AECOM GHD JOINT VENTURE

LEVEL CROSSING REMOVAL AUTHORITY

FRANKSTON PACKAGE

46 - Station Street/Bondi Road, Bonbeach
Preliminary Landscape & Visual Impact Assessment – Rail Under Road

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LEVEL CROSSING REMOVAL AUTHORITY

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Executive summary

The AECOM-GHD Joint Venture is engaged by the Level Crossing Removal Authority to provide specialist planning and environmental advice for the Level Crossing Removal Program. Over the next eight years the Level Crossing Removal Authority will oversee the removal of 50 dangerous and congested level crossings across Melbourne.

The focus of this Preliminary Landscape and Visual Impact Assessment report is the Station Street/Bondi Road, Bonbeach level crossing removal. The project area includes the existing rail reserve bounded between Glenola Road and Mascot Avenue.

This assessment has been undertaken to understand the potential impacts to landscape and visual amenity that the project may have. It found the project has generally a wide mix of landscape character effects and generally moderate landscape and visual effects.

Potential mitigation approaches will be explored during the design and planning phase of the project. These will reduce the effects on the landscape and visual character, as described by this assessment, and could even have beneficial outcomes on the overall character of the investigation area.

As part of the ongoing development of the project, further landscape and visual impact assessment can be undertaken to verify that the project's effects are reduced and, where possible, converted from adverse to neutral or positive additions.

Abbreviations

Term	Definition
JV	AECOM-GHD Joint Venture
LCZ	Landscape Character Zone
LXRA	Level Crossing Removal Authority

1. Introduction

1.1 Scope

The AECOM-GHD Joint Venture (JV) is engaged by the Level Crossing Removal Authority (LXRA) to provide specialist planning and environmental advice for the Level Crossing Removal Program. A Preliminary Landscape and Visual Impact Assessment has been undertaken for the Station Street/Bondi Road, Bonbeach level crossing removal.

1.2 Background

Over the next eight years LXRA will oversee the removal of 50 dangerous and congested level crossings across Melbourne.

Level crossings are a key cause of congestion on Melbourne's roads, and form one of the limitations on the number of train services that can operate on each line. The 50 level crossings planned for removal were chosen on a range of different factors, including safety, congestion and overall network benefits.

The Victorian Government allocated $2.4 billion in its 2015-16 budget to remove at least 20 level crossings by 2018. These sites form the basis of a long-term strategic plan being developed to remove all 50 level crossings by 2022.

Construction has already commenced on several sites, and planning and early consultation is underway for the delivery of the entire program.

Three level crossings on the Frankston railway line have already been removed:

- North Road, Ormond
- McKinnon Road, McKinnon
- Centre Road, Bentleigh.

In November 2015, the Victorian Government announced that work on removing a further eight Frankston line level crossings had commenced. These are:

- Charman Road and Park Road[1], Cheltenham
- Balcombe Road, Mentone
- Edithvale Road, Edithvale
- Station Street/Bondi Road, Bonbeach
- Station Street, Carrum
- Eel Race Road, Carrum[2]
- Seaford Road, Seaford
- Skye/Overton Road, Frankston.

[1] Park Road has since been included in the Cheltenham package of works
[2] Station Street, Carrum and Eel Race Road, Carrum are being considered as a single package of works

1.3 Project description

1.3.1 Study area

The Station Street/Bondi Road, Bonbeach level crossing removal project area (Bonbeach project area) extends approximately 730 metres north from Station Street/Bondi Road to Glenola Road and approximately 900 metres south to Mascot Avenue. The Bonbeach Project Area includes the rail corridor and all of Station Street and Nepean Highway located to the east and west respectively between Glenola Road and Mascot Avenue.

At its closest point the Bonbeach project area is approximately 125 metres north of Patterson River. Pedestrian/cyclist rail crossings are located near Station Street/Bondi Road, Golden Avenue, Wellwood Road, and The Glade.

Refer to Figure 1. The project area is within the local government area of the City of Kingston.

For the purpose of this assessment, the key area of focus is considered to be those areas within a 500 metre offset from the proposed infrastructure between Glenola Road and Mascot Avenue. This forms the project investigation area.

Beyond this area it is anticipated the combined effects of distance, intervening landform, built form and vegetation will combine to render landscape and visual effects negligible.

1.3.2 Project scope

It is proposed to remove the level crossing by lowering the Frankston railway line into a trench under Bondi Road whilst maintaining Bondi Road at the current road level. The trench would be approximately 1,100 metres in length and 12 metres wide. The rail track would be approximately eight metres below ground level at its lowest point at Bonbeach Station and would include underground infrastructure (below the rail track) to collect and divert rain water from the trench. Barriers, fencing and screening would be erected along the trench at road level to prevent access by vehicles or people. Decking above the rail trench would be required to provide for station car parking and new pedestrian bridges would be constructed to maintain pedestrian access across the railway line. A new station building would be provided with access to the below-ground train platforms.

Paper Size A3

0 25 50 100

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Figure 1
BONBEACH
Project Area

X:\Project Data\PRGM\GIS\GHD\Maps\Working\InvestigationAreas\Frankston8_new3_IA_20161110.mxd

Data source: Planning Zones, Vicmap Data, DELWP, 2016. Investigation Area, LXRA, 20/06/2016. Created by:edged

2. Methodology

2.1 Overview

This methodology is focussed on identifying the key likely or potential landscape and visual effects or impacts (hereafter known as 'effects'). The following tasks form the methodology[3]:

1. Identifying the key proposal characteristics
2. Establishing the landscape baseline and visual context
3. Assessing the landscape effects of the proposed design
4. Assessing the visual effects of the proposed design
5. Identifying potential mitigation approaches.

Note: For this preliminary assessment only high level mitigation approaches have been outlined. More detailed mitigation measures will be progressed at a future point in the project's development, once the design is more developed, and to ensure a more integrated outcome.

There is no accepted national guidance on landscape and visual impact assessment in Australia, therefore practice in this field has adopted good international approaches.

This methodology is informed by the techniques set out in the following documents:

- *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (2013) developed by the Landscape Institute and Institute for Environmental Management and Assessment (United Kingdom)
- *Forest Landscape Description and Inventories – a basis for land planning and design* by R Burton Litton Jr. (1968)
- *National Forest Landscape Management Volume 2*, by the US Forest Service and US Department of Agriculture (1974).

Note: This assessment deals with the final operational design of the project and does not consider visual and landscape impacts associated with construction. Construction-stage considerations will be explored in more detail during the tender selection and detailed design process.

2.2 Identification of key proposal characteristics

This task identifies the physical attributes of the proposal, in this case the lowering of the rail line into a rail trench under Station Street/Bondi Road, which inform the size of the study area, the 'seen' components of the project, and the identification of visual receptors that need to be assessed.

[3] Note: For the purposes of this preliminary assessment, a high level summary approach is applied for each assessment task.

2.3 Establishment of the landscape baseline and visual context

This task seeks to understand and describe the character of the landscape within which the proposal is set and identifying Landscape Character Zones. To achieve this, a visual inspection and photographic survey is undertaken as well as a review of the following relevant documents:

1. Functional design developed by the JV
2. Level Crossing Removal Project Urban Design Framework by the JV
3. Preliminary Urban Design Concept Report by the JV
4. Kingston Planning Scheme
5. GIS analysis of the topography
6. Digital aerial imagery from the JV, LXRA, the Department of Environment and Primary Industries, and the Department of Environment, Land, Water and Planning
7. Google Earth imagery.

In addition to the identification of landscape character, visual receptor locations are identified to that allow a comparison of the existing conditions with the visual effects the project may have. These visual receptors were selected in locations that are the most sensitive or likely to experience the greatest effects in order to assess the most significant changes that will be made by the proposal.

2.4 Assessment of landscape effects

Assessment of landscape effects deals with the effect of a visible change on the landscape and development on the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character.

The assessment comprises the combination of the following assessments.

2.4.1 Sensitivity of landscape to visual change

The identification of the sensitivity of the landscape to a specific change encompasses the following components:

Susceptibility to change

The existing landscape baseline is assessed to understand the capacity to accommodate the proposal without adverse effect of the existing landscape character(s) based on landform, land use, scale and design; as well as the capacity to achieve any landscape policy and strategy objectives.

Value of the landscape

This assesses whether the value of the landscape would be effected based on existing landscape character designations (be they internationally, nationally or locally recognised landscapes), and the value of particular landscape features or notable aesthetic, perceptual or experiential qualities.

These individual criteria are combined to achieve a landscape sensitivity that is defined in the following way:

Table 1 Sensitivity of landscape to change

Sensitivity of landscape to visible change	
High	Landscapes of international designation and/or landscapes that have high sensitivity to the type of development proposed which could have a detrimental effect on the landscape character or value. Mitigation measures will be unlikely to reduce all of the effects of the change.
Moderate	Landscapes of regional designation or valued more locally and tolerant of moderate levels of change. Any change would be unlikely to have a significant adverse effect on the landscape character or value and mitigation would neutralise some of the effects.
Low	Landscapes of local designation that are more commonplace and potentially tolerant of noticeable change or are undergoing substantial development themselves, with mitigation measures likely to neutralise or improve the landscape character.
Negligible	Landscapes of local designation and/or with low sensitivity to the type of change proposed with mitigation likely to completely neutralise any effects or not required at all.

2.4.2 Magnitude of landscape effect

The magnitude of landscape effects comprises the following:

Size or scale of change

An assessment of size or scale of change in the landscape likely to be experienced as a result of the proposed development which may include the extent of loss of an existing landscape element, the degree of alteration to aesthetic or perceptual aspects of the landscape, or any change to key characteristics of the landscape.

Geographical extent of effects

This considers the geographical extent over which the landscape effects will be felt, and is distinct from the size or scale of the change. This is influenced by site levels, the immediate context, and landscape character types in the vicinity.

Duration and reversibility of the effects

Duration is judged on a scale of short term (zero to five years), medium term (five to ten years) and long term (more than ten years). Reversibility is a professional judgement about the prospects of the effect being reversed, for example, a project such as a temporary sporting facility might have a limited life.

These individual criteria are combined to achieve a magnitude of landscape effect that is defined in the following way:

Table 2 Magnitude of landscape effects

Magnitude of landscape effect	
High	A substantial/obvious change to the landscape due to total loss of, or change to, elements, features or characteristics of the landscape. Change would cause a landscape to be permanently changed and its quality diminished.
Moderate	Discernible changes in the landscape due to partial loss of, or change to key elements, features or characteristics of the landscape which may be partly mitigated. The change would be out of scale with the landscape, at odds with the local character, and would leave an adverse impact on the landscape. The change would partially obstruct or change a view.
Low	Minor loss or alteration to one or more key landscape features or characteristics, or the introduction of elements that may be visible but may not be uncharacteristic within the existing landscape.
Negligible	Almost imperceptible or no change in the landscape or views as there is little or no loss of, or change to the elements, features or characteristics of the landscape.

2.4.3 Overall rating of landscape effects

Once the sensitivity of the landscape to visual change and the magnitude of the landscape effect is determined, a professional judgement is made on the level of significance of the effect, which may be described as being Negligible, Low, Moderate - Low, Moderate, High - Moderate or High (refer to Figure 2).

Sensitivity \ Magnitude of effect	High	Moderate	Low	Negligible
High	High	High - Moderate	Moderate	Negligible
Moderate	High - Moderate	Moderate	Moderate - Low	Negligible
Low	Moderate	Moderate - Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Significant change
Potentially significant change

Figure 2 Rating and significance of landscape effects

Professional judgement on the significance of a landscape effect is specific to every place and a combination of the location, landscape context and type of proposal. While there are no absolute rules that define what makes a significant effect, this assessment considers an overall High matrix rating to be a significant change, and an overall High – Moderate rating to be a potentially significant change.

A further professional judgement can also be made about the quality of the landscape effects, which can be adverse, neutral or positive. These ratings help inform where mitigation may be required to minimise or improve the quality of the landscape character. For the purposes of this preliminary report, this has not been undertaken and any ratings identified reflect unmitigated outcomes.

Once the design of the project is further progressed, the quality of effects will be better understood and comprehensive and detailed mitigation measures can be identified and integrated into the project. These may help to reduce the landscape effects of the project in future stages.

2.5 Assessment of visual effects

Assessment of visual effects deals with the effects of change and development on the surroundings of individuals or groups of people. This identifies the change or loss of existing elements of the visual landscape and/or introduction of new elements to relevant users.

2.5.1 Sensitivity of visual receptors

The sensitivity of visual receptors is assessed in terms of both their **susceptibility** to the proposed change in views and visual amenity, and also the **value** attached to particular views.

Susceptibility of visual receptors to change

The susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of the activity of people experiencing the view and the extent to which their attention or interest may therefore be focused on the view.

Visual receptors most susceptible to change are generally residents who are likely to occupy these locations for long periods of time, people engaged in outdoor activity, visitors to attractions where the surroundings are part of the experience, and communities where the landscape setting is an important contributor.

Visual receptors with a moderate susceptibility to change are generally travellers on road and rail transport. Where travel involves recognised scenic routes awareness of views may be particularly high.

Visual receptors with less sensitivity to change include people engaged in outdoor sport and people at their place of work where attention is focussed on their activity and the setting is less important to their experience.

Value attached to views

This assessment considers:

- the recognition of the value attached to particular views, either in relation to heritage assets or through planning designations, planning policy or other existing planning or urban design studies
- indications of the value attached to views, either through inclusion in guidebooks or on tourist maps, provision of facilities for their enjoyment such as sign boards and interpretive material
- reference to the view in literature or art.

These parameters are combined to produce a sensitivity assessment that ranges from High to Negligible that set out in Table 1.

2.5.2 Magnitude of the visual effects

Each of the visual effects identified is evaluated in terms of **size or scale of the change**, the **geographical extent of the effects**, over which it occurs, and its **duration and reversibility**.

Size or scale of the change

This assessment takes into account the scale of change in the view with respect to: the loss or addition of features in the view; the degree of contrast or integration of any new features or changes and characteristics in terms of form, scale and mass, line, height, colour and texture; and the nature of the view of the proposal and whether views will be full, partial or glimpses.

Geographical extent of effects

The geographical extent of a visual effect will vary with different viewpoints and is likely to reflect the angle of the view, the distance of the viewpoint, and the extent of the area over which changes would be visible.

Duration and reversibility of the effects

Duration is judged on a scale of short term (zero to five years), medium term (five to ten years) and long term (more than ten years). Reversibility is a professional judgement about the prospects of the effect being reversed.

These parameters are combined to produce a magnitude of visual effect assessment that ranges from High to Negligible that set out in Table 2.

2.5.3 Overall significance of visual effects

Once the sensitivity of the visual receptors to visual change and the magnitude of visual effects is determined, a professional judgement is made on the level of significance of the visual effect, which may be described as being Negligible, Low, Moderate - Low, Moderate, High - Moderate or High as set out in Figure 3.

Sensitivity \ Magnitude of effect	High	Moderate	Low	Negligible
High	High	High - Moderate	Moderate	Negligible
Moderate	High - Moderate	Moderate	Moderate - Low	Negligible
Low	Moderate	Moderate - Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Significant change
Potentially significant change

Figure 3 Significance of visual impacts

While there is no standard approach to determining what makes a significant effect, this assessment considers an overall High matrix rating to be a significant change, and an overall High – Moderate matrix rating to be a potentially significant change.

A further professional judgement can also be made about the quality of the effects, which can be adverse, neutral or positive. These ratings help inform where mitigation may be required to minimise or improve the quality of the visual impact. For the purposes of this preliminary report, this has not been undertaken and any ratings identified reflect unmitigated outcomes.

When the proposal's design is further progressed the quality of effects will be better understood and comprehensive and detailed mitigation measures can be identified and integrated into the project. This is likely to reduce the visual effects of the project.

2.6 Identification of potential mitigation approaches

Landscape and visual impact assessments typically develop and assess mitigation measures at a well-advanced point within the development of a project to treat landscape and visual effects that are initially identified. These measures are most successful when they are developed as integrated elements that are cohesive parts of the core proposal as is intended with this proposal.

This report identifies the project's design intentions which are outlined in the Level Crossing Removal Authority's Urban Design Framework (Version 3) and the Preliminary Urban Design Concept Report for Station Street, Bonbeach (July 2016). These documents identify a range design outcomes which are potential mitigation measures that can be employed as the project is developed.

This will allow a further assessment of the landscape and visual effects once mitigation is employed.

2.7 Design assumptions

Given the project is at such an early stage of development with regard to landscape and urban design; the following assumptions have been made to facilitate the assessment process:

- This report should be read in conjunction with the preliminary urban design concept drawing in Appendix A
- Planting will be possible along most of the edge of the project where indicated in green on the urban design drawing. This will have the following characteristics:
    - The minimum outcome will be a planting width of 2.4 metres and a maximum height of 2.4 metres
    - Where more landscape planting room is available, small to potentially moderate sized trees will be able to be planted, dependent on the width of the planting area.
- An integrated traffic barrier / security fence / throw screen system will be provided along the top edge of the rail trench to maximise the width of planting outside of the operational corridor, and provide visual screening of these infrastructure elements from adjacent residential and commercial areas
- Where it is not possible to provide the minimum width of vegetation to the edge of the project, elements such as shade structures will be integrated into the design of areas likely to be heavily utilised by pedestrians, e.g. either side of the station precinct.

2.8 Design opportunities

The following design opportunities would improve landscape character and visual amenity outcomes for the project. Adoption of these opportunities would be likely to reduce the landscape and visual effects ratings for the project:

- Bonbeach sits on an Aeolian (wind-blown sand) landscape. This provides the following opportunities for 'bio-swales' or 'rain gardens' that have street trees and shrubs within them, and collect stormwater run-off from roads, which:
    - maximise irrigation of plant material at every rain event
    - improve tree health / coastal landscape character outcomes
    - treat road run-off pollutants
    - potentially reduce stormwater infrastructure costs, with the 'first flush' and smaller rainfall events infiltrating into the landscape areas, facilitating subsequent reduced volumes from larger events that need to be transported away from the roads through a traditional pit and pipe system, potentially reducing costs due to reduced pipe sizing requirements
    - facilitate more comfortable outdoor spaces to commercial areas (e.g. shade), with potential economic benefits from improved patronage of cafes and restaurants with outdoor seating.
- The combination of highly free draining soils (sand) and salt-laden winds from Port Phillip Bay limit the street tree planting palette. Endemic, relatively low growing species such as Coastal Banksia (*Banksia integrifolia*) and potentially Old Man Banksia (*Banksia serrata*) could fulfil an amenity and shading / environmental amelioration role, in addition to conserving the coastal vegetation character of the road / rail infrastructure corridor
- Street trees to both sides of Nepean Highway and Station Street would provide a strong coastal character framework in addition to the above benefits. This would require undergrounding of power where present
- Where trees are proposed to areas that are on slab, e.g. the station building plaza and carpark, provision be made:
    - to facilitate in-ground planting, e.g. beyond the edge of the slab, and that is subject to passive irrigation, e.g. from street stormwater run-off or other WSUD initiatives
    - to facilitate tree health on-slab by means of slab set-downs that closely adjoin natural ground, or similar measures sufficient to ensure the long-term vigour of the plantings without reliance on artificial / piped irrigation
    - for on-slab measures to be undertaken in consultation with a soil scientist and an arborist.

3. Landscape and visual impact baseline

3.1 Policy context

An assessment was undertaken of key planning policy and legislation with relevance to landscape and visual amenity of the project area to ensure an understanding of existing (and future) aspirations for the project area, and the role of the project within this context.

3.1.1 Transport Integration Act, 2010

The Transport Integration Act, 2010 (Victoria) provides the policy framework for an integrated and sustainable transport system, developed through a comprehensive program of consultation with transport stakeholders.

The Act brings together all elements of the transport portfolio (including roads, rail, ports and marine) under one statute. The Act requires transport agencies and other areas of government to have regard to broader social, economic and environmental considerations, a clear Triple Bottom Line framework, when making decisions about the transport system.

The most relevant requirements for landscape and visual impact assessment are:

- That the transport system should actively contribute to environmental sustainability by protecting, conserving and improving the natural environment; and avoiding, minimising and offsetting harm to the local and global environment, including through transport-related emissions and pollutants and the loss of biodiversity
- That the transport system should improve the amenity of communities and minimise impacts of the transport system on adjacent land uses.

3.1.2 Planning and Environment Act, 1987

The Planning and Environment Act, 1987 (Victoria) establishes the framework for use, development and protection of land in Victoria. The Act provides the standard provisions for planning schemes which are administered by local government.

The most relevant objectives for landscape and visual impact assessment are:

- To enable land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels
- To ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land.

3.1.3 Kingston Planning Scheme

The Kingston Planning Scheme provides a framework within which decisions about the use and development of land can be made. It expresses state, regional, local and community expectations for areas and land uses and provides for the implementation of state, regional and local policies affecting land use and development.

The most relevant clauses for landscape and visual impact assessment include:

- State Planning Policy Framework which seeks to:
  - contribute towards a high standard of amenity and urban design (Settlement)
  - protect landscapes and significant open spaces that contribute to character, identity and sustainable environments (Landscapes)
  - minimise impacts on the surrounding natural visual, environmental and coastal character (Coastal Tourism)
  - contribute positively to local urban character and minimise detrimental impacts upon neighbouring properties (Urban Design)
  - ensure the conservation of places of heritage significance (Heritage)
  - ensure transport practices, including design, construction and management, reduce environmental impacts (Transport).
- Local Planning Policy Framework which seeks to:
  - protect and enhance the quality and unique character of Kingston's natural and built environments and infrastructure assets (Vision)
  - provide for a range of housing types across the municipality while respecting neighbourhood character (Residential Land Use)
  - protect and strengthen the hierarchy of activities centres
  - promote opportunities for development on the foreshore that is compatible with the character and scale of the surrounding landscape (Foreshore)
  - protect and enhance the amenity of Kingston's residential areas and other sensitive land uses through appropriate management of transport networks (Transport).

A specific overlay relevant for the Bonbeach Level Crossing Project is Design and Development Overlay – Schedule 1 which seeks to protect and enhance the foreshore environment through the control of building heights to the maximum of two storeys, affecting all private land between the rail corridor and foreshore.

These policies reinforce feedback received from the community on the importance and value placed on the character and visual amenity of the project area.

3.2 Landscape character zones

Four landscape character zones (LCZs) have been identified, informed by the following:

- Landscape value: landscapes designated for their scenic or landscape importance or valued recreational function
- Landscape elements: that contributes to defining character e.g. residential, river/creek corridors, landform and open space
- Landscape character attributes: including scale, grain and perceptual characteristics such as the sense of remoteness tranquillity and/or its perceived character).

The four character zones, as identified in Figure 4, are:

- LCZ 1: Infrastructure corridor
- LCZ 2: Residential
- LCZ 3: Commercial
- LCZ 4: Foreshore

Figure 4 Landscape character zones for Bonbeach level crossing removal project

3.2.1 LCZ 1 – Infrastructure corridor

This LCZ is a corridor of land that is flanked by both Nepean Highway and Station Street. The LCZ is highly visible and is lined with intermittent vegetative cover comprising endemic low-growing regrowth shrubs and trees, which contribute to the coastal character of the streetscape. The LCZ also comprises elements associated with rail and road infrastructure, including regularly spaced gantries, overhead power lines, safety fencing, a station building and car parking, as well as footpaths, nature strips, power poles and street lighting.

Figure 5 Typical character of LCZ 1 as viewed from Nepean Highway

3.2.2 LCZ 2 – Residential

The landform in LCZ 2 is relatively flat to gently undulating with some street tree planting in the verges, and most tree cover within residential lots. Built form typically comprises single and double storey housing. Planting along the rail corridor provides some visual screening and provides a green backdrop to residential areas.

Figure 6 Typical character of LCZ 2 as viewed from Wellwood Road

3.2.3 LCZ 3 – Commercial

This LCZ encompasses a small linear commercial strip on the western side of the Nepean Highway. The commercial strip is generally located in one or two storey premises with ground floor shops and residences above. Bonbeach Station forms a distinctive element within this view and acts as a wayfinding landmark for users of the commercial centre.

The landscape character associated with this LCZ is considered to be of very low amenity due to its close interface with the busy Nepean Highway, which is unrelieved by street trees or other vegetation, and provides little shade for pedestrians, or other amenities such as seating.

Figure 7 Typical character of LCZ 3 as viewed from Nepean Highway

3.2.4 LCZ 4 – Foreshore

LCZ 4 comprises of coastal fronting land with residential development backing onto it, and is typical of the foreshore from Mordialloc Creek to Frankston. The LCZ comprises low dunes with a variety of predominantly regenerating endemic vegetation. It comprises a highly valuable landscape resource / recreational reserve and includes the Bonbeach Life Saving Club. Residential housing backs onto the foreshore. The character of the beachfront is notable for the regular provision of small boat sheds/changing facilities.

Figure 8 Typical character of LCZ 4 as viewed from the foreshore

3.3 Visual impact receptor locations

A total of nine representative viewpoints have been identified within the project investigation area. The location of these viewpoints reflects key locations that have sensitive visual receptors and/or a relatively high number of potential viewers.

Receptor locations are outlined below:

- **V01 –** Nepean Highway – view south-east across Nepean Highway
- **V02 –** Corner of Nepean Highway and Wellwood Road – view south-east across Nepean Highway
- **V03 –** Station Street – view south-west across Station Street
- **V04 –** Harding Avenue – view north-east across Harding Avenue
- **V05 –** Corner of Nepean Highway and Harding Avenue – view north-east across Nepean Highway
- **V06 –** Bondi Road – view south-west to level crossing
- **V07 –** Station Street – view north-west across Station Street
- **V08 –** Corner of Nepean Highway and Lord Weaver Grove – view north-east across Nepean Highway
- **V09 –** Corner of Station Street and Cannes Avenue – view north-west across Station Street

Figure 9 Visual receptor location map for Bonbeach level crossing

3.4 Visual envelope map

The likely visibility of the proposed seen elements of the project at operation from surrounding areas has been broadly mapped to define a visual envelope. This provides an indication of where the project is potentially visible from. This map indicates 'worst case' and is indicative only as it does not include nor consider the effects of existing vegetation cover.

Figure 10 Visual envelope mapping for Bonbeach level crossing

4. Preliminary assessment

4.1 Landscape character assessment

Landscape Character Zone 1 – Infrastructure corridor

Sensitivity to change: Moderate

Susceptibility to change

The LCZ is considered to have a moderate potential to accommodate the proposed change without long-term landscape character effects, or to accommodate the project while also achieving current landscape planning policies. This is due to the rail-under option potentially requiring a greater width of the LCZ being dedicated to hard infrastructure compared with the rail over option, and the height (and therefore character) of any replacement vegetation potentially being limited due to rail landscape safety policy requirements where it is located within proximity of rail infrastructure. However, the extent of this issue is partially mitigated by the design assumptions provided within the methodology (refer s.2.7).

The trench structure comprises a large and uncharacteristic new element within the landscape. However, this occurs within the context of an infrastructure corridor.

Value of LCZ

The informal and naturalistic nature of endemic regrowth vegetation within this LCZ contributes to the coastal landscape character of the broader area, notwithstanding that it is also compromised by transport and utility functions and comprises intermittent stands.

Magnitude of change: Moderate

Size/scale

The scale of change in the landscape would be moderate, given the size and uncharacteristic form of the rail trench within this existing low coastal setting, but taking into consideration that this occurs within the context of an infrastructure corridor.

Additionally, there is potential for some reduction in the replacement of existing endemic regrowth vegetation over that currently in place, particularly trees, which could impact upon this key ‘sense of place’ element within the project area. Note: the extent of this change would be expected to reduce with the adoption of the design opportunities identified within the methodology (refer s.2.8).

Geographic extent

The project is contained within the existing rail corridor and comprises a length of approximately 1.1 kilometres (refer s.1.3.2).

Duration/reversibility

The project would comprise a permanent change to the character of the landscape.

Significance of landscape character effect: Moderate

Landscape Character Zone 2 – Residential

Sensitivity to change: Moderate

Susceptibility to change

The vegetation within the rail corridor (LCZ 1) is important to the landscape character of this LCZ. However, any effects arising from loss of this vegetation on the existing character of LCZ 2 are largely isolated to the two edges adjacent to the rail corridor. Within this context, the scale and form of the rail trench and associated fencing / traffic barrier infrastructure also affects the landscape character of this LCZ, but as above this is primarily limited to those edges adjacent to the project.

Value of LCZ

LCZ 2 is considered to be of local value due to the contribution of tree planting within residential lots to the wider landscape character, in addition to associated limited public realm planting.

Magnitude of change: Low

Size / scale

The loss of coastal vegetation within the rail corridor could alter the landscape setting of properties immediately adjacent to the project. However, a substantial area of the project is expected to be reinstated to vegetation that reflects this coastal character, particularly south of Bond Road.

The New structures, including noise walls, pedestrian overpasses, car parking, security fencing and traffic barriers would also impact the existing landscape setting of these properties. However, beyond the edge with LCZ 1, effects on this extensive LCZ rapidly decrease with distance from the project.

Geographic extent

The extent of change within this LCZ is likely to be limited to enabling roadworks, and potentially the addition of street trees within parts of the road reserve adjoining LCZ 1, over a distance of approximately 1.1 kilometres. The effects of coastal character vegetation loss are expected to felt primarily alongside pedestrian ramps, with limited vegetation present within the existing area of the proposed station / car parking precinct.

Duration/reversibility

The project would comprise a permanent change to the sections of this LCZ that are adjacent to the extent of works.

Significance of landscape character effect: Moderate - Low

Landscape Character Zone 3 – Commercial

Sensitivity to change: Low

Susceptibility to change

The susceptibility to change of LCZ 3 is limited due to the built up, commercial nature of the Bonbeach neighbourhood centre and the interface with Nepean Highway, a major transport corridor. Low visual amenity and limited vegetation is also noted within this LCZ.

Value of LCZ

The landscape value of LCZ 3 is defined by low levels of visual amenity and limited vegetation within the zone and along Nepean Highway. The high visibility of rail infrastructure and utilities also minimise the landscape value of the zone.

Magnitude of change: Low

Size/scale

The scale of change in this LCZ is expected to be low for this LCZ given the lowering of the rail infrastructure beneath ground level. However, elements such as the station building, pedestrian overpasses, car parking and traffic requirements may limit opportunity to establish any significant landscaping to mitigate the effects in that part of the project.

Geographic extent

The identified commercial zone interfaces with approximately half of the project extent along Nepean Highway.

Duration/reversibility

Permanent

Significance of landscape character effect: Low

Landscape Character Zone 5 – Foreshore
Sensitivity to change: Low **Susceptibility to change** The ability of this LCZ to accommodate the proposed change without effects on its landscape character is considered to be high given its substantial separation from the project. **Value of LCZ** This LCZ is considered to comprise a locally valued landscape (Mordialloc to Carrum Foreshore Reserve).
Magnitude of change: Negligible **Size/scale** The scale of change in the landscape would be negligible given its clearly defined extent and physical separation for the project. **Geographic extent** The extent of the change felt by the LCZ is considered to be negligible. **Duration/reversibility** Permanent
Significance of landscape character effect: Negligible

4.1.1 Exclusions

Landscape Character Zone 4 has not been assessed due to limited extent within proximity of the project, and distinct separation from the project area.

4.2 Visual effects assessment

V01 - Nepean Highway

Existing view south-east across Nepean Highway

Sensitivity to change: Moderate

Susceptibility to change

Residents are likely to be susceptible to any proposed changes, given the visibility of the project from their homes, particularly if significant levels revegetation are not possible within the rail corridor. However, it is noted that existing high fences and vegetation currently limit direct views of the rail corridor and Nepean Highway from adjacent ground floor and single storey dwellings.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and contributes to the coastal character of the streetscape. However, planting is intermittent and is compromised by transport and utility functions along Nepean Highway which results in a low level of visual amenity.

Magnitude of change: Moderate

Size/scale

A proposed pedestrian overpass over the corridor and along Nepean Highway will be the most significant change to this viewpoint and the width of the trench and barrier/fencing requirements will limit opportunities to reinstate significant landscaping.

Geographic extent

The pedestrian overpass and the loss of vegetation will at this viewpoint will alter the existing outlook towards the rail corridor from adjacent housing and the existing streetscape character. The geographic extent will broadly be limited to between the residential and commercial edges of Nepean Highway and Station Street.

Duration/reversibility

Permanent

Significance of visual effect: Moderate

V02 – Corner of Nepean Highway and Wellwood Road

Existing view south-east across Nepean Highway

Sensitivity to change: Moderate

Susceptibility to change

Residents are likely to be susceptible to any proposed changes, given the visibility of the project from their homes. However, it is noted that dense and taller vegetation as currently shown in the above photo may not be able to be reinstated within the rail corridor.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and contributes to the coastal character of the streetscape. This planting provides virtually the only significant vegetated area within the view catchment of this receptor.

Magnitude of change: Moderate

Size/scale

A proposed pedestrian overpass over the corridor and along Nepean Highway will be the most significant change to this viewpoint and the width of the trench and barrier/fencing requirements in addition potentially to rail safety and security requirements will limit opportunities to reinstate significant landscaping.

Geographic extent

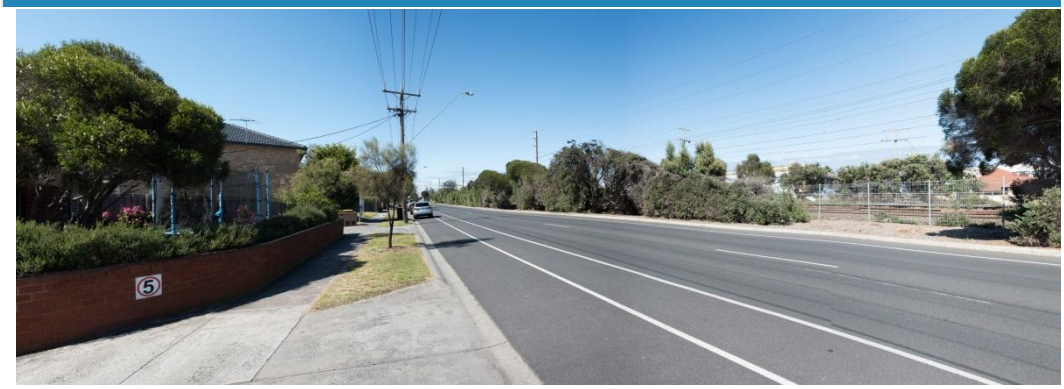
The pedestrian overpass and the loss of vegetation will at this viewpoint will alter the existing outlook towards the rail corridor from adjacent housing and the existing streetscape character

Duration/reversibility

Permanent

Significance of visual effect: Moderate

V03 – Station Street



Existing view south-west across Station Street

Sensitivity to change: Moderate

Susceptibility to change

Residents at this viewpoint are likely to be susceptible to any proposed changes, given the visibility of the project from their homes and the potential for limited capacity for replanting within and adjoining the road corridor, and therefore increased visibility of the rail corridor. However, it is noted that existing high fences and corridor vegetation currently limit direct views of the rail line from some adjacent ground floor and single storey dwellings.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and is important to the existing streetscape character. Planting is intermittent and is present onto to some extents of the transport corridor , but nonetheless provides an important screening function for the rail corridor.

Magnitude of change: Moderate

Size/scale

The visibility of any major built form or structure is limited due to the lowering of the rail line. However, the width of the trench will limit opportunity to reinstate any significant landscaping and the project will also introduce lengths of barriers and fencing.

Geographic extent

The loss of vegetation and barriers/fencing at this viewpoint will alter the existing outlook towards the rail corridor from adjacent housing and the existing streetscape character. Views down Station Street are maintained, but views across to Nepean Highway may be impacted by fencing.

Duration/reversibility

Permanent

Significance of visual effect: Moderate

V04 – Harding Avenue

Existing view north-east across Harding Avenue

Sensitivity to change: Moderate

Susceptibility to change

While residents and recreational users have high amenity views across the landscape, the sensitivity of receptors to the project is considered to be Moderate due to the low number of receptors and recreational users.

Value attached to view

This viewpoint is comprised of both urban and coastal elements, providing recreational users a degree of visual amenity and interest. As such, it is considered to have a more significant local value than typical street views.

Magnitude of change: Low

Size/scale

While the proposed station building at the terminus of this street will change this viewpoint, the scale of change will be minimal given the partial view of the building at this location.

Geographic extent

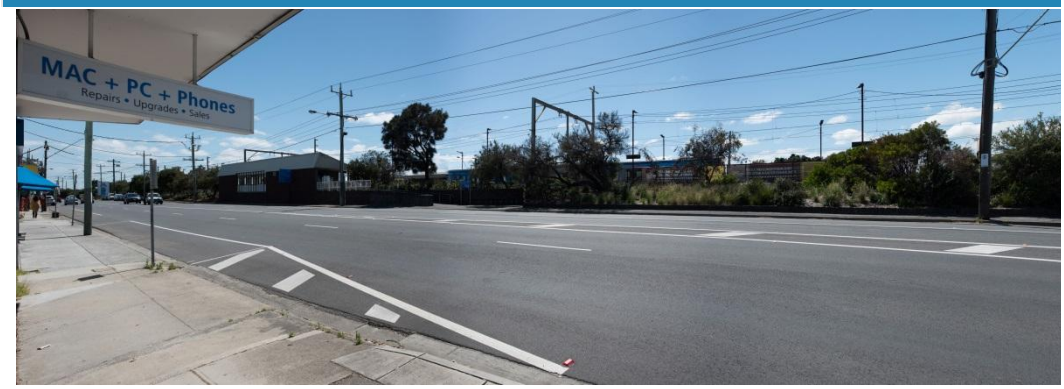
This viewpoint is located approximately 200 metres from rail corridor, resulting in a low visual detail of the proposed change, and comprising only a small component of the overall view.

Duration/reversibility

Permanent

Significance of visual effect: Moderate - Low

V05 – Corner of Nepean Highway and Harding Avenue



Existing view north-east across Nepean Highway

Sensitivity to change: Low

Susceptibility of visual receptor to proposed change

The susceptibility of receptors at this location is low given the nature of the activities at the Bonbeach neighbourhood centre, short-term occupation of the area by users and the built up character of the area.

Value attached to view

The value attached to this view is low given the current visual outlook to the Nepean Highway, car parking and infrastructure elements. Landscaping is intermittent.

Magnitude of change: High

Size/scale

The scale of the change in the view is considered to be high with the relocation of the station building into the immediate foreground. It is expected that the building and barrier/fencing requirements will limit opportunities to reinstate significant landscaping.

Geographic extent

The new station building and potential permanent loss of vegetation will alter the outlook towards the rail corridor and the existing streetscape character from this viewpoint.

Duration/reversibility

Permanent

Significance of visual effect: Moderate

V06 – Bondi Road

Existing view south-west to Station Street level crossing

Sensitivity to change: Low

Susceptibility to change

The susceptibility of residents to the proposed change in the view and visual amenity is limited due to the built up and commercial nature of the area, notwithstanding the obviously residential character of the street. There will be limited visible change from this viewpoint due to the lowering of the rail line beneath the road.

Value attached to view

A low landscape value is ascribed to the existing view from this location due to the built up nature of the view, the limited level of soft landscaping and the lack of an identifiable streetscape character along Bondi Road.

Magnitude of change: Moderate

Size/scale

The scale of the change in the view is considered to be moderate, given the addition of a new station building and associated pedestrian plaza This would change the composition of the view by introducing a substantial new middle ground element which would create a new visual focus, and increase the proportion of the view taken up by the project.

The project elements would be expected to be well integrated into the view, within the context of the scale, massing, height and contemporary form of the building.

Geographic extent

The project is located some 40m and greater from this viewpoint and seen at an oblique angle to the frontage of the residences. The project would take up a significant proportion of the view, and be seen in a high level of detail.

Duration/reversibility

Permanent

Significance of visual effect: Moderate - low

V07 – Station Street

Existing view north-west across Station Street

Photomontage of proposed view north-west across Station Street

Sensitivity to change: Moderate

Susceptibility to change

Residents at this location are likely to be susceptible to any proposed changes, given the visibility of the project from their homes. However, the current view is comprised of the station car park which provides little visual amenity to adjacent residences.

Value attached to view

The value attached to this view is limited given the outlook towards the station car park and the built up character of the area, with limited landscaping visible.

Magnitude of change: Moderate

Size/scale

The scale of the change in the view is considered to be low given the retention of car parking south of Bondi Road. Substantial areas of pavement limit opportunities for landscaping in the foreground and the station building is relocated closer to this viewpoint.

Geographic extent

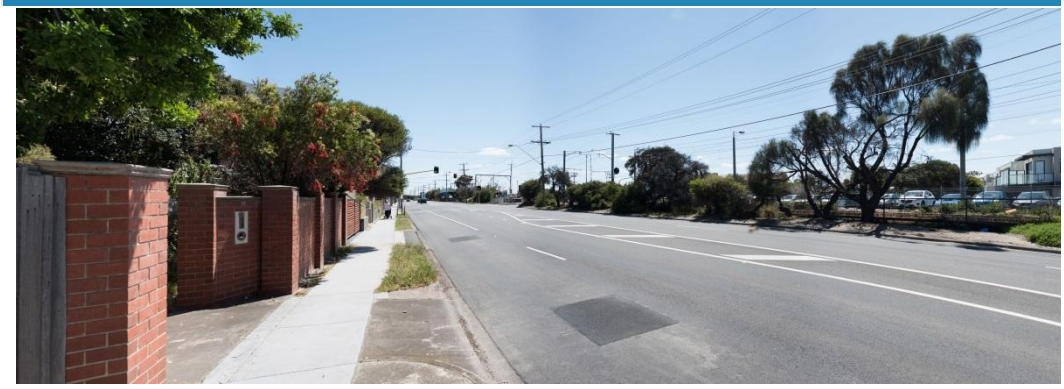
While the outlook from this viewpoint is altered, new structures and uses do not generally disrupt long range views down Nepean Highway or across to Station Street.

Duration/reversibility

Permanent

Significance of visual effect: Moderate

V08 – Corner of Nepean Highway and Lord Weaver Grove



Existing view north-east across Nepean Highway

Sensitivity to change: Moderate

Susceptibility to change

Residents at this viewpoint are likely to be susceptible to any proposed changes, given the visibility of the project from their homes. However, it is noted that existing fencing and corridor vegetation currently limit direct views of the rail line from some adjacent ground floor and single storey dwellings.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and is important to the existing streetscape / coastal character. However, planting is intermittent and is compromised by transport and utility functions along Nepean Highway which results in a limited level of visual amenity.

Magnitude of change: Moderate

Size/scale

The visibility of any major built form or structure is limited due to the lowering of the rail line. However, the proposed station car parking will limit opportunities for the reinstatement of landscaping in the immediate foreground of this view.

Geographic extent

The extent of area over which the changes would be visible would be substantial, effectively comprising the full extent of the rail corridor.

Duration/reversibility

Permanent

Significance of visual effect: Moderate

V09 – Corner of Station Street and Cannes Avenue

Existing view north-west across Station Street

Sensitivity to change: High

Susceptibility to change

The susceptibility of residents to the proposed change in the view and visual amenity would be high given the potential for almost complete loss of the existing green corridor seen in this view, and replacement of this view with the new infrastructure elements including traffic barriers and security fencing.

Value attached to view

The value attached to this view is related to the corridor small trees and tall shrubs, which screens much of the existing rail infrastructure. This vegetation comprises a high cover of endemic low-growing regrowth shrubs and trees.

Magnitude of change: High

Size/scale

The new project elements would introduce lengths of barriers and fencing that would change the existing landscape character of this view.

Geographic extent

The project is located 20 metres from this viewpoint and would alter views and outlooks from adjacent residences.

Duration/reversibility

Permanent

Significance of visual effect: High

4.3 Summary of effects

The tables below summarise the significance of the landscape character effects and visual effects identified (prior to mitigation). The conservative approach that has been undertaken during this assessment highlights the maximum effects on very localised parts of landscape character areas and viewpoints that are immediately adjacent to the project. These viewpoints therefore have a higher level of sensitivity than the broader community would experience. The below ratings reflect the effects of the project prior to the incorporation of mitigated measures.

Table 3 Summary of landscape character effects

LCZ	Landscape character type	Sensitivity to change	Magnitude of change	Significance of landscape effect
LCZ 1	Infrastructure corridor	Moderate	Moderate	**Moderate**
LCZ 2	Residential	Moderate	Low	**Moderate-low**
LCZ 3	Commercial	Low	Low	**Low**
LCZ5	Foreshore	Low	Negligible	**Negligible**

Table 4 Summary of visual effects

Viewpoint	Receptor	Sensitivity to change	Magnitude of change	Significance of visual effect
V01	Nepean Highway	Moderate	Moderate	**Moderate**
V02	Nepean Highway	Moderate	Moderate	**Moderate**
V03	Station Street	Moderate	Moderate	**Moderate**
V04	Harding Avenue	Moderate	Low	**Moderate - Low**
V05	Corner of Nepean Highway and Harding Avenue	Low	High	**Moderate**
V06	Bondi Road	Low	Moderate	**Moderate - Low**
V07	Station Street	Moderate	Moderate	**Moderate**
V08	Corner of Nepean Highway and Lord Weaver Grove	Moderate	Moderate	**Moderate**
V09	Corner of Station Street and Cannes Avenue	High	High	**High**

As the project progresses, the significance of landscape effect rating and significance of visual effect rating (as listed above) will be used to help inform where and what form of mitigation will be integrated into the design to minimise or improve the quality of the visual impact. Section 5 of this report describes the approach to mitigation measures that will ensure better and locally appropriate landscape and visual outcomes from the project.

5. Mitigation measures

A range of measures that can mitigate the landscape and visual effects identified in this report can be used as the design of the project is further developed. Measures should be specific and locally appropriate to the existing landscape and streetscape features. Given the relatively early stage of the project's development, such measures specific have yet to be identified for the Station Street/Bondi Road level crossing removal project.

Any proposed measures will be guided by the principles and measures that form the Level Crossing Removal Authority's Urban Design Framework (Version 3). This document outlines the expectations of the State and Local Governments for achieving high quality, context sensitive urban design outcomes at each level crossing removal site.

The document plays a dual role by informing the design process as well as providing a basis for the evaluation of design solutions. The Framework identifies eight key principles inherent to successful level crossing removal projects, which address identity, connectivity, urban integration, sustainability, amenity, vibrancy, safety, and accessibility.

The document also identifies a specific mitigation approaches that need to be considered as projects are developed. These are listed in Table 5.

Table 5 Level Crossing Removal Authority Urban Design Framework – mitigation measures

Specified measures	Potential mitigation approaches identified
6.1 Whole of project	Seeks the development of a design response that provides an integrated landscape, architectural and urban design outcome that minimises visual clutter, aligned with local character.
6.2 Train stations	Seeks the development of station designs that provide high quality civic places, enhance local context, are sensitively sited and integrate public area and car parking as part of a high quality landscape design.
6.3 Bridges and elevated structures	Seeks the development of elevated structures that positively contribute to corridor and local identity, provide gateway experiences, are sensitive to the existing context, minimise the visual and spatial impact of services and maximise the amenity of public areas through siting and visual connections.
6.4 Open cuttings (rail trenches)	Seeks the minimisation of disconnection and improvement to visual connectivity, and integration of visually prominent elements such as elevated pedestrian and cycling connections.
6.6 Landscape and natural environments	Seeks the enhancement of the quality of existing landscape s through cohesive landscape design concepts, minimise loss and maximised replanting of trees, integrated landform, planting and water sensitive urban design outcomes.
6.9 Materials and finishes	Seeks the development of materials and finishes that are sensitive to local environments and contribute positively to local identity.
6.12 Integrated Public Art	Seeks the inclusion of integrated public art that responds to the local character of the urban setting and creates a new positive visual landmark.

Building on the principles of the UDF, urban design guidelines specific to Station Street/Bondi Road level crossing will be developed by the Authority and will provide further guidance of the State Government's expectations on the design of the project. These guidelines will more specifically shape and enforce mitigation measures and a level of considered design to ensure high quality outcomes for local residents and station users.

6. Conclusion

This preliminary landscape and visual impact assessment has been undertaken to understand the potential effects that the project will have.

This assessment found the project has generally a wide mix of landscape character effects and generally moderate landscape and visual effects.

Whilst the project is still in its design and planning phase, there are potential mitigation approaches that may be used to reduce the visual impacts of the proposal. Such approaches are required and guided by the *Level Crossing Removal Project Urban Design Framework* and the relevant Urban Design Guideline Report drafted for this site. These documents will ensure that high quality urban design and landscape outcomes for local residents and station users are achieved, particularly with regards to visual impacts.

As part of the ongoing development of the project, further landscape and visual impact assessment can be undertaken to verify that the project's landscape and visual effects are reduced or a positive outcome achieved.

Appendices

Appendix A – Preliminary Urban Design Concept Drawing

LEVEL CROSSING REMOVAL PROJECT

46 - STATION STREET/BONDI ROAD - BONBEACH
PRECINCT URBAN DESIGN CONCEPT

FEBRUARY 2017

LEGEND

CAR PARKING	EXISTING PEDESTRIAN PATH
STATION BUILDING	POTENTIAL PEDESTRIAN PATH
POTENTIAL LANDSCAPING	RETAINING WALL
POTENTIAL PEDESTRIAN OVERPASS	STATION PLATFORMS
STATION PRECINCT	

LEVEL CROSSING REMOVAL PROJECT