



Rural and Regional Interchange Project

Byron Bay Interchange – Water Tower Site Visual Impact Assessment

Project # S16057

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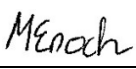
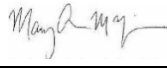
Document prepared by:

DesignInc Sydney Pty Ltd
ABN 87 003 008 820
Level 12, 77 Pacific Highway
North Sydney NSW 2060
+61 2 8905 7100
sydney@designinc.com.au

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Author Signature		Approver Signature	
Name	Miriam Enoch	Name	Mary Anne McGirr
Title	Senior Landscape Architect	Title	Principal

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1. Introduction

The Transport Access Program (TAP) is an initiative of Transport for New South Wales (TfNSW) to provide a better experience for public transport customers by delivering an integrated, accessible, modern, and secure transport system. The aim of the program is to provide:

- Interchange precincts that are accessible by the mobility impaired, elderly, people with prams;
- Interchange facilities for all modes that meet the demand of the patronage growth;
- Modern interchanges that support an integrated network and allow seamless transfers between all modes for all customers;
- Safety improvements, which consist of additional lighting, help points, security fencing, security measures for car parks and interchanges;
- Signage improvements; and
- Building refurbishments, such as painting, roofing and fencing.

TfNSW has identified and included several rural and regional interchanges in the TAP program. This includes Albury, Wagga Wagga, Byron Bay, Coffs Harbour, Orange and Tamworth. These various interchanges will experience patronage growth and therefore various improvements are required to service this growth.

This report refers to a new Bus Interchange proposed at Byron Bay, located on Butler Street, west of Byron Bay Railway station. Refer Figure 1 and Figure 2.

The Bus Interchange will provide interstate, intercity and tourist busses with a new purpose designed space accessed from the new Butler Street Bypass, removing bus traffic congestion from the town centre.



Figure 1: Location Plan

1.1 Purpose of the Report

The purpose of this report is to assess the landscape character and visual impact of the new proposed Bus Interchange. The assessment considers the degree of visibility of the new proposal from the surrounding streets including Butler Street, Somerset Street, Burns Street and Jonson Street. This report has been prepared for Sydney Trains by DesignInc, in conjunction with SMEC engineers to inform a Review of Environmental Factors (REF).

The objectives of the report are to:

- Inform the Review of Environmental Factors (REF), being prepared by SMEC, for the proposal.
- Identify and document the visual and landscape opportunities and issues within the Study Area.
- Assist in achieving the integration of urban and landscape design for the Byron Bay Bus Interchange Project.

1.2 Background

Byron Bay is a coastal seaside town located on the east coast of Australia in the state of NSW. Byron Bay is roughly 770km north of Sydney and 95km south of the Gold Coast.

Byron Bay is recognised for its creative, cultural and natural seaside environment. It is a popular travel destination with many festivals and events like Splendour in the Grass and Byron Bay Bluesfest.

The Bus Interchange is proposed to be built west of the former Railway Station on Butler Street.

A key feature of the proposal is a 20,000 gallon Water Tank, built in 1894 which is also a distinctive cultural landmark for Byron Bay. It is only one of six cylindrical water towers in NSW.

The site was formally used to refill Locomotive Steam trains with water and to dump used coal into an ash pit.

The site also includes remnants of the old Steam Train Turntable which allowed the front carriage of the steam train to turn around and continue on its journey.

The site is currently disused and the majority of the turntable has been removed. Remnants of the headwalls can still be seen and one is currently covered in graffiti(art). The Water Tower is relatively intact; however, it is in need of some repair and maintenance. The rest of the site is overgrown with a mixture of weeds, and regrowth of native plants.

An informal local and visitor pedestrian connection exists between Railway Square/Town Centre and Butler Street utilising the old level crossing. This connection is mainly used by residents and tourists located to the west. This connection has an informal carpark along its edges.

1.3 Proposal Objectives

The following design objectives and principles are adapted to suit the location, scale and complexity of the Byron Bay Interchange Project. They have been derived from the following Transport for NSW documents:

- TfNSW, Making Interchange Places - Product Strategy, May 2012.
- TfNSW Interchange Places - Design Handbook, November, 2011.

The key objectives (with principles to achieve the objective) are to:

- **Objective 1: Provide safe, efficient and convenient access for all.**
 - Locate interchanges in convenient and accessible places.
 - Ensure pedestrian routes to and throughout interchanges are legible, safe and accessible to all people, including those with reduced mobility and satisfy desire lines.
 - Minimise conflicts between pedestrians and vehicles while providing efficient movement between transport modes.
 - Provide a compact design to reduce the distance needed to use the interchange.
 - Adopt CPTED principles including passive surveillance
 - Design to maximise 24/7 activity, personal safety and traffic safety, prioritising pedestrian and cycle movement over vehicles and integrating the interchange with existing and planned movement networks and urban places.
 - Optimise sight lines and avoid hidden areas and places of concealment.
 - Prioritise at grade connections and minimise underpasses and overpasses.

- Provide barrier free access and accessible features including lifts and ramps, and visual wayfinding aids including braille maps and tactile tiles.
- **Objective 2: Provide a comfortable, enjoyable and memorable customer experience.**
 - Provide high interchange performance through a focus on:
 - » Customer convenience
 - » Efficiency of movement
 - » Quality in materials, finishes, equipment
 - » Emergency capacity
 - » Allowing for dynamic change in service patterns
 - » Future proofing to meet demand.
 - Provide high quality comfort and convenience for all customers through the provision of:
 - » Shade
 - » Shelter, seating and weather protection between modes
 - » Daylight/ sunlight
 - » Good lighting day and night
 - » Views and outlook
 - » Communications - Wi-Fi and mobile phone coverage
 - » Barrier free access and accessible design features.
 - Minimise the need for directional signage by maximising the simplicity of interchange spaces and designing intuitive wayfinding.
 - Provide consistent informative, accurate and easy to understand signage, travel, directional information and displays including:
 - » Real time arrival/ departure information
 - » Travel time/ duration
 - » Route/ stops in each direction
 - » Fares
 - » Services – details of next services in each direction
 - » Delays and service interruptions
 - Provide ticket purchase and validation which is readily accessible and convenient
 - Provide support for customers with:
 - » Help points
 - » Signage and displays which cater for all modes
 - » Directional touch-screen kiosks
 - Provide a mix of complementary uses around the interchange to provide activation and passive surveillance, such as:
 - » Convenience retail facilities
 - » Food
 - » Beverage
 - » Public Art
- **Objective 3: Connect into existing and future transport networks and provide equitable access to centres of employment, services, recreation and education.**
 - Fully integrate the interchange into the existing transport network as well as the surrounding urban area (both current and future)
 - Prioritise the transport modes providing pedestrian access first, followed by bicycle access, buses, taxis, kiss and ride and finally commuter car parking access.
 - Encourage walking and cycling to access interchanges.
 - Provide quick and easy transfer between different types of transport.
 - Design stairs and platforms to provide rapid movement and maximum passenger and non-passenger flows.
 - Accommodate pedestrian flows associated with surrounding activities and developments.

- **Objective 4: Provide a seamless interchange.**
 - Provide efficient connectivity between transport modes (buses, taxis, and accommodation transfer people movers, private car) to maximise the quality of the interchange experience.
 - Provide compact interchange facilities which reduce transfer distances and maximise directness and safety for customers.
 - Minimise conflicts between transport modes within and around the precinct.
 - Maximise direct routes of travel and minimise the need for diversions or manoeuvring for interchange users.
 - Provide for dynamic changes in use of space (such as daytime and night-time activities, and special events).
 - Plan for the needs of customers with destinations in and around the interchange as well as transferring passengers.
 - Provide sheltered pedestrian connections where possible.
- **Objective 5: Make attractive and vibrant places and embrace cultural and heritage values.**
 - Protect and reinforce the “genius loci”, the spirit of the place, of each interchange locale. Enhance the existing context and use the characteristics of the place and the landscape in the design. Reinforce each place, integrate into the natural character and built fabric of each locale.
 - Integrate environment, art, architecture, engineering and landscape architecture.
 - Protect, incorporate and interpret natural systems and processes.
 - Provide a quality public space at each interchange – a square, forecourt, promenade, park or garden.
 - Define each interchange with contemporary architecture.
 - Ensure each interchange has a legible identity and prominent public address and entry.
 - Create self-explanatory locations that provide a sense of place and a focus for the local community.
 - Locate the interchange where it will create a focal point for the local community. Embrace the positive elements of the activity and bustle of the interchange.
 - Provide compact, high quality interchange facilities that complement their surroundings.
 - Ensure interchange facilities contribute to networks of streets and urban public spaces and meet DDA requirements.
 - Design the interchange as a coherent place, to integrate with the public realm and to contribute to a positive image.
 - Integrate complementary retail, community and commercial activities into the interchange precinct.
 - Ensure interchange spaces are easily maintained using robust and available materials to enable effective and efficient cleaning.
- **Objective 6: Safeguard future extension and property development opportunities.**
 - Contribute to the revitalisation of the area around each interchange and work to secure long term environmental, economic and social value for the future of the precinct.
 - Locate interchanges to serve existing and proposed land uses and help to enable opportunities for new employment.
 - Design the area around each interchange to support a strong and permeable street pattern and provide public spaces to promote integrated development.
 - Review land uses and ensure the area around the interchange can accommodate change and adapt over time.
 - Ensure interchanges that provide commuter car parking facilities can accommodate other uses such as urban development over time.

- **Objective 7: Deliver sustainable solutions that minimise environmental and community impacts, that are adaptable to climate change, and accommodate new technologies.**
 - Design to accommodate future, inter-generational growth.
 - Employ sustainable environmental design principles wherever possible.
 - Use robust durable materials which require minimal maintenance and minimise opportunities for vandalism.
 - Maximise sunlight access and natural ventilation within the interchange without compromising the public domain or future development opportunities.
 - Optimise WSUD principles such as water harvesting and sustainable water management in all new public buildings, areas of open space and facilities.
 - Consider the impact of climate change and ensure the design addresses the current and predicted future climate.
 - Avoid adverse impacts – visual, vibration, acoustic, etc.
 - Adopt low impact environmental strategies.
 - Opt for sustainable selection and procurement of materials.
 - Maximise reuse of materials and provide waste recycling and reuse initiatives.
 - Maximise opportunities for multiple use of interchange facilities to contribute to the vitality and robustness of surrounding activities.
 - Maximise flexibility in operations and maintenance by avoiding solutions that lock in single operating or circulation patterns to the detriment of integration with the surrounding urban context.
 - Plan for a more sustainable transport future by effective use of staging and designing for long term redevelopment (such as redevelopment commuter car parking areas into residential or commercial uses).
 - Respond to and optimise the continuity of natural systems and processes including micro-climate, topography, drainage, ecology, habitat, vegetation etc.
 - Maximise access and connectivity along and across natural corridors such as creeks and rivers.
 - Use appropriate plant species (native/endemic species preferred) and sustainable materials that respond to the existing character of the area.
 - Design self-reliant, robust and low maintenance landscape systems.
 - Restore and enhance ecological integrity and biodiversity.

1.4 Methodology

This report has been prepared by DesignInc - the Architects, Landscape Architects and Urban Designers for the project. The report is based on a desktop analysis, a site visit and visual assessment of the various locations. The assessment is based on the current concept design drawings which include urban and landscape design and is therefore a professional judgement of the anticipated outcomes.

The assessment generally follows the structure and methodology of the RMS Guidelines for Landscape Character and Visual Impact Assessment (EIA-N04, 2013) and guidelines of the RailCorp Environmental Management System – Visual Amenity System Procedure - EMS-09-PR-0014 Version 2.1.

1.4.1 Contextual Analysis

A summary is provided of the existing conditions for the site. A detailed description of the proposed works is also included.

1.4.2 Landscape Character Zones and Assessment

Landscape Character Zones are described and assessed. This task involves photographing, understanding, mapping and describing the identified landscape character zone and determining and describing the capacity of this zone to visually absorb the Proposal. The Landscape Character Zone identified for the Study is mapped and described in Section 3.

Two primary factors are used to determine landscape character zone impacts:

- Sensitivity of the character zone.
- Magnitude of the proposal in that zone.

The sensitivity of a landscape character zone is used in both Landscape Character Zone Impact Assessment and in the subsequent Visual Impact Assessment. The Roads and Maritime Service Environmental Impact Assessment Guidance Note defines sensitivity as: *“The sensitivity of a landscape character zone or view and its capacity to absorb change. Combined with magnitude, sensitivity provides a measure of impact.”* (Roads and Maritime Service, EIA-N04, p.6). It further states: *“Sensitivity refers to how sensitive the character of the setting is to the proposed change. For example, a pristine natural environment will be more sensitive to change than an industrial area.”* (Roads and Maritime Service, EIA-N04, p.9).

The capacity to absorb development is primarily dependent on landform, vegetation cover and existing structures. The more pristine the landscape, the greater the consequence of introducing new development and therefore the higher the sensitivity rating of that zone. Areas that have been previously been modified would be ranked lower than (for example) areas of remnant wetland. A precinct with a coherent character, for example a Nature Reserve with gently undulating topography, would be more visually sensitive to new development than a precinct whose topography and natural and/or built character has greater variety.

The magnitude of a proposal in a landscape character zone depends firstly on the scope of that proposal. Changing the use of an area from a disused landscape with no buildings to a 24-hour Bus Interchange will have a greater effect than simply upgrading the pedestrian connection. The location of the proposal in relation to the character zone also influences magnitude. For example, a proposal which passes through the middle of a character zone would have greater magnitude than one which skirts the edge of a zone. Four categories are used in ranking the magnitude of a proposal, ranging from negligible to high. The Landscape Character Zone Impact is determined using the matrix shown in 0. Rankings for sensitivity and magnitude are combined to generate the impact in the body of the table.

		MAGNITUDE			
		High	Moderate	Low	Negligible
SENSITIVITY	High	High	High - Moderate	Moderate	Negligible
	Moderate	High - Moderate	Moderate	Moderate - Low	Negligible
	Low	Moderate	Moderate - Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible
		Negligible	Negligible	Negligible	Negligible

Table 1: Landscape Character and Visual Impact Grading Matrix, Roads and Maritime Service, (2013)

It is important to note that Landscape Character Zone Impact Assessment has to do with the way and extent to which a proposal alters the perceived nature or sense of place of a zone. Change of character would be felt and understood even when one is not physically present in the Study Area.

1.4.3 Visual Impact Assessment

To assess the likely impact of the proposal, the following tasks were undertaken:

- A desktop analysis to ascertain the visual catchment of the Proposal within the area from which the new Bus Interchange may be visible, and potential receptors of the visual impact determined through topographic analysis and Google Maps. This provides the basis for the establishment of the Visual Envelope Map (VEM), view corridors, and key viewpoints. Locate on a map the eight key public domain locations (viewpoints – eight only) within the VEM.
- The sensitivity of each viewpoint takes into account the sensitivity ranking of the landscape character zone in which it is located.
- The magnitude of the proposal is the degree of change the view undergoes as a result of the Proposal. Relative to the existing condition, magnitude is ranked on a four-point scale from negligible to high.
- In a process similar to that used for landscape character zone impact assessment, the visual impact is assessed by combining the viewpoint sensitivity and the magnitude of the proposal in the matrix in 0.

1.4.4 Mitigation Recommendations

Recommendations are made for possible feasible mitigation measures to assist in the on-going development of the detailed design and the avoidance or minimisation of impacts.

1.5 Reference Documents

- GHD, Environment Impact Assessment – Byron Bay Bypass, January, 2016.
- RMS, Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment – EIA N04, 2013.
- RailCorp, Environmental Management System – Visual Amenity System Procedure - EMS-09-PR-0014 Version 2.1, 2011.
- McGreggor Coxall, Byron Bay Town Centre Masterplan, August 2017.
- Landscape Guidelines – Safety and cost
- RMS, Water sensitive urban design guideline – applying water sensitive urban design principal to TfNSW transport projects, March 2016.
- Sydney Trains, Kit of Parts Catalogue Station Refresh Package 4 and 4a.
- TfNSW, Making Interchange places, Product Strategy, May 2012.
- TfNSW, Interchange Places, Design Handbook, November, 2011.

2. Contextual Analysis

2.1 Existing Conditions

2.1.1 The Site

The site is located on the east side of Butler Street and west of Byron Bay Town Centre. It is bounded by the disused Railway Station to the east, Butler Street to the west and remnant wetland/bushland to the north and south.

The site is currently disused and secured by a chain mesh fence. Part of the southern section of the site is an unpaved road that is currently being used as an informal carpark. An informal path that takes pedestrians from Railway Square, over the level railway crossing, to Butler Street. The pedestrian access way provides a direct link from the main town centre Jonson Street to Burns Street. Numerous tourist accommodations are also located in this area. Residential houses are located immediately to the west of the site on Burns Street.

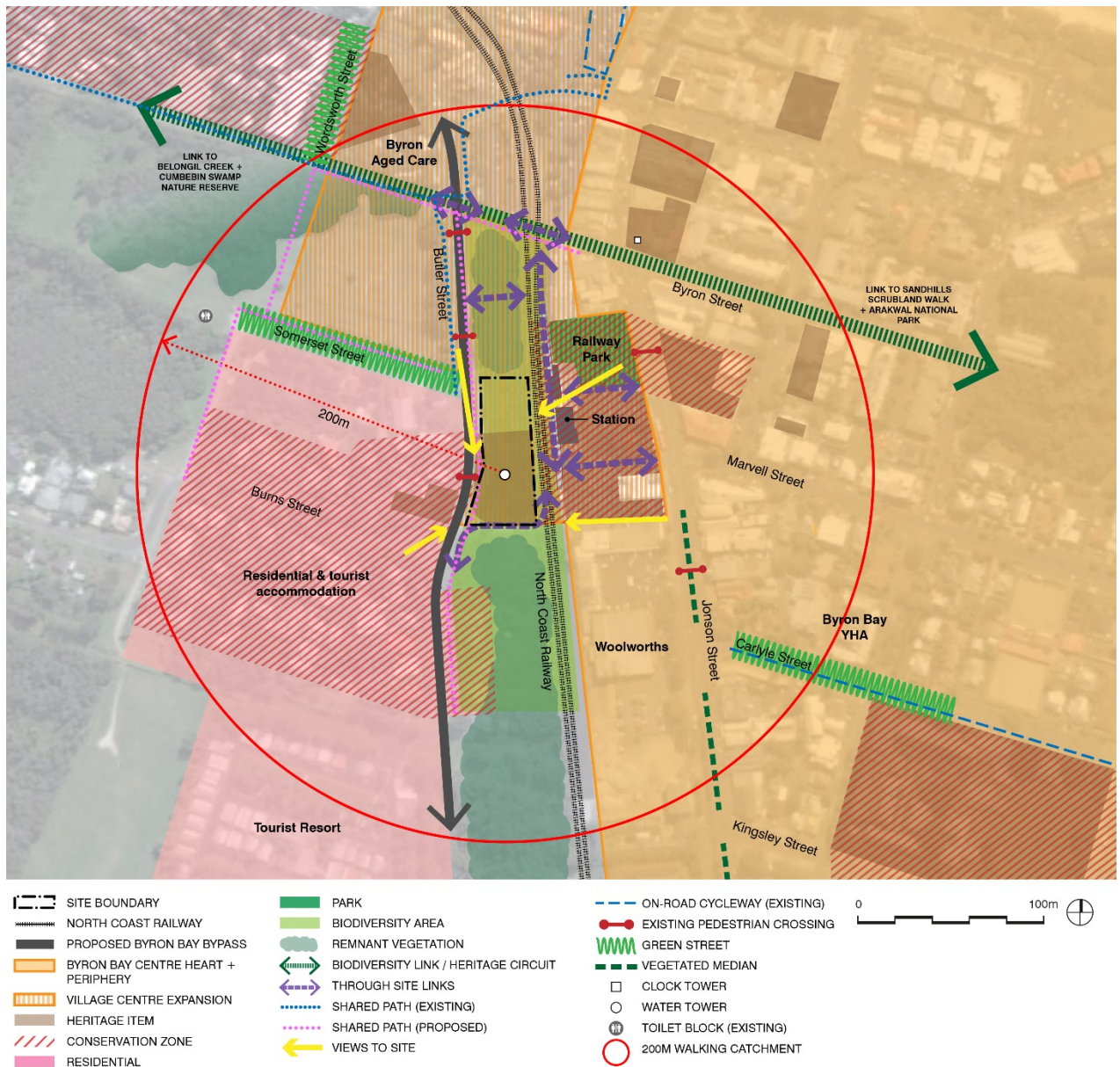


Figure 2: Site Analysis Plan

2.3 Detailed Description of the Proposed works

The Bus Interchange will be a destination gateway to Byron Bay for regional travelers and an important local meeting place. As such particular requirements for the interchange will include:

- Passengers will arrive well before scheduled departure times and have different waiting facility requirements than urban bus users. They will be looking for seating and toilets, in particular the proximity to Byron Town Centre means food and other facilities are catered for.
- Luggage off load space from buses and taxis and shelter for goods/ luggage.
- Transfer to taxi/ private car.

Understanding the existing and future character of Byron Bay is important to the design. The Interchange supports the general masterplan direction for the site. Key issues of note include:

- The Masterplan extends/ expands the Town Centre across the Railway to the west.
- The Masterplan seeks to integrate the Railway corridor into the Town Centre and remove it from being seen as a barrier, through re-orienting buildings to face the corridor and treating the corridor as a publicly accessible space.
- The Masterplan proposes an Interchange on the Railway side of Butler Street. The proposed Bus Interchange design supports the Masterplan objectives for this site. It comprises two new bus shelters, an Amenities Building, Taxi parking and Kiss and Ride drop off zone. The design is further described in its architectural and landscape components over leaf and below.

The proposal seeks to sensitively integrates and enhances the landmark elements of the heritage site, including the water tower, steam train turn table, and the railway station buildings. The canopies appear lightweight and open, allowing for unimpeded views across the site, and through to the existing station building beyond. The pitched roof profile references the angles and roof line of the station facilities, and the columns are designed to be as unobtrusive as possible to maximise views across the site.

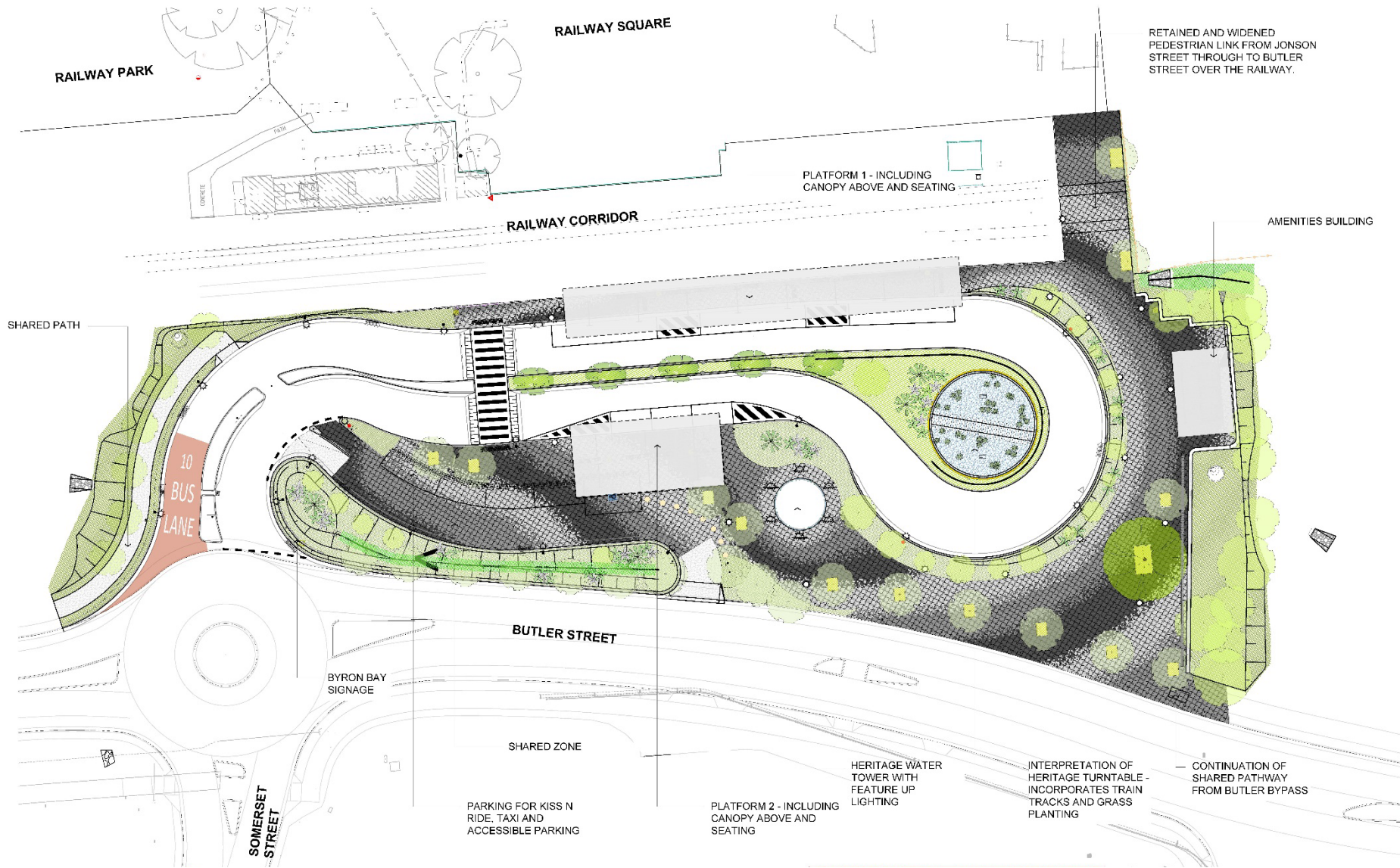


Figure 3: Plan View of Proposal

2.3.1 Urban and Landscape Design

The landscape design broadly references the original wetland setting of the site. It involves a radial paving pattern that mimics the circulation of water, the proposed paved areas incorporate a staggered edging arrangement, between the different shades of pavers to help express the water movement and flow.

Two entries into the Bus Interchange provide a separation of buses and cars. The buses enter and exit the Interchange via a proposed roundabout at the intersection of Somerset Street and Butler Street. Cars enter via Butler Street where there is a single accessible car space, provision for two taxis, and two kiss and ride spaces. Short term parking has not been provided, as there is currently adequate parking across the road at Butler Reserve, and within the Railway Square carpark.

A shared path runs along the east side of Butler Street a continuation from the shared path on the Bypass and continue north into a shared zone. The shared zone is the same separated road that cars and Taxi's drive on.

This shared path has been defined with the same pavement profile as the rest of the site to create a seamless landscape, there are no kerb edges between the roadway and plaza, however protection measures in the form of large round bollards and standard stainless steel bollards flank the edge of the road which also helps to delineate the roadway from the plaza space but still enable a smooth transition.

These works are to be coordinated with, and integrated into the Byron Bay Bypass Upgrade. Street lighting will be provided as part of the Byron Bay Bypass works, illuminating much of the shared path, and spilling light into the western vicinity of the interchange site. A row of stainless-steel bollard run the length of Butler Street between shared path and the Bypass, this helps to prevent any unwanted cars mounting the kerb and entering the plaza. Two removable bollards are located to allow for emergency vehicles to drive through the site and over the tracks to Jonson Street if required in an emergency.

A buffer zone of planting (in the form of a swale), separates Butler Street from the internal roadway of the Interchange. The swale is planted out with native grasses that can endure wet feet at times, these plants will also help to filter the runoff before being released.

The site is located between a biodiversity corridor, and planting at both the northern end and the southern end of the site has been carefully chosen to be of native or indigenous species to connect the existing vegetation with the site.

A new public space linking Railway Square to the Interchange, creates a passage for pedestrians to cross the disused rail corridor. It also serves as overflow space for the gathering of people who arrive at the Bus Interchange. The pedestrian link is scaled to allow for a generous point of 'entry' into the Bus Interchange, and to enable pedestrians to better circulate through the precinct. The existing railway tracks will remain visible, but will be flush and embedded into the pavement, so not to create a trip hazard. The tracks will effectively remain accessible, so they can be utilized if required in the future.

Toilet Facilities have been provided for commuters, in the amenities building (at the southern end of the site).

The amenities building adopts the same design aesthetic as the proposed canopies of the Bus Interchange, and is located to service both platform zones. Its location and orientation ensures it does not create a visual or physical obstacle for pedestrians circulating between the Butler Street area of the facility, and the eastern side of the interchange.

What remains of the existing historic steam turntable, will be removed and re-interpreted in the circular 'island' of the bus roundabout. Real railway tracks and sleepers, and a small perimeter wall will depict the shape and size of the redundant, and barely visible turntable, this re-enactment will pay homage to the once active turntable, and will allow users to experience and envisage what the site was once used for.

A small planted embankment separates the bus road network to the pedestrian plaza, creating a visual and physical barrier to the road. The planted embankment is planted with tropical species that is known to grow well in the area. A Mixture of palms, Frangipani trees and Water Gums make up the tree species on the embankment.

Within the internal bus road network, a planted median of *Elaeocarpus reticulatus* 'Prima Donna' is planted to provide shade to platform one from the western sun – the ground storey is planted out with low growing groundcovers to provide sightlines between the two platforms.

A raised pedestrian crossing links the two halves of the interchange allowing for accessible access to both platforms.

The pavement design is made up of 200 x 200mm square pavers, involving three different colours. The radial pattern forms a ripple effect, or the notion of a pebble being dropped into the heritage water tower, with the water rippling outward from the centre. Where the differing coloured pavers meet, they are 'pixelated', or 'blurred', to connect the vast pattern seamlessly together.

The entire Bus Interchange site has been designed to be accessible, with gentle and compliant rises and falls throughout. The topography of the proposed site references the natural shallow falls of the existing region, creating a genuine urban parkland experience. Toward the centre of the site, the main public square incorporates a sparse and uniform forest of significant trees, that utilize an underground strata vault system.

This planting method allows for an increased soil volume, to enable adequate tree root growth, helps to prevent the pavement from lifting, and will also ensure the longevity of the trees.

The landscape and urban design aims to integrate the Bus Interchange into its established parkland setting, and intends to provide a unique, vibrant, and flexible public meeting space for the local community. It seeks to offer a positive built contribution to Byron Bay and the surrounding area, and a memorable, functional entry and exit point for regional and international travellers.

2.3.2 Architecture – Bus Shelter and Amenities Building

It is intended that the architecture provides a visual extension of the landscape aesthetic, with the geometry of the canopy structure and supporting columns referencing a stylized “forest of trees”. This will assist in visually blending the Interchange into the surrounding wetland landscape, and will consequently minimize its visual impact upon adjacent residential allotments.

The detailing of the roof lining responds to the natural vegetation of the Byron Bay Region. The abstracted patterning of the soffit lining depicts the endemic coastal vegetation species of the area, such as Cabbage Trees, Bangalow Palms, and Pandanus trees. The patterning casts a complex shadow onto the ground below, providing a filtered light experience that evokes a late walk through an intricate forest.

The windbreak screens (to the rear of the bus shelter) incorporate a bold, scaled, silhouette graphic of an old steam train. This image extends the length of the new bus platform, and provides the illusion of a life-sized locomotive parked alongside the old station platform beyond. The image references the historic use of the site, and the illusion aims to bring a theatrical and playful element to the precinct, and bring relevance and purpose back to the old, redundant railway facility.

The colour and material pallet of the proposed structures reference the tones of the natural surrounds, ensuring that the built elements further recede into the landscape beyond. Materials are to be robust and durable, and include charcoal grey coloured steelwork, and timber veneer composite panelling to the roof lining. Timber look detailing is also included as an insert feature panel into each structural column. The timber provides a warmth and natural look, responding to the landscape, as well as to the existing timber of the heritage rail station building.

Roof elements are orientated and configured to provide weather protection, shading and shelter for pedestrians and commuters. Tinted roof sheeting enhances solar protection, but also provides a level of filtered light onto the platform beneath. It is intended that the interchange facility encourages a light, airy atmosphere, and that heavy structural components are as unimposing as possible.

The new built components of the proposal intend to compliment the existing heritage water tower building, located toward the centre of the precinct. Rather than imitating the classic detailing and materials of the redundant facility, the bus shelters and associated amenities building offer a simple, clean, contemporary design that sits comfortably beside the dominant 19th century red brick, circular tower.

The amenities building is located to the south of the subject site, and is readily accessible to the pedestrian plaza area. It is situated to be centered to the two platform zones, but is also located so as not to form a focal point to the precinct. It aims to cast limited shadow across the plaza, and is positioned to insert into the forested area to the south of the subject site. The building envelope is independent of the roof structure above, which results in the facility appearing as light weight, and in keeping with the loose, natural landscape. The roof design involves a similar geometry to the bus shelter canopies, and the soffit lining also includes a stylized palm pattern which projects a mottled shadow onto the ground surface below.

A timber screen that provides a visual privacy barrier between the toilet facilities and plaza area, involves a simple pattern that references the swamp woodland landscape that surrounds the site.

The Amenity Block itself is finished in a dark colour (charcoal grey), that aims to integrate the building into its dense, forested backdrop. The recessive colouring of the structure also attempts to minimize visual building bulk to nearby residents and commuters.

The architectural design of the bus shelter canopies and associated amenities building, aims to integrate the architectural form into the broader landscape, rather than appearing as a series of independent structures superimposed onto the subject site. It seeks to capture the spirit of the regional landscape, and aims to provide a lasting positive impression to commuters arriving to, and departing from Byron Bay and the region.



Figure 4: Artist Impression of the Bus Shelter from the pedestrian crossing (Vegetation has been shown indicatively only)



Figure 5: Artist Impression of the Bus Shelter from the taxi/kiss and ride drop off area. (Vegetation has been shown indicatively only)



Figure 6: West Elevation of Bus Shelter Canopy 01



Figure 7: East West sectional elevation through site, (Vegetation has been shown indicatively only)

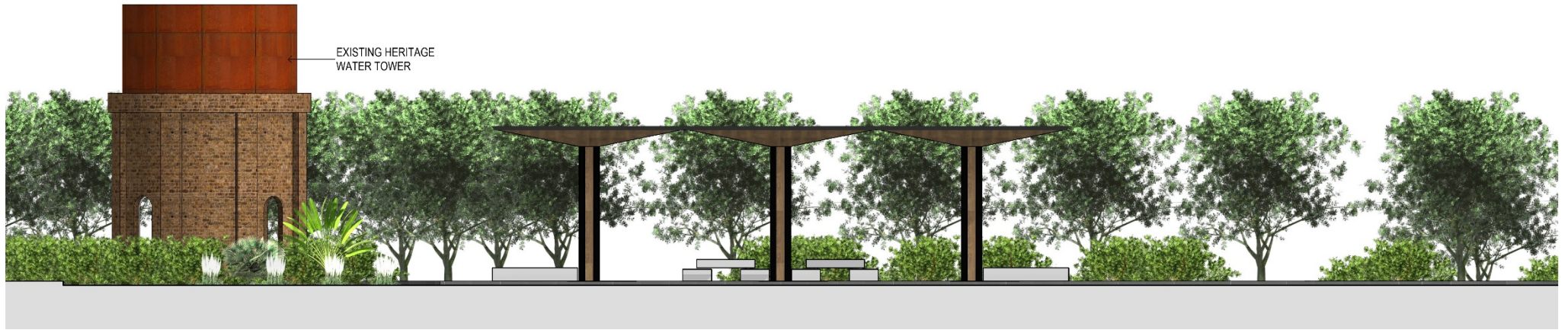


Figure 8: West Elevation including the Water Tower, (Vegetation has been shown indicatively only)



Figure 9: Artist Impression of the Bus Interchange and Public Square from Butler Street



Figure 10: Artist Impression of Bus Interchange and Public Square.

3. Landscape Character Assessment

3.1 Landscape Character Zones

An analysis of the existing landscape character of the Project Study Area was carried out to provide a baseline to assess the significance changes resulting from the proposed new Bus Interchange. The analysis involved identification of various landscape character zones (LCZs) that are described and illustrated in the following section. These are mapped below in Figure 11: Landscape Character Zone Map. The landscape character zones are areas that are relatively consistent in terms of their combination of landform, vegetation and land uses, while containing a degree of variation in visual landscape character. The following text, tables and photos describe each landscape character zone and its sensitivity to change.

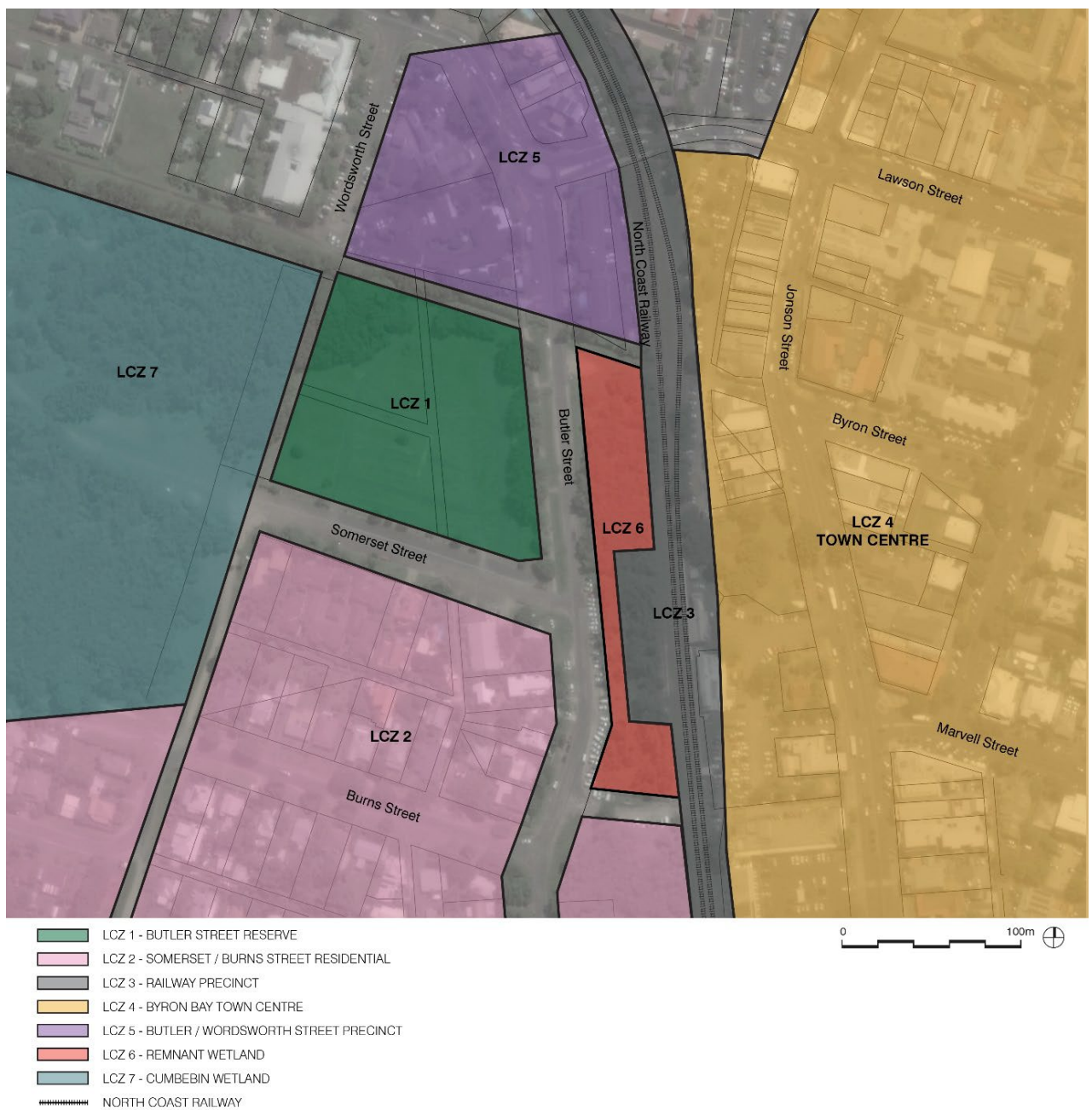


Figure 11: Landscape Character Zone Map

3.1.2 Landscape Character Zone 1 – Butler Street Reserve

Description

This zone is defined by Butler Street to the east, Somerset Street to the south and Byron Street pedestrian path to the north. The landscape is generally flat with Belongil Creek Tributary directly to the north of the site. The Reserve is currently used for markets and as a carpark. The ground surface is a mix of grass and gravel. There are two driveway entrances to the Reserve off Somerset Street with 90-degree car parking along the street. Large Melaleuca trees align this zone to the east along Butler Street with intermittent tree planting along Somerset Street. There is little to no planting within the Reserve apart from an existing Fig tree in the centre which is surrounded by a timber seating edge.

- No new works are proposed inside this zone.

Character Zone Description	
Landform	Generally flat, low lying, former swamp forest.
Vegetation	Continuous canopy surrounding zone to the west and along Butler Street to the east, very minimal vegetation within the zone – open space grassland in reserve with scattered insignificant tree planting.
Hydrology	Belongil Creek Tributary located to the north of Reserve; flood zone.
Land Uses	Public Recreation and Open Space.
Built Form	No built form in zone.
Spatial	Generally, a wide-open space with significant tree planting to one side of the Reserve.

Sensitivity **LOW**

- Minimal tree canopy on site.
- Former landfill, currently used as a carpark.

Magnitude **LOW**

- No change in use. Butler Street Reserve will remain intact.

Landscape Character Impact **LOW**

- There will be little to no impact to Landscape Character Zone 1.



Figure 12: View from Butler Street looking south



Figure 13: Butler Reserve looking south towards Somerset Street



Figure 14: Butler Reserve looking towards Butler Street



Figure 15: Butler Reserve – Fig Tree and seating in mid ground

3.1.3 Landscape Character Zone 2 - Residential

Description

LCZ 2 is primarily characterised by residential development which is low density. Predominately single and double story buildings with large front verges and either no fences or picket fences. There are several bed and breakfast accommodation located within the residential properties. Properties along Butler Street have driveways opposite to the site fronting onto Butler Street and look out onto the Bus Interchange.

Character Zone Description	
Landform	Generally flat; low lying, former swamp forest.
Vegetation	Informal street trees.
Hydrology	Former swampland flood table. Kerbs and gutters along Somerset Street but others have no kerbs and gutter.
Land Uses	Low density residential.
Built Form	Low density residential of 1-2 story dwellings with street front and off-street parking some with Kerbs and gutters.
Spatial	1-2 story residential development.

Sensitivity HIGH

- High Residential visual amenity as currently the proposed Bus Interchange site is of open space with no active use or buildings.

Magnitude. HIGH

- New bus Interchange replaces disused site.
- Upgrade to Butler Street for the Bypass (different Project).
- New shared path to western side of Butler Street along the front of some of the residential buildings.

Landscape Character Impact. HIGH

- Impact is high due to the sensitive residential use and the large degree of change.



Figure 16: Butler Street looking south west



Figure 17: Butler Street looking north west



Figure 18: Butler Street looking west

3.1.4 Landscape Character Zone 3 – Railway Corridor

Description

LCZ 3 is characterised by the disused railway corridor. The Railway continues to the north from the intersection of Shirley Street. South of Shirley Street the railway has been decommissioned, leaving the railway tracks in place on a grass landing. Works in this area to revitalise the corridor are currently underway by Byron Shire Council. LCZ 3 will connect the Town Centre at Jonson Street through to Butler Street. Zone 3 divides the main Town Centre from the Butler Street and our site. There are some views from the Railway Corridor to our site.

Character Zone Description	
Landform	Generally flat at Railway tracks – at the edges of the corridor the land slopes down to meet the adjacent roads.
Vegetation	Grass verge, remnant forest at edges.
Hydrology	Belongil Creek Tributary underpasses the tracks.
Land Uses	Infrastructure – decommissioned.
Built Form	Railway open space.
Spatial	Wide open grassland with railway tracks.

Sensitivity **HIGH**

- Former disused Railway Corridor.

Magnitude **MODERATE**

- New urban and Landscape design works to the railway corridor by Byron Shire Council.
- Water Tower site is visible from inside the Railway Corridor and from the existing railway platforms.
- The Water Tower will be more visually prominent due to the clearing of the current overgrown vegetation that is present.
- Heritage zone with heritage buildings

Landscape Character Impact **HIGH-MODERATE**



Figure 19: Railway Corridor on existing platform looking north northwest



Figure 20: Railway Corridor looking South from near Shirley Street



Figure 21: Railway Corridor looking north



Figure 22: Railway Corridor looking south

3.1.5 Landscape Character Zone 4 – Byron Bay Town Centre

Description

Byron Bay Town Centre is typically flat until towards the end of Jonson Street, where the street rises to the beach front. The main streets of Jonson and Lawson Streets are lined with shopfronts comprising a mixture of retail, clothing shops and food outlets with discontinuous shop awnings providing shade and shelter. The streetscape in the Town Centre has a variety of traffic calming devices to slow the high volumes of cars that move through the Town Centre, prioritising pedestrians. There is intermittent street tree planting due to the shop awnings with planted medians, planted roundabouts and planted kerb edges. There is a mix of materials and finishes used within the Town Centre such as pavers, aggregate and concrete footpaths with bike racks and rubbish bins. Jonson and Lawson Streets have a very different street character due to Lawson Street being a wider street providing east-west traffic connectivity.

Character Zone Description	
Landform	Generally flat, rising north of Jonson Street towards the beach front.
Vegetation	Discontinuous streetscape planting – Araucaria tree planting and planted intersections. Roundabout at Jonson Street and Lawson Street planted with Pandanus.
Hydrology	Piped stormwater.
Land Uses	Town Centre – Retail outlets and food outlets.
Built Form	1-2 story commercial buildings, street front parking and some centralised street parking
Spatial	Strip shopping – minimal street planting regime – minimal views to the beachfront.

Sensitivity **LOW**

- Moderate level of coherence in streetscape.

Magnitude **LOW**

- Improved connection from Jonson Street to Butler Street through the pedestrian link from Railway Square and into the new Transport Interchange.
- Removal of buses and cars from Town Centre to new carpark and interchange.
- Bus Shelter and amenities may be marginally visible from the Town Centre.

Landscape Character Impact **LOW**



Figure 23: Jonson Street Streetscape



Figure 24: Jonson Street looking north towards beachfront



Figure 25: Shared Path looking towards Jonson Street and Byron Street



Figure 26: Railway Square looking west

3.1.6 Landscape Character Zone 5 – Mixed Use

Description

LCZ 5 is located to the north of the Subject Site. The zone comprises a mixture of uses: a Police Station, Aged Care Facility, Motel, Hospital and Petrol Station. This zone is bounded by Butler and Wordsworth Street and the tributary of Belongil Creek and shared path. The streetscape adjacent the Police Station comprises large distinctive Araucaria trees in a wide grass verge, with other streetscapes largely grassed verges only. Butler Street is proposed to be upgraded to a Bypass in the near future.

Character Zone Description	
Landform	Low lying curved flat road – wide carriageway.
Vegetation	Informal planting of Araucaria and palm plantings to edges of road in grass verges.
Hydrology	Tributary of Belongil Creek; Former swampland.
Land Uses	Police Station, Nursing Home, Hospital, Petrol Station and Motel.
Built Form	Generally, 1-2 story buildings.
Spatial	Wide open roads edged by built form.

Sensitivity **LOW**

- Residential uses.

Magnitude **LOW**

- Minimal change to character zone.
- Potential for increased patronage of Byron Street shared path to the boundary of Zone 5 and Zone 1 which links to Jonson Street.

Landscape Character Impact **LOW**



Figure 27: Butler Street looking towards Byron Motor Lodge



Figure 28: Butler Street looking west towards Nursing Home: Google



Figure 29: Byron Street Shared Path looking west



Figure 30: Butler Street bridge over tributary of Belongil Creek looking towards Shared path

3.1.7 Landscape Character Zone 6 – Wetland east of Butler Street

Description

LCZ 6 is a remnant wetland located immediately to the east of Butler Street and west of the LCZ 3: Railway Corridor.

A previous Environmental Assessment for the Butler Street Bypass identified this zone as High Conservation Value (HCV) vegetation with important environmental values. It may contain endangered ecological communities protected by the state and/or commonwealth legislation. This vegetation has also been identified as tertiary habitat for Koalas. Byron Shire Council is proposing to provide a link between Jonson Street and Butler Street with a boardwalk through this vegetation. Existing Vegetation within the Water Tower site is not HCV vegetation, the current vegetation on this site is regrowth or natural seed bank vegetation which has grown over in the last 5 years.

Character Zone Description	
Landform	Generally flat, low lying swampland.
Vegetation	Relatively dense vegetation of melaleuca's with palms.
Hydrology	Swampland.
Land Uses	None – remnant forest.
Built Form	No built form.
Spatial	Remnant swamp wetland forest.

Sensitivity **HIGH**

- Highly coherent landscape with environmental, cultural and visual value.

Magnitude . **NEGLIGIBLE.**

- New Bus Interchange To the north and south – does not directly impact the site

Landscape Character Impact **NEGLIGIBLE.**

- Low magnitude but high sensitivity.



Figure 31: Vegetation – viewed from Existing Platform



Figure 32: Butler Street in front of Butler Reserve looking East



Figure 33: Remnant Woodland looking east

3.1.8 Landscape Character Zone 7 – Cumbebin Wetland

Description

The Cumbebin Wetland characterizes LCZ 7. The landscape zone has been identified as High Conservation Value (HCV) vegetation with important environmental values. It may contain endangered ecological communities protected by the state and/or commonwealth legislation. This vegetation has also been identified as tertiary habitat for Koalas and is used as a wildlife corridor.

Character Zone Description	
Landform	Undulating – wetland.
Vegetation	Dense vegetation with endangered ecological communities present. Remnant and regrowth of wetlands and mangroves. Casuarina, Melaleuca and fig species.
Hydrology	Wetland – flood zone.
Land Uses	Untouched vegetation – wetland.
Built Form	Public toilets.
Spatial	Remnant swamp wetland.

Sensitivity **HIGH**

- Highly coherent landscape with environmental, cultural and visual value.

Magnitude **NEGLIGIBLE.**

- No visual change to the wetland itself as it is located distant to the bus Interchange site.

Landscape Character Impact **NEGLIGIBLE.**



Figure 34: West end of Somerset Street



Figure 35: Toilet Block located at the end of Somerset Street



Figure 36: Cumbebin Wetland from Wordsworth Street: Google

3.2 Summary of Landscape Character Impacts

The landscape character zone impacts vary from low to high, primarily due to the proximity of residential housing to the Interchange and the sensitivity of the swamp forest adjacent to the proposed site and the degree of change of use from disused railway corridor cut off to people to a more intense Bus Interchange with new canopies and amenities building.

4. Visual Impact Assessment

4.1 Visual Envelope and Viewpoints

The visual envelope illustrates the likely visual catchment of the proposal. It generally describes the extent of the views possible from any given place within the proposal site. Based on existing landforms, the visual catchment also takes into account vegetation, land uses and structures. Figure 37: Visual Envelope Map defines the visual catchment of the proposed work at Butler Reserve.

A site visit was undertaken to determine key viewpoints where potential visual impacts may occur. Viewpoints are noted on Figure 37 and Table 2.



Figure 37: Visual Envelope and Viewpoint Location Map

Viewpoint Number	Location	Receptors
01	Burns Road	Residents and pedestrian/cyclists on Burns Road
02	Pedestrian Railway crossing	Pedestrians travelling from Railway Square to Butler Street
03	Existing Railway Platform	Users of the Railway Square and Bar
04	Northern End of Butler Street	Motorists and pedestrians/cyclists of Byron Bay Bypass/Butler Street
05	Butler Street	Residents on Butler Street, pedestrians and cyclists
06	Corner of Somerset Street and Butler Street	Residents and pedestrians/cyclists of Somerset Street
07	Butler Street/Byron Bay Bypass	Users of Butler Street and Byron Bay Bypass/Butler Street
08	Railway Square next to the Railway Pub	Users of the Railway Pub and Railway Carpark

Table 2: Viewpoint Location Table

4.2 Visual Impact Assessment

4.2.1 Viewpoint 1

Location: Viewed from Burns Street looking north east.

Distance to Proposal: 37m

Receptors: The receptors are residents and pedestrians/cyclists along Burns Street.



Figure 38: Viewpoint 1 - Existing

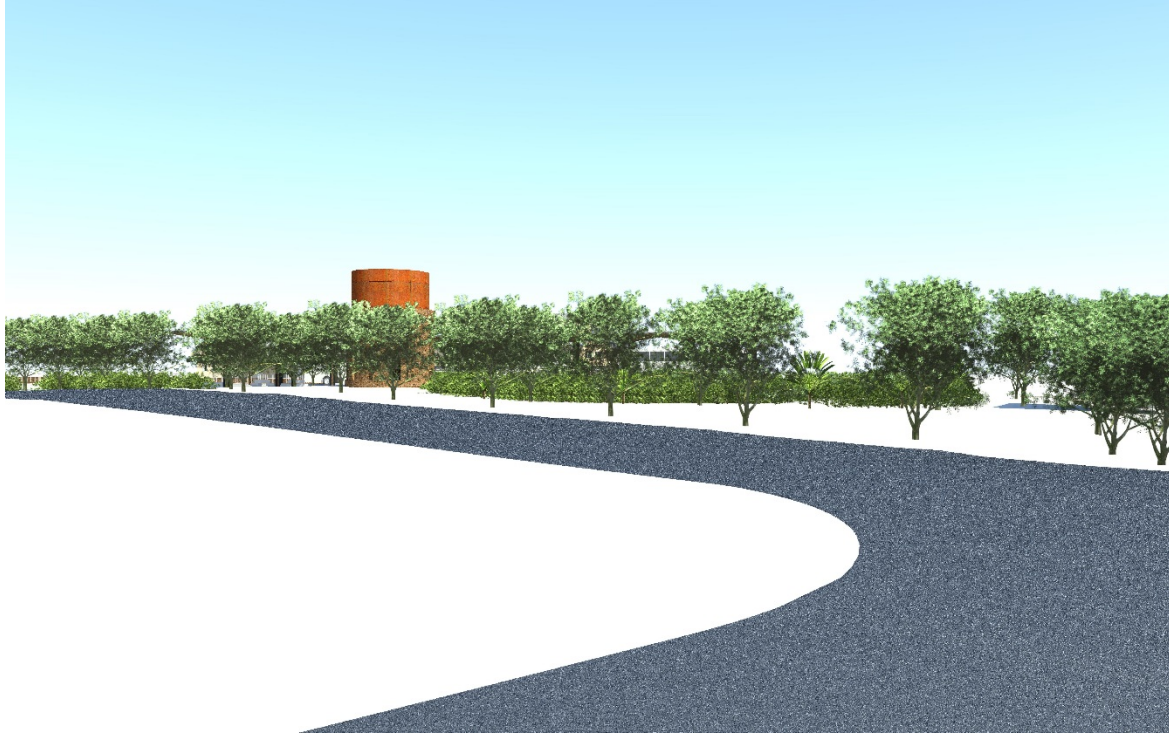


Figure 39: Viewpoint 1 – 3D Artist Impression of Proposed Bus Interchange

Visual Impact Assessment

Visual Sensitivity	High
Magnitude of visual effect	Moderate
Overall visual impact rating	High-Moderate
Elements of proposal visible	Visual Impact Summary
<p>The existing site is currently only partially visible from Burns Street due to the regrown vegetation screening this view. The Water Tower can be seen and creates a landmark.</p> <p>The proposed Bus Interchange will have canopies that recede into the landscape as the canopy height is similar to that of the surrounding tree canopy. Proposed tree plantings and feature planting has been strategically placed to provide screening to residents but still retain the Water Tower as a landmark.</p> <p>The Amenities building sits at the southern end of the site close to halfway between Butler Street and the Railway crossing point. It is screened by the existing vegetation</p> <p>A shared path runs alongside the site, on the east side of Butler Street and will be paved in a material to match the public plaza, extending the public down to the street.</p> <p>The 24-hour proposed operation of the Bus Interchange will require lighting for safety and surveillance and will mean increased light spill. Potential for graffiti vandalism of structural buildings is also an increased risk. CCTV is being provided for security.</p>	<p>The overall visual impact is High – Moderate at this location as the Bus Interchange will be visible to some residents on the west side of Butler Street. The inclusion of tree planting in the public domain will screen the Bus Interchange and help mitigate the impact to some extent. Additional lower level plantings to the edge of the bus roadway is incorporated to soften the edges of the road and plaza. Further mitigations to reduce visual impacts could include control of lighting to minimise light spill and graffiti deterrent strategies. Refer Section 5.0.</p>

4.2.2 Viewpoint 2

Location: Viewed from Railway Square carpark near the pedestrian crossing over the railway

Distance to Proposal: 34m

Receptors: The receptors are users of the pedestrian crossing and carpark.



Figure 40: Viewpoint 2 - Existing



Figure 41: Viewpoint 2 – Proposed View (Vegetation has been shown indicatively only)

Visual Impact Assessment

Visual Sensitivity	Moderate
Magnitude of visual effect	Moderate
Overall visual impact rating	Moderate
Elements of proposal visible	Visual Impact Summary
<p>There will be some removal of vegetation around the Water Tower. As shown in Figure 40, The Water Tower is not currently visible due to the overgrown nature of the natural regrowth of vegetation on the site. With the proposed design the Water Tower will be seen from the pedestrian walkway and will highlight the Water Tower allowing it to stand tall as a landmark. Some element of the Bus Interchange will be visible like the Amenities Building which is neatly tucked away in the southern end of the site on the edge of the existing vegetation.</p> <p>The proposed landscaping will help to mitigate the edge of the Bus Interchange roadway, with a slight embankment up to the bus turning circle the planting will screen the edge of the concrete roadway and create a natural looking barrier.</p> <p>Pedestrians will be drawn to the Bus Interchange from the entrance of the carpark with a widened and more welcoming pedestrian pathway than the narrow existing one.</p> <p>The 24-hour proposed operation of the Bus Interchange will require lighting for safety and surveillance and will mean increased light spill. Potential for graffiti vandalism of structural buildings is also an increased risk. CCTV is being provided for security.</p>	<p>The overall visual impact is Moderate as from this location the Bus Interchange is partially visible to users of the Railway Carpark and pedestrians/cyclists.</p> <p>Trees and landscape in the Bus Interchange will reduce the visual impact and improve the current dilapidated nature of this view.</p> <p>The additional landscaping proposed will also help to visually soften the amount of paved area. Further mitigations to reduce visual impacts could include control of lighting to minimise light spill and graffiti deterrent strategies. Refer Section 5.0.</p>

4.2.3 Viewpoint 3

Location: Viewed from Existing Railway Platform

Distance to Proposal: 16m

Receptors: The receptors are users of the existing railway platform.



Figure 42: Viewpoint 3 - Existing view from Railway Platform



Figure 43: Viewpoint 3 - 3D Artist Impression of Proposed Bus Interchange

Visual Impact Assessment

Visual Sensitivity	High
Magnitude of visual effect	High
Overall visual impact rating	High
Elements of proposal visible	Visual Impact Summary
<p>The existing vegetation will be removed to build the Bus Interchange which will open up views to and across the site.</p> <p>The Bus Interchange will be highly visible from the existing Railway Platform, which is easily accessible from the Railway carpark and Railway Square. The Bus Canopy will be visible as well as the windbreak screen with the steam train motif.</p> <p>Glimpses of the Water Tower will be visible through the canopy and between the trees in the median. The bus canopy structure has been designed to align with the tree canopy and has a light weight feel.</p> <p>The 24-hour proposed operation of the Bus Interchange will require lighting for safety and surveillance and will mean increased light spill. Potential for graffiti vandalism of structural buildings is also an increased risk. CCTV is being provided for security</p>	<p>The overall Visual Impact for this viewpoint is High as the Bus Interchange will be highly visible and the degree of change is high as it changes from an empty site to an activated and utilised site.</p> <p>Light Spill will be increased as new lighting is proposed to the site and the lighting is designed to ASA standards, fittings have been chosen to provide directional lighting to help reduce unnecessary light spill.</p>

4.2.4 Viewpoint 4

Location: Viewed from Corner of Somerset Street and Butler Street.

Distance to Proposal: 60m

Receptors: The receptors are motorists, pedestrians/cyclists as well as pedestrians and cyclists on the shared path.



Figure 44: Viewpoint 4 – Existing view from Butler Street heading south



Figure 45: Viewpoint 4 - 3D Artist Impression of Proposed Bus Interchange (Vegetation has been shown indicatively only)

Visual Impact Assessment

Visual Sensitivity	Low
Magnitude of visual effect	Moderate
Overall visual impact rating	Moderate-Low
Elements of proposal visible	Visual Impact Summary
Looking south down Butler Street some of the proposed Bus Interchange will be visible. The Water Tower will be slightly more visible than its current state turning it into a landmark. The Bus Canopies will be partially visible beyond the proposed vegetation in the swale garden and the tree planting in the public domain, drivers down Butler Street will get slithers and glimpses into the Bus Interchange.	<p>The overall Visual Impact for this viewpoint is Moderate-Low, as the view will be screened by vegetation, similarly to its current conditions.</p> <p>Casual surveillance will be enhanced by the removal of the dense low branching vegetation providing better safety and security. The new planting proposed along the edge of Butler Street is in a swale and is of varying scales ensuring casual surveillance is still retained or enhanced.</p>

4.2.5 Viewpoint 5

Location: Viewed from west side of Butler Street.

Distance to Proposal: 24m

Receptors: The receptors are residents on Butler Street and pedestrians and cyclists using the shared path.



Figure 46: Viewpoint 5 – Existing view from Butler Street looking east



Figure 47: Viewpoint 5 - 3D Artist Impression of Proposed Bus Interchange (Vegetation has been shown indicatively only)

Visual Impact Assessment

Visual Sensitivity	High
Magnitude of visual effect	Moderate
Overall visual impact rating	Moderate-High
Elements of proposal visible	Visual Impact Summary
<p>Existing regrowth vegetation will be removed to construct the Bus Interchange which will open views to the west and through the site including to the existing Railway Station building.</p> <p>The Bus Interchange will be visible to residents along Butler Street. The existing Water Tower is currently already visible to them and this visibility will remain. New vegetation is proposed around the Water Tower to frame but not obscure the views.</p> <p>The Bus Canopies will be visible from this viewpoint however the design of the canopies has made the height similar to the surrounding trees canopy to visually blend with new proposed trees in the public domain providing screening of views.</p> <p>Trees in the median between the two bus canopies will provide additional shade from afternoon sun as well as further screen views.</p> <p>The proposed swale garden along the edge of Butler Street near the entry to the Bus Interchange will screen the new internal road and provide buffer planting to the street front.</p> <p>The 24-hour proposed operation of the Bus Interchange will require lighting for safety and surveillance and could mean increased light spill. Potential for graffiti vandalism of buildings is also an increased risk. CCTV is being provided for security.</p>	<p>The overall visual impact for this viewpoint is Moderate-High due to the proximity to residential housing.</p> <p>Tree planting has been incorporated into the design to mitigate the visual impact the Bus Interchange has on the residents on Butler Street. The tree planting also helps to mitigate the increased Lighting in the Bus Interchange which is lit to ASA standards.</p>

4.2.6 Viewpoint 6

Location: Viewed from Somerset Street near the corner of Butler Street and Butler Reserve.

Distance to Proposal: 60m

Receptors: The receptors at this location will be cyclists and pedestrians using the shared path along Butler Street Bypass and users of Butler Reserve and carpark



Figure 48: Viewpoint 6 – Existing view from Somerset Street looking south-east towards Butler Street

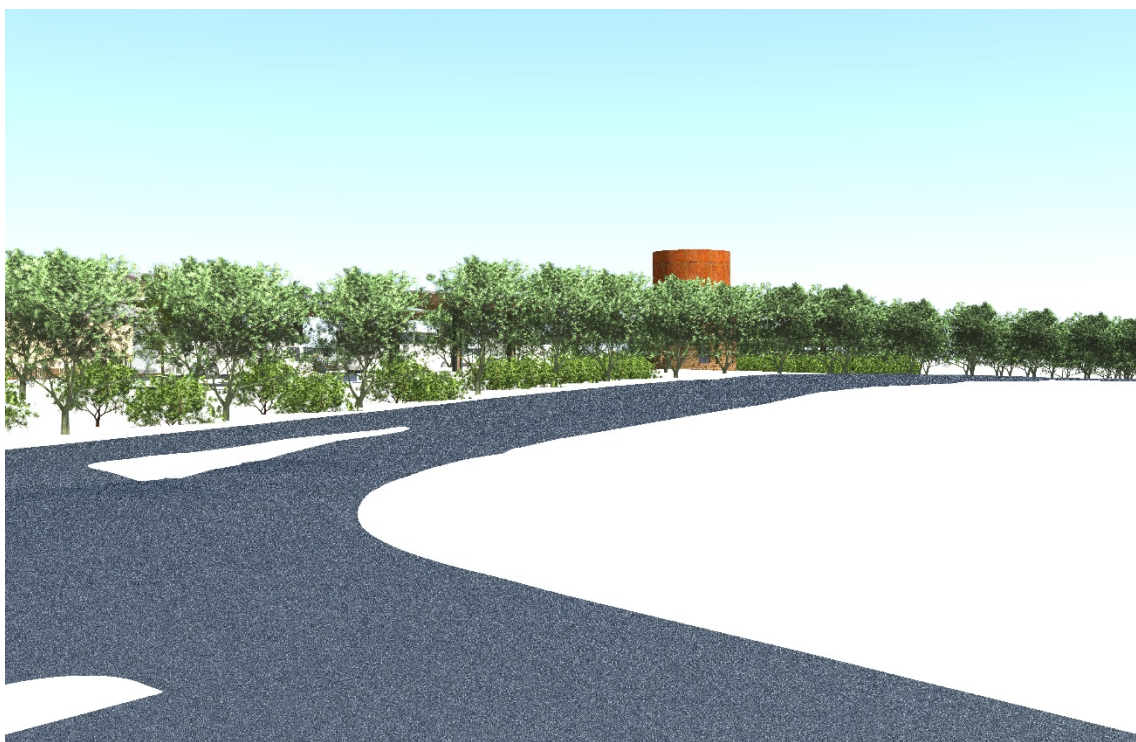


Figure 49: Viewpoint 6 - 3D Artist Impression of Proposed Bus Interchange (Vegetation has been shown indicatively only)

Visual Impact Assessment

Visual Sensitivity	Moderate
Magnitude of visual effect	Moderate
Overall visual impact rating	Moderate
Elements of proposal visible	Visual Impact Summary
<p>Existing regrowth vegetation will be removed to construct the Bus Interchange which will open up views to and through the site.</p> <p>Looking east towards Butler Street partial through views of the proposed Bus Interchange are visible. The Water Tower is retained as a landmark with the same existing visibility. The Bus Canopies are partially visible beyond the proposed tree planting in the Public Domain providing casual surveillance into the site.</p>	<p>The overall Visual Impact for this viewpoint is Moderate, as the view is screened by vegetation.</p> <p>Casual surveillance opportunities will be increased through creating a more visually permeable area providing better safety and security.</p>

4.2.7 Viewpoint 7

Location: Viewed from Butler Street, south of Burns Street intersections.

Distance to Proposal: 83m

Receptors: Residents, Pedestrians and cyclists, Bus Interchange users



Figure 50: Viewpoint 7 – Existing view from Butler Street heading North

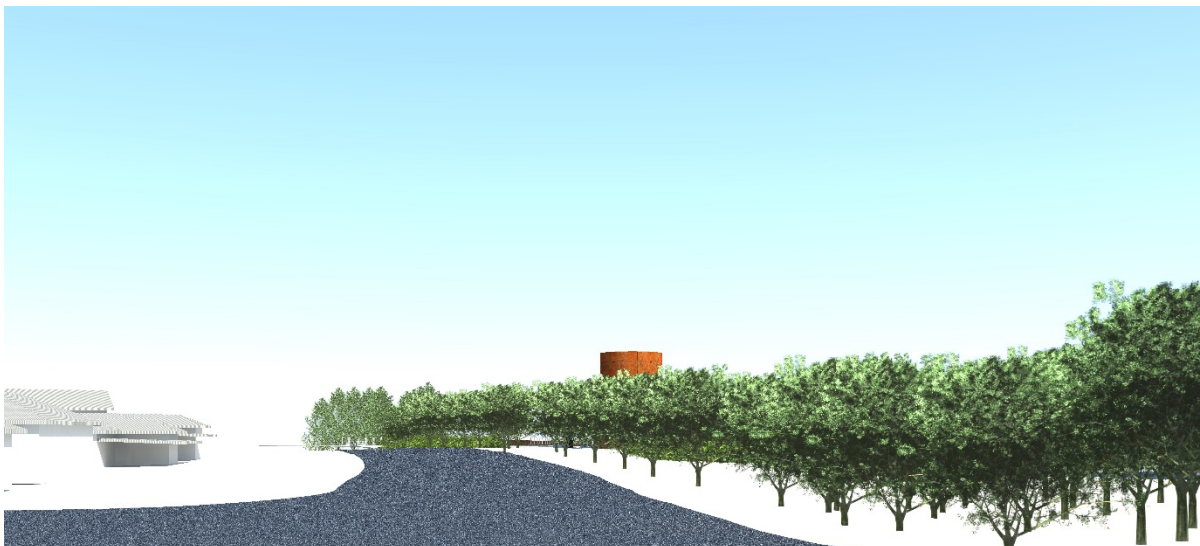


Figure 51: Viewpoint 7 - 3D Artist Impression of Proposed Bus Interchange (Vegetation has been shown indicatively only)

Visual Impact Assessment

Visual Sensitivity	High
Magnitude of visual effect	Low
Overall visual impact rating	Moderate
Elements of proposal visible	Visual Impact Summary
<p>Existing vegetation will be removed within the site, proposed tree planting will replicate the tree canopy and screening seen currently in the long term.</p> <p>The curving road geometry also helps to obscure the proposed Bus Canopies. A portion of the Water Tower is still visible as the same as in the existing view.</p>	<p>The overall visual impact for this viewpoint is moderate due to the distance of the Bus Interchange from the viewer and the screening provided by the existing trees and proposed new landscaping. The degree of change is moderate when compared to the existing view. Light spill will be increased due to the nature of the new plaza and to ensure the safety of its users.</p>

4.2.8 Viewpoint 8

Location: Viewed from Railway Square Carpark Behind/in between the heritage station buildings

Distance to Proposal: 38m

Receptors: Carpark users, cyclists and pedestrians.



Figure 52: Viewpoint 8 – Existing view from Railway Square



Figure 53: Viewpoint 8 - 3D Artist Impression of Proposed Bus Interchange

Visual Impact Assessment

Visual Sensitivity	Low
Magnitude of visual effect	Moderate
Overall visual impact rating	Moderate-Low
Elements of proposal visible	Visual Impact Summary
<p>The view to the Bus Interchange is framed by the existing heritage railway station buildings which visually dominate the view. Small sections of the Bus Canopies and windbreak will be seen from in between the buildings as well as some of the median landscaping. Light spill due to the 24-hour operation may be an issue but as it is not a residential use will be minor.</p>	<p>The overall visual impact for this viewpoint is Moderate-Low due to the low sensitivity with viewers being predominately users of the carpark or Railway Bar patrons. The amount of Bus Interchange visible is also minimal. Light Spill at this location will be increased due to the ASA standard requirements that is being designed to.</p>

4.3 Summary of Visual Impact

The visual impact is higher in areas that are located in more sensitive residential areas. The urban and landscape design proposed for the project coupled with the retention of the existing heritage Water Tower have reduced the potential visual impact during the concept design process. The table below summarises the viewpoint analysis, indicating the overall visual Impact. Mitigations to further reduce visual impact in detailed design are included in Section 5.0.

Viewpoint	Visual Impact
VP1	High-Moderate
VP2	Moderate
VP3	High
VP4	Moderate-Low
VP5	High- Moderate
VP6	Moderate
VP7	Moderate
VP8	Moderate-Low

Table 3: Overall Visual Impact for each Viewpoint

5. Mitigation Recommendations

Based on the visual impact assessment undertaken, the following mitigation recommendations should be taken forward into the next phase of the detailed design.

Location	Issue	Mitigation
Butler Street and LCZ 1 and LCZ 2	Visual amenity	<ul style="list-style-type: none"> Maximise planting along the edge of Butler Street to screen the Bus Interchange. Minimise visibility of the Amenities Building from Butler Street through tree planting and building design. Select materials that blend into the surrounding landscape and help the building recede into the background.
Butler Street and LCZ 1 and LCZ 2	Light Spillage	<ul style="list-style-type: none"> Lighting for the project should be designed in accordance with AS 4282 Control of the Obtrusive Effects of Outdoor Lighting. Lighting to minimise light spill into adjoining areas. Maximise planting surrounding the Bus Interchange to further screen lighting. Provide directional lighting that has been angled downwards and includes glare shields.
Bus Interchange and Amenities Building	Light Spillage	<ul style="list-style-type: none"> Lighting for the project should be designed in accordance with AS 4282 Control of the Obtrusive Effects of Outdoor Lighting. Lighting to minimise light spill into adjoining areas where possible. It is noted that ASA standards are being used for lighting requirements which means the luminance of the sight is a lot stronger than a general public domain project. Maximise planting surrounding the Bus Interchange to further screen lighting. Provide directional lighting that has been angled downwards and includes glare shields.
	Graffiti and vandalism	<ul style="list-style-type: none"> Ensure provision of CCTV and sufficient lighting to deter vandalism. Consider surface finishes that discourage graffiti such as textures or patterns or anti-graffiti coatings to remove graffiti quickly and easily. Consider screening of walls with planting to restrict access to walls. Consider incorporation of Public Art on walls – painting, printing or mosaic tiles.
	Dumped rubbish and litter	<ul style="list-style-type: none"> Ensure management of the Bus Interchange Area to ensure prompt removal of rubbish and surveillance. Provide Bins in the Bus Interchange and Public Domain areas.
	Noise mitigation	<ul style="list-style-type: none"> Avoid use of noise walls. Consider at receptor treatments.

		<ul style="list-style-type: none"> • If noise walls are required ensure screening of walls with landscape planting.
	Signage and Advertising	<ul style="list-style-type: none"> • Minimise to what is absolutely necessary. • Avoid lighting of signage – so not to increase the amount of light into the interchange

Table 4: Table of Mitigations

6. Conclusion

The report assessed eight viewpoints in the vicinity of the proposed Bus Interchange on Butler Street . In general, the increase in scale, form and change in character of the site to a Bus Interchange, utilised daily by visitors and locals, provides an increased magnitude of effect.

Three viewpoints have been assessed as having a High to Moderate/High rating as these viewpoints are closest to the site and adjacent to residents. The remaining five viewpoints have been assessed as having a Moderate to Moderate-Low visual impact and are either further away from the development or less visually sensitive. Refer Section 4.0.

There will be negligible visual impact on the Byron Bay Town Centre due to the distance of the proposal and the screening effect of the existing wetland along the Railway.

Further mitigations to be investigated during detailed design include maximising landscaping, architectural paint finishes and colours, containment of light spill, minimisation of signage clutter and anti-graffiti vandalism strategies. Refer Section 5.0.