption of consistent and appropriate design themes for common components such as bridges, abutments, retaining walls, noise walls and concrete finishes should result in a particular visual character and consistent finish.

The development of the urban design concept follows 'The Project Deed.' The integrated urban design outcome delivers:

- A distinctive, expressive, and safe driving experience
- Standard suite of elements that follow a common design approach adapted to each context and reflective of that already constructed
- A simple, unified, whole-of-corridor design of the road corridor and its elements would minimise maintenance and associated whole-of-life costs.

4.3 Urban design components

It is critical to adopt an integrated design approach to deliver the best possible outcome. This integration is achieved through multi-disciplinary teams regularly collaborating to resolve design issues. This approach has enabled urban design solutions to produce outcomes and values into the overall design for the proposed modification.

The urban design response follows the urban design principles and objectives developed and aims to identify a specific direction for the proposed modification.

The following description of urban design components expands on the following topics and reflected in **Figure 2**, **Figure 3** and **Figure 4**:

- Landscape planting
- Bridges
- Noise Mitigation.

Bridges and other hard structures should be designed and used as a visual marker or aid to travel orientation over and above their functional requirements.

Given that the proposed modification would comprise the widening into the existing median for a length of approximately 26 kilometres along the Westlink M7, there would be several significant structures along the corridor route that require urban design consideration. These structures include:

- A total of 43 existing bridges (split between northbound and southbound) would require widening across 23 locations. The widening of each bridge would occur towards the median. The proposed modification required to each bridge would vary between three to four metres. The construction process for bridge widening would typically include the establishment of new substructures (such as piers) and superstructures (such as decks and barriers).
- Noise mitigation treatment would be subject to further detailed design and would generally involve a combination of the following measures:
  - Increasing the height and/or length of some of the existing noise walls fronting the Westlink M7
  - Installing a new noise wall fronting the Westlink M7.

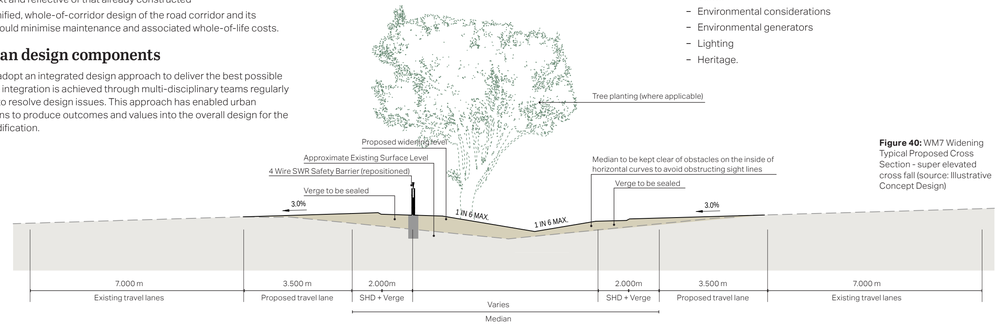

Figure 40: WM7 Widening Typical Proposed Cross Section - super elevated cross fall (source: Illustrative Concept Design)

These structures should belong to the same design family as described in the 'The Project Deed' and should be considered part of the suite of unified elements used along the Westlink M7.

4.4 Design concept and landscape character

The development of the landscape concept for the proposed modification (**Figure 41** to **Figure 43**) follows 'The Project Deed' design intent.

A summary of the landscape character zones critical to the urban design outcome as outlined in **Section 2.3.7**, include:

- LCZ 1a: Transport Corridor
- LCZ 1b: M4 (Light Horse) Interchange
- LCZ 2: Industrial
- LCZ 3: Recreation and Bushland
- LCZ 4: Residential
- LCZ 5: Rural.

The design response integrates the proposed modification with the surrounding landscape character zones while providing road users an integrated, consistent experience.

The urban design objectives as described in **Section 3.3** of this report include:

- The road and its neighbour
- Linear identity
- Lateral integration
- Route diversity
- Views
- Environmental considerations
- Environmental generators
- Lighting
- Heritage.

4.5 Landscape planting

The proposed landscape concept responds to the existing landscape context, with the retention of existing endemic vegetation wherever possible and planting of shrub and groundcovers of the Cumberland Plain Woodland. The design will create a linear corridor connecting existing vegetation remnants and rehabilitate ecological associations. This strategy will also minimise the impact of the Westlink M7 on visually sensitive areas through the use of screening.

The urban design is an integral part of the proposed modification and is essential to maintain and enhance the character of the surrounding landscape, establish a legible character along the Westlink M7, enhance connectivity between areas of vegetation and provide an enjoyable road user experience.

Specific guiding principles are important in establishing an effective urban design strategy for the Westlink M7 and proposed modification. The establishment of these principles will guide the development of the landscape for the road corridor. The landscape principles are as follows:

- Develop a landscape design with consistent character and elements that are integrated with the surrounding environment and reduce the road's visual impact and associated structures.
- Generally plant indigenous species, except for nominated points of interest.
- Use planting to reveal or reinforce desirable views or screen undesirable views.
- Planting height, density, and frangibility are dependent on distance from the road edge, topography, and adjoining land use.
- Create a landscape that is self-reliant and can be managed and maintained economically and safely and responds to operational constraints.

As part of the proposed modification, the urban design strategy for median and interchanges will contribute to lateral integration by relating planting to the local context. The design intends to highlight different landscape themes and create legibility along the corridor.

The proposed landscape treatments seek to reinforce the character and vegetation communities of the existing environment along the road corridor rather than impose a uniform vegetation treatment. In this way, the road would blend with the overall landscape, reducing the degree of contrast and creating various experiences for the road users as they pass through landscape areas with varying characters.

Opportunities for further planting within the proximity of the Westlink M7 widening area are also identified. These are areas currently lacking in plating in within or in proximity to the Westlink M7 corridor which are currently seen as lacking in planting or where planting can be completed to form a continuous edge to the road. The possible planting to be determined through design development and detailed design.

4.5.1 Planting treatments

The planting treatment for this concept design considers an assessment of the existing landscape character, the nature of the proposed modification, and the landscape strategy outlined in 'The Project Deed.' The treatment aims to integrate the road with the surrounding landform, bushland, riparian and rural environments through sympathetic earthworks and planting of vegetation which is complimentary to existing communities, enhances connectivity, and their distribution along the corridor. The planting treatments also take into account road safety requirements, operational, and maintenance requirements.

The landscape design generally reflects the distinctive qualities of the landscape zones and existing vegetation communities. The local environment through which the road corridor passes would contribute significantly to the aesthetic qualities of the road. The existing vegetation along the corridor comprises Shale Plains Woodland and Cumberland Plain / Hills Woodland community, combined with the Shale Gravel Transition Forest and the riparian vegetation of the Alluvial Woodland and Cumberland Riverflat Forest at creek lines. These vegetation communities create a diverse and visually attractive landscape that provides variety and interest for users. The proposed modification and landscape treatments aim to take advantage of the area's scenic qualities while minimising the road's impact.

The median treatments would consist of tube stock planting in specific locations such as cuttings, long bends (headlight glare), and connections. Tree planting and the retention of existing trees would be carried out where appropriate. Treatments would match the pattern of treatments along the outer edges of the corridor.

Four median planting treatments are proposed, responding to the qualities of the Landscape Character Zones, as illustrated by **Figure 41, Figure 42** and **Figure 43.**

1. Feature Interchange Planting, for areas where planting is used with the intent to 'celebrate' the intersections with other major roads along the corridor and provide a distinctive character to the journey and the areas surrounding those intersections.

2. Native Shrubs and Grasses, for areas of the corridor which are largely 'built up', or where the corridor runs within existing suburbs, providing an extension of the existing surrounding planting.

3. River Flat Eucalyptus Forest Revegetation, for areas where the corridor crosses existing water lines, responding to the natural setting within those areas and responding to the existing topography. This type of planting will be largely located under the Westlink M7 Bridges.

4. Pasture Grass with structured native shrubs and grasses block planting, for areas where the corridor is bordered by bushland where trees may be planted, subject to detailed design.

An additional type is including in mapping to indicate the M4 Motorway (Light Horse) Interchange.

5. M4 Motorway (Light Horse) Interchange, for the areas surrounding the Light Horse Interchange which will be subject to further detailed design.

4.5.2 Water Sensitive Urban Design Considerations

The existing Westlink M7 drainage system was typically designed to accommodate additional runoff from a future widening, increasing the impervious surface area into the median. Increasing the capacity of key elements of the drainage system would generally not be required to accommodate the proposed modification, except in some instances.

Upgrades would be required to the drainage along the outer road shoulder to accommodate additional surface water runoff associated with the new impervious areas from the widened carriageway. This would include changes to existing pits to improve inlet capacity and/or installation of additional new pits as well as increasing drainage pipe sizes in some locations.

The existing water quality and detention basins and spill containment infrastructure were designed to accommodate a future widening into the median, however changes would be required to some basins to increase their capacity.

The original design of the basins typically used earth bunds to form the basin walls, and in most basin locations the existing design uses all the available space within the Westlink M7 land. There is typically inadequate space to increase the volume of basins using earth bunds, and concrete basin walls or similar structural solutions would be required to provide additional volume within the available space.

There is the opportunity for areas where water flows onto the median to perform a Water Sensitive Urban Design role in controlling and mitigating the impacts of stormwater flows onto road shoulders and stormwater basins. This may prevent the need to increase the basins or to necessarily constructing concrete walls surrounding the basins.

Water Sensitive Urban Design measures applicable to the median and drainage basin upgrades required would be confirmed during detailed design.

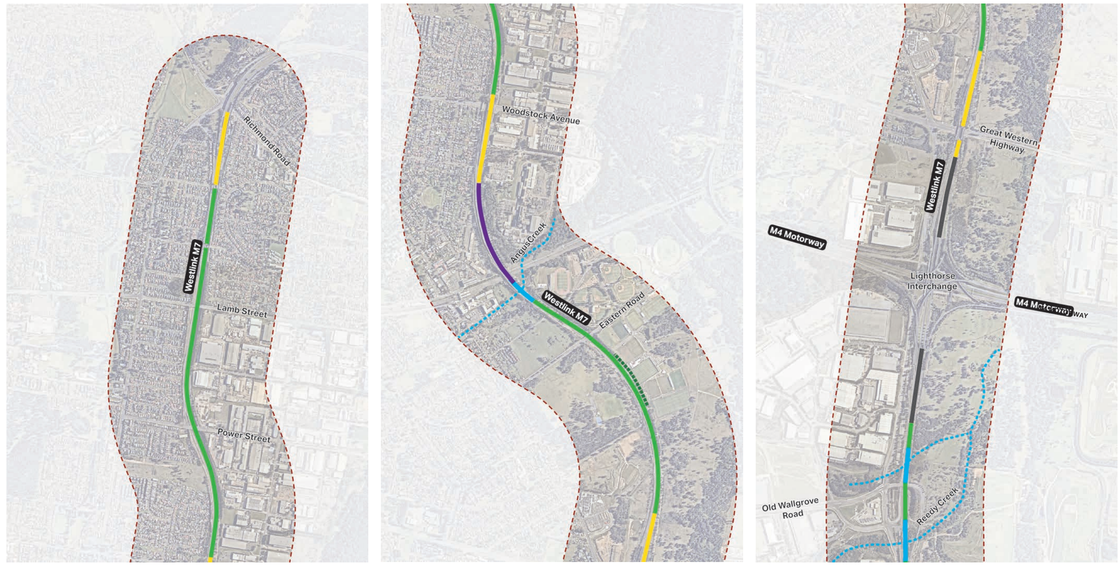

Figure 41: Landscape Concept Plan - Sheet 1

Figure 42: Landscape Concept - Sheet 2

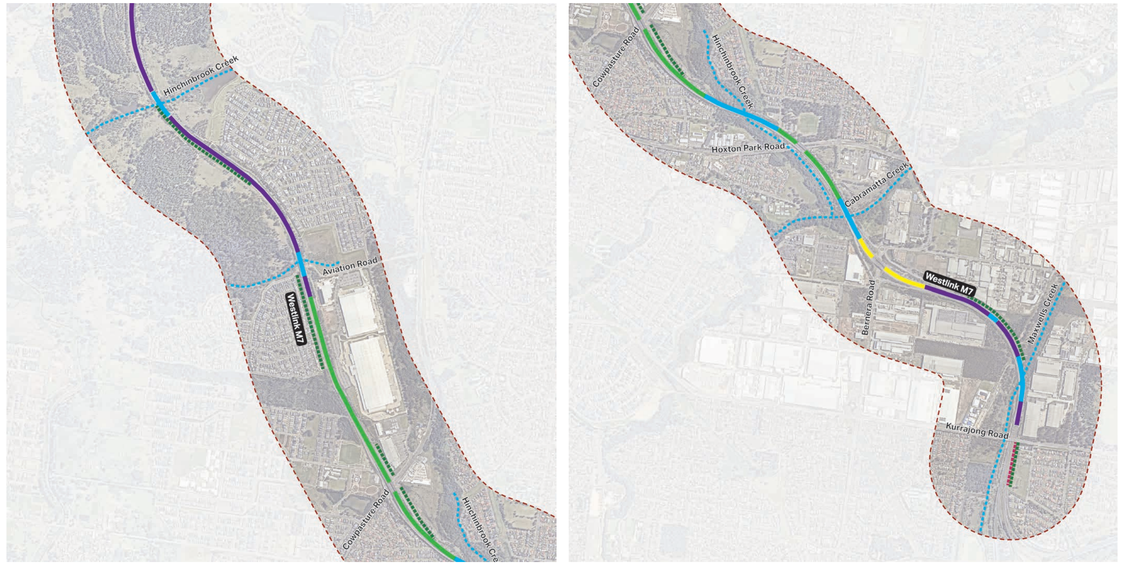

Figure 43: Landscape Concept Plan - Sheet 3

The indicative species list provided in **Table 7** is a guide to the planting for the proposed modification. The compilation of this list is adapted from 'The Project Deed.' The exact placement of species will be subject to detailed design and consider, among others, maintenance requirements, operational requirements, road safety and commercial availability.

Table 8: Indicative Plant Species List

TYPE 1 - FEATURE INTERCHANGE PLANTING	TYPE 2 - NATIVE SHRUBS AND GRASSES	TYPE 3 - RIVER-FLAT EUCALYPTUS FOREST REVEGETATION	TYPE 4 - PASTURE GRASS (WITH STRUCTURED NATIVE SHRUBS AND GRASSES BLOCK PLANTING	OPPORTUNITIES FOR FURTHER TREE PLANTING
Trees	**Shrubs and Groundcovers**	**Trees**	**Grasses**	**Trees**
Allocasuarina torulosa	*Acacia falcata*	*Allocasuarina torulosa*	*Aristada ramosa*	*Allocasuarina torulosa*
Casuarina glauca	*Acacia longifolia*	*Angophora floribunda*	*Aristada vagans*	*Casuarina glauca*
Eucalyptus ficifolia	*Acacia parramattensis*	*Casuarina glauca*	*Danthonia tenuior*	*Eucalyptus ficifolia*
Eucalyptus viminalis	*Banksia spinulosa*	*Corymbia maculata*	*Entolasia marginata*	*Eucalyptus viminalis*
Shrubs and Groundcovers	*Bursaria spinosa*	*Eucalyptus amplifolia*	*Entolasia stricta*	*Acacia longifolia*
Banksia spinulosa	*Dianella caerulea*	*Eucalyptus tereticornis*	*Imperata cylindrica*	*Acacia parramattensis*
Callistemon 'Captain Cook'	*Dillwynia revoluta*	*Melaleuca decora*	*Microlaena stipoides*	
Callistemon 'Endeavour'	*Dillwynia sieberi*	*Melaleuca linariifolia*	*Themeda australis*	
Doryanthes excelsa	*Grevillea sericea*	*Melaleuca stypheloides*	**Native Shrubs and Grasses**	
Grevillea juniperina	*Hardenbergia violacea*	**Shrubs and Groundcovers**	*Dianella caerulea*	
Kunzea ambigua	*Imperata cylindrica*	*Acacia elongata*	*Lomandra Longifolia*	
Meleleuca linariifolia 'Snowstorm'	*Kennedia rubicunda*	*Acacia falcata*	*Poa labillardieri*	
Myoporurn parvifoliurn	*Kunzea ambigua*	*Acacia parramattensis*	*Banksia spinulosa*	
Westringia fruicosa	*Leptospmum parvifolium*	*Bursaria spinosa*	*Cornea refluxa*	
Grasses	*Lomandra longifolia*	*Dianella revoluta*	*Grevillea juniperus*	
Dianella caerulea	*Melaleuca nodosa*	*Hardenbergia violacea*	**Scattered Trees to Bridge Approaches**	
Ficinia nodosa	*Poa labillardieri*	*Imperata cylindrica*	*Angophora floribunda*	
Pennisetum alopecuroides	*Themeda australis*	*Kunzea ambigua*	*Corymbia maculata*	
Poa labillardieri 'Eskdale'	**Grasses**	*Lomandra filiformis*	*Eucalyptus fribrosa*	
Poa sieberiana	*Aristada ramosa*	*Lomandra longifolia*	*Eucalyptus moluccana*	
Themeda australia	*Aristada vagans*	*Microlaena stipoides*		
	Danthonia tenuior	*Parsonsia straminea*		
	Entolasia marginata	*Themeda australis*		
	Entolasia stricta	*Viola siberiana*		
	Imperata cylindrica			
	Microlaena stipoides			
	Themeda australis			

4.6 Bridges

As part of the proposed modification, existing bridges along the Westlink M7 would require widening. A total of 43 bridges (split between northbound and southbound) would require widening across 23 locations. The widening of bridges would occur towards the median.

The proposed widening required to each bridge would vary between three to four metres. The construction process for bridge widening would typically include the establishment of new substructures (such as piers) and superstructures (such as decks and barriers).

The design for each bridge widening location would match with the existing bridge type. After construction, the existing ground access to creek lines and the shared path below the bridges would be re-established.

Integrating urban design input into the bridge structural design process ensures that the original intent in 'The Project Deed' requirements is maintained and implemented. Additionally, urban design for the bridges follows design policies and guidelines, including:

- *Beyond the Pavement - Urban design approach and procedures for road and maritime infrastructure planning, design, and construction* (Transport for NSW, 2020)
- *Bridge Aesthetics – design guideline to improve the appearance of bridges in NSW* (Transport for NSW, 2019)

Bridges along the corridor are intended to belong to the same design family and be part of a suite of unified elements along the Westlink M7. The overarching urban design approach to the bridge design has been:

- To design the visual expression of the bridges to be simple and streamlined to allow the surrounding landscape character to predominate
- To develop a consistent language to typical bridge elements to visually unify the bridges along the Westlink M7.

Urban design coordination across the proposed modification ensures a consistent approach to the design and detailing for all bridges across the Westlink M7. This approach includes the following design criteria:

- A uniform barrier design to maintain linear identity and consistency with those constructed along the Westlink M7.
- A fully integrated system of transparent noise walls/barriers, safety screens, and railings.

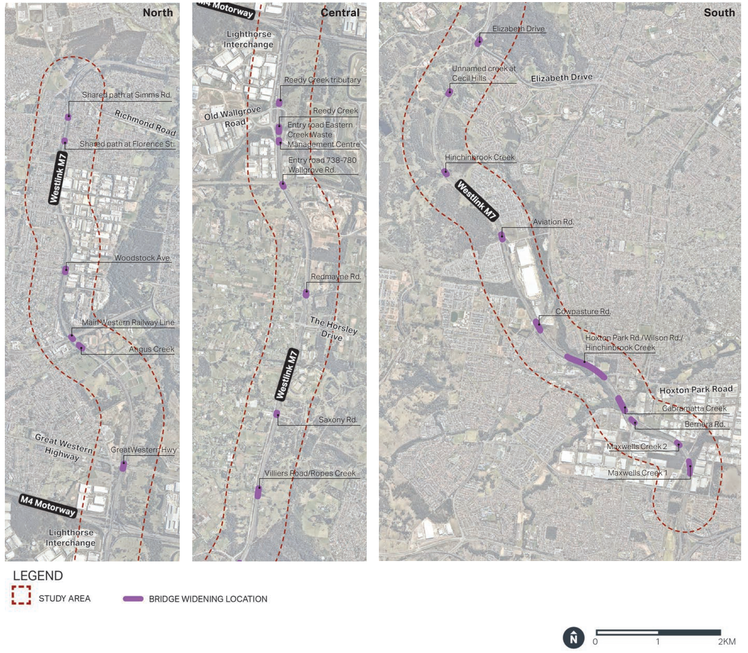

Figure 44: Locations where bridge widening will be required

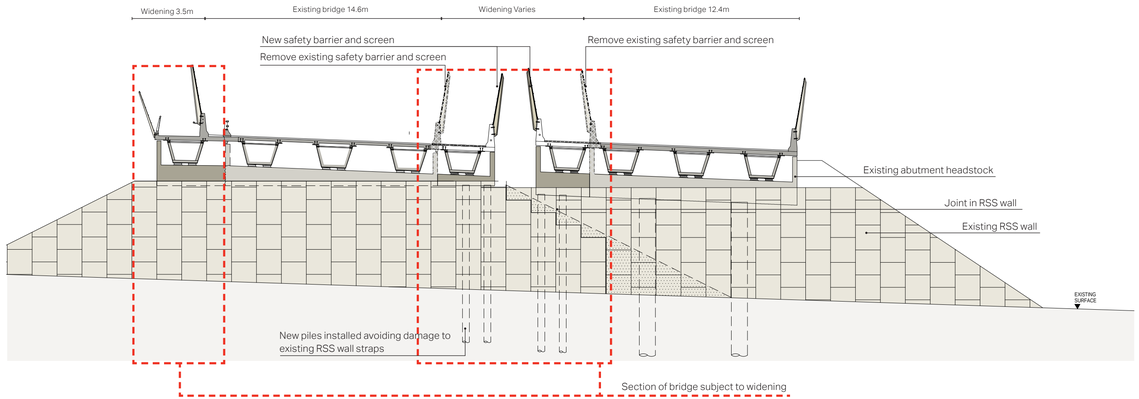

Figure 45: WM7 Widening Typical Cross Section -

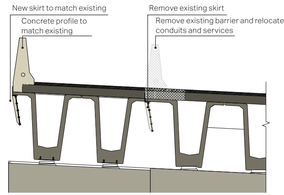

Figure 46: Typical detailed section of bridge widening

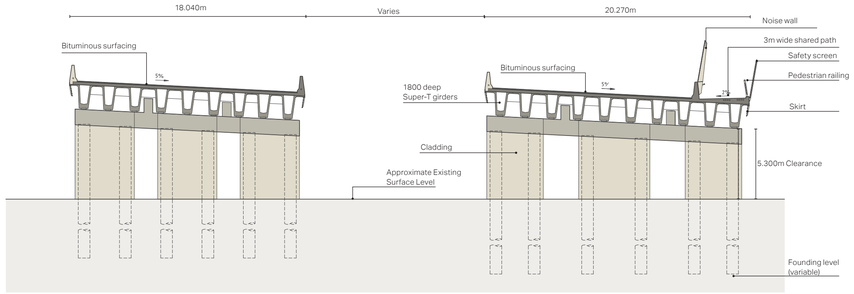

Figure 47: Typical Bridge Cross Section - sourced from 'As Built' drawing

Figure 49: Westlink M7 view between two bridges

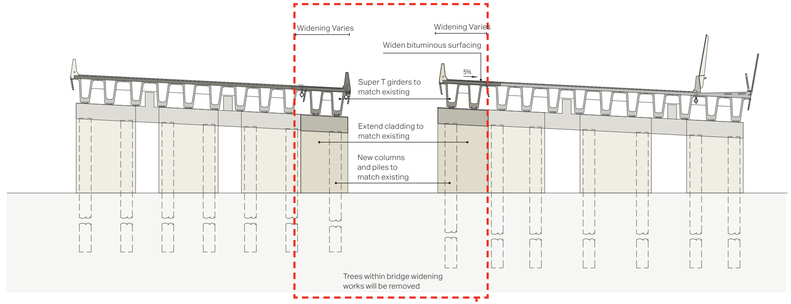

Figure 48: Typical Bridge Cross Section - proposed widening as per Illustrative Concept Plan

4.7 Noise mitigation

In order to mitigate operational noise traffic impacts, changes to existing noise walls fronting the Westlink M7and installation of a new noise wall would be required. Noise mitigation treatment would be subject to further detailed design and would generally involve a combination of the following measures:

- Increasing the height and/or length of existing noise walls fronting the Westlink M7
- Installing new noise walls fronting the Westlink M7
- Undertaking 'at receiver' treatments to individual buildings.

The location of noise walls and the type of walls being proposed new or increased in height are illustrated in **Figure 53, Figure 50 and Figure 51**.

Noise wall name	Existing or new noise wall	Proposed height
NW 18 extension	Existing noise wall to be adjusted	4 m
NW 33	Existing noise wall to be adjusted	6 m
NW Elizabeth Hills	Existing non-Westlink M7 noise wall to be adjusted	7 m
NW Middleton Grange	Existing non-Westlink M7 noise wall to be adjusted	6 m
NW Skipton Lane	New noise wall	5 m

As an evident element, noise walls play an essential role in the experience along the Westlink M7 and connecting them to the surrounding context.

The following principle and guidelines have been developed for the proposed modification based on the 'The Project Deed' and *Transport for NSW Noise Walls Guideline Design, guidelines to improve the appearance of noise walls in NSW* (Transport for NSW, 2008):

The design strategies for noise mitigation associated with the proposed modification should be designed in accordance with the following principles from the Project Deed:

- Ensure that negative impacts are minimised for both road users and neighbours, and that care is taken with the appearance of both sides of noise walls where they will be seen
- Use the design of noise barriers to further the twin goals of linear identity and lateral integration
- Promote route diversity by avoiding the monotonous repetition of a single wall design
- Allow views from the motorway to be at least partially retained
- Design barriers as sculptural elements in the landscape which contribute positively to its visual and experiential character
- Develop barrier designs as part of a fully integrated composition of built elements and soft landscape
- Relate barriers particularly to the design of bridges and retaining structures
- Ensure that barriers follow the vertical alignment of the road and avoid stepped tops and abrupt terminations
- Use transparent barriers on bridges, extending on embankments 20 metres back from abutments or as informed by the noise modelling in detailed design
- Use planting to soften the visual impact of barriers
- Use a painted finish on both sides of all barriers except transparent panels.

The design intent is to retain the existing features and materials as much as possible and when replacement is necessary, replace with like-for-like materials and features. For noise wall treatments, this means matching the design of modified noise walls to the existing noise walls at those locations. This will ensure the original design of Westlink M7 will endure after the widening process.

Figure 50: Example of noise wall type C4 - Proposed new noise wall south of Kurrajong Road near the M5 interchange

Figure 51: Example of noise wall type K - Noise walls to be increased north of Cowpasture Road to Hinchinbrook Creek, and also south of Lamb Street

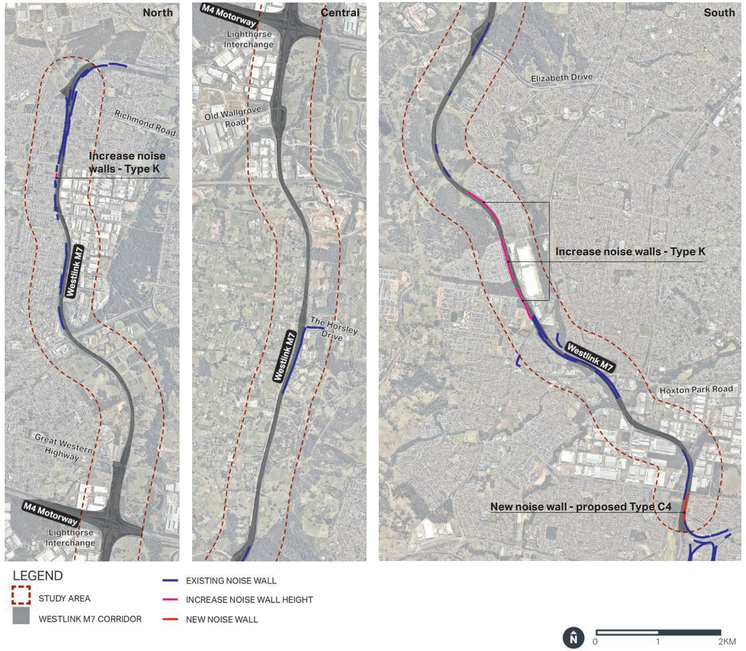

Figure 53: Landscape Character Zones within the study area

4.8 The M4 Motorway (Light Horse) Interchange

The Light Horse Interchange is located at the intersection of Westlink M7 and the M4 Western Motorways in Eastern Creek. The interchange is named in honour of Australia's mounted military units and features the Australian Light Horse Sculpture Parade designed by Conybeare Morrison architectural firm in consultation with The Returned Service League of Australia (RSL). This contemporary sculpture is integrated with and complemented by a formal planting of Moreton Bay Fig (*Ficus macrophylla*) trees which aimed to create a commemorative garden. The Australian Light Horse Sculpture Parade is a significant artwork featuring a central mast within the interchange with sets of markers stretching ~1.6 kilometres within the central medians of the Westlink M7 motorway and the M4 motorway. Each of the markers represents the heroic troops who served in the Australian Light Horse, and their horses that could never return to Australia. The colour of the markers is representative of the Flanders Poppy and poppies that bloomed throughout Palestine and is symbolic of the blood that was shed. The stainless-steel plumes attached to each marker represent the emu feather attached to each Light Horsemen's hat.

The proposed Westlink M7 widening would have impacts on the existing design and layout of the Light Horse Interchange.

4.8.1 Australian Light Horse Sculpture Parade original intent

Any repositioning of the markers as part of the M7 Widening works should be done in collaboration with the artist and/or RSL and should consider the original intent and the ongoing stewardship of the artwork. The artwork is set out to include two sets of four poles adjacent to each lane of the motorway with a Moreton Bay Fig tree situated between each double set of markers. However, the proposed widening works are not symmetrical with the sculpture layout, therefore any work to reposition the markers should consider the precise spacing of the original design and the interaction with any proposed tree planting.

The Australian Light Horse Sculpture Parade was implemented in 2006 with the markers assumed to be powder-coated steel with a set of stainless-steel wires to represent the plumage. The markers require closer examination to determine the condition of each pole. Due to age and exposure to the elements, the red coating of the sculptures has faded to orange. As the red colour is symbolic of poppies and blood of the servicemen who died during the war, the markers require re-coating to restore the pieces to represent the original intent of the sculpture.

During the preparation of the modification report, Transport and WSO Co. engaged the NSW Office of Veterans Affairs and NSW Returned Services League State branch to involve them in defining the final design response for the reinstatement of the artwork at the Light Horse Interchange. Further consultation will include any RSL sub-branches that were involved in the installation of the sculpture parade. Following finalisation of the design, the design will be available to view at community events, on the proposed modification website, and via social media. Refer also to Chapter 6 (Consultation) of the Modification Report.

4.8.2 Impact of construction works

An arborist assessment of the fig trees in the median of the Westlink M7 was undertaken (Arboricultural Assessment Report 2021) and identified that the growing conditions for the existing trees are generally poor and existing trees are not thriving. The report noted that the already stressed trees present greater risks from impacts.

The median soil conditions within the Light Horse Interchange are fabricated and are unsuitable for plant growth, with a significant proportion of spoil/fill material lacking significant organic matter to support healthy tree growth. This is a key contributing factor to inconsistencies in fig tree growth, size and vitality.

Exploration of the design options may consider removal and replacement of the trees with a more suitable species or retaining the trees with an adequate management plan, (eg. installation of root barriers, root baiting, annual pruning, ground maintenance and annual tree risk assessments).

Figure 54: Light Horse Interchange Artwork (source: www.studiocolpol.com.au)

4.8.3 Design Options

Several options can be considered to deal with the mitigation of the impacts to the Light Horse Interchange artwork and fig trees. Any option would require broader stakeholder engagement to understand the aspirations for the Australian Light Horse Parade and understand in more detail the likely extent of impacts from the construction phase works.

Key items to be considered throughout the stakeholder consultation include:

- tree configuration and possible replacement
- tree type and possible alternatives
- marker relocations and reinstatement
- available land surrounding the artwork
- lateral and longitudinal extent of the reconfigured artwork

The removal and replacement of figs presents an opportunity to examine the future design spacing and re-implementation of the Australian Light Horse Sculpture Parade artwork in response to the construction works.

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Landscape Character Impact Assessment

05

5. Landscape Character Impact Assessment

5.1 Landscape character assessment

Assessment of impact on landscape character considers the impact of change due to a project on the landscape. Impacts on Landscape Character Zones (LCZs) defined in **Section 2.3.7**) have been assessed at operation only as it is assumed that the landscape outside the proposed modification's operational footprint would be restored to its current condition after construction.

5.1.1 LCZ 1a: Transport Corridor

Description of works

Most of the operational changes would fall within this LCZ. The most prominent changes would include:

- Widening of both the northbound and southbound carriageways into the existing median to include an extra lane travelling in each direction for a length of about 27 kilometres along the Westlink M7
- Widening of 43 existing Westlink M7 bridges (split between northbound and southbound) across 23 locations, most of which would be widened into the existing median. On the approach to the M4 Motorway from Old Wallgrove Road the widening would occur on the outside of the bridges to accommodate supporting lanes and exit lanes. The design for each bridge widening location would match with the existing bridge type
- Utility works and upgrades to drainage infrastructure
- Increasing the height and/or length of existing noise walls fronting the Westlink M7
- Installing new noise wall fronting the Westlink M7
- Landscape works to areas affected by the works. Vegetation removed due to the proposed modification would not necessarily be reinstated like-for-like and may be reinstated elsewhere along the Westlink M7 due to operational and maintenance requirements (refer **Chapters 3** and **4** for more detail on urban design).

Magnitude: Moderate

The magnitude of landscape effect is influenced by:

- The scale of the change within the LCZ is moderately large, with the road pavement within the LCZ increasing from 4 to 6 lanes along the length of the LCZ, increasing the paved surface area within the corridor.
- The road widening and removal of vegetation in the median would also result in the spatial 'opening' of the road within the corridor and a hardening of the landscape due to the increase in paving and decrease in planting.
- The removal of tall vegetation between carriageways as the Westlink M7 passes over creeks would result in the loss of a characteristic element within the LCZ.
- The changes would occur over the entire length of the LCZ and would be experienced throughout most of the LCZ due to its narrow shape
- The duration of the impact would be long term with no chance of reversibility due to operational maintenance requirements. However, the changes would reduce over time with the maturation of planting.

Overall, the changes would be the upgrade of existing transport infrastructure within an LCZ which is defined by this land use. As such, while the changes seem to result in a 'High' magnitude rating due to their scale, prominence, and the loss of a characteristic element within the corridor, this rating is lowered due to the visual 'fit' of the resulting infrastructure. Furthermore, the replacement of planting within the LCZ would lower the impact of the works on the overall landscape character.

Landscape Character Assessment: Moderate

The rating is primarily influenced by:

- The changes would result in the upgrade of road infrastructure within an existing transport infrastructure corridor
- The changes would be primarily limited to the median of the road (including where the road passes over the surrounding landscape via bridge), with much of the planting replaced
- The overall outcome would typically comprise the widening of road pavement and bridges within the LCZ, with periodic changes to noise walls along the Westlink M7.

The qualitative rating for the changes due to the proposed modification are considered to be Adverse, with the removal of trees within the central median of the Westlink M7 resulting in a visual 'hardening' and widening of the Westlink M7.

Table 9: Landscape character impact assessment - LCZ 1: Transport Corridor

Landscape Character Impact Assessment	
Sensitivity	Moderate
Magnitude of Change	Moderate
Impact	Moderate
Qualitative Impact	Adverse

5.1.2 LCZ 1b: M4 (Light Horse) Interchange

Description of works

Changes within this LCZ would include:

- Widening of both the northbound and southbound carriageways into the existing median to include an extra lane travelling in each direction for a short distance in the lead up to the bridge over the M4 Motorway
- Establishing a two lane exit (increase from the existing one lane exit) from the Westlink M7 northbound to the M4 Motorway westbound
- Utility works and upgrades to drainage infrastructure
- Landscape works to areas affected by the works. Vegetation removed due to the proposed modification would not necessarily be reinstated like-for-like and may be reinstated elsewhere along the Westlink M7 due to operational and maintenance requirements (refer **Section 4.8** for more detail on urban design).

As noted in **Section 4.8**, the proposed widening works are not symmetrical to the sculpture layout, therefore would either result in a change to the symmetry of the artwork in relation to the carriageways, or a change to the spacing in the artworks from their existing position.

The construction works, while not assessed here, would result in changes to the memorial fig plantings within the LCZ. It is anticipated that 6 of the figs would require removal due to the works, however, any option to replace or remove these and the other figs within the LCZ would require stakeholder engagement. The removal of 6 figs has been assessed below.

Magnitude: High

The magnitude of landscape effect is influenced by:

- The scale of the change within the LCZ is moderately large, with the road pavement within part the LCZ increasing from 4 to 6 lanes and changes to up to half the Light Horse Sculpture Parade (that portion of the sculpture positioned along the Westlink M7), which comprises a major characteristic element within the LCZ.
- The road widening and removal of fig trees in the median would also result in the spatial 'opening' of the road within the corridor and a hardening of the landscape due to the increase in paving and decrease in planting.
- The changes would occur over up to a third of the overall area of the LCZ
- The result of the proposed modification would be permanent.

Similar to LCZ 1a, the changes would predominantly result in the upgrade of existing transport infrastructure within an LCZ which is somewhat defined by this land use. However, due to the smaller size of LCZ 1b and the importance of the Light Horse Sculpture Parade and memorial fig planting, the changes would result in a High magnitude rating.

Landscape Character Assessment: High

The rating is primarily influenced by:

- The changes would result in the upgrade of existing road infrastructure within an LCZ with a transport infrastructure focus, but would include changes to landmark elements within the highly sensitive LCZ
- The final outcome is somewhat unknown, with the final placement of the sculpture and plantings subject to further design in consultation with stakeholders.

The qualitative rating for the changes due to the proposed modification are considered to be Adverse, with the removal of trees within the central median of the Westlink M7 and potential changes to the Light Horse Sculpture Parade.

Table 10: Landscape character impact assessment - LCZ 1: Transport Corridor

Landscape Character Impact Assessment	
Sensitivity	High
Magnitude of Change	High
Impact	High
Qualitative Impact	Adverse

5.1.3 LCZ 2: Industrial

Description of works

While the proposed modification lies adjacent to this LCZ, there would be no operational impacts within this LCZ due to the proposed modification.

Magnitude: Negligible

The proposed modification would not lie within this LCZ. The proposed modification would lie adjacent to this LCZ in several places, however, no changes within the adjacent lands would affect the landscape character of LCZ 2: Industrial.

Landscape Character Assessment: Negligible

The proposed modification would not result in any change to landscape character within LCZ 2: Industrial as it does not lie within the LCZ, nor would any changes affect the character when they occur adjacent to the LCZ boundary. The qualitative rating for the changes would therefore be Neutral.

Table 11: Landscape character impact assessment - LCZ 2: Industrial

Landscape Character Impact Assessment	
Sensitivity	Low
Magnitude of Change	Negligible
Impact	Negligible
Qualitative Impact	Neutral

5.1.4 LCZ 3: Recreation and Bushland

Description of works

The boundary between LCZ 1: Transport Corridor and LCZ 3: Recreation and Bushland blur slightly where the Westlink M7 shared path links to adjoining recreational and bushland areas. This is particularly true where the shared path crosses riparian corridors where the Westlink M7 passes overhead on bridges, or where the Westlink M7 passes past or through large parkland areas such as the Western Sydney Parklands.

While none of the proposed modification falls within LCZ 3, some works would occur adjacent to it, particularly where the Western Sydney Parklands lie to the east and/or west of the Westlink M7. Elements of the proposed modification could potentially affect LCZ 3, particularly:

- Increased height of noise walls, which would visually and physically separate LCZ 1 from LCZ 3
- The clearing and replanting of vegetation along the riparian corridors to facilitate the widening of the Westlink M7 bridges, where existing vegetation (including trees) between motorway bridges would be replaced with shrubs, grasses and groundcovers only to facilitate future bridge inspections.

Magnitude: Low

The magnitude of landscape effect is influenced by:

- The geographical extent of effects of the proposed modification are contained predominantly within LCZ 1, with the exception of:
  - The removal of vegetation which may link greater patches of TECs has the potential to extend the effects of the proposed modification into this LCZ, particularly along the watercourses
- While the duration of these effects would be felt over the long term, they would potentially decrease over time with the maturing of vegetation planted to replace that removed within the riparian corridors, and any plants planted to mitigate the visual impact of the retaining walls (refer **Section 7.1**).

Landscape Character Assessment: Moderate to Low

The rating is primarily influenced by:

- The moderate sensitivity is a result of the high environmental value of the LCZ, patches of which are connected across LCZ 1 within which the changes would be contained
- The effect of the changes would reduce over time as the proposed modification landscape plantings matured, however, the tree canopy would not be replaced.

The qualitative rating for the changes due to the proposed modification are considered to be Adverse, with the removal of trees within the riparian corridors resulting in the potential reduction of bushland adjacent to this LCZ, thereby affecting the environmental values inherent within the LCZ.

Table 12: Landscape character impact assessment - LCZ 3: Recreational and Bushland Open Space

Landscape Character Impact Assessment	
Sensitivity	Moderate
Magnitude of Change	Low
Impact	Moderate to Low
Qualitative Impact	Adverse

5.1.5 LCZ 4: Residential

Description of works

While the proposed modification lies adjacent to this LCZ, there would be no direct operational impacts within this LCZ due to the proposed modification. The change closest to the boundary of this LCZ would be the increase in noise wall height at several locations immediately adjacent to this zone.

Magnitude: Low

The magnitude of landscape effect is influenced by:

- The scale of the change is characteristic of the LCZ within which it lies, which is the adjacent LCZ 1: Transport Corridor
- The geographical extent of the effects of the proposed modification is contained predominantly within LCZ 1. The exception is a series of new and adjusted noise walls on the edge of the LCZ in several locations, which is a typical characteristic within LCZ 4, where the residential suburbs adjoin the Westlink M7.
- The duration of the impact would be long term with no chance of reversibility.

Landscape Character Assessment: Low

The overall rating is influenced by:

- The low sensitivity of the LCZ to the proposed modification, which is due to the large size of the LCZ and the comparatively small area of it that would be affected by indirect impacts
- The increase in height and length of some existing noise walls and the proposed new noise wall would have a local effect on landscape character where these changes occur, however, the character of the overall LCZ would not be affected by these changes.

The qualitative rating for the changes would be Adverse due to the additional and increased noise walls, which would increase the visual prominence of the Westlink M7 due to large built form on the boundary.

Table 13: Landscape character impact assessment - LCZ 4: Residential

Landscape Character Impact Assessment	
Sensitivity	Low
Magnitude of Change	Low
Impact	Low
Qualitative Impact	Adverse

5.1.6 LCZ 5: Rural

Description of works

As per LCZ 2 and LCZ 4, the proposed modification would not occur within this LCZ, but in the adjoining LCZ 1: Transport Corridor.

Magnitude: Negligible

The proposed modification would not lie within this LCZ. The proposed modification would lie adjacent to this LCZ in several places, however, no changes within the adjacent lands would affect the landscape character of LCZ 5: Rural.

Landscape Character Assessment: Negligible

The proposed modification would not result in any change to landscape character within LCZ 5: Rural as it does not lie within the LCZ, nor would any changes affect the character when they occur adjacent to the LCZ boundary.

The qualitative rating for the changes would therefore be Neutral.

Table 14: Landscape character impact assessment - LCZ 5: Rural

Landscape Character Impact Assessment	
Sensitivity	Low
Magnitude of Change	Negligible
Impact	Negligible
Qualitative Impact	Neutral

5.2 Summary of landscape character impact assessment

Table 14 summarises the overall ratings for the impact of the proposed modification on landscape character of each LCZ.

Two of the five LCZs returned a Negligible rating as the proposed modification would not affect the landscape character within them.

Although the changes occur within the motorway corridor (LCZ 1a: Transport Corridor and LCZ 1b: M4 (Light Horse) Interchange), two other LCZs returned ratings of Moderate to Low and Low due to the changes:

- LCZ 3: Recreation and Bushland returned a Moderate to Low rating due to potential effects on the bushland within the LCZ due to clearing vegetation that would break up patches of TECs, predominantly along riparian corridors that intersect with the Westlink M7
- LCZ 4: Residential returned a Low rating due to changes to noise walls at the Westlink M7 boundaries, some of which would be raised to 8m in height, however, noise walls are characteristic elements along the boundary between residential development and high speed transport corridors.

The highest rating of impact due to the proposed modification was found within the motorway, particularly LCZ 1b: M4 (Light Horse) Interchange, where changes to the Light Horse Sculpture Parade and memorial fig planting would comprise a High impact due to the importance of these memorial elements within a relatively small LCZ.

The impact on landscape character in LCZ 1a was found to be Moderate as even though the proposed modification would result in changes along the entire length of the LCZ and be experienced from a majority of the width in some way, the changes themselves were the widening and upgrade of an existing high speed transport corridor with similar elements. Therefore, the overall character of the LCZ was not affected to a high degree due to the changes.

The qualitative rating of change to the LCZs was Neutral for LCZs that experienced a Negligible change to overall character. The remaining LCZs that returned a rating of Low or above (LCZs 1a, 1b, 3 and 4) returned an Adverse qualitative rating in response to proposed additional noise walls, increases in existing noise wall height, changes to the Light Horse Sculpture Parade and memorial fig planting, and vegetation removal in the riparian corridors, the tree canopy of which would not be replaced within the lease area.

5.3 Cumulative impact assessment

The landscape surrounding the proposed modification is undergoing a series of changes, particularly due to the development of the Western Sydney Aerotropolis, the Western Sydney International (Nancy Bird Walton) Airport and the M12 Motorway. These changes affect the overall landscape character of the surrounding area and the views available.

Considering the change in landscape character, the proposed modifications impact on the surrounding overall landscape is minimal considering the contained nature of the changes within the transport corridor. The character (including future character) of the area is included in **Sections 2.1**, **2.2** and **2.3** using planning and design reference documents including for the M12 Motorway, the Western Sydney Parklands and local LEPs. The Western Sydney Aerotropolis Plan (2020), Western Sydney Airport Plan (2021) and Draft Aerotropolis Precinct Plan (2020) were also considered in regards to future landscape character of the area. The proposed modification is considered appropriate given the anticipated future character of the surrounding landscape.

Table 15: Landscape character assessment summary

Landscape Character Zone	Sensitivity	Magnitude	Overall rating	Qualitative rating
LCZ 1a: Infrastructure Corridor	Moderate	Moderate	Moderate	Adverse
LCZ 1b: M4 (Light Horse) Interchange	High	High	High	Adverse
LCZ 2: Industrial	Low	Negligible	Negligible	Neutral
LCZ 3: Recreation and Bushland	Moderate	Low	Moderate to Low	Adverse
LCZ 4: Residential	Low	Low	Low	Adverse
LCZ 5: Rural	Low	Negligible	Negligible	Neutral

Visual Impact Assessment

06

6. Visual Impact Assessment

6.1 Visibility of the proposed modification

The visibility of the proposed modification has been mapped in **Figure 55**. Overall, the visual catchment of the proposed modification is predominantly contained within the Westlink M7 corridor due to the visual containment of the Westlink M7 by landform, noise walls and vegetation. Some further views to proposed modification elements would be seen where the motorway corridor widens, for example, at interchanges with the M4 Motorway or where perpendicular roads intersect the Westlink M7, or where the Westlink M7 is more visible within the surrounding environment due to breaks in the boundary vegetation (e.g. near the Blacktown Sportspark), where the carriageways pass lower landscape areas via bridge, or where the noise walls are tall enough that they can be seen from further distances outside the corridor.

During construction, the most visually prominent elements would include:

- Clearing of vegetation and earthworks within the Westlink M7 median, including under the bridges
- Set up of the construction ancillary facilities within and outside the Westlink M7, including access tracks
- Construction equipment and activity for widening the median and bridges
- Construction activity associated with changes to noise walls within the Westlink M7.

These changes would be seen predominantly within the Westlink M7, with views to most of the construction activity from surrounding areas screened by vegetation, existing noise walls and batters on either side of the Westlink M7. Construction ancillary facilities and construction associated with bridges and noise walls would be seen outside the Westlink M7 but dotted along the length of the motorway.

At operation, the largest overall change would be the widening of the Westlink M7 carriageways from 4 lanes to six lanes, a narrowing of the central median and vegetation clearing. These changes are predominantly visually contained within the Westlink M7 and would not be seen from the surrounding landscape.

Changes to existing noise walls and the installation of new noise walls would be seen from the surrounding landscape and would be seen occasionally within the study area. Changes to bridges would be seen not only at road level from the carriageways but also from below, viewed from the surrounding landscape and from the shared path.

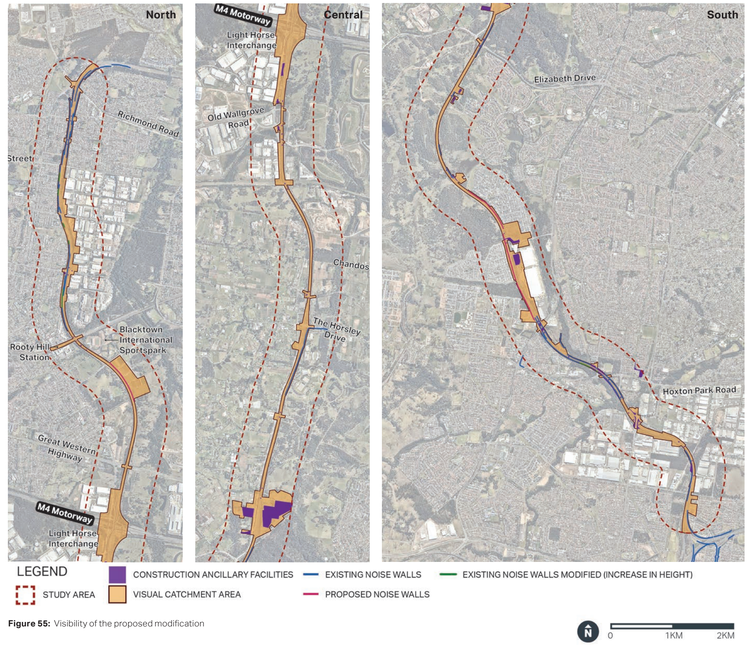


Figure 55: Visibility of the proposed modification

6.2 Viewpoints

6.2.1 Visual receptors

Visual receptors would have views to components of the proposed modification from:

- within the road corridor, including from vehicles travelling along the Westlink M7 or pedestrians and cyclists using the Westlink M7 shared path
- outside the road corridor, including from the:
  - public domain, including roads that pass over, under or adjacent to the Westlink M7, parks and sports fields
  - private domain, including residences, places of work or worship.

Of these groups, visual receptors have been grouped into the following categories which would roughly share similar sensitivity to changes to views, being:

- passers-by in vehicles along the Westlink M7
- residents in neighbouring suburbs and employees of surrounding businesses
- recreational visitors to parks and sporting areas and users of the Westlink M7 shared path.

6.2.2 Representative viewpoints

19 representative viewpoints have been chosen to assess potential impacts on existing views, as described in **Section 6.2.1** (refer **Figure 56**). Most of these viewpoints assess the changes from a single static location, however, one viewpoint (Viewpoint 1) has been split into four sub-categories which describe typical view conditions to assess the change in views seen by people in vehicles travelling on the Westlink M7, then combined to give a single rating for the motorway:

- When the Westlink M7 is roughly at grade with the surrounding landscape
- When the Westlink M7 travels over the surrounding landscape (via bridge)
- When the Westlink M7 lies below the grade of the surrounding landscape (enclosed between cuttings)
- When the Westlink M7 approaches the M4 Motorway (Light Horse) Interchange from either direction.

The same approach has not been taken for visual receptors on the Westlink M7 shared path for the following reasons:

- The length of the proposed modification along the Westlink M7 is 27 kilometres, which at speeds of approximately 100 kilometers per hour would take just over 15 minutes to drive. It is therefore assumed that many visual receptors would potentially drive the full or most of the length of the Westlink M7 comfortably, or at least enough of the motorway to experience most of the four sub-categories listed above
- The shared path within the study area is longer than the adjoining motorway carriageways due to crossing points, slight deviations at interchanges and locations where the path separates from the Westlink M7 carriageways. The path is used by both cyclists and pedestrians, travelling at lower speeds, and with their overall route assumed to include a smaller percentage of the overall Westlink M7 shared path
- The slower travelling speed of shared path users and the differing environmental conditions experienced along the shared path (including areas where the shared path crosses over the top or underneath the Westlink M7 carriageways) would likely result in changes to the sensitivity of viewpoints along the shared path.

Individual locations that illustrate typical landscape conditions along the shared path have therefore been assessed separately, rather than combining the ratings to assess the change along the entire shared path.

The rationale for choice of viewpoint locations comprises:

- **Viewpoint 1: Westlink M7 Carriageways (northbound and southbound)**
  Representative view for visual receptors travelling along the Westlink M7 (northbound and southbound)
- **Viewpoint 2: Florence Street Underpass**
  Representative view for pedestrians and cyclists travelling on the shared path under the Westlink M7
- **Viewpoint 3: Eastern end of Plumpton Road, Plumpton**
  Representative view for residents living at the end of Plumpton Road and pedestrians and cyclists accessing the shared path
- **Viewpoint 4: Rooty Hill Station**
  Representative view for commuters at Rooty Hill Station east towards the Westlink M7 overpass over the train line
- **Viewpoint 5: Blacktown Sportspark**
  Representative view for visitors to Blacktown Sportspark
- **Viewpoint 6: Westlink M7 Shared Path near Old Wallgrove Road exit, Eastern Creek**
  Representative view for users of the shared path and for potential visual receptors seeing the changes from a business park overlooking the Westlink M7
- **Viewpoint 7: Westlink M7 Shared Path north of Chandos Road, Horsley Park**
  Representative view for users of the shared path at a location where the path is elevated above the road corridor
- **Viewpoint 8: Chandos Road Overpass**
  Representative view for pedestrians and vehicles travelling along Chandos Road as it crosses over the Westlink M7
- **Viewpoint 9: Westlink M7 Shared Path north of Redmayne Road, Horsely Park**
  Representative view for users of the shared path where the path is at grade with the Westlink M7, separated from the carriageways by a fence
- **Viewpoint 10: Westlink M7 Shared Path north of Elizabeth Drive**
  Representative view for users of the shared path where the path is at grade with the Westlink M7, separated from the carriageways by a concrete barrier
- **Viewpoint 11: Saxony Road, Horsley Park**
  Representative view for recreational visitors to the Western Sydney Parklands
- **Viewpoint 12: Westlink M7 Shared Path near Hinchinbrook Creek**
  Representative view for pedestrians and cyclists using the shared path where the Westlink M7 travels over a watercourse
- **Viewpoint 13: Dobroyd Drive, Cecil Park**
  Representative view for residents in nearby housing to the Westlink M7
- **Viewpoint 14: Westlink M7 Shared Path near Middleton Drive**
  Representative view for pedestrians and cyclists travelling on the shared path as it passes the Westlink M7 via underpass. This location also lies adjacent to a drainage line crossing the Westlink M7 and may be subject to future roadworks as Aviation Drive is connected to Middleton Drive under the Westlink M7
- **Viewpoint 15: Cowpasture Road Underpass, Lens Water Estate**
  Representative view for visual receptors at the Cowpasture Road underpass under the Westlink M7
- **Viewpoint 16: Westlink M7 Shared Path at Hinchinbrook Creek, Hoxton Park**
  Representative view for pedestrians and cyclists using the shared path as it crosses Hinchinbrook Creek under the Westlink M7
- **Viewpoint 17: Hoxton Park Reserve**
  Representative view for recreational visitors to Hoxton Park Reserve
- **Viewpoint 18: Bernera Road Underpass, Prestons**
  Representative view for visual receptors at the Bernera Road underpass under the Westlink M7
- **Viewpoint 19: Kurrajong Road Overpass, Prestons**
  Representative view for pedestrians and vehicles travelling along Kurrajong Road as it crosses over the Westlink M7.

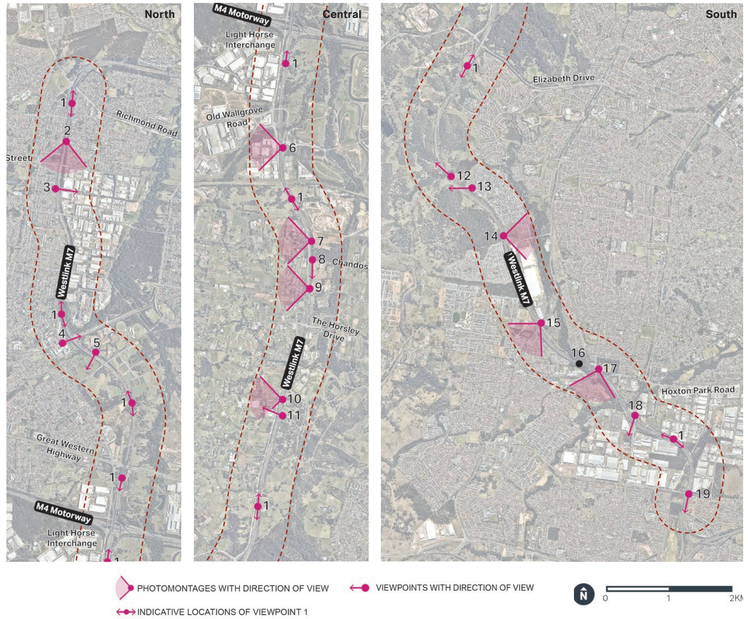


Figure 56: Representative viewpoints for visual impact assessment

6.3 Visual Impact Assessment at Operation

6.3.1 Viewpoint 1: Westlink M7 Carriageways (northbound and southbound)

Along the entire length of the Westlink M7 within the study area, the view from within the road corridor includes the following:

- A two lane road carriageway extending from the foreground of the view into the distance, with the road surface expanding to three lanes at entry and exit points
- The Westlink M7 road surface is typically flat to gently undulating, gently curving with the landform, and with a wide, grassed and/or vegetated central median strip
- Signage, gantries and safety infrastructure are seen spaced along the length of the Westlink M7, as well as passing bays, entry and exit ramps and lighting
- The Westlink M7 shared path is intermittently seen travelling parallel to the motorway, although the position and visibility of the shared path changes due to the surrounding landscape.

However, due to the length of the Westlink M7, the experience of views while travelling along the road changes along its length due to the landscape through which the motorway passes. Views experienced along the corridor can be grouped by 4 typical view scenarios:

- Viewpoint 1a: When the carriageways are roughly at grade with the surrounding landscape
- Viewpoint 1b: When the carriageways travel over the surrounding landscape, typically over watercourses, via bridge
- Viewpoint 1c: When the carriageways sit below the grade of the surrounding landscape, i.e. the Westlink M7 is enclosed between cuttings
- Viewpoint 1d: When approaching the M4 Motorway (Light Horse) Interchange from either direction.

These viewpoints are representative of the views seen by drivers and passengers on the Westlink M7 travelling on the northbound and southbound carriageways.

6.3.1.1. Viewpoint 1a: Carriageways at grade with the surrounding landscape

Description of existing views

When the carriageways are roughly at grade with the surrounding landscape, the view from passing vehicles typically comprises the following:

- The foreground of the view comprises a two lane road carriageway with a wide central median.
- The median is most often grassed, but includes feature blocks of low, flowering shrub planting of Bottlebrush and Grevillea species. Wire safety barriers and concrete barriers sometimes lie within the median.
- The outer verges of the Westlink M7 vary, but are often vegetated with trees in turf or trees with a shrub understorey. Beyond this, views to the landscape outside the Westlink M7 can be seen to varying extents:
  - Where the Westlink M7 passes through residential areas it is visually contained by tall noise walls that visually enclose it (refer **Figure 57**).
  - Where the Westlink M7 passes industrial areas, brief views can be seen into these more industrial landscapes as the motorist passes (refer **Figure 58**).
  - Bands of tall vegetation often screen views outside the Westlink M7 (refer **Figure 59**).
- The Westlink M7 shared path is intermittently seen travelling parallel to the motorway, where the carriageways are roughly at grade with the surrounding landscape, the shared path is sometimes visible from vehicles where it is separated by concrete barriers (refer **Figure 57**).

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors travelling on the Westlink M7 are either driving, with their attention focused on the road ahead and on the activity of operating the car, or travelling as passengers, who have more of an opportunity to appreciate the passing landscape
- Vehicles travelling on the Westlink M7 are driving either trucks (where the act of driving is an occupation), commuters in smaller vehicles or on motorbikes, or visitors who are less familiar with the Westlink M7. It is possible that the utilitarian comfort of the road design (such as slope, curve, road width and passing vehicles) may be the focus of occupational drivers, particularly of large vehicles such as trucks, than the landscape outlook
- Passengers and other drivers may have their attention focused on the views to varying extents. This stretch of motorway has occasional picturesque moments, but the visual containment of the Westlink M7, the length of the typically homogeneous driving experience and the speed at which the vehicles travel would all lower the extent to which the occupants of vehicles would be focused on the views when driving on the Westlink M7
- The value attached to the views from the Westlink M7 would be moderate.

Anticipated change to the view

Changes would include the following:

- The carriageways of the Westlink M7 would be widened by an additional lane in each direction, with a reduction in the width of the central median
- The median and verges of the Westlink M7, where affected by the construction activities, would be finished, typically with turf but with some shrub planting in banks, as per the existing landscape
- There would be changes to overhead gantries, signage, lighting, safety fencing and increased height of some of the noise walls, however, these changes would comprise a replacement of existing built form within the Westlink M7 corridor.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The proposed modification would result in a slightly widened road pavement and a narrower median along the length of the Westlink M7 within the study area
- While there would be changes to the vegetation in the median, the existing turf with occasional banks of shrub planting would be typically reinstated, albeit at different locations
- The change in built form, including signage, safety fencing, lighting, etc. would comprise a replacement of infrastructure
- The changes would be seen at close proximity and for long periods of time as the receptors travelled along the Westlink M7, but the changes would be typically visually recessive due to the similar character of the proposed modification to the existing situation
- The changes would be permanent.

Visual impact rating: Moderate to Low

The visual impact of the proposed modification on views from the Westlink M7 at operation is considered to be Moderate to Low, with changes typically comprising a widening of the carriageway in either direction and a replacement of infrastructure (e.g. signage and safety barriers).

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification on the overall Westlink M7 is considered to be Adverse due to the visual 'hardening' because of the reduction in the turf median.

Figure 57: The Westlink M7 flanked by noise walls. The shared path lies to the left of frame

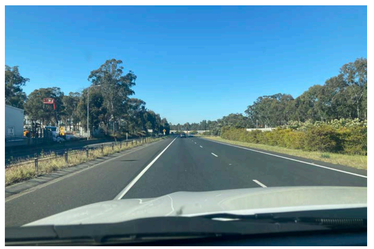


Figure 58: The Westlink M7 flanked by an industrial area to the left of frame

Figure 59: The Westlink M7 flanked by bands of vegetation

6.3.1.2. Viewpoint 1b: Carriageways above the surrounding landscape, bridge over creek crossings

Description of existing views

When the carriageways are above the level of the surrounding landscape, the view from passing vehicles typically comprises the following:

- The Westlink M7 passes over the surrounding landscape via two bridges, one northbound and the other southbound
- The foreground of the view comprises the two bridges with traffic travelling in a single direction. The carriageway travelling in the opposite direction is most often not visible due to the canopy of trees that poke up between the two bridges, as shown in **Figure 60**
- The bridge / carriageway is typically visually contained by safety barriers, noise walls, vegetation (both in the 'median' between the bridges and sometimes at the outer edges of the Westlink M7), as shown in **Figure 61**.
- Tree canopies vary due to the landscape under which the Westlink M7 passes. Riparian corridors often contain Casuarinas and Melaleuca species, while areas that are less prone to flooding typically contain Eucalypt species, whose canopies appear above the bridge railings and noise walls
- Noise walls, where they occur, are either transparent (refer **Figure 60**), offering brief views to the surrounding landscape, or solid (refer **Figure 61**)
- The road pavement widens temporarily where an exit (refer **Figure 62**) or entry links to a bridge
- The Westlink M7 shared path is sometimes visible from the road corridor either attached to the road bridge or on a separate shared path bridge running parallel to the road bridge
- Typical signage, lighting and safety barriers are visible within the view.

Sensitivity: Moderate

The sensitivity of this viewpoint is similar to that of Viewpoint 1a in that:

- Visual receptors travelling on the Westlink M7 are drivers or passengers in vehicles including trucks (where utilitarian comfort of the road design such as slope, curve and road width may have a higher importance than the landscape outlook)
- Vegetation on either side of creek crossings typically visually contains views seen from this viewpoint, focussing the view along the road corridor rather than to the landscape beyond. Some views can be seen through transparent noise walls, but these are limited in number and the views somewhat distorted by the screens
- The value attached to the views from the Westlink M7 at these locations is moderate.

Anticipated change to the view

Changes would include the following:

- Each impacted bridge would be widened by an additional lane, with a reduction in the central gap between carriageway bridges
- The northbound and southbound carriageway bridges would clearly be seen due to the removal of the central vegetation, increasing the seen width of the Westlink M7 from bridges. The road pavement and passing traffic would be more visually prominent within the view
- There would be changes to overhead gantries, signage, lighting and safety fencing, however, these changes would comprise a replacement of existing built form within the Westlink M7 corridor on the bridges
- Noise walls would be extended or heightened in places.

Magnitude: High

The magnitude of change is influenced by the following factors:

- The road would be more visually prominent within the view as each bridge carrying traffic in opposite directions would be visible within the view
- There would be a visual 'hardening' of the view due to the reduction of tree canopy and the increase in height and extent of noise walls
- The changes would be seen at close proximity as the receptors travelled over the bridges
- The changes would be permanent.

Visual impact rating: High to Moderate

The visual impact of the proposed modification on views from the Westlink M7 at operation is considered to be High to Moderate primarily due to the visual widening of the road corridor with the removal of tree canopy separating carriageways as the motorway crosses riparian corridors via bridges.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification at this viewpoint is considered to be Adverse due to the visual 'hardening' of the view along the motorway with the removal of tree canopy seen from bridges at riparian creek crossings, and the visual separation of the northbound and southbound carriageways that the canopy provided at bridges.

Figure 60: A bridge on the Westlink M7 flanked by noise walls, safety barriers and vegetation

Figure 61: A bridge on the Westlink M7 flanked by noise walls, safety barriers and vegetation

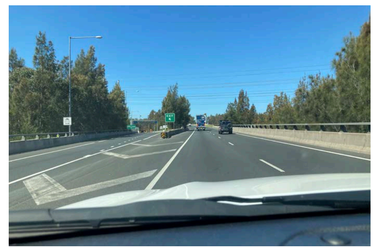


Figure 62: A bridge on the Westlink M7 widens nearing an exit ramp

6.3.1.3. Viewpoint 1c: Carriageways below the level of the surrounding landscape

Description of existing views

When the carriageways lie below the level of the surrounding landscape, the view from passing vehicles typically comprises the following:

- The foreground of the view comprises a two lane road carriageway with a wide, grassed central median with some wire safety barriers (refer **Figure 63**).
- The carriageways lie within a cutting, with one or both verges comprising steep batters vegetated with grasses and occasional stands of trees (refer **Figure 64**)
- Overpass bridges span the Westlink M7 with occasional roads or the Westlink M7 shared path crossing the motorway (refer **Figure 65**)
- The shared path is typically positioned above the road pavement on a batter or bench (refer **Figure 64**)
- The Westlink M7 widens in places at entries (refer **Figure 63**) and exits to the motorway, or where there are stopping bays (refer **Figure 64**).

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors would be similar to those identified in Viewpoints 1a and 1b, however, moments within this viewpoint are particularly picturesque due to local high points where views to the horizon are seen framed between the cuttings on either side of the motorway
- The value attached to the views would be moderate to high, particularly where more extensive views along the Westlink M7 to the horizon can be seen, for example, near Elizabeth Drive southbound, looking south to the horizon.

Anticipated change to the view

Changes would include the following:

- Each carriageway would be widened by one lane, with a reduction in the width of the central median
- The median and verges of the Westlink M7, where affected by the construction activities, would be finished with turf and occasional banks of shrubs
- There would be changes to overhead gantries, signage, lighting and safety fencing, however, these changes would comprise a replacement of existing built form within the Westlink M7 corridor.

Magnitude: Low

The magnitude of change at viewpoints is influenced by the following factors:

- The proposed modification would result in a slightly widened road pavement and a narrower median along the length of the Westlink M7 within the study area
- The change in built form, including signage, safety fencing, lighting, etc. would comprise a replacement of infrastructure
- The changes would be seen at close proximity and for long periods of time as the receptors travelled along the Westlink M7, but would be typically visually recessive due to the similar character of the proposed modification to the existing situation and viewed at high speeds
- The changes would be permanent.

Visual impact rating: Moderate to Low

The visual impact of the proposed modification on views from the Westlink M7 at operation is considered to be Moderate to Low. At this viewpoint the proposed modification would typically comprise the widening of the carriageways and a reduction in the width of the turf median. There would be no impact on the views towards the horizon, where they are available.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification is considered to be Adverse due to the visual 'hardening' of the Westlink M7 because of the reduction in the turf median.

Figure 63: The Westlink M7 widens at entry and exit points

Figure 64: The motorway is visually contained, with batters framing the road pavement to the east and west. The shared path is visible to the left of frame on the batter

Figure 65: Occasional road and shared path overpasses are visible above the motorway

6.3.1.4. Viewpoint 1d: Approaching the M4 Motorway (Light Horse) Interchange

Description of existing views

Approaching the M4 Motorway (Light Horse) Interchange, the view from passing vehicles typically comprises the following:

- The foreground of the view comprises a two lane road carriageway with a wide, grassed central median, widening to three lanes when approaching an exit or near an entry to the Westlink M7 (refer **Figure 66**)
- A decorative avenue of Fig trees between rows of red poles of the Light Horse Sculpture Parade and wire safety barriers (refer **Figure 67**)
- Vegetation on the verges comprises either trees with a grass understorey (refer **Figure 66**) or mown turf and grass batters leading up to the overpass bridges (refer **Figure 67**)
- The overpass bridges connecting to the M4 Motorway and the M4 Motorway itself are seen spanning the Westlink M7 on the horizon of the view, along with the central 55 metre landmark structure of the Light Horse Sculpture Parade (refer **Figure 67**).

Sensitivity: High

The sensitivity of this viewpoint is influenced by:

- Visual receptors would be similar to those identified in Viewpoint 1c, however, rather than a landmark view to the landscape outside the Westlink M7, the elevated, curving bridges and artwork associated with the M4 Motorway (Light Horse) Interchange create a landmark moment within the journey
- The value attached to the views from the Westlink M7 would be high, with the higher value placed on landmark experience of the M4 Motorway (Light Horse) Interchange northbound and southbound, which has cultural / memorial value associated with it, particularly with the inclusion of the Light Horse Sculpture Parade and associated fig trees

Anticipated change to the view

At operation there would be few changes to the view approaching the M4 Motorway (Light Horse) Interchange. The Westlink M7 would be widened beyond the existing road leading up to the M4 Motorway (Light Horse) Interchange, with an additional lane added to the approach to the exit ramps.

The landscape affected by the proposed modification would be replaced, including all but 6 of the Fig trees (subject to ongoing design) and the Light Horse Sculpture Parade.

Magnitude: Moderate

The magnitude of change is influenced by the following factors:

- The changes to the scale of infrastructure within the view would predominantly be small, limited to the widening of the Westlink M7 leading to an off-ramp onto the M4 Motorway
- There would be no change to the scale of the Westlink M7 which continues under the overpasses of the M4 Motorway (Light Horse) Interchange
- The loss of fig trees within the view would comprise a substantial change due to the value of the trees within the memorial landscape
- The changes would be seen briefly as the visual receptor approached the interchange
- The changes would be limited to one side of the northbound and southbound carriageways, with limited impact on the central median
- The changes would be seen at close proximity and for short periods of time as the receptors travelled along the Westlink M7, but would be typically visually recessive due to the similar character of the proposed modification to the existing situation and viewed at high speeds
- The changes would be permanent.

Visual impact rating: High to Moderate

The visual impact of the proposed modification at this viewpoint is considered to be High to Moderate due to the removal of fig trees nearing the M4 Motorway (Light Horse) Interchange and the widening of the carriageways.

Qualitative impact rating: Adverse

The removal of fig trees nearing the M4 Motorway (Light Horse) Interchange and the widening of the carriageways would result in an Adverse qualitative impact.

Figure 66: The Westlink M7 widens to three lanes at entry and exit points

Figure 67: Heading north on the Westlink M7 approaching the overpass linking to the M4 Motorway

6.3.2 Viewpoint 2: Florence Street Underpass

Viewpoint 2 is positioned at the entry point to the Westlink M7 shared path west of the Westlink M7 bridges, looking east along the path that travels under the motorway (refer **Figure 68** and **Figure 69**). While the viewpoint has been assessed from this position, the changes to the viewpoint at operation have been illustrated by a photomontage from directly between the carriageways of the Westlink M7, looking north (refer **Figure 70**), as this shows the removal of vegetation and widening of each carriageway bridge most clearly.

Description of current view

The existing view seen from Viewpoint 2 comprises the Westlink M7 shared path in the foreground, heading east under the Westlink M7 (refer **Figure 69**). The underpass is flanked to the north and south by batters adjacent to the bridge abutments, vegetated with Eucalypt trees and grass. The bridge abutments are solid, clad with two different finishes of blockwork arranged in bands.

The Westlink M7 passes overhead, with the bridges separated by a wide median, which provides a band of sunlight to the shared path as it passes beneath. Vegetation can be seen above the Westlink M7 bridges poking up from the central median of the motorway and from the far verge.

The bridges are visually prominent, with the concrete safety barriers on the side of the bridges topped with tall mesh throw screens.

Figure 68: Keyplan showing viewpoint 2 location and proposed modification

Figure 69: Existing view west of the Westlink M7 looking east from the intersection of the Florence Street access path with the Westlink M7 shared path

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would predominantly comprise pedestrians and cyclists using the shared path. Residents in nearby housing may see some changes in the view as they leave their houses, but would be unlikely to see any changes from within their properties
- Their attention may be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views, however, this location of the shared path is not particularly picturesque as it passes between cross streets and under the Westlink M7
- The value attached to the view would be low considering there are no heritage items within the view and the view is dominated by the road corridor passing over the shared path. The shared path is a valuable recreational resource, and as such has recreational value to the community
- Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes to the view would include the widening of the Westlink M7 Bridges into the median (illustrated in **Figure 70** when seen from the centre of the shared path, directly between the bridges looking north), narrowing the gap between them seen from the eastern side of the underpass. The landscape within the central median would comprise grasses, with the trees removed during construction not being replaced.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The scale of the changes are similar to that seen in the existing view, with the Westlink M7 bridges widening slightly, reducing the light well viewed within the underpass
- The trees removed during the construction period may not be replaced in the median, but this is a visually recessive change due to the tree canopy and throw screens that screen this loss from the viewpoint. This change would only be seen as the receptor moved along the path and under the twin bridges
- The changes would comprise a very small portion of the overall view, and be contained within a small portion of the middle ground of the view
- The changes would be permanent, however, are visually recessive within the view.

Overall visual impact rating: Moderate to Low

The visual impact rating is primarily influenced by:

- The visual receptors would pass this viewpoint as one of many within a greater journey, and while this location is not picturesque, it has recreational value
- The changes would comprise a slight narrowing in the gap between bridges within an underpass
- The view to the median would be visually 'hardened' due to the trees not being replaced within the median, but the median is not visually prominent within the view.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification on the overall Westlink M7 is considered to be Adverse due to the reduction in light that penetrated through to the underpass and the removal of vegetation between the carriageway bridges.

Figure 70: Existing view from the shared path between the Westlink M7 bridges, looking north

Figure 71: Photomontage showing proposed view at operation from the shared path

6.3.3 Viewpoint 3: Eastern End of Plumpton Road, Plumpton

This viewpoint is representative for residents living adjacent to the Westlink M7 where a noise wall separates the neighbourhood from the motorway, positioned at the eastern end of Plumpton Road, Plumpton (refer **Figure 72**). This is an access point to the Westlink M7 shared path from a residential street where the motorway is at grade with the surrounding landscape.

Description of current view

The existing view from this viewpoint is shown in **Figure 74**. The foreground of the view comprises the access path between the end of the cul-de-sac of Plumpton Road and the Westlink M7 shared path. The driveways of the easternmost residential homes in the street are shared with the shared path hard stand.

The middle ground of the view includes the two residences to the north and south of the shared path entry, with each house sharing a boundary with the Westlink M7 shared path, marked by Colourbond fencing. The shared path lies between the Colourbond fencing and the grey noise wall, with scattered mature Eucalypt trees flanking the shared path.

The verges, carriageways with passing traffic and median of the Westlink M7 are screened from view by the noise walls, with only the canopies of trees within and beyond the motorway visible above the noise walls.

Figure 72: Key plan showing viewpoint 3 location and proposed modification.

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would comprise residents in adjoining houses and pedestrians and cyclists accessing the Westlink M7 shared path from the surrounding neighbourhood. Residents would only see a view to the changes from their front gardens and potentially from any windows along the eastern sides of the houses, although these windows would also look out onto a 1.8m Colourbond fences along their property boundaries
- These receptors would typically be sensitive to the views from their properties and along their recreational paths, however, at this location the view comprises a noise wall approximately four meters tall in height adjacent to the motorway, which could lower the sensitivity of receptors to changes in the view
- Values attached to the view from this location would be moderate, particularly as residents are a more sensitive to views from their properties. Recreational receptors are also often sensitive to views as these often influence their recreational experience
- There are no heritage or cultural values within the view.

Anticipated change to the view

There would be no changes to the view as all works would occur behind the existing noise wall.

Magnitude: Negligible

There would be no changes within the view.

Overall visual impact rating: Negligible

The proposed modification would not result in any change to the view from this viewpoint.

Qualitative rating: Neutral

As such, the qualitative rating for the changes would be Neutral.

Figure 74: Existing view from the cul-de-sac at the eastern end of Plumpton Road, looking east towards the entry to the Westlink M7 shared path

6.3.4 Viewpoint 4: Rooty Hill Station

This viewpoint is representative of Rooty Hill Station looking north east along the rail corridor towards the Westlink M7 (refer **Figure 73**).

Description of current view

The view from the station platform looking north east to the Westlink M7 overpass over the rail corridor is shown in **Figure 75** and **Figure 76**. The view comprises the rail corridor extending from the platform end into the distance to the north east, visually contained between bands of dense vegetation on either side. The foreground of the view contains the visual clutter of rail infrastructure such as overhead wiring, signals, safety and electrical infrastructure and tracks.

The Westlink M7 is seen in the middle to back ground of the view, spanning the rail corridor.

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors would comprise people at the station, either waiting to get on or having just got off a train. This visual receptor group would be unlikely to be focused on the views from the station along the rail corridor, unless waiting for a train to appear on the horizon
- The quality of the view is low, comprising the utilitarian character of the rail corridor and with no heritage or scenic elements within the view.

Anticipated change to the view

The Westlink M7 bridge over the rail corridor would be widened into the central median.

Figure 73: Keyplan showing viewpoint 4 location and proposed modification

Magnitude: Negligible

The changes to the Westlink M7 bridge would not be visible from this distance and within the context of the surrounding landscape.

Overall visual impact rating: Negligible

The proposed modification would not result in any change to the view from this viewpoint.

Qualitative rating: Neutral

As such, the qualitative rating for the changes would be Neutral.

Figure 75: Existing view from the platform at Rooty Hill Station looking west to the Westlink M7 overpass

Figure 76: Detail of the Westlink M7 overpass shown in **Figure 75**

6.3.5 Viewpoint 5: Blacktown Sportspark

This viewpoint is representative for views seen by visitors to Blacktown Sportspark looking south west (refer **Figure 77**). Blacktown Sportspark occupies an area bounded by the Main Western Line (rail) to the north, Westlink M7 to the west and Knox Road to the east. Eastern Road passes through the middle of the park in an east-west direction, with football (soccer) facilities positioned to the south of Eastern Road, including the Western Sydney Wanderers Centre of Football and playing fields.

A view from within the sports park to the Westlink M7 can be seen from several locations including sports fields positioned along the north eastern extent of the Westlink M7 (refer **Figure 78**). A view into the sports park can be intermittently seen from the Westlink M7 (refer **Figure 79**), but is most often screened by shrubs and trees in the verge.

Description of current view

The view from Viewpoint 5 is shown in **Figure 78** and comprises steep batter with turf, and a band of taller trees and shrubs on the top and western side of the batter, next to the Westlink M7. The road pavement is not visible, however, taller passing vehicles, such as trucks, can be seen as they pass.

The most prominent elements within the view are the sportsgrounds themselves and the infrastructure within them (e.g. parking areas, lighting, signage, fencing, etc.)

Figure 77: Keyplan showing Viewpoint 5 location and proposed modification

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors within the sports park are likely to have their attention on their activities within the park, including parking their cars, accessing the fields, watching or playing sport
- The attention of these receptors is unlikely to be focused on the landscape outside the park, particularly since the park is flanked by a high speed motorway
- There are no heritage or cultural values attached to the views at this location.

Figure 78: The view from Viewpoint 5 towards the proposed modification

Figure 79: View from the southbound carriageway of the Westlink M7 to the sports fields south of Eastern Road looking south east (Source: Google Street View)

Anticipated change to the view

At operation no changes would be seen from the viewpoint. The changes would be screened by the batter and verge vegetation within the Westlink M7 corridor.

Magnitude: Negligible

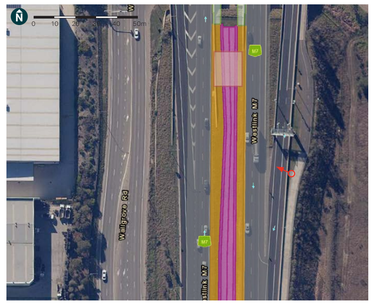
No changes would be seen from this viewpoint.

Overall visual impact rating: Negligible

The proposed modification would not result in any change to the view from this viewpoint.

Qualitative rating: Neutral

As such, the qualitative rating for the changes would be Neutral.



LEGEND

- VIEWPOINT AND PHOTOMONTAGE DIRECTION
- LANE WIDENING INTO MEDIAN
- MEDIAN CLEARING
- BRIDGE WIDENING
- CONSTRUCTION ANCILLARY FACILITY

Figure 80: Keyplan showing viewpoint 6 location and proposed modification

6.3.6 Viewpoint 6: Westlink M7 Shared Path near Old Wallgrove Road exit, Eastern Creek

This viewpoint is representative of users of the Westlink M7 shared path near an exit where the motorway corridor is widened to accommodate entry and exit ramps (refer **Figure 80**). The Westlink M7 lies adjacent to an industrial area with views over the Westlink M7 corridor at this location.

Description of current view

The view from this viewpoint is shown in **Figure 81**.

From the shared path, the view north west comprises the road pavement in the foreground, seen beyond the concrete safety barrier that separates the carriageways from the shared path. Closest to the viewpoint is the entry ramp to the carriageways, with the tolling gantry overhead. A low concrete median separates the southbound carriageways from the entry ramp, then a grassed median separating northbound and southbound carriageways within the Westlink M7.

The background of the view comprises the tops of trees and shrubs on the western verge of the Westlink M7, with the tops of industrial buildings seen beyond that.

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would predominantly comprise pedestrians and cyclists using the shared path
- Their attention may be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views, however, this location of the shared path is not particularly picturesque as it passes a particularly wide portion of the Westlink M7 flanked by industrial development. The eastern edge of the shared path at this location is flanked by screening vegetation (not shown in **Figure 81**) which visually softens the view along the shared path to the north and south
- It is likely that at this location where the view to the Westlink M7 is not picturesque, the attention of visual receptors would be less on the motorway and more focused on the path ahead
- The value attached to the view would be low considering there are no heritage items within the view and the view is dominated by the utilitarian road corridor. However, the shared path is a valuable recreational resource, and as such has recreational value to the community
- Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes seen from this viewpoint would comprise the addition of one lane in each direction to the centre of the Westlink M7, with the grassed median replaced with a concrete safety barrier. The concrete safety barrier would block views to the road pavement on the northbound carriageway, so even though the amount of hard surface road) would increase on both sides of the road, the increase would be visible on one side to visual receptors.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The scale of the changes are similar to that seen in the existing view, with the southbound carriageway increasing by one lane, but the northbound lanes now screened from view by a concrete safety barrier
- The changes would comprise a small portion of the overall view, and be contained within the middle ground of the view
- The changes would be permanent, however, would be visually recessive within the view.

Overall visual impact rating: Low

The visual impact rating is primarily influenced by:

- The visual receptors would pass this viewpoint as one of many within a greater journey, and while this location is not picturesque, views from the shared path would be seen as part of the recreational journey
- The changes would be minimal, visually comprising a the addition of one lane in either direction and a central concrete safety barrier
- It is likely that visual receptors would have their attention primarily focused on the path ahead rather than the less attractive view across the Westlink M7.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification at operation is considered to be Adverse due to the slight visual 'hardening' of the Westlink M7 with the replacement of the turf median with a concrete barrier and the widening of the northbound and southbound carriageways.

Figure 81: Existing view from Viewpoint 6, looking north west from the shared path over the Westlink M7 and the entry ramp from Old Wallgrove Road

Figure 82: Photomontage showing the proposed view at operation from Viewpoint 6

6.3.7 Viewpoint 7: Westlink M7 Shared Path north of Chandos Road, Horsley Park

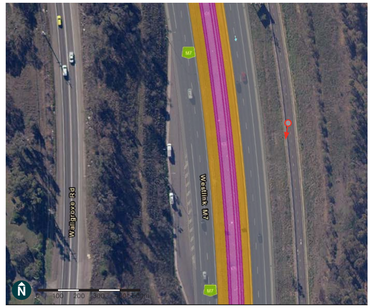
This viewpoint is representative for visual receptors travelling on the Westlink M7 shared path (refer **Figure 83**) when the path lies at a higher level than the carriageways.

Description of current view

The view from this location is shown in **Figure 84**. The foreground of the view comprises the shared path, lighting, batters and safety fencing. The Westlink M7 carriageways are seen below the level of the shared path, extending into the distance and disappearing from view beneath the Chandos Road overpass.

The Westlink M7 comprises the northbound and southbound carriageways of the motorway, two lanes in either direction, separated by a wide grassed median strip.

The land on either side of the carriageways comprise grassed batters with clumps of Eucalypt trees and occasional shrubs.



LEGEND

- VIEWPOINT AND PHOTOMONTAGE DIRECTION
- LANE WIDENING INTO MEDIAN
- MEDIAN CLEARING

Figure 83: Keyplan showing viewpoint 7 location and proposed modification

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would predominantly comprise pedestrians and cyclists using the shared path
- Their attention may be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views. At this location the view down to the Westlink M7 carriageways is softened by the vegetated batters on either side of the Westlink M7, as well as the perspective view from the shared path
- While there are no heritage items within the view and the view is dominated by the utilitarian road corridor, the Cumberland Plain landscape is represented on the batters, suggesting the bushland setting outside the Westlink M7 boundaries.
- The shared path is a valuable recreational resource, and as such has recreational value to the community. Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes seen from this viewpoint would comprise the addition of two lanes to the centre of the Westlink M7 (one in each direction) and a reduction in the width of the grassed median (refer **Figure 85**). Wire safety barriers may be required.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The scale of the changes are similar to that seen in the existing view, with the northbound and southbound carriageways increasing by one lane, with a reduction in the width of the central grassed median
- The changes would comprise a moderate portion of the overall view, but would be visually recessive and similar in character to the existing view
- The changes would be permanent.

Overall visual impact rating: Moderate to Low

The visual impact rating is primarily influenced by:

- The view from this location on the shared path has picturesque qualities, particularly due to its height above the Westlink M7 carriageways and bushland surroundings.
- The changes would be minimal, visually comprising a the addition of one lane in each direction to the Westlink M7 and a reduction of the grassed central median
- The changes predominantly comprise a slight alteration to an existing dominant feature within the view, but not a change in the character of the view.

Qualitative impact rating: Adverse

There would be slight visual 'hardening' of the Westlink M7 seen from this location, however, this is lessened due to the distance to the median, angle of viewing and the visual reduction of the turf in the median.

Figure 84: Existing view from Viewpoint 7, looking south along the Westlink M7 shared path and carriageways to the Chandos Road overpass

Figure 85: Photomontage showing proposed view at operation from Viewpoint 7 (refer to **Figure 85**)

6.3.8 Viewpoint 8: Chandos Road Overpass

This viewpoint is representative of that seen by passers-by travelling over the Chandos Road overpass (refer **Figure 86**), either on foot, cycling or within a vehicle.

Description of current view

The view from the Chandos Road overpass looking south is shown in **Figure 87**. The mesh throw screen seen at the bottom of **Figure 87** rises in height from the edges of the bridge, blocking any clear view along the Westlink M7 from the overpass.

The view from the middle of the overpass seen between the mesh grid is shown in **Figure 88**. The viewpoint has been positioned at the end of the overpass where the clearest view to the Westlink M7 can be seen.

The view from Viewpoint 8 comprises an elevated view down to the Westlink M7, including the grassed batters on the eastern side of the motorway in the foreground of the view beyond the lower part of the throw screen. The Westlink M7 shared path is seen halfway down the batter, above the southbound carriageway.

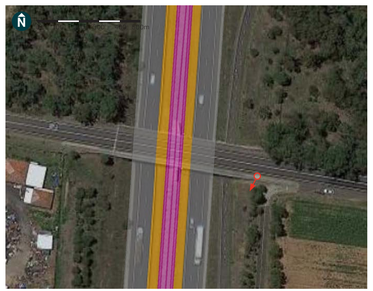


Figure 86: Keyplan showing viewpoint 8 location and proposed modification

The two lane carriageways in either direction are seen in the middle ground of the view separated by a wide, grassed median. The background of the view comprises the western grassed verge with occasional scattered trees, and the carriageways extending south out of sight.

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would be crossing an overpass, most within vehicles, but a low number on foot. While pedestrians may get fleeting glimpses of the Westlink M7 from the footpath, it is unlikely that drivers and passengers in vehicles would see the view along the Westlink M7 in any detail due to the distance from the edge of the overpass, the oblique angle of viewing as they entered the overpass and the mesh throw screens on either side in the middle of the overpass
- Passers-by would not be likely to have their attention focused on the view from the bridge, with most visual receptors likely to be focused on the road / path ahead. The view along the Westlink M7 may be of passing interest to pedestrians due to the elevation of the overpass and the distant views they could see along the Westlink M7, however, these are also partially screened by the mesh throw screens that line the overpass
- There are no particular heritage, cultural or recreational values associated with the view along the Westlink M7 from this viewpoint.

Figure 88: Existing view from the footpath in the centre the Chandos Road Overpass looking south along the Westlink M7

Figure 87: Existing view from the footpath at the eastern end of the Chandos Road Overpass looking south along the Westlink M7

Anticipated change to the view

At operation, changes seen from this viewpoint would comprise the addition of one lane to the centre of the Westlink M7, with the width of the grassed median reduced.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The scale of the changes are similar to that seen in the existing view, with the northbound and southbound carriageways increasing by one lane, with a reduction in the width of the central grassed median
- The changes would comprise a moderate portion of the overall view, but would be visually recessive and similar in character to the existing view and seen either from an oblique angle or from behind a throw screen
- The changes would be permanent.

Overall visual impact rating: Low

While the changes would be seen from this location, the visual impact would be low considering the angle of viewing and the pace of travel of most passers-by.

Qualitative impact rating: Adverse

The qualitative rating is considered to be Adverse. Even though visual receptors would not have the same opportunities to dwell on the changes that they would from an elevated position that provided clearer views along the Westlink M7, there would be an increase in the hard road surface within the view.

6.3.9 Viewpoint 9: Westlink M7 Shared Path north of Redmayne Road, Horsley Park

This viewpoint, shown in **Figure 89**, is representative of the view seen by recreational users of the Westlink M7 shared path when it is at grade with the Westlink M7 carriageways.

Description of current view

The view from Viewpoint 9 (refer **Figure 90**) comprises the shared path and southbound carriageway of the Westlink M7, separated by safety fencing and a wire barrier, extending south towards the horizon.

The view is framed to the east by a band of trees lying adjacent to the Westlink M7, and a band of tree canopies poking up from the central median of the motorway as the level of the surrounding landscape drops below that of the motorway carriageway bridge. The northbound carriageway can be seen beyond the grassed central median to the west (right of frame), but is screened from view to the south by the tree canopy in the median.

Figure 89: Keyplan showing viewpoint 9 location and proposed modification

A band of dark tree canopies are seen on the horizon of the view.

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would comprise pedestrians and cyclists using the shared path
- Their attention may be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views
- The value attached to the view would be reduced considering there are no heritage items within the view and and the view is dominated by the somewhat utilitarian road corridor, however, the shared path is a valuable recreational resource, and as such has recreational value to the community.

Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes seen from this viewpoint (refer **Figure 91**) would comprise the addition of one lane in either direction to the centre of the Westlink M7, with the view more open across the six lanes of traffic than the existing view across four lanes due to the removal of the trees between the bridges of the carriageways. The grassed central median, where visible, would be narrower.

Magnitude: Moderate

The magnitude of change is influenced by the following factors:

- The scale of the Westlink M7 pavement is increased within the view, with the southbound and northbound carriageways both increased by one lane and the tree canopies that partially screened the northbound lanes removed due to the bridge widening
- The changes would comprise a moderate portion of the overall view, and would be contained within the middle ground of the view
- The changes would be permanent, however, are reasonably visually recessive within the view.

Overall visual impact rating: Moderate

The Moderate visual impact rating is primarily influenced by:

- The visual receptors would pass this viewpoint as one of many within a greater journey, and while this location is not particularly picturesque, it has recreational value
- The changes would be moderate, visually comprising a the addition of two lanes to the Westlink M7 and the visual 'widening' of the entire motorway due to vegetation removal within the median
- It is likely that visual receptors would have their attention primarily focused on the path ahead rather than the view across the Westlink M7.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification at operation is considered to be Adverse due to the slight visual 'hardening' and widening of the Westlink M7.

Figure 90: Existing view from Viewpoint 9 looking south along the Westlink M7 from the shared path north of Redmayne Road

Figure 91: Photomontage showing proposed view at operation from Viewpoint 9

6.3.10 Viewpoint 10: Westlink M7 Shared Path north of Elizabeth Drive

The view from this viewpoint (the location of which is shown in **Figure 92**) is similar to that experienced from Viewpoint 9 (the view from the shared path when at grade with the Westlink M7 carriageways), except that there is no tall vegetation in the median at this location.

Description of current view

The view from Viewpoint 10 (refer **Figure 93**) comprises the shared path and southbound motorway, separated by concrete guard rail, extending northwards towards the horizon.

The view is framed to the east by a steep grassed batter next to the shared path and a batter with grasses and trees adjacent to the northbound carriageway. The view across the motorway includes two lanes in either direction separated by a grassed median with occasional low shrubs.

Figure 92: Keyplan showing viewpoint 10 location and proposed modification

The Westlink M7 extends north until the road turns to the east and disappears from sight behind a noise wall that separates the shared path from the carriageways.

Sensitivity: Moderate

The sensitivity of this viewpoint would be similar to that at Viewpoint 9:

- Visual receptors at this location would comprise pedestrians and cyclists using the shared path
- Their attention may be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views
- The value attached to the view would be reduced considering there are no heritage items within the view and the view is dominated by the somewhat utilitarian road corridor, however, the shared path is a valuable recreational resource, and as such has recreational value to the community
- Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes seen from this viewpoint (refer **Figure 94**) would comprise the addition of one lane in either directions to the centre of the motorway and a narrowing of the central grassed median.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The scale of the changes are similar to that seen in the existing view, with the northbound and southbound carriageways increasing by one lane, with a reduction in the width of the central grassed median
- The changes would comprise a moderate portion of the overall view, but would be relatively visually recessive and similar in character to the existing view
- The changes would be permanent.

Overall visual impact rating: Moderate to Low

The visual impact would be Moderate to Low considering the following:

- The angle of viewing and the pace of travel of most passers-by
- The changes would be minimal, visually comprising a the widening of each of the motorway carriageways and a reduction of the central median
- The changes predominantly comprise a slight alteration to an existing dominant feature within the view, but not a change in the character of the view.

Qualitative impact rating: Adverse

There would be slight visual 'hardening' of the motorway seen from this location, however, the adverse effect is minimised due to the distance to the median, angle of viewing and the visual reduction of the turf in the median.

Figure 93: Existing view from Viewpoint 10

Figure 94: Photomontage showing proposed view at operation from Viewpoint 10

6.3.11 Viewpoint 11: Saxony Road, Horsley Park

This viewpoint (shown in **Figure 95**) is representative for recreational visitors to the Western Sydney Parklands, the entry point of which is on Saxony Road (refer **Figure 96**) as there is no direct view from within the Parklands to the proposed modification.

Description of current view

The view from Viewpoint 11 is shown in **Figure 97**. The view from Saxony Road looking west to the Westlink M7 comprises the road pavement and footpath in the foreground, extending west to the Westlink M7 overpass over Saxony Road. The view is bounded to the south by a grassed batter with scattered trees.

The Westlink M7 overpass bridge is seen in the middle ground of the view, visually terminating most of the view west of this location. Trees can be seen on the ridge line of the motorway, with the entry to the shared path to the north (right of frame) near the motorway. Passing traffic can be seen on the overpass bridge.

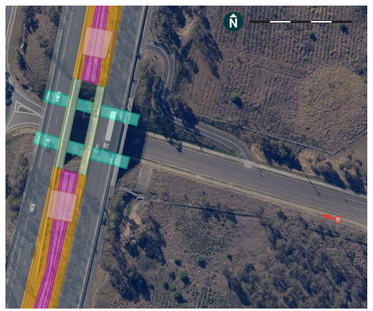


Figure 95: Keyplan showing viewpoint 11 location and proposed modification

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors are most likely to see the view from this location as they are leaving the Western Sydney Parklands either on foot, bike or in a car. There would be a low percentage of people on foot at this location based on the surrounding land use context
- Visual receptors are not likely to be have their attention focused on the view from this viewpoint as their attention would most likely be on the road or footpath as they travelled along it
- There are no heritage, cultural or recreational values attached to the view as it lies outside the main entry gates of the Parklands.

Anticipated change to the view

The Westlink M7 bridge over Saxony Road would be widened into the central median.

Magnitude: Negligible

The changes to the Westlink M7 bridge would not be visible from this distance and within the context of the surrounding landscape.

Overall visual impact rating: Negligible

The proposed modification would not result in any change to the view from this viewpoint.

Qualitative impact rating: Neutral

As there are no changes in the view, the qualitative rating for the changes would be Neutral.

Figure 96: Entry to the Great Western Parklands via Saxony Road

Figure 97: The view from the crest of Saxony Road to the Westlink M7 overpass

6.3.12 Viewpoint 12: Westlink M7 Shared Path near Hinchinbrook Creek

This viewpoint, shown in **Figure 98**, is representative of the view seen by recreational users of the Westlink M7 shared path as it and the motorway carriageways pass over a riparian corridor, in this case Hinchinbrook Creek.

Description of current view

The existing view is shown in **Figure 99**. The foreground of the view comprises the shared path with a concrete barrier separating it from the southbound motorway carriageway. The shared path is bounded to the east by the dense canopy of Casuarina trees within the Hinchinbrook Creek riparian corridor. This vegetation is also seen in the median of the motorway, which drops away to the north as the bridge spans the creek. The canopy vegetation in the median and in the creek corridor below the bridge deck level visually separates the northbound and southbound carriageway, reducing the amount of road pavement and passing traffic seen within the view north along the Westlink M7.

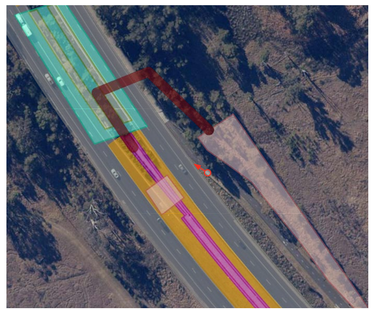


Figure 98: Keyplan showing viewpoint location and proposed modification

The northbound carriageway of the motorway can be seen to the south west, to the left of frame, separated from the northbound carriageway by a wide turf median and concrete barrier.

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would comprise pedestrians and cyclists using the shared path
- Their attention may be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views
- The value attached to the view would be moderate. While there are no heritage items within the view and the view is dominated by the somewhat utilitarian road corridor, the shared path is a valuable recreational resource, and as such has recreational value to the community and is quite picturesque as it crosses the riparian corridor, framed by trees to the east
- The trees in the median and below the bridge deck, poking up between the carriageways, is somewhat an indicator where the Westlink M7 crosses a creek within the landscape, adding interest to the view at these locations.

Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes seen from this viewpoint would comprise the addition of one lane in either direction to the centre of the motorway and the visual 'opening up' of the view across the six lanes of traffic due to the removal of the trees between the bridges of the carriageways. The grassed central median, where visible, would be narrower.

Magnitude: Moderate

The magnitude of change is influenced by the following factors:

- The scale of the motorway pavement is increased within the view, with the southbound and northbound carriageways both increased by one lane and the tree canopies that partially screened the northbound lanes removed due to the bridge widening not being replaced
- The changes would comprise a moderate portion of the overall view, and be contained within the middle ground of the view
- The changes would be permanent, however, are reasonably visually recessive within the view.

Overall visual impact rating: High to Moderate

The visual impact rating is primarily influenced by:

- The visual receptors would pass this viewpoint as one of many within a greater journey, with the viewpoint having recreational value
- The changes would comprise the addition of two lanes (one in each direction) and the visual 'widening' of the motorway due to permanent vegetation removal within the median
- The trees in the median and below the bridge deck, poking up between the carriageways, are an indicator where the Westlink M7 crosses a creek within the landscape, which would be lost from this view.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification at operation is considered to be Adverse due to the visual 'hardening' and widening of the motorway.

Figure 99: Existing view from the shared path looking north along the Westlink M7 to the crossing point of Hinchinbrook Creek

6.3.13 Viewpoint 13: Dobroyd Drive, Cecil Park

This viewpoint is representative for residents in nearby housing at Elizabeth Hills (refer **Figure 100**). The viewpoint was positioned at the corner of Dobroyd Drive where the houses finish and the residents have access to a large park and access to the Westlink M7 shared path to the north west.

Description of current view

The view from this viewpoint comprises the end of Dobroyd Drive and the footpath extending into the parkland to meet the Westlink M7 shared path between the residential estate and the Westlink M7. The foreground of the view includes the road verge and park edge with wire rope fencing (refer **Figure 101**).

The middle ground of the view includes the edge of residential properties to the south, including the front garden and side fence to the property. The park, comprising turf with occasional scattered trees, is seen to the north and west.

Figure 100: Keyplan showing viewpoint 13 location and proposed modification

The background of the view includes trees and shrubs within the park and those positioned along the north eastern boundary of the Westlink M7. The road pavement and passing traffic is screened from view by the vegetation.

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would comprise residents in adjoining properties and pedestrians and cyclists accessing the Westlink M7 shared path from the surrounding neighbourhood. Residents would potentially see a view to the changes from their front gardens and from windows along the southern sides of the houses, although these windows would also look out onto a 1.8m Colourbond fences along their property boundaries
- These receptors would typically be sensitive to the views from their properties and along their recreational paths, however, at this location the Westlink M7 (where a majority of the work would occur) is screened from view
- Values attached to the view from this location would be moderate, particularly as residents are more sensitive to views from their properties. Recreational receptors are also often sensitive to views as these often influence their recreational experience
- There are no heritage or cultural values within the view.

Anticipated change to the view

No changes would be seen from this viewpoint. An increased height noise wall would be positioned close to this location, as shown in **Figure 100**, but would be positioned at the bottom of the batter next to the road pavement and would not be seen from this location.

Magnitude: Negligible

None of the changes within the road corridor would be visible due to the lower level of the road, position of new infrastructure and fringing vegetation along the Westlink M7 verges.

Overall visual impact rating: Negligible

No changes would be seen from this location.

Qualitative impact rating: Neutral

As such, the qualitative impact is Neutral.

Figure 101: Existing view from near 24 Dobroyd Drive, looking south west towards the Westlink M7

6.3.14 Viewpoint 14: Westlink M7 Shared Path near Middleton Drive

This view is representative for pedestrians and cyclists travelling on the shared path as it passes the Westlink M7 via underpass. This location lies adjacent to a drainage line crossing the Westlink M7 (refer **Figure 102**) and may be subject to future road works as Aviation Drive is planned to be connected (by others) to Middleton Drive under the Westlink M7.

Description of current view

The existing view is shown in **Figure 103**, comprising the shared path on a raised boardwalk extending east under the Westlink M7. A wide gap between the two Westlink M7 carriageways lets light into the void, through which a patch of trees are growing.

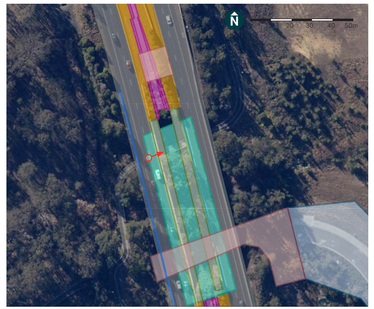


Figure 102: Keyplan showing viewpoint 14 location and proposed modification

The middle ground of the view comprises the batter up to the Westlink M7 carriageways to the north (left of frame) vegetated with grasses, weeds and occasional shrubs. The topography drops towards the drainage corridor to the south (right of frame).

The view under the southbound carriageway bridge comprises the shared path before it turns north and disappears from view. The background of the view seen under the Westlink M7 bridges comprises a paddock, framed by residential housing to the east.

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would predominantly comprise pedestrians and cyclists using the shared path
- Their attention may be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views
- The shared path is not particularly picturesque at this point as it passes under the Westlink M7
- The value attached to the view would be reduced as there are no heritage items within the view and the view is dominated by the road corridor overhead, however, the shared path is a valuable recreational resource, and as such has recreational value to the community.

Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes seen from this viewpoint (illustrated in **Figure 104**) would comprise the northbound and southbound carriageway bridges of the Westlink M7, increasing the lanes to three in either direction. The existing vegetation between the carriageway bridges would be replaced with a riparian plant community including trees, shrubs and grasses. This would eventually be similar to the vegetation removed.

Magnitude: High

The magnitude of change is influenced by the following factors:

- The scale of the motorway pavement is increased within the view, with the southbound and northbound carriageways both increased by one lane and the landscape beneath the Westlink M7 visually opened up due to the removal of trees and the immaturity of the low landscape planting
- The architecture of the motorway would be more visually prominent within the view due to the removal of taller vegetation and the increase in the bridge widths
- There would be a greater level of shading due to the increased carriageway bridges
- The changes would comprise a high portion of the overall view, and be and be seen in the fore and middle ground of the view

The changes would be permanent.

Overall visual impact rating: High to Moderate

The High to Moderate visual impact rating is primarily influenced by:

- The visual receptors would pass this viewpoint as one of many within a greater journey, with the viewpoint having recreational value
- The changes would comprise the increase in the width of both carriageway bridges and the visual 'widening' of the view under the motorway due to vegetation removal
- The vegetation growing beneath bridges is often stunted, weedy and has bare patches due to the low light levels and reduced rainfall. The trees between the bridges screened the view to some of these less desirable features, and with no replacement tree planting in the immediate area of these elements may be more noticeable within the view.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification at operation is considered to be Adverse due to the slight visual 'hardening' of the landscape under the motorway due to permanent tree removal and the lower light levels experienced under the bridges.

Figure 103: Existing view from Viewpoint 14, looking east along the shared path beneath the Westlink M7

Figure 104: Photomontage showing proposed view at operation from Viewpoint 14

6.3.15 Viewpoint 15: Cowpasture Road Underpass, Len Water Estate

This viewpoint location (shown in **Figure 105**) is representative for visual receptors at the Cowpasture Road intersection with the Westlink M7.

Description of current view

The view from this location (refer **Figure 106**) includes a large intersection between two major roads, with the Westlink M7 crossing over the top of Cowpasture Road via two bridges. The view includes the road pavement with line markings, verges, bridges, bridge abutments, off-ramps and road infrastructure, including traffic lights, signage and safety fencing.

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would be approaching the intersection of two major roads, most within vehicles, but a low number on foot

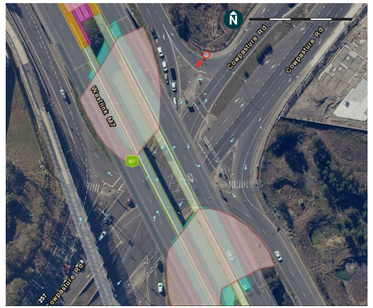


Figure 105: Keyplan showing viewpoint 15 location and proposed modification

Figure 106: Existing view from Viewpoint 15, looking west towards the Westlink M7 overpass and Cowpasture Road

Figure 107: Photomontage showing proposed view at operation from Viewpoint 15

- Passers-by are unlikely to have their attention focused on the view to the landscape from this location, with most visual receptors likely to be focused on the activity of driving or the path ahead, approaching the pedestrian crossing within an area that is predominantly industrial
- The view is not picturesque, nor are there heritage, cultural or recreational values associated with it.

Anticipated change to the view

At operation, changes seen from this viewpoint (illustrated in **Figure 107**) would comprise the widened northbound and southbound carriageway bridges of the Westlink M7, with the gap between the bridges decreased. Shrub planting would be replaced on the bridge batters.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The scale of the changes are similar to that seen in the existing view, with the Westlink M7 bridges widening slightly, reducing the light well viewed within the underpass
- The shrubs removed during construction would be replaced
- The changes would comprise a very small portion of the overall view, and be contained within a small portion of the middle ground of the view

The changes would be permanent, however, are visually recessive within the view.

Overall visual impact rating: Low

The visual impact rating is primarily influenced by:

- The visual receptors would pass this viewpoint as one of many within a greater journey
- The changes would be minimal, visually comprising a slight narrowing in the gap between bridges within an underpass.

Qualitative impact rating: Neutral

The qualitative impact of the proposed modification at this location is considered to be Neutral as the changes would be similar in character and scale to existing. The slight reduction in light within the intersection would not be visually prominent or important within the context of the view to a major intersection within an industrial area.

6.3.16 Viewpoint 16: Westlink M7 Shared Path at Hinchinbrook Creek, Hoxton Park

This view is representative view for pedestrians and cyclists using the shared path as it crosses Hinchinbrook Creek under the Westlink M7 (refer **Figure 108**).

Description of current view

The view from this viewpoint comprises the shared path and riparian bushland on either side of it as it travels adjacent to and under the Westlink M7 carriageway bridges (refer **Figure 109**). The shared path travels within the Hinchinbrook Creek floodplain for a distance on the southern side of the motorway (refer **Figure 110**), however, the paths cross under the motorway bridges at several locations, linking up with surrounding streets and other shared paths within the riparian corridor (refer **Figure 111**).

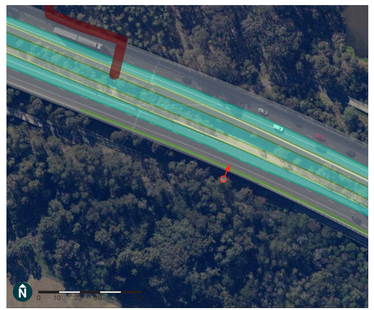


Figure 108: Keyplan showing viewpoint 16 location and proposed modification

Sensitivity: High

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would predominantly comprise pedestrians and cyclists using the shared path
- Their attention would be focused on the landscape to a certain extent, as many would be using the shared path for recreational purposes, the enjoyment of which is often dependent on the views
- The value attached to the view would be heightened considering the proximity to the riparian corridor, with picturesque views along the creek and within the bushland surrounding the path. The shared path is a valuable recreational resource, and as such has recreational value to the community
- The view is likely to be seen as one of many within a greater journey.

Indicators of value are present in occasional interpretation signage and mapping, including of points of interest and recreational linkages to adjacent recreational reserves and parks.

Anticipated change to the view

At operation, changes seen from this viewpoint would comprise the widening of the northbound and southbound carriageway bridges of the Westlink M7, increasing to lanes to 3 in either direction. The existing vegetation between the carriageway bridges would be replaced with a riparian plant community including shrubs and grasses (but not trees).

Figure 109: The shared path branches to head north under the Westlink M7, joining up with Legendre Place

Figure 110: View looking north west along the shared path across the bridge spanning Hinchinbrook Creek

Figure 111: The view from the shared path looking north along the shared path and under the Westlink M7 carriageway bridges towards Wilson Road to the north east

Magnitude: High

The magnitude of change is influenced by the following factors:

- The scale of the motorway pavement is increased within the view, with the southbound and northbound carriageways both increased by one lane and the landscape beneath the Westlink M7 visually opened up due to the removal of trees
- The architecture of the motorway would be more visually prominent within the view due to the removal of vegetation and the increase in the width of the bridges
- The changes would comprise a high portion of the overall view, and be and be seen in the fore and middle ground of the view
- The changes would be permanent.

Overall visual impact rating: High

The visual impact rating is primarily influenced by:

- The visual receptors would pass this viewpoint as one of many within a greater journey, with the viewpoint having recreational value
- The view is particularly picturesque at this location, with the shared path winding through the riparian corridor
- The changes would comprise the addition of two lanes to the motorway and the visual 'widening' of the view under the motorway due to vegetation removal
- The vegetation growing beneath bridges is often stunted, weedy and has bare patches due to the low light levels and reduced rainfall. The trees between the bridges screened the view to some of these less desirable features, and with no replacement tree planting these elements may be more noticeable within the view.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification at operation is considered to be Adverse due to the slight visual 'hardening' of the landscape under the motorway, which would soften over time with the maturing of the new landscape planting.

6.3.17 Viewpoint 17: Hoxton Park Reserve

This view is representative view for recreational visitors to Hoxton Park Reserve (refer **Figure 112**), viewing the proposed modification from within the car park, which is the closest location with the clearest view to the changes from within the reserve.

Description of current view

The view from this viewpoint (refer **Figure 113**) comprises the car park pavement within the foreground. An amenities block and vegetation are seen in the middle ground of the view, partly screening the Westlink M7, which at this point passes the reserve via two bridges.

A band of vegetation between the bridges reduces the scale of the motorway within the view, partially screening the view to Hoxton Park Road in the background, which is seen against a backdrop of bushland vegetation.

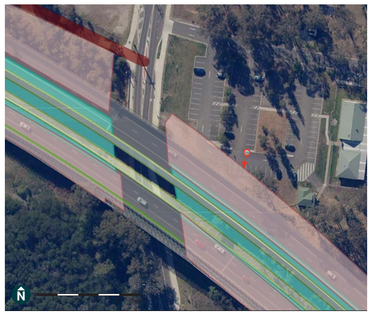


Figure 112: Keyplan showing viewpoint 17 location and proposed modification

Sensitivity: Moderate

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would comprise recreational visitors to the reserve, which includes a playground and sports field
- Their attention would be focused on the landscape to a certain extent, as visitors would be at the reserve for recreational purposes, the enjoyment of which is often dependent on the views. However, most of the activities are positioned further away from the Westlink M7
- The view would be seen for moderate periods of time as visitors were within the reserve.

Anticipated change to the view

At operation, changes seen from this viewpoint (refer **Figure 114**) would comprise the widened northbound and southbound carriageway bridges of the Westlink M7, increasing to lanes to three lanes in either direction, with the gap between the bridges narrowing and an increase in the number of piers visible beneath the bridge. The existing vegetation between the carriageway bridges would be replaced with a lower landscape planting including shrubs and grasses but not trees. The view to Hoxton Park Road would be visible under the bridges.

Magnitude: Moderate

The magnitude of change is influenced by the following factors:

- The scale of the motorway is increased within the view, with the southbound and northbound carriageway bridges both increased by one lane and the landscape beneath the Westlink M7 visually opened up due to the removal of trees
- The architecture of the motorway would be more visually prominent within the view due to the removal of vegetation and the increase in the number of piers and width of the bridges
- The changes would comprise a high portion of the overall view, and be and be seen in the fore and middle ground of the view
- The changes would be permanent, however, would reduce in visual prominence as the landscape matured.

Overall visual impact rating: High to Moderate

The visual impact rating is primarily influenced by:

- The visual receptors would view these within a recreational reserve, but with the clearest views seen from within the car park
- This location is not particularly picturesque at this location but has recreational value
- The changes would comprise the widening of the width of the carriageway bridges and the visual 'opening' of the view under the motorway due to vegetation removal.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification at operation is considered to be Adverse due to the visual 'hardening' of the landscape and the reduction in light beneath the bridges.

Figure 113: Existing view from Viewpoint 17, looking south along the Westlink M7

Figure 114: Photomontage showing proposed view at operation from Viewpoint 17

6.3.18 Viewpoint 18: Bernera Road Underpass, Prestons

Description of current view

This view is representative for visual receptors at the Bernera Road underpass (refer **Figure 115**) under the Westlink M7.

The view from this location (refer **Figure 116**) includes a large intersection between two major roads, with the Westlink M7 crossing over the top of Bernera Road via two bridges. The view includes the road pavement, bridges, bridge abutments, off-ramps, lighting, and other road infrastructure, including a large roundabout, signage and safety fencing. Tall vegetation is visible on the batters and verges of the Westlink M7, screening views to the passing traffic beyond.

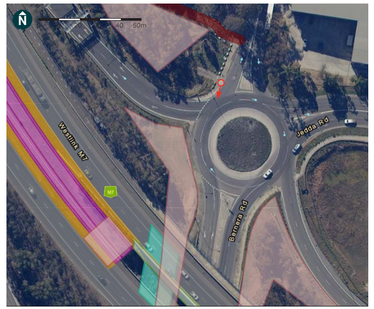


Figure 115: Keyplan showing viewpoint 18 location and proposed modification

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would be approaching the intersection of two major roads, most within vehicles, but a low number on foot
- Passers-by are unlikely to have their attention focused on the view to the landscape from this location, with most visual receptors likely to be focused on the activity of driving or the path ahead, approaching the pedestrian crossing within an area that is predominantly industrial
- The view is not picturesque, nor are there heritage or cultural values associated with it, however, a path connecting with the Westlink M7 shared path joins the road at this viewpoint, which would be used by recreational cyclists and pedestrians.

Anticipated change to the view

At operation, changes seen from this viewpoint would comprise the northbound and southbound carriageway bridges of the Westlink M7 increasing in width, with the gap between the bridges decreased.

Magnitude: Low

The magnitude of change is influenced by the following factors:

- The scale of the changes are similar to that seen in the existing view, with the Westlink M7 bridges widening slightly, reducing the light well viewed within the underpass
- The shrubs removed during construction would be replaced
- The changes would comprise a very small portion of the overall view, and be contained within a small portion of the middle ground of the view
- The changes would be permanent, however, are visually recessive within the view.

Overall visual impact rating: Low

The visual impact rating is primarily influenced by:

- The visual receptors would typically have a low sensitivity to the changes at this location due to the industrial context and the large road corridors intersecting within the view
- The changes would be minimal, visually comprising a slight narrowing in the gap between bridges within an underpass.

Qualitative impact rating: Neutral

The qualitative impact of the proposed modification at this location is considered to be Neutral as the changes would be similar in character and scale to existing. The slight reduction in light within the intersection would not be visually prominent or important within the context of the view to a major intersection within an industrial area.

Figure 116: Existing view from the intersection of Bernera and Jedda Roads looking south west towards the Westlink M7

6.3.19 Viewpoint 19: Kurrajong Road Overpass, Prestons

This viewpoint is representative for pedestrians and vehicles travelling along Kurrajong Road as it crosses over the Westlink M7 (refer **Figure 117**).

Description of current view

The view from the Kurrajong Road overpass looking south is shown in **Figure 118**. The mesh throw screen partially blocks any clear view along the motorway from the overpass, particularly when viewed from further away from the screen in the road (e.g. from within a car rather than on the footpath).

The view from Viewpoint 19 comprises an elevated view of the motorway, with the southbound and northbound carriageways extending southwards and separated by a wide grassed median with a wire safety barrier. A pale orange noise wall is located along the western edge of the motorway, with the canopy of bushland vegetation protruding from behind it.

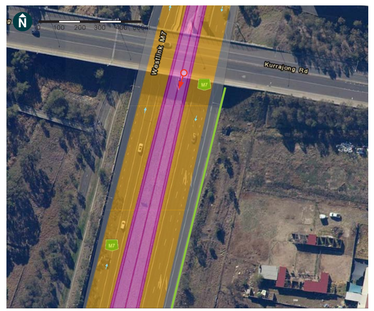


Figure 117: Keyplan showing viewpoint 19 location and proposed modification

The eastern verge includes a low grass batter with scattered trees, with a rural paddock partially screened behind the trees. The horizon can be seen in the distance, terminating in a band of darker trees above the point at which the motorway turns to the east.

Sensitivity: Low

The sensitivity of this viewpoint is influenced by:

- Visual receptors at this location would be crossing an overpass, most within vehicles, but a low number on foot. While pedestrians may get views through the throw screens along the motorway from the footpath, it is unlikely that drivers and passengers in vehicles would see the view along the motorway in any detail due to the distance from the edge of the overpass, the oblique angle of viewing as they entered the overpass and the mesh throw screens on either side in the middle of the overpass
- Passers-by would not be likely to have their attention focused on the view from the bridge, with most visual receptors likely to be focused on the road / path ahead. The view along the motorway may be of passing interest to pedestrians due to the elevation of the overpass and the distant views they could see along the motorway corridor, however, these are also partially screened by the mesh throw screens that line the overpass
- There are no particular heritage, cultural or recreational values associated with the view along the Westlink M7 from this viewpoint. In particular, the landmark elements of the VC Cutler interchange are not visible from this location.

Figure 118: View south from the footpath to the Westlink M7 seen through the throw screens

Anticipated change to the view

At operation, changes seen from this viewpoint would comprise the partial addition of one lane in either direction to the centre of the motorway, with the width of the grassed median reduced for a short distance. A new orange noise wall would also be located along the opposite edge of the motorway to the existing orange noise wall, with a similar extent.

Magnitude: Moderate

The magnitude of change is influenced by the following factors:

- The scale of the changes to the motorway median are similar to that seen in the existing view, with the northbound and southbound carriageways increasing by one lane but only for a short distance
- The scale of the changes would increase due to the introduction of a new orange noise wall, however, it is anticipated the impact should be mitigated by the design of the new noise wall matching that of the existing noise wall on the opposite side of the motorway.
- The changes would be seen partially obstructed by a throw screen
- The changes would be permanent.

Overall visual impact rating: Low

It is likely the changes to the Westlink M7 would be noticeable given the introduction of the new noise wall, however, should the design of the new noise wall follow that of the existing noise wall, the impact should be mitigated and in keeping with the visual qualities of the existing condition. The sensitive of the receptors to the change is low given the character of the overpass, the distance of viewing and the visual barrier created by the throw screens.

Qualitative impact rating: Neutral

The qualitative rating is therefore considered to be Neutral.

6.4 Assessment of construction

Anticipated typical changes within views

Typical changes within the views from the surrounding landscape during construction would include the following:

- Site establishment and enabling works, including:
  - Traffic management
  - Installation of site fencing, hoarding and safety / environmental controls and temporary noise attenuation measures
  - Establishment of construction ancillary facilities and access
  - Vegetation clearing
- Construction works, including:
  - Earthworks and utility installation (excavation and placement of fill)
  - Drainage works along the length of the road carriageways
  - Installation of road pavement surfacing
  - Precast concrete bridge sections will be craned in place
  - Line markings, erection of signage, landscape reinstatement
  - Construction of new and adjustments to existing noise walls
  - Reinstatement of shared path facilities, site demobilisation and rehabilitation of construction ancillary facility sites.

A higher rate of vehicular construction traffic would be experienced along the length of the Westlink M7, along with lane closures, construction and changes to traffic flow speeds. Visual receptors would pass intermittent construction ancillary facilities both within the median and in the verges and blocks of construction work as they travelled along the Westlink M7.

Sensitivity: Moderate

Based on the outcome of the visual impact assessment of changes to the views, the overall sensitivity of viewpoints within the landscape surrounding the changes has been averaged at Moderate.

A majority of the views to the proposal are seen within the M7 Motorway corridor, either within the lanes travelling north of southbound or from the shared path adjacent to the road. These viewpoints would be close to the changes and see the construction activity unscreened and for a large proportion of the views and the changes would be seen along the entire length of the Westlink M7 within the study area

Magnitude: Moderate

The magnitude of change during construction experienced from viewpoints is influenced by:

- The construction would result in both the loss of elements within the view (namely vegetation and signage) and the addition of multiple sites with construction activity, including construction ancillary facilities on either side of the carriageways
- The works would be in high contrast to the existing motorway, which may experience occasional maintenance works but rarely construction of this scale or length
- The changes would be seen for lengthy periods as the receptors travelled along the Westlink M7, potentially at lower speeds as they passed work zones
- The changes would be seen from close proximity and potentially take up a large majority of the view from the vehicles as they passed
- The changes would be seen in the short term
- The changes would be largely reversible, with construction equipment, works and construction ancillary facilities removed and remediated at completion of the construction period.

Overall visual impact: Moderate

Overall, the visual impact of the proposed modification on visual receptors travelling on the Westlink M7 during construction is considered to be Moderate.

The construction would result in substantial changes within the views which would be seen from close proximity from passing vehicles. The changes would be spread along the length of the Westlink M7 within the study area.

However, the changes would be temporary, seen within the construction period, with most being reversible at the completion of construction.

Qualitative impact rating: Adverse

The qualitative impact of the proposed modification during construction is considered to be Adverse primarily due to the removal of vegetation and the increased visual clutter of construction equipment and activity.

6.5 Summary of visual impact assessment

Table 15 summarises the overall ratings for the impact of the proposed modification on views for each viewpoint.

Visual impact during construction

During construction the visual impact is considered to be High to Moderate. This rating is predominantly due to:

- The sensitivity of viewpoints has been averaged at Moderate as although views from within the road corridor would be more sensitive to changes due to the close distance to the changes or from the recreational activities being undertaken (for example, from the shared path), there are limited views to the changes from outside the road corridor
- The magnitude of change has been averaged as High as the scale of the construction equipment and activity are larger than elements within the existing view
- For many locations the changes would be seen in close proximity and within large proportions of the existing views (including within the Westlink M7, either by passing traffic or recreational users of the Westlink M7 shared path)
- The changes would be uncharacteristic within the views.

The qualitative ratings of the change is considered to be Adverse due to the nature of the changes seen during construction, particularly the removal of vegetation and the presence of construction activity and equipment within the views.

Overall, the visual impact of the proposed modification during construction is considered to be High to Moderate (Adverse).

Visual impact at operation

At operation, five (5) viewpoints returned a High or High to Moderate rating, two of which were associated with the Westlink M7 shared path and three within the carriageways. These ratings were predominantly related to:

- The higher sensitivity of viewpoints where visual receptors are undertaking recreational activities such as walking, cycling or using playgrounds or picnic facilities or at picturesque points along the motorway, such as the M4 Motorway (Light Horse) Interchange
- The close proximity of the changes
- The increase in visual prominence of architectural elements of the Westlink M7, including the width of the carriageways and bridges
- The removal of vegetation, particularly trees, within riparian corridors, noting that low lying shrubs would be planted where trees are being removed at bridge widening locations.

Of the remaining 17 viewpoints, 11 return Moderate, Moderate to Low or Low ratings, while six (6) have Negligible changes within the views.

Most viewpoints experience Adverse changes within the views, typically due to the trees removed within the Westlink M7 (particularly at riparian crossings) not being replaced. The nine (9) Neutral ratings were where the changes would be negligible or comprise the replacement of elements within the view with visually similar ones.

Overall, the visual impact of the proposed modification at operation is considered to be Moderate to Low (Adverse).

Table 16: Visual impact assessment summary

Viewpoint	Sensitivity	Operation		
		Magnitude	Overall rating	Qualitative rating
Viewpoint 1a: Carriageways at grade with the surrounding landscape	Moderate	Low	Moderate to Low	Adverse
Viewpoint 1b: Carriageways above the surrounding landscape, bridge over creek crossings	Moderate	High	High to Moderate	Adverse
Viewpoint 1c: Carriageways below the level of the surrounding landscape	Moderate	Low	Moderate to Low	Adverse
Viewpoint 1d: Approaching the M4 Motorway (Light Horse) Interchange	High	Moderate	High to Moderate	Adverse
Viewpoint 2: Florence Street Underpass	Moderate	Low	Moderate to Low	Adverse
Viewpoint 3: Eastern end of Plumpton Road, Plumpton	Moderate	Negligible	Negligible	Neutral
Viewpoint 4: Rooty Hill Station	Low	Negligible	Negligible	Neutral
Viewpoint 5: Blacktown Sportspark	Low	Negligible	Negligible	Neutral
Viewpoint 6: Westlink M7 Shared Path near Old Wallgrove Road exit, Eastern Creek	Low	Low	Low	Adverse
Viewpoint 7: Westlink M7 Shared Path north of Chandos Road, Horsley Park	Moderate	Low	Moderate to Low	Adverse
Viewpoint 8: Chandos Road Overpass	Low	Low	Low	Adverse
Viewpoint 9: Westlink M7 Shared Path north of Redmayne Road, Horsley Park	Moderate	Moderate	Moderate	Adverse
Viewpoint 10: Westlink M7 Shared Path north of Elizabeth Drive	Moderate	Low	Moderate to Low	Adverse
Viewpoint 11: Saxony Road, Horsley Park	Low	Negligible	Negligible	Neutral
Viewpoint 12: Westlink M7 Shared Path near Hinchinbrook Creek	Moderate	Moderate	High to Moderate	Adverse
Viewpoint 13: Dobroyd Drive, Cecil Park	Moderate	Negligible	Negligible	Neutral
Viewpoint 14: Westlink M7 Shared Path near Middleton Drive	Moderate	High	High to Moderate	Adverse
Viewpoint 15: Cowpasture Road Underpass, Lens Water Estate	Low	Low	Low	Neutral
Viewpoint 16: Westlink M7 Shared Path at Hinchinbrook Creek, Hoxton Park	High	High	High	Adverse
Viewpoint 17: Hoxton Park Reserve	Moderate	Moderate	High to Moderate	Adverse
Viewpoint 18: Bernera Road Underpass, Prestons	Low	Low	Low	Neutral
Viewpoint 19: Kurrajong Road Overpass, Prestons	Low	Moderate	Low	Neutral

6.6 Cumulative impact assessment

The landscape surrounding the proposed modification is undergoing a series of changes, particularly due to the development of the Western Sydney Aerotropolis, the Western Sydney International (Nancy Bird Walton) Airport and the M12 Motorway. These changes affect the overall landscape character of the surrounding area and the views available.

Considering the visual impact of the construction of these projects, construction activity (including vegetation clearing, earthworks, construction of built elements, and movement of construction vehicles within the construction sites and on the local road network and construction compounds) would become a typical element seen within the surrounding landscape. While the change in views within the M7 Motorway corridor and from the existing rural setting outside the corridor would be an overall adverse impact in combination with the proposed modification, the effect would be temporary (yet prolonged due to the ongoing development) and, like the change in the character of the surrounding landscape, would be an anticipated change considering the Airport and its supporting infrastructure. The most affected receptors would be travellers on the M7 Motorway, Elizabeth Drive and closest secondary streets nearing the works, where construction activity and equipment would become a characteristic element within the views

After completing the proposed modification, the Aerotropolis, the Airport and the M12 Motorway, views within the surrounding landscape would have substantially changed, in particular, the more rural landscape to the west of the M7 and in the vicinity of the Airport and Aerotropolis would be replaced by a more urban landscape and the major road corridors would be substantially upgraded. Within this context, the proposed modification is anticipated to have a low impact.

Mitigation and Conclusion

07

7. Mitigation and Conclusion

7.1 Mitigation strategy

7.1.1 Mitigation of adverse impacts

The following mitigation measures would minimise landscape and visual impacts as a result of construction:

- Establish tree protection zones (TPZs) around trees to be retained. Tree protection would be undertaken in keeping with AS 4970-2009 Protection of Trees on Development Sites and would include exclusion fencing of TPZs
- Provide well-presented and maintained construction hoarding and site fencing with shade cloth (or similar material) (where necessary) to minimise visual impacts during construction. Hoardings and site fencing would be removed following construction completion
- Provide cut-off or directed lighting within and outside of the construction site, with lighting location and direction considered to ensure glare and light spill is minimised
- Keep construction areas clean and tidy and place refuse in appropriate receptacles.

Impact to landscape character would include an overall 'hardening' of the landscape within the Westlink M7 corridor due to the increase pavement width and the removal of vegetation. Changes to the Light Horse Sculpture Parade and memorial fig planting at the M4 (Light Horse) Interchange would also result in considerable impact to the landscape character within that zone.

Measures to mitigate impact to landscape character due to the removal of vegetation along the length of the Westlink M7 are described below in response to visual impact. Mitigation of impact to landscape character around the M4 (Light Horse) Interchange would be associated with the design resolution for the Light Horse Sculpture Parade and the memorial fig planting:

- The original intent surrounding the Light Horse Sculpture Parade should be safeguarded, with the design process in consultation with stakeholders including the Office of Veterans Affairs, the RSL and the original artists.
- In order to mitigate potential hardening of the landscape and the memorial character of the fig planting, the replacement of trees to be removed is recommended, however, as above, in consultation with stakeholders.

The greatest visual impact experienced due to the proposed modification would be due to the removal of trees (particularly within riparian corridors) near recreational areas, including along the Westlink M7 shared path. While the replacement of trees within the Westlink M7 lease area may not be possible due to maintenance requirements of widened bridges, the following mitigation measures are recommended to reinstate the visual markers of the creek corridors within the Westlink M7:

- Planting of riparian tree species (such as Melaleuca and Casuarina) on the batters within the central median as they fall towards the lower area at either end of bridges
- Planting of areas under bridges within riparian corridors with indigenous species within the Cumberland Plain Riverflat Forest community, including tall shrubs, grasses and groundcovers. Investigate opportunities for trees.

7.1.2 Opportunities

Opportunities to enhance environmental outcomes of the proposed modification include:

- Stream corridors within the proposed modification boundary would be rehabilitated with a riparian plant palette. While this action does not respond to landscape character or visual impact issues, the planting would result in increased visual amenity within the landscape
- All plant material to be locally sourced (seed collection preferred), with any seed collection to commence within three months of construction contract award, where possible.
- Opportunity to enhance green infrastructure and tree planting through the areas adjacent to noise walls and other areas of along the edges of the corridor to allow to mitigate impacts from tree removals along the Westlink M7 median. This would be subject of the project design development and also the identification of existing verges / batters within the Westlink M7 corridor that would be appropriate for tree planting completed as part of the works.
- Opportunities for Water Sensitive Urban Design to be considered when local drainage conditions are altered throughout the corridor due where the gradient and widening conditions required further detail. These measures may mitigate the impacts of increasing the pavement and the anticipated minor impacts within the drainage infrastructure. This is subject to design development and detailed design.

7.2 Conclusion

An urban design concept has been prepared that responds to the local context and seeks to reduce impacts on landscape character and views. Specific measures proposed include:

- Indigenous plant species were selected for use except for nominated points of interest where culturally appropriate species would be implemented
- Safety, ongoing motorway maintenance and sustainability were considered with urban design and landscape outcomes
- Urban design elements were integrated to provide a simple and consistent design language along the road corridor and as part of the greater Westlink M7
- Visual clutter was minimised with the reduction and elimination of built structures where possible. Where these components were unable to be eliminated, they were coordinated to provide an integrated urban design outcome.

Landscape character impact

Overall, the proposed modification resulted in minor impacts to landscape character, with the highest impact comprising a High (Adverse) rating within LCZ 1b: M4 (Light Horse) Interchange and Moderate (Adverse) within LCZ 1a: Transport Corridor, within which the proposal occurred. Other LCZs identified within the study area were minimally affected by the proposed modification.

The main issue affecting impact on landscape character is the removal of vegetation within the median of the Westlink M7, particularly at the M4 (Light Horse) Interchange and between the bridges along the length of the Westlink M7, where tree canopy is visible but would be removed permanently and be replaced with low lying shrubs, while tree replacement planting for the proposal would occur outside the lease area.

Visual impact

With regard to visual impact during construction, overall, the visual impact of the proposed modification during construction is considered to be High to Moderate (Adverse).

At operation, the visual impact of the proposed modification is considered to be Moderate to Low (Adverse).

Issues affecting views include:

- The most visually prominent change to views would be due to the absence of tree canopy vegetation between carriageway bridges when the Westlink M7 passed over riparian corridors. This would not only increase the perceived width of the Westlink M7 from above and below the motorway, but also result in an overall 'hardening' of the view within the Westlink M7 corridor.
- The trees in the median and below the bridge deck, poking up between the carriageways, are an indicator where the Westlink M7 crosses a creek within the landscape, which would be lost from views from within the motorway
- There would be an increase in visual prominence from the motorway of architectural elements of the Westlink M7, including the width of the carriageways and bridges
- Most of the change remains within the motorway, and minimal visual change would be observed from viewpoints outside the motorway.

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