

Eastern Busway 3 Commercial and 4 Link Road

Assessment of Effects on the Environment

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List of Abbreviations and Definitions

| Abbreviation and definitions | Description |
|------------------------------|--|
| AEE | Assessment of Effects on the Environment |
| AC | Auckland Council |
| ACC | Auckland City Council (pre-amalgamation) |
| ALT | Alliance Leadership Team |
| AMETI | Auckland Manukau Eastern Transport Initiative |
| AT | Auckland Transport |
| ARTA | Auckland Regional Transport Authority |
| AUP(OP) | Auckland Unitary Plan (Operative in Part) (Updated 20 July 2023) |
| bgl | Below Ground Level |
| Botany Town Centre | The large suburban shopping mall located between Ti Irirangi Drive, Ti Rākau Drive and Chapel Road |
| BPO | Best Practicable Option |
| Bridge A | A busway bridge across Pakuranga Creek between Riverhills Park and 242 Ti Rākau Drive |
| Bridge B | A busway bridge over the CMA between 254 Ti Rākau Drive and the Chinatown site |
| Bridge C | The busway bridge through Guys Reserve and Whaka Maumahara |
| CCO | Council Controlled Organisation |
| CCP | Communication and Consultation Plan |
| CE | Common Era – a year notations for the Gregorian calendar |
| CEMP | Construction Environmental Management Plan |
| Chinatown | The Chinatown shopping mall at 262 Ti Rākau Drive |
| ChTMP | Chemical Treatment Management Plan |
| CLMP | Contaminated Land Management Plan |
| CMA | Coastal Marine Area |
| CNVMP | Construction Noise and Vibration Management Plan |
| CTMP | Construction Traffic Management Plan |
| CWMP | Coastal Works Management Plan |
| DRS | District Regulating Stations for natural gas distribution |
| EB1 | Eastern Busway 1 (Panmure to Pakuranga) |
| EB2 | Eastern Busway 2 (Pakuranga Town Centre) |
| EB3C | Eastern Busway 3 Commercial (Pakuranga Creek to Botany) |
| EB3R | Eastern Busway 3 Residential (SEART to Pakuranga Creek) |
| EB4 | Eastern Busway 4 (Guys Reserve to Botany Town Centre) |
| EB4i | Eastern Busway 4 interim (existing road corridor between Guys Reserve and Te Irirangi Drive) |
| EB4L | Eastern Busway 4 Link Road (Through Guys Reserve to Te Irirangi Drive) |
| EBA | Eastern Busway Alliance |

| | |
|----------------|--|
| ESCP | Erosion and Sediment Control Plan |
| FOA | Further Options Assessment Report |
| GPT | Gross Pollutant Trap |
| HAIL | Hazardous Activities and Industries List |
| HHMP | Historic Heritage Management Plan |
| HNZPT | Heritage New Zealand Pouhere Taonga |
| HNZPTA | Heritage New Zealand Pouhere Taonga Act 2014 |
| The Hub | A collection of large format retail stores and restaurants at the corner of Tī Rākau Drive and Te Irirangi Drive |
| HRP | Habitat Restoration Plan |
| HSNO | Hazardous substances and New Organisms Act 1996 |
| PAB | Project Alliance Board |
| km | Kilometre(s) |
| LEAM Plans | Landscape, Ecology and Arboricultural Mitigation Plans |
| LGACA | Local Government (Auckland Council) Act 2009 |
| LMP | Lizard Management Plan |
| LTMA | Land Transport Management Act 2003 |
| KRA | Project Key Result Areas |
| m | Metre(s) |
| m ² | Square Metre(s) |
| m ³ | Cubic Metre(s) |
| MCA | Multi Criteria Analysis |
| MCC | Manukau City Council (pre-amalgamation) |
| MHWS | Mean High Water Springs |
| MSE | Mechanically Stabilised Earth (Wall) |
| NBEA | Natural and Built Environment Act 2023 |
| NDC | Network Discharge Consent |
| NES-CS | Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 |
| NES-ETA | Resource Management (National Environmental Standard for Electricity Transmission Activities) Regulations 2009 |
| NES-FW | Resource Management (National Environmental Standards for Freshwater) Regulations 2020 |
| NFCRP | Native Fish Capture and Relocation Plan |
| NPS-ET | National Policy Statement for Electricity Transmission 2008 |
| NPS-FM | National Policy Statement for Freshwater Management 2020 |
| NPS-IB | National Policy Statement for Indigenous Biodiversity 2023 |
| NPS-UD | National Policy Statement on Urban Development 2020 |
| NZCPS | New Zealand Coastal Policy Statement 2010 |
| NoR | Notice of Requirement |
| NZTA | Waka Kotahi NZ Transport Agency |

| | |
|---------|--|
| OLFP(s) | Overland Flow Path(s) |
| PPF | Protected Premises and Facilities (associated with noise assessment) |
| PWA | Public Works Act 1981 |
| RCA | Road Controlling Authority |
| RPTP | Regional Public Transport Plan |
| RTN | Rapid Transit Network |
| RRF | Reeves Road Flyover |
| RMA | Resource Management Act 1991 |
| SAP | Site Access Point |
| SAR | Scheme Assessment Report |
| SCR | Site Completion Report |
| SEART | South-Eastern Arterial (Pakuranga Highway) |
| SLR | Sea Level Rise |
| SQEP | Suitably Qualified and Experienced Practitioner |
| ssESCP | Site-specific Erosion and Sediment Control Plan |
| TDM | Transport Demand Management |
| TPMP | Tree Protection Management Plan |
| TSS | Total Suspended Solids |
| UDLP | Urban Design and Landscape Plan |
| VTNZ | Vehicle Testing New Zealand |

Executive Summary

Auckland Transport (AT), with its delivery partner, Eastern Busway Alliance (EBA), has sought resource consents and prepared Notices of Requirement (NoRs) for the Eastern Busway Stage 3 Commercial (EB3C) and Eastern Busway 4 Link Road (EB4L) works. EB3C will be located between Riverhills Park, Pakuranga, and Guys Reserve, East Tāmaki, while EB4L will be located between Guys Reserve and Te Irirangi Drive, Botany.

These work packages form part of the Eastern Busway Project (the Project), a multi-stage transport project being undertaken between Panmure and Botany to improve transport networks across southeast Tāmaki Makaurau/Auckland. The Project will help to address network congestion, provide improved transport choices, address network safety issues, and support the urban intensification of Tāmaki Makaurau/Auckland.

EB3C involves the construction of a new busway between the terminus of the Eastern Busway 3 Residential (EB3R) package and Guys Reserve, associated cycleway infrastructure and a new bus station at Burswood. Two new bridges (Bridges A and B) and two reclamations will be located within parts of Pakuranga Creek, while stormwater upgrades will be undertaken to accommodate additional stormwater flows from the busway.

EB4L involves works principally within Guys Reserve and Whaka Maumahara between Ti Rākau Drive and Te Irirangi Drive. This will include the construction of a bidirectional busway supported by a new bridge (Bridge C). This package also includes the relocation of an existing shared path to avoid a conflict with Bridge C and a new stormwater outfall into a stream to the south of Ti Rākau Drive.

A range of specialist reports accompany these application packages. The packages are also accompanied by proposed conditions which adequately mitigate the effects on the environment and align with, as applicable, the proposed conditions for the Eastern Busway 2 (EB2) and EB3R applications¹. These conditions include the use of a variety of construction phase management plans, the use of urban design protocols, significant areas of landscaping and an accidental discovery protocol for contaminated material. Both packages will also feature a Historic Heritage Management Plan (HHMP). EB3C will also involve the use of a Coastal Works Management Plan (CWMP) given that works, including reclamation, are proposed within the coastal marine area (CMA).

This AEE considers EB3C and EB4L against the relevant statutory tests and documents, as well as relevant non-statutory documents. This includes national policy statements, national environmental standards and the Auckland Unitary Plan (Operative in Part) (AUP(OP)). Non-statutory documents have also been considered by the AEE, including the Auckland Plan 2050 and the Howick Local Board Plan. The AEE concludes that the Project will deliver significant benefits to Tāmaki Makaurau/Auckland, including supporting the intensification of the existing urban area. The Project will also provide for more frequent and reliable public transport by establishing a purpose-built busway. In addition, the Project will provide improved community access to employment, housing, health, recreational and educational opportunities. Other benefits included upgrades to stormwater

¹ EB2 and EB3R conditions dated 26 July 2023.

infrastructure and new active transport connections. Overall, the AEE finds that the NoRs and resource consents sought for both packages are consistent with these documents.

The AEE also identifies that the Project will deliver significant long-term benefits to the community and the wider environment. In particular, the Project improves the functionality and connectivity of the transport network through improved public transport, active transport and roading infrastructure.

This infrastructure will provide for the separation of bus services from general road traffic, providing for reliable 40-minute bus and train journey times between Botany Town Centre and Waitemata, saving 20-minutes. It will also support an increased uptake in public transport use, with the public transport mode share rising from 7% to 25% by 2028. These changes will also help the Auckland Region address its transport related greenhouse gas emissions through greater active and public transport options for Aucklanders.

The Project will also contribute to the local built form and natural environment. This includes the provision of open space upgrades at several local reserves, thereby providing new and improved park facilities for the community. Significant areas of landscaping are also proposed, which will contribute to amenity values and provide for new native lizard habitat. The Project's stormwater improvements will directly benefit Pakuranga Creek, with improved water quality values. Finally, habitat restoration within intertidal areas of Pakuranga Creek will benefit the wellbeing of the banded rail/moho pererū, an at-risk/declining bird species.

Given the above, this AEE supports approval of the resource consents and recommends that AT can confirm the NoRs.

1 Introduction

This chapter provides a brief overview of the Eastern Busway Project, including staging and location. It also details the content and structure of this AEE.

1.1 Overview of the Project

The Eastern Busway Project (the Project) is a package of works focusing on promoting an integrated, multi-modal transport system to support population and economic growth in southeast Tāmaki Makaurau/Auckland. This involves the provision of a greater number of improved public transport choices and aims to enhance the safety, quality, and attractiveness of public transport, and walking and cycling environments, and includes:

- 5 km of two-lane busway
- Two new bridges for buses across Pakuranga Creek (Bridges A and B)
- A new bridge within Guys Reserve and Whaka Maumahara (Bridge C)
- Improved active mode infrastructure (walking and cycling) along the length of the busway
- Three intermediate bus stations
- Two major interchange bus stations.

The Project forms part of the Auckland Manukau Eastern Transport Initiative (AMETI), which includes a dedicated busway and bus stations between Panmure, Pakuranga and Botany town centres. The dedicated busway will provide an efficient rapid transit network (RTN) service between the town centres, while local bus networks will continue to provide more direct local connections within the surrounding areas. The Project also includes new walking and cycling facilities, as well as modifications and improvements to the road network.

AMETI includes the following works which do not form part of the Project:

- Panmure Bus and Rail Station and construction of Te Horeta Road (completed)
- Eastern Busway 1 (EB1) – Panmure to Pakuranga (completed).

The Project consists of the consenting packages noted in Table 1-1.

Table 1-1 Eastern Busway Consenting Packages

| Consenting Packages | Description |
|--|---|
| Extension of William Roberts Road | Extension of William Roberts Road from the south of Reeves Road, connecting with Cortina Place and Tī Rākau Drive. |
| Main Construction Yard | Establishment of a Construction Yard at 169 – 173 Pakuranga Road. |
| Eastern Busway 2 (EB2) | Pakuranga Town Centre, including Reeves Road Flyover (RRF) and Pakuranga Bus Station. |
| Eastern Busway 3 Residential (EB3R) | SEART to Pakuranga Creek, including Edgewater and Gossamer Bus Stations. |
| Eastern Busway 3 Commercial (EB3C) (subject to this application) | Pakuranga Creek to Guys Reserve, including two new bridges across Pakuranga Creek, an offline bus route through Burswood and a new station at Burswood (This AEE). |

| Consenting Packages | Description |
|---|--|
| Eastern Busway 4 Link Road (EB4L) (subject to this application) | Guys Reserve to Botany Town Centre including the link road through Guys Reserve and Whaka Maumahara Reserve to Te Irirangi Drive/Town Centre Drive (This AEE). |

Figure 1-1 below provides an overview of the Project area.



Figure 1-1 Extent of the Project from Pakuranga to Botany

1.2 Strategic Context

The Project is recognised across a range of strategic documents. A detailed summary of the key strategic documents is provided in Section 11.5

It is particularly noted that the Auckland Regional Land Transport Plan 2021-2031 (RLTP) states that public transport needs to be faster and more reliable if it is to absorb a greater share of future trips and act as a catalyst for intensive development in centres, and rapid and frequent services need to extend more widely across the region.² The Project is included in the RLTP in AT’s Capital Programme.

The Regional Public Transport Plan (RPTP) sets out the changes that are planned for Tāmaki Makaurau Auckland’s public transport system. The RPTP identifies the expansion of the Rapid Transit Network (RTN) through the completion of the Project as a key project.

² RLTP, p.38

1.3 Eastern Busway 3 Commercial

EB3C commences from the western shore of Pakuranga Creek at Riverhills Park and traverses east to Tī Rākau Drive, adjacent to Guys Reserve.

EB3C will improve public transport reliability and usability through the provision of dedicated bus lanes and the new intermediate Burswood Bus Station. This infrastructure investment will reduce delays caused by bus services being caught in general traffic congestion.

New cycle lanes and footpaths will make it possible to walk or cycle off-road, improving local accessibility and safety along the Tī Rākau Drive corridor. These active transport improvements will connect to improvements planned within the EB3R and EB4L packages.

Key elements of EB3C include:

- Burswood Bus Station – a new intermediate station serving the Burswood community and local businesses
- Two new bridges (Bridges A and B) that will carry the busway over Pakuranga Creek.

Stormwater works are proposed. This includes new outfalls, upgrades to existing infrastructure and new treatment devices.

A detailed description of the design, operation, and construction of EB3C is provided in Section 4.

1.4 Eastern Busway 4 Link Road

EB4L provides a busway connection between Tī Rākau Drive and Te Irirangi Drive. The busway will run through Guys Reserve and Whaka Maumahara³ before connecting to Te Irirangi Drive via an upgraded intersection. This relatively small section of the busway will enable bus services to avoid the Te Irirangi Drive/Tī Rākau Drive intersection, aiding the efficient operation of public transport services.

Running west to east, EB4L enters Guys Reserve via a new intersection on Tī Rākau Drive. The busway will sit on an engineered and retained corridor adjacent to a retail park (The Hub), before crossing onto a new approximately 350m long bridge (Bridge C). This bridge enables the busway to pass along the outer edge of Whaka Maumahara and avoids significant earthworks within the reserve. It will sit on a series of concrete piles to protect the Transpower underground cables which run through the reserve. A separate shared cycle and pedestrian footpath will be provided on the opposite side of the reserve.

The required stormwater works for EB4L are limited, with a new outfall constructed immediately to the south of Tī Rākau Drive. This outfall discharges into a permanent stream. Stormwater flows from the eastern side of EB4L will connect to a manhole and then discharge via an existing outfall into the stormwater pond at Whaka Maumahara.

EB4L does not involve any works within Botany Town Centre⁴ itself. Rather bus services using EB4L will dismount passengers at the existing bus stops on Town Centre Drive. However, the Te Irirangi Drive/Town

³ Whaka Maumahara is a stormwater reserve at the corner of Te Irirangi Drive and Te Koha Road.

⁴ I.e., the shopping mall

Centre Drive intersection will be upgraded to better accommodate buses and integrate the road network with the busway.

The NoR for EB4L has been developed for route protection. At the time of this AEE's preparation, a construction start date for EB4L has yet to be confirmed⁵. Given this a longer lapse date for EB4L's NoR and related resource consents are sought by AT. In addition, AT have not sought to waive the requirement for a future outline plan of works for EB4L.

Further detail of EB4L's design, operation and construction is provided in Section 4.

1.5 Purpose of this AEE

This AEE has been prepared in support of the NoRs and resource consents for the construction, operation, and maintenance of EB3C and EB4L. The AEE addresses the statutory requirements of the Resource Management Act 1991 (the RMA) to enable the confirmation of the NoRs and approval of the resource consents.

In addition, this AEE provides sufficient detail of the proposed works to avoid the need for outline plans to be submitted for EB3C (as per section 176A of the RMA). However, it should be noted that AT does not seek to similarly waive the requirement for outline plans for EB4L.

The Form 18 for EB3C and EB4L NoRs are enclosed as Appendix 1 and Appendix 2, and are supported by the associated Land Requirement Plans, provided as Appendix 3 and Appendix 4 to this AEE.

1.6 Relationship to the Natural and Built Environment Act 2023

The Natural and Built Environment Act (NBEA) passed its third reading on 15 August 2023 and obtained Royal assent on 23 August 2023.

The NBEA coming into force is unlikely to have an effect on the processing of the EB3C and EB4L NoRs and the associated resource consent applications. This is because it is likely they will be processed and confirmed or granted (including any appeals) before Auckland's first NBE Plan becomes operative and are therefore still governed by the provisions of the Resource Management Act as discussed below.

1.6.1 NoRs after NBEA comes into force

NoRs lodged prior to the date that Auckland's Natural and Built Environment Plan (NBE Plan) becomes operative (NBEA date)⁶ will be processed under the RMA.

If a Regional Spatial Strategy (RSS) has been adopted for the region, the relevant provisions of the RSS must be considered along with the provisions in sections 168A and 171 of the RMA when the Council is making its recommendations in relation to the NoRs and AT, as the requiring authority, is making its decision.⁷ However, it appears unlikely that a RSS will have been adopted before that time.

⁵ A "worse case" scenario of overlapping construction of EB2, EB3R, EB3C and EB4L has been employed by the various supporting technical assessments associated with this AEE.

⁶ Schedule 1, Part 1, Subpart 2, clause 6.

⁷ Schedule 1, Part 1, Subpart 8, clause 29(1).

If the NoRs are confirmed before Auckland’s NBEA date (which is considered to be very likely), the designations will be included in the AUP(OP) and then in the notified decision version of Auckland’s NBE plan.⁸

1.6.2 Resource Consents after NBEA comes into force

The resource consenting regime under the NBEA does not apply until Auckland’s NBEA date.⁹ Any resource consent application lodged prior to this date will be processed under the RMA. If an application has been lodged but not determined by the NBEA date, it must continue to be processed and determined under the RMA.¹⁰

If the applications are granted:

- (i) Before Auckland’s NBEA date (and commence before that date too), the resource consents will be treated as consents granted under the NBEA from the NBEA date. If the consents commence after the NBEA date, then they will come under the NBEA on their commencement date;¹¹
- (ii) The terms and conditions of the resource consent that applied immediately before Auckland’s NBEA date continue to apply;¹²
- (iii) The commencement of Auckland’s NBEA date does not affect any calculation of time in relation to the resource consent; and¹³
- (iv) Any RMA process relating to a resource consent initiated before Auckland’s NBEA date must be completed in accordance with Part 6 the RMA.¹⁴

1.7 AEE Structure

The contents of each section of this AEE are summarised in Table 1-2 below.

Table 1-2 AEE Structure

| AEE Section | Contents |
|-------------------------------------|---|
| 1. Introduction (this section) | <ul style="list-style-type: none"> • Introduces the wider Project and provides a summary of EB3C and EB4L • Summarises the strategic context of the Project • Outlines the purpose and structure of this AEE • Outlines the overall suite of documents and supporting information for this AEE. |
| 2. Background | <ul style="list-style-type: none"> • Outlines AT’s functions and obligations • Provides an overview of the history of AMETI works. |
| 3. Project Necessity and Objectives | <ul style="list-style-type: none"> • Sets out the need for the Project through a problem description • Outlines the objectives for the Project, and the specific objectives for EB3C and EB4L. |
| 4. Description of Proposal | <ul style="list-style-type: none"> • Describes the construction and operation activities, including maintenance requirements for EB3C and EB4L. |

⁸ Schedule 1, Part 1, Subpart 8, clause 31(2).

⁹ Schedule 1, Part 1, Subpart 6, clause 16(1) and (2)

¹⁰ Schedule 1, Part 1, Subpart 6, clause 18(1) and (2).

¹¹ Schedule 1, Part 1, Subpart 6, clause 17(2).

¹² Schedule 1, Part 1, Subpart 6, clause 17(3).

¹³ Schedule 1, Part 1, Subpart 6, clause 17(4).

¹⁴ Schedule 1, Part 1, Subpart 6, clause 17(5).

| AEE Section | Contents |
|--|--|
| 5. Alternatives | <ul style="list-style-type: none"> • Sets out the assessment process employed to assist with development of various design options for the Project • Set outs the various design options that were included in the assessment of alternatives • Sets out the scoring and conclusions of the options assessment. |
| 6. Existing Environment | <ul style="list-style-type: none"> • Describes the environment for EB3C and EB4L as it currently exists • Outlines the relevant existing resource consents that have approved but not yet implemented relevant to the area. |
| 7. Reasons for Application | <ul style="list-style-type: none"> • Provides the regulatory framework that EB3C and EB4L will be assessed against • Outlines the resource consents sought and the permitted activities. |
| 8. Consultation | <ul style="list-style-type: none"> • Describes the consultation and engagement undertaken up to lodgement • Details the partnership with mana whenua. |
| 9. Assessment of Environmental Effects | <ul style="list-style-type: none"> • Summarises the key environmental effects and the recommendations from each supporting technical report for EB3C and EB4L. |
| 10. Statutory Assessment | <ul style="list-style-type: none"> • Assesses EB3C and EB4L against the relevant regulatory framework. |
| 11. Conclusion | <ul style="list-style-type: none"> • Sets out final conclusions and recommendations of this assessment. |

1.8 Supporting Documents

A wide range of supporting assessments and reports are attached to this AEE. To summarise, these documents are:

- Notices of Requirement (Form 18)
- Schedules of Affected Properties
- Records of Title for Affected Properties
- Land Requirement Plans
- General Arrangement Plans
- AUP(OP) Plans
- Alternatives Assessments
- A Stormwater Effects Assessment
- A Terrestrial and Freshwater Ecological Effects Assessment
- An Open Spaces Effects Assessment
- A Marine Ecology and Coastal Avifauna Effects Assessment
- A Natural Character, Landscape and Visual Effects Assessment
- An Erosion and Sediment Control Effects Assessment
- A Contaminated Land Effects Assessment
- An Archaeological Effects Assessment
- An Arboricultural Effects Assessment
- An Air Quality Effects Assessment
- An Integrated Transport Assessment
- A Construction Noise and Vibration Effects Assessment
- An Operational Noise Effects Assessment
- A Social Impact Assessment
- Construction Methodologies

- A Groundwater Assessment
- A Coastal Processes Assessment
- Engagement Letter to Applicants for Customary Marine Title and Protected Customary Rights.

Also attached to this AEE is a set of proposed conditions for the NoRs and resource consents, which are provided as Appendix 5 and Appendix 6 for EB3C and EB4L respectively.

These conditions require management plans, which are proposed to mitigate and manage the potential adverse effects of the planned works. The management plans are based on those provided for EB2 and EB3R consent packages, and include:

- A Construction Environmental Management Plan (CEMP)
- An Erosion and Sediment Control Plan (ESCP)
- A Construction Traffic Management Plan (CTMP)
- A Construction Noise and Vibration Management Plan (CNVMP)
- A Coastal Works Management Plan (CWMP)
- A Lizard Management Plan (LMP)
- A Communication and Consultation plan (CCP)
- A Chemical Treatment Management Plan (associated with land disturbance) (ChTMP)
- A Tree Protection Management Plan (TPMP)
- A Historic Heritage Management Plan (HHMP)
- An Urban Design and Landscape Plan (UDLP)
- A Habitat Restoration Plan (HRP)
- Native Fish Capture and Relocation Plan (NFCRP)
- A Contaminated Land Management Plan (CLMP)
- A Site Completion Report (for contamination).

2 Background

This chapter details the roles and responsibilities of Auckland Transport and how they relate to the Eastern Busway Project. The chapter also discusses the Project's history, including previous stages between Panmure and Pakuranga.

2.1 Auckland Transport

AT is a Council-Controlled Organisation (CCO) of Auckland Council (AC) responsible for managing and controlling Auckland's transport system in accordance with the Local Government (Auckland Council) Act 2009 (LGACA). AT's purpose, as set out in section 39 of the LGACA, is 'to contribute to an effective, efficient and safe Auckland land transport system in the public interest.'

Sections 45 and 46 of the LGACA outline AT's functions and powers in respect of the land transport system and AT's role as the Road Controlling Authority (RCA). AT is also deemed a Requiring Authority as a network utility operator under section 167 of the RMA for transport purposes (LGACA Section 47).

In addition, AT is responsible for preparing the RLTP for Tāmaki Makaurau/Auckland in accordance with section 13(2)(a) of the Land Transport Management Act (LTMA) 2003 and section 45(a) of the LGACA.

2.2 AMETI History

AMETI has a relatively long history of development, with various forms and options considered. The following sections provide a brief overview of the historical development of AMETI, including its predecessor the Eastern Transport Corridor.

2.2.1 Eastern Suburbs Transport Corridor Planning 1955 – 2004

The need for better access between Tāmaki Makaurau/Auckland's south-eastern suburbs and Central Business District (CBD) has been recognised for more than six decades and various investigations have been undertaken in that time, including:

- South-Eastern Motorway, Auckland Regional Planning Authority (Technical Advisory Committee), 1955
- Eastern Corridor, Auckland Regional Authority, 1975
- Eastern Highway designation rolled over into the 1993 Proposed Auckland City District Plan – Isthmus Section. A public challenge eventually led to an Environment Court order in April 1997, preventing the corridor being used as a motorway
- 2002 - Auckland City Council commissioned new studies and investigated future transport demands and broader solutions including a multi-modal transport corridor from Tāmaki Drive through to the Pakuranga Highway
- 2004 - Eastern Transport Corridor (ETC) Recommended Options Report. This report identified the preferred option, as a 27 km multi-modal expressway extending from the CBD to Manukau City and included bus lanes between Panmure to Pakuranga (along

Lagoon Drive, Panmure Bridge and Pakuranga Road) now constructed as EB1. It also included bus lanes between Pakuranga and Botany.

2.2.2 AMETI Eastern Busway 2006 – 2014

In 2006, AMETI was initiated as a tripartite partnership between ACC, Manukau City Council (MCC) and the Auckland Regional Transport Authority (ARTA). The partners determined that transport demand management (TDM) and public transport should be given priority, with improvements to address any increase in general traffic demands. Key outcomes during this phase of works included:

- Scheme Assessment Report (SAR) for Package 4 of the AMETI project (now EB2 and EB3) - 2010
- AMETI became the responsibility of Auckland Transport following the Auckland Local Government Amalgamation in October 2010
- New Zealand Transport Agency (NZTA) approved funding for the construction of AMETI Package 1 - Panmure Stage 1 (Panmure Station (bus and rail) and Te Horeta Road) in 2011
- In 2012, a work stream was initiated spanning the Panmure to Botany corridor (including EB2 and EB3), which culminated in the AMETI Bus Corridor Optimisation (Project Business Case, Scope and Timing) Report 2014
- Further refinements to the Pakuranga to Botany section of AMETI (now EB2 and EB3) were undertaken during 2010-2013. In particular, the strategic direction for the delivery of bus priority infrastructure along the Panmure to Botany corridor, as part of AMETI, shifted from kerbside “bus lane” facilities to that of a “segregated urban busway” to increase the frequency and reliability of buses.

2.2.3 AMETI Eastern Busway 2014 – 2018

The AMETI “*Bus Corridor Optimisation (Project Business Case, Scope and Timing) - Version 5, Final*” was finalised by the AT AMETI Project Optimisation Group in 2014. The purpose of the report was to provide NZTA with further information on the strategic planning context, the proposed timing and sequencing and provide the business case for the remaining public transport elements of the AMETI works. The AMETI Bus Corridor Optimisation Report 2014 concluded that a busway (in the form of a RTN between Panmure and Botany) was the most appropriate way to deliver a public transport solution along the AMETI corridor. The AMETI Bus Corridor Optimisation Report 2014 is a key document, together with the SAR (2014) which led to endorsement of AMETI by NZTA in July 2014.

Aurecon and GHD prepared the “*AMETI Package 04: Pakuranga Road, Ti Rākau Drive and Reeves Road SAR*” in 2014, which built upon previous investigations to determine the preferred transport network configuration, the footprint for land acquisition and costs and effect of the scheme. The preferred option for AMETI Package 04 (now referred to as EB2 and EB3) included:

- The Reeves Road Flyover (RRF)
- A busway in a dedicated corridor on the north side of the road between Panmure and Pakuranga and in the centre of the corridor between Pakuranga and Botany Town Centre
- Improvements to Pakuranga Town Centre including a bus station and access road reconfiguration

- Improvements to local road connections to the corridor
- Cycleways along the length of the corridor
- Enhanced footpaths and berm spaces.

This was followed by a number of detailed studies of alternatives for the RRF and Pakuranga Town Centre busway in 2014 and 2015 to determine the preferred option. These included:

- Reeves Road Option Evaluation Workshop Report (Beca) 2014
- Specimen Design Options Report (Beca) 2014
- Reeves Road Option Evaluation Workshop Report (Beca) 2014
- Reeves Road Prefeasibility Assessment – Modelling and Economics (Beca) 2014
- Pakuranga Advanced Evaluation (Beca) 2014
- Gossamer Drive to Highbrook Drive Link Review 2014
- AMETI Pakuranga Town Centre Alternative Busway Options – Scoping Study (Beca) 2015.

In April 2016, the AMETI “Delivery Strategy Review (Panmure-Pakuranga-Botany Corridor)” by AT, NZTA and AC, considered options for sequencing and timing of AMETI to deliver its outcomes as early as possible and present good value for money.

The preferred sequencing was identified as:

- Panmure to Pakuranga Busway (EB1)
- The RRF, along with Pakuranga Town Centre Busway and Bus Station (EB2, previously known as Stage 2b, Package 1)
- Pakuranga to Botany Busway (EB3, previously known as Stage 2b, Package 2).

In June 2016 the AT Board, via the Delivery Strategy Document, divided the Project into the following packages:

- Stage 1 – Panmure Station, AMETI link Road (Te Horeta Road) – completed
- Stage 2A – Panmure Roundabout to Panmure Bridge, Panmure Bridge, Pakuranga Road busway (EB1) – completed
- Stage 2B – Pakuranga Busway Station, RRF, Pakuranga to Botany Busway, Pakuranga Creek Bridge (EBA – this project)
- Stage 3 – Morrin to Merton, Quarry Link Road and four-laning of AMETI Link Road
- Stage 4 – Sylvia Park Bus Improvements.

In 2016 AT released the AMETI Programme Update. This provided a historical equivalent of an updated Programme Business Case for AMETI. It summarised the business case framework, updated the strategic case and fit of the proposed works to the 2016 organisational and policy context, using an updated evidence base (where relevant) and provided a summary of the process of arriving at this preferred programme. In addition, the following reports were undertaken and provided an assessment of further options and an update of the early SARs:

- AMETI Pakuranga Bus Station Options Report (Aurecon) July 2017
- AMETI Eastern Busway 2 (Pakuranga Town Centre) - Scheme Assessment Update (Beca) drafted 2017/finalised 2018

- AMETI Eastern Busway 3 - Further Options Assessment (Tonkin and Taylor) drafted 2017/finalised 2018
- AMETI Eastern Busway 3 - Scheme Assessment Update Report (Tonkin and Taylor) drafted 2017/finalised 2018.

This resulted in a preferred Option for EB2 and EB3 and the development of concept plans.

AT engaged AECOM in November 2017 to undertake the specimen design, route protection and consenting for EB2 and EB3. As part of this process the following reports were prepared based on the SAR and options reports undertaken between 2014 – 2018:

- AMETI Eastern Busway 2 and 3 - Scheme Design Review Report (AECOM) March 2018
- AMETI Eastern Busway 2 and 3 - Pakuranga Creek Bridge Condition Assessment (AECOM) May 2018
- AMETI Eastern Busway 2 and 3 - Specimen Design Philosophy Statement (AECOM) June 2018
- AMETI Eastern Busway 2 and 3 - Eastern Busway 3 Commercial Section – Further Options Assessment (AECOM) August 2018
- AMETI Eastern Busway 2 and 3 - Addendum to the Eastern Busway 3 Commercial Section (AECOM) June 2018
- AMETI Eastern Busway 2 and 3 - Eastern Busway 2 Further Options Assessment (AECOM) August 2018.

The purpose of these reports was to consider alternatives with the aim to increase efficiencies of the preferred options and to develop the concept design and form the preliminary specimen design for AMETI EB2 and EB3.

The scope and key outcomes of these reports are outlined further in the Assessment of Alternatives provided in Section 1 of this AEE.

The current AMETI schedule of works involves the stages and projects described in Table 1-1 of this AEE.

2.3 Project Delivery Partner

The Project is being delivered by an alliance. AT is working with Fletcher Construction, ACCIONA, AECOM and Jacobs on the Pakuranga to Botany section under the Eastern Busway Alliance structure.

3 Project Necessity and Objectives

This chapter details the key drivers for the Project and the overarching objectives driving the Project's responses.

3.1 Problem Description

As noted by the Auckland Plan 2050 (the Auckland Plan), Tāmaki Makaurau/Auckland's population is projected to grow over the next 30 years by 760,000 people, with a total regional population of 2.4 million expected. This growth will occur across the region, in existing urban locations, new urban neighbourhoods, some rural areas and outlying settlements. Southeast Tāmaki Makaurau/Auckland, which has many established urban centres and suburbs, will be a focus of much of this growth. This growth will occur through the redevelopment and intensification of land uses, which will see increases in apartment buildings, terraced housing, and infill subdivision.

One consequence of this population growth is the increased pressure put on infrastructure networks, whether they be utilities, parks or transport. The focus of the EB3C and EB4L Project packages is on the transport network between Pakuranga and Botany. At present there is heavy pressure on the existing road network, principally Ti Rākau Drive, to connect the southeast suburbs to the Auckland motorway network and Isthmus. Ti Rākau Drive carries more than 40,000 vehicles per day¹⁵, including existing bus services and significant volumes of road freight. These volumes of traffic result in congestion, travel time delays and degrade the amenity values of the surrounding areas. Without investment in the transport network, these existing issues would be aggravated by the projected growth, with the current network unable to provide additional capacity.

A key measure to alleviate congestion is the promotion of both public and active transport modes¹⁶. However, limited bus infrastructure exists within the EB3C and EB4L areas, which impacts both the efficiency of bus services and passenger comfort. No dedicated bus lanes are provided along this section of Ti Rākau Drive, resulting in buses being caught in general traffic congestion and experiencing service delays. Local bus stops are also outdated. These factors hamper the rate of public transport patronage growth. With the completion of the Project, a reliable public transport based 40-minute journey time between Waitemātā Transport Centre¹⁷ and Botany Town Centre will be provided for, a travel time reduction of 20 minutes. The Project is expected to lead to an increase in public transport trips from 3,700 to 18,000 per day by 2028, representing a mode share increased from 7% to 28%.

The existing transport network is inefficient for both cyclists and pedestrians, due in part to the previous prioritisation of private motor vehicle movements. The area is served by narrow footpaths, while cyclists are often required to share the road carriageway with motor vehicles. These limited facilities reduce the safety and desirability of active transport modes through the area, driving greater use of motorised transport modes (and associated congestion).

Finally, an overarching issue caused by the above issues is the greenhouse gas emissions associated with Tāmaki Makaurau/Auckland's transport sector. Transport accounts for 43.6% of

¹⁵ This is the combined vehicle count for combined daily west and eastbound traffic on Ti Rākau Drive between Gossamer Drive and Trugood Drive.

¹⁶ Active transport modes are walking and cycling (i.e., without a motor vehicle).

¹⁷ Previously known as Britomart Transport Centre.

the region's greenhouse gas emissions, with 86% of these emissions arising from road transport¹⁸. An important mitigation response to this issue is achieving modal shift from private motor vehicle use to increases in both public and active transport mode patronage. The Project is a critical part of achieving the desired modal shift, particularly through its planned improvements in bus and active transport infrastructure and once constructed is projected to reduce the region's carbon emissions by 9,929 kg per day by 2028.

3.2 Eastern Busway Project Objectives

The Project (including EB3C and EB4L) has been developed to address the above issues through meeting the following objectives:

1. Provide a multimodal transport corridor that connects Pakuranga and Botany to the wider network and increases choice of transport options.
2. Provide transport infrastructure that integrates with existing land use and supports a quality, compact urban form.
3. Contribute to accessibility and place shaping by providing better transport connections between, within, and to the town centres.
4. Provide transport infrastructure that improves linkages, journey time and reliability of the public transport network.
5. Provide transport infrastructure that is safe for everyone.
6. "Provide or Safeguard future" transport infrastructure at (or in the vicinity of) Botany Town Centre to support the development of strategic public transport connection to Auckland Airport.

Further assessment of EB3C and EB4L against these objectives is provided as part of the "Assessment of Alternatives" in Section 1 of this AEE. However, to summarise, EB3C and EB4L have been designed to address these objectives both within the localised and broader network-wide contexts.

¹⁸ The greenhouse gas emission values have been referenced from "Auckland's Climate Plan" published by Auckland Council (2020).

4 Description of the Activity

EB3C and EB4L consist of the construction and operation of a dedicated busway and associated works between Riverhills Park and Botany Town Centre, including the following:

- *Provision of a dedicated bus facility, including an intermediate station at Burswood*
- *Provision of facilities for buses, general traffic, pedestrians, and cyclists through the Project area*
- *Improvements to the safety of the existing transport environment for all users*
- *New landscaping and stormwater infrastructure*
- *New bridges (Bridges A and B) and two associated reclamations within Pakuranga Creek*
- *A new bridge (Bridge C) within Guys Reserve and Whaka Maumahara.*

4.1 Overview

EB3C and EB4L comprise part of a dedicated urban busway that provides improved connectivity between Pakuranga, Burswood, East Tāmaki, Botany and the wider Auckland region. Works proposed by AT include the busway itself, new pedestrian and cycling facilities, and stormwater improvements.

The following section provides information for each individual package based on their:

- Design and operation
- Construction.

Full sets of the proposed drawings are provided as General Arrangement Drawings for EB3C (Appendix 7) and General Arrangement Drawings for EB4L (Appendix 8) to this AEE.

4.2 EB3C Design and Operation

The extent of works for EB3C extends between Tī Rākau Drive adjacent to the south-east corner of Riverhills Park (i.e., adjacent to the terminus of the EB3R package¹⁹) to Tī Rākau Drive adjacent to Guys Reserve in the east.

EB3C crosses Pakuranga Creek and then extends north to Burswood Drive (west), before running east between Torrens Road and Tullis Place, Dulwich Place and Heathridge Place. It then continues onwards through Burswood Drive (east) and Burswood Esplanade Reserve before re-connecting to Tī Rākau Drive opposite Greenmount Drive and terminating adjacent to Guys Reserve. This is shown by the purple outline in Figure 4-1.

Key elements of the EB3C works include the construction of two bridge structures (Bridges A and B), including abutments and associated scour protection across Pakuranga Creek. Also proposed are noise barriers, an intermediate bus station at Burswood, new and upgraded stormwater infrastructure, walking paths, and cycling infrastructure. The EB3C bridge structures, abutments, new and upgraded stormwater outfalls and two areas of reclamation will occur within the coastal marine area (CMA).

¹⁹ The western abutment and associated scour protection was included in the EB3R consenting package.



Figure 4-1 EB3C Project Area

The various components of EB3C’s operation are detailed in the following sub-sections.

4.2.1 EB3C Busway

A segregated ‘offline’²⁰ busway is proposed between Riverhills Park and Guys Reserve. The busway provides for two-way bus traffic and will serve public transport services between Botany, Pakuranga and the wider region.

Moving west to east along EB3C’s alignment, the busway commences adjacent to the south-east corner of Riverhills Park, tying into EB3R²¹ with a new bridge (Bridge A) across Pakuranga Creek north of the existing Tī Rākau Drive bridge (Figure 4-2). Bridge A is two-way, providing bidirectional bus movements over approximately 183m in length. The bridge also includes a separated 3m wide bidirectional cycleway²².

Bridge A will include 8 piles approximately 1.5 m in diameter, with associated scour protection (if required by detailed design) and engineered abutments at either end (Figure 4-3). It also includes the construction of the eastern abutment and the associated scour protection.

²⁰ Outside the current Tī Rākau Drive corridor

²¹ The western abutment and associated scour protection was included in the EB3R consenting package.

²² The existing Tī Rākau bridge is to be retained and remain unaltered, including its existing pedestrian footpath.

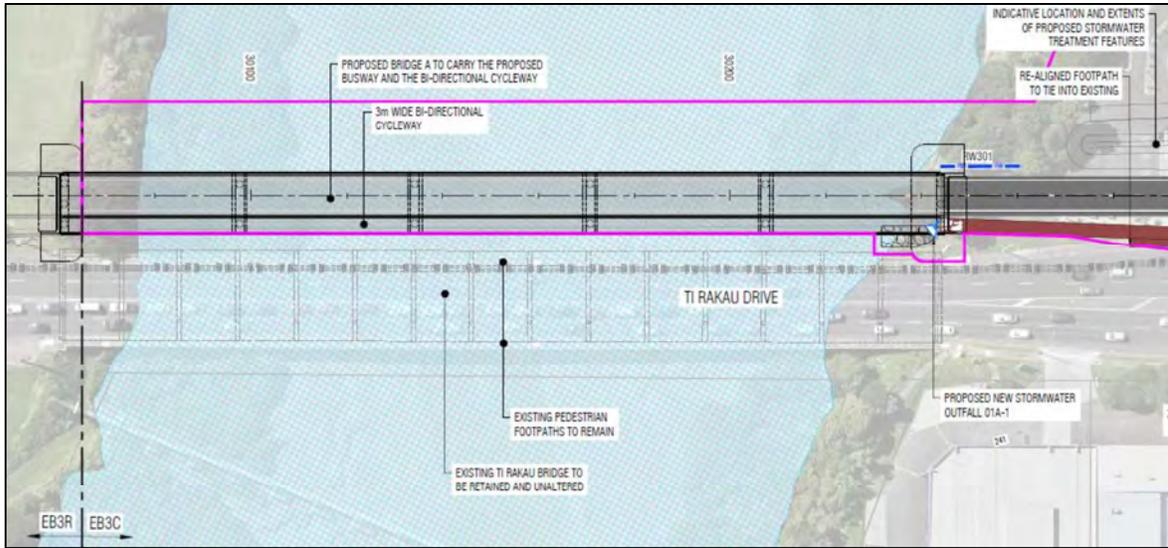


Figure 4-2 Bridge A Location

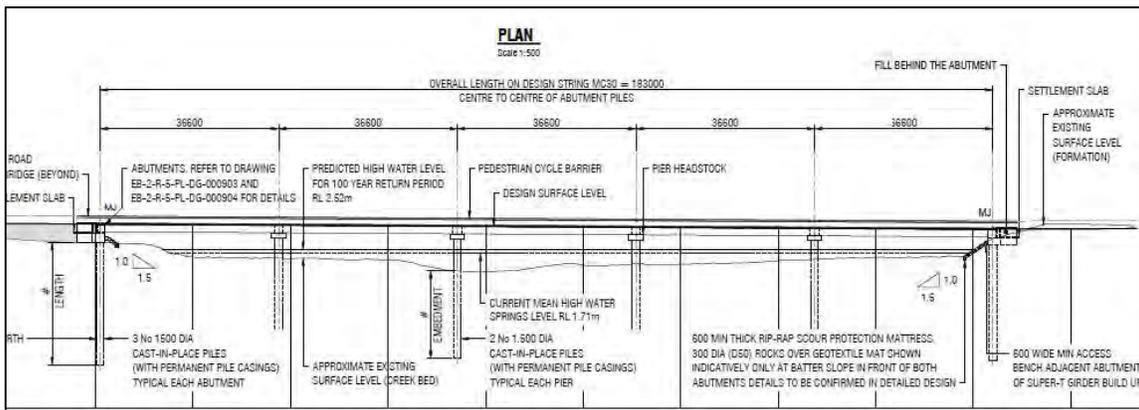


Figure 4-3 Long Section of Bridge A

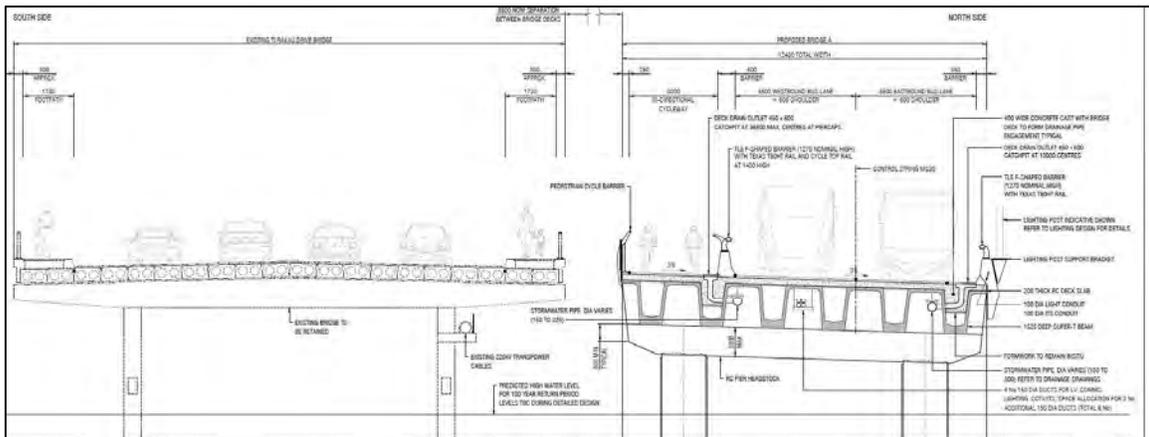


Figure 4-4 Cross Section of Bridge A

Moving from Bridge A, the busway and associated cycleway will cross a coastal headland at 242 Tī Rākau Drive²³, followed by an embayment in which a retaining wall and a 4m² coastal reclamation will be constructed (Figure 4-5).

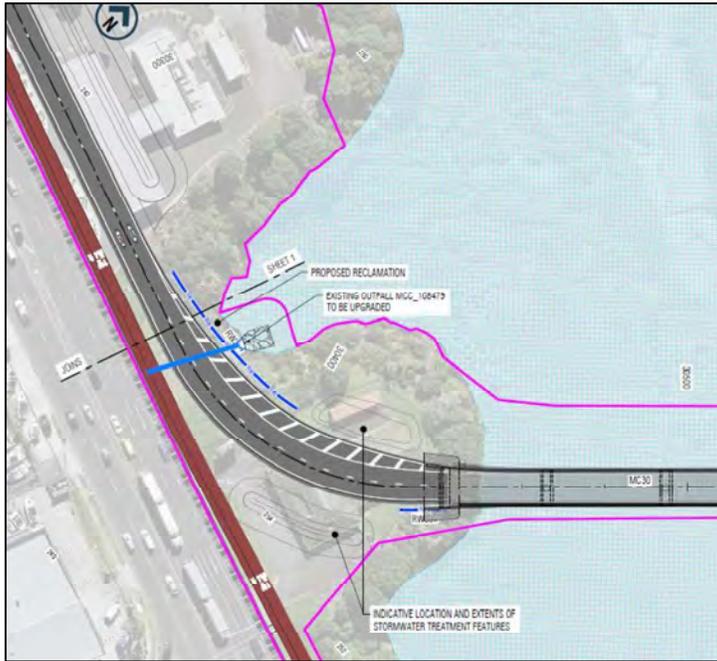


Figure 4-5 Busway Abutment between 242 and 254 Tī Rākau Drive (Bridge B)

The busway will then cross a second headland at 254 Tī Rākau Drive²⁴, before crossing a mangrove filled bay to the west of 262 Tī Rākau Drive²⁵ via Bridge B (Figure 4-6). Bridge B will be supported by 3 piles, each approximately 1.8m in diameter (Figure 4-7). Bridge B will also include two abutments with scour protection. Bridge B will require construction of a reinforced embankment at its northern end. This embankment includes imported fill, rip rap, permanent wick drains and 549m² of coastal reclamation. In parallel, a retaining wall will be constructed to the eastern side of the embankment.

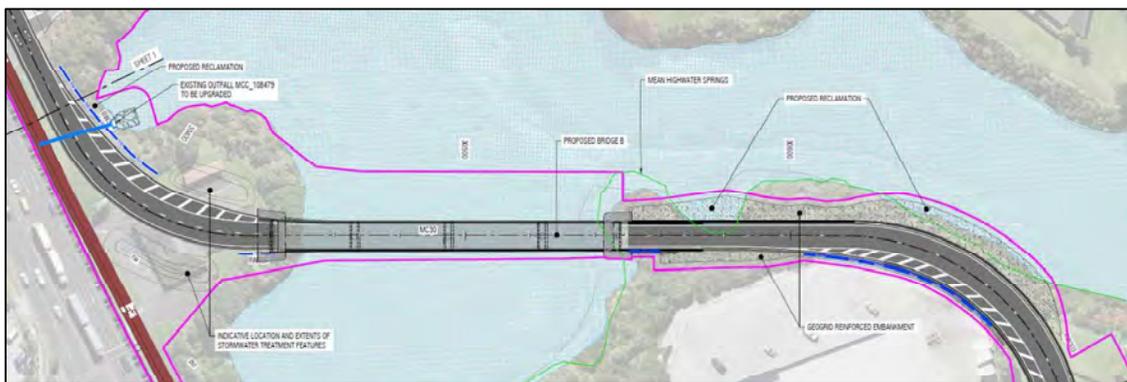


Figure 4-6 Bridge B and Reclamation Location

²³ Mobil branded service station
²⁴ Currently occupied by Pet Stop pet store
²⁵ Chinatown branded retail building

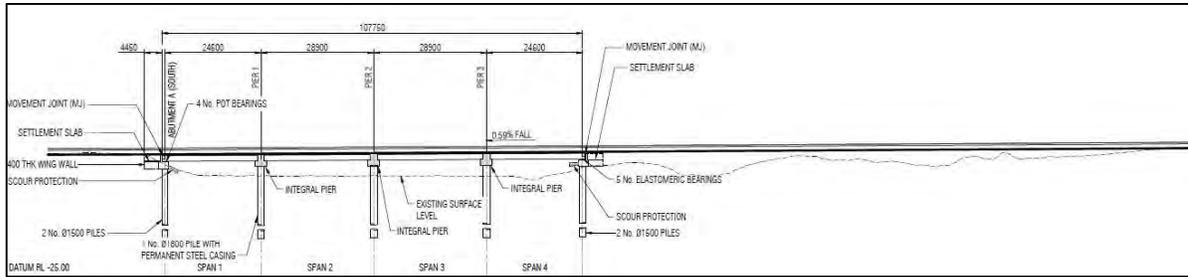


Figure 4-7 Long Section of Bridge B

Following this, the busway will intersect with Burswood Drive (west). However, the bidirectional cycleway will continue along the northern side of Ti Rākau Drive up to the intersection with Burswood Drive (west). From here, the cycleway will run along on the western side of Burswood Drive towards the intersection with the new busway.

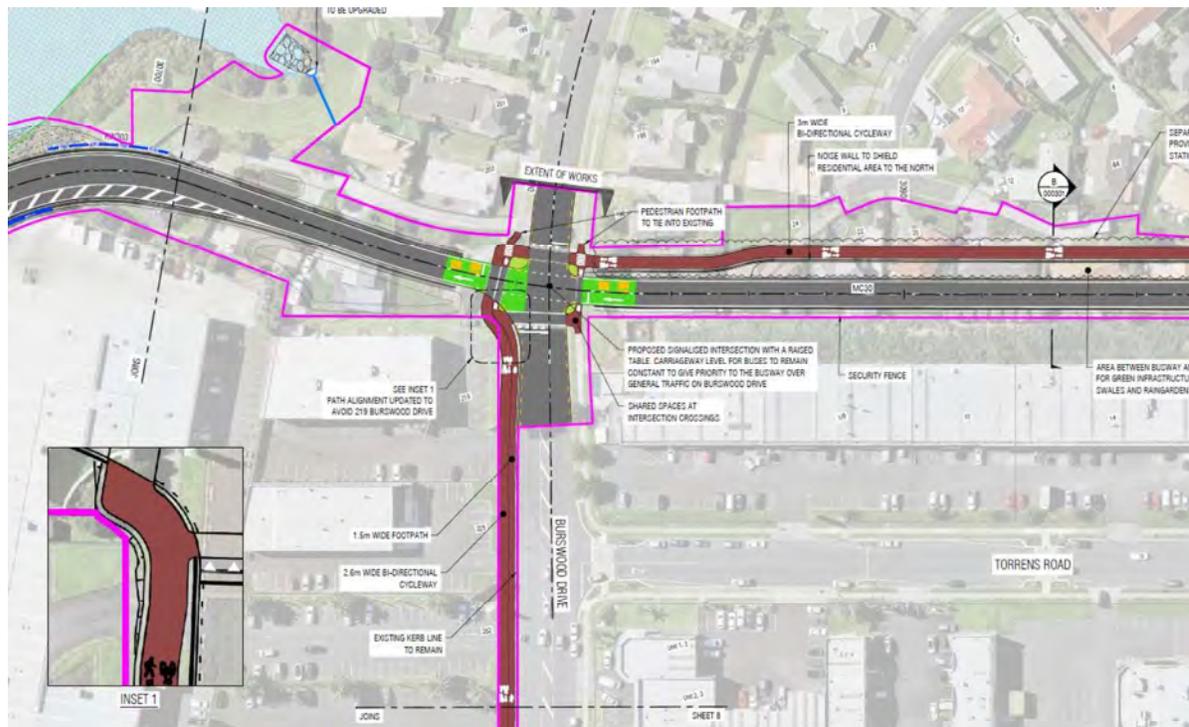


Figure 4-8 Busway between 262 Ti Rākau Drive and Burswood Drive West

The new busway will remain offline between the two new Burswood Drive (west) and (east) intersections, running between the commercial and residential area north of Ti Rākau Drive and crossing several residentially zoned sites (Figure 4-9 and Figure 4-10). Also located in this section is a new ‘intermediate’ bus station, which is detailed further in Section 4.2.2.

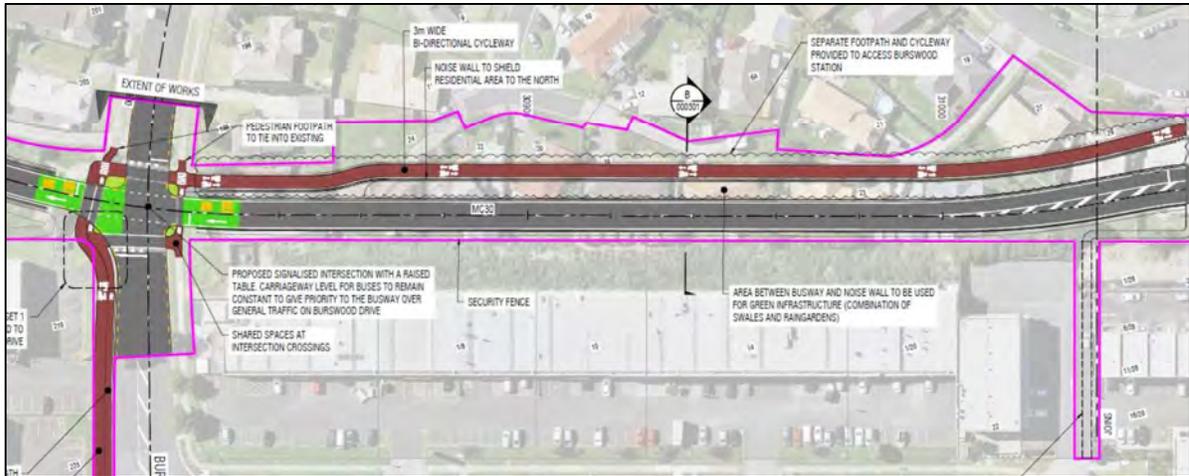


Figure 4-9 EB3C between Burswood Drive (west) and Burswood Station

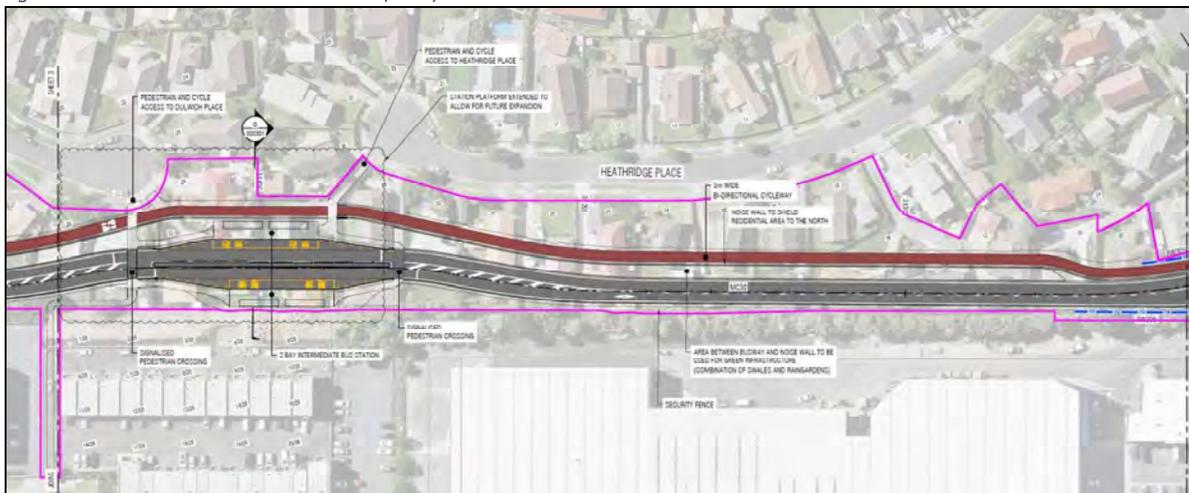


Figure 4-10 Busway between Burswood Station and Burswood Drive (east)

The two Burswood Drive intersections (east and west) with the new dedicated bus lanes will be constructed as signalised crossings with raised tables to control both the busway and road traffic. The new bidirectional cycleway and footpath will be provided on the northern side of the busway along this section.

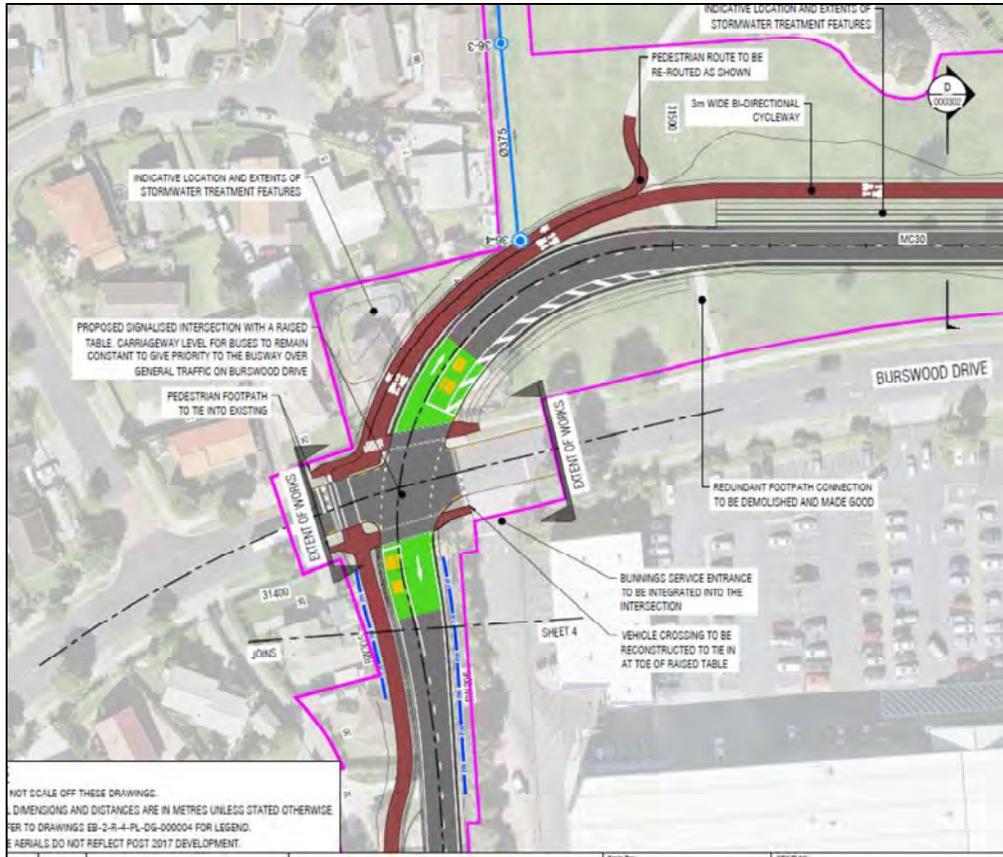


Figure 4-11 Burswood Drive (east) Crossing

Moving eastwards, the busway and cycleway will then run through Burswood Esplanade Reserve and parallel to Burswood Drive east towards the intersection with Tī Rākau Drive (Figure 4-11). The busway then becomes an ‘online corridor’ between the Tī Rākau Drive/Burswood Drive (east) and a new signalised intersection on Tī Rākau Drive (Figure 4-12 and Figure 4-13). This is the end point of EB3C’s corridor and is the interface with EB4i and EB4L. It will facilitate the transition of the busway in EB3C to the proposed bus lanes on Tī Rākau Drive in EB4i, as well as the offline running busway in EB4L. EB4L is detailed further in Section 4.5 of this AEE.

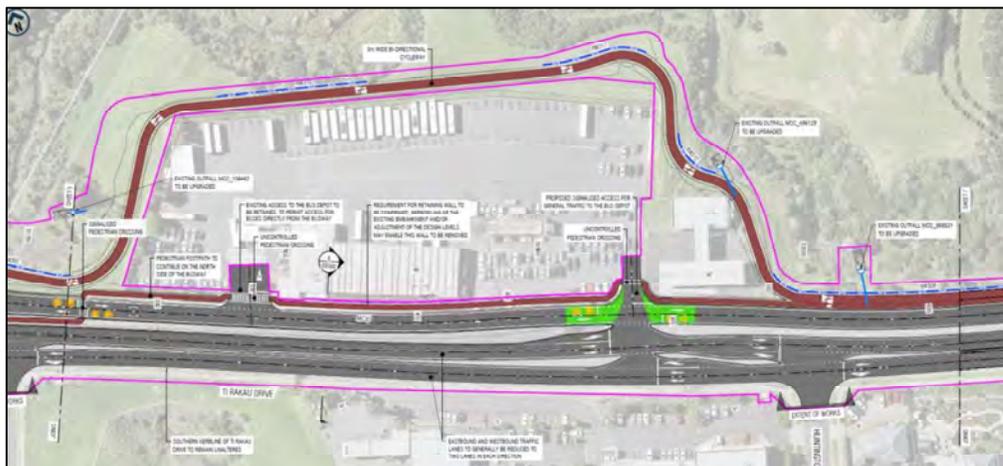


Figure 4-12 General Alignment of the Busway, cycleway, and pedestrian footpath adjacent to 380 Tī Rākau Drive

The cycleway will be sited adjacent to the new busway, except for the section in front of 380 Tī Rākau Drive²⁶, where the cycleway will curve northward at the western end and proceed around to the north (i.e., to rear of the bus depot and service station). At its eastern end, the cycleway will curve back south and run parallel to Tī Rākau Drive until the new Guys Reserve intersection.

A new signalised intersection will be provided to the east of the existing access of 380 Tī Rākau Drive and will be used by general traffic only. The existing access to the Howick and Eastern Bus Depot will provide access for buses only to and from the new busway.

A single stage pedestrian crossing will be provided to the west of the intersection with Greenmount Drive, with an additional crossing east of the intersection across the busway. A three-stage pedestrian crossing will be provided to the west of 380 Tī Rākau Drive. A two-stage shared crossing will be provided to the west of the new Tī Rākau Drive/Guys Reserve intersection.

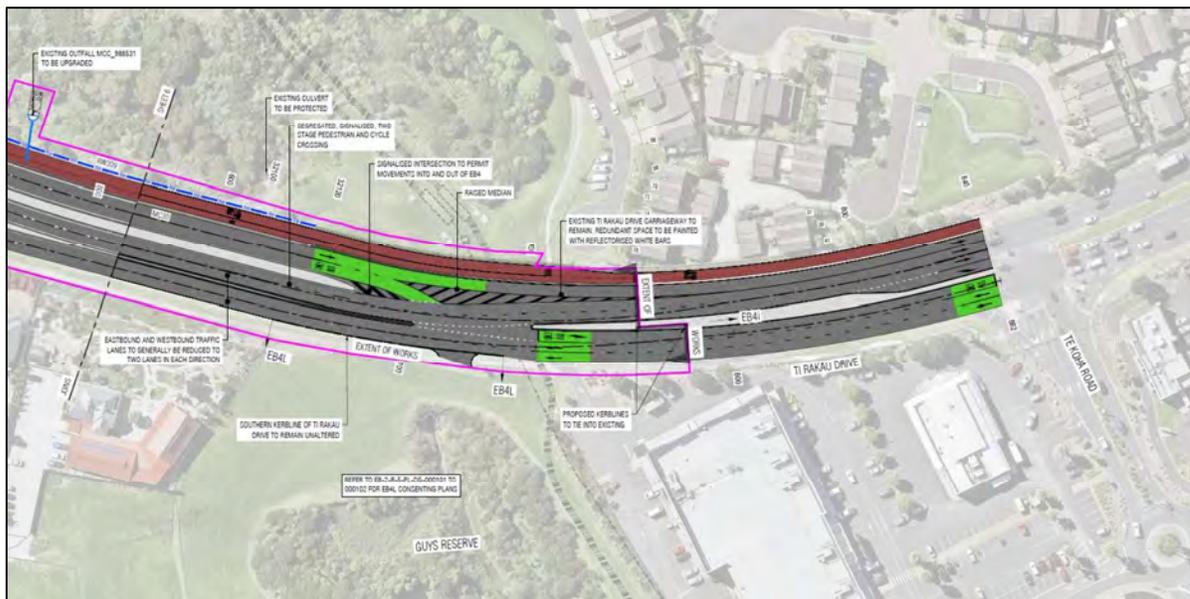


Figure 4-13 Terminus of EB3C at Guys Reserve

4.2.2 Burswood Bus Station

EB3C will include a new ‘intermediate’ bus station platform at Burswood (‘Burswood Bus Station’) between the cul-de-sacs of Dulwich Place and Heathridge Place. Pedestrian and cycle access will be provided to both Heathridge Place and Dulwich Place. An indicative pedestrian connection will also be provided to Torrens Road. These pedestrian and cycle access points will connect the busway to both the residential and commercial areas of Burswood. The station will have two platforms located immediately beside the busway lanes. These platforms will include seating, shelters, real-time information boards, rubbish bins and other street furniture.

²⁶ Currently occupied by Howick and Eastern Bus Depot

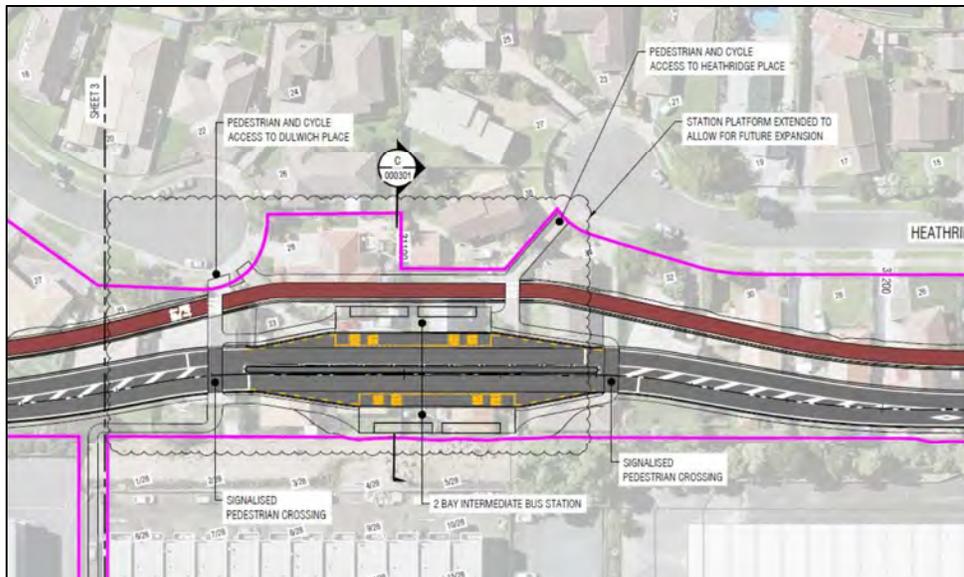


Figure 4-14 Proposed Burswood Bus Station

4.2.3 Landscaping

EB3C involves the removal of terrestrial, estuarine, and riparian vegetation within its construction footprint. In response to this, EB3C’s landscaping design is focused on high quality design and integrating the Project with the existing environment and enhancing the public realm.

In a practical sense, this will involve the use of native floral species²⁷ that are representative of the vegetation that would have been present before the local area was cleared. The use of trees, shrubs and groundcover species will provide an attractive layered planting layout, which will help to provide visual screening of the busway.

Landscape planting is proposed and detailed within the Landscape, Ecological and Arboricultural Mitigation (LEAM plans) in Appendix 9 and associated planting schedule²⁸ across both EB3C and EB4L. The LEAM plans include new specimen trees, revegetation planting, lizard habitat restoration planting, revegetation planting, coastal vegetation habitat management and planting, mangrove habitat management, raingarden/swale planting, mangrove coastal edge and retaining wall planting.

It should be noted that the finalised landscaping design will be subject to certification as part of the Urban Design and Landscape Plan (UDLP), and mana whenua engagement, as well as the Habitat Restoration Plan (HRP), as required by the proposed conditions.

4.2.4 Open Space Improvements

A range of open space improvements are proposed as part of EB3C, both in Burswood Esplanade Reserve and Burswood Park to improve community access to recreational opportunities. Firstly, the works at Burswood Esplanade Reserve are spatially organised to three locations close to Burswood Drive (Figure 4-15). While AT is still in ongoing discussions with AC regarding the final design of open space mitigation at Burswood Esplanade Reserve and Burswood Park, the mitigation will be required to be an enhancement to existing facilities present at the reserve and will be subject to NoR conditions.

²⁷ Subject to detailed design and engagement with mana whenua

²⁸ Planting species, quantities and layout included on the LEAM plans are subject to change during detailed design and engagement with mana whenua.

Generally, the open space improvements for EB3C includes realignment of an existing pedestrian and cycle access path, extension of the cycleways, and passive recreation activation. In particular, the use of replacement plantings is provided in the LEAM plan, providing for the retention of local amenity values.



Figure 4-15 Breakdown of EB3C Park Mitigation Areas

The possible types of mitigation within the three identified locations in the reserve could include the following:

4.2.4.1 Burswood Esplanade Reserve - Area 1

As shown above, Area 1 is a 2,200m² linear piece of land located between Burswood Drive (east) and the busway. A primary function for Area 1 will be to provide access to and from Burswood Esplanade Reserve, as well as act as a buffer between the busway corridor and the existing development towards the west. Possible mitigation in Area 1 could include:

- Mitigation planting and landscaping
- Public art area with storytelling
- Wayfinding.

4.2.4.2 Burswood Esplanade Reserve - Area 2

Area 2 is a 3000m² piece of land that is bordered by the busway, an improved shared path, and neighbouring residences. This area is the most level section of Burswood Esplanade Reserve, featuring both a wetland and watercourses. Given these characteristics, Area 2 would be suitable for:

- Seating and picnic tables
- Passive recreation.

4.2.4.3 *Burswood Esplanade Reserve - Area 3*

This section of land is southeast of the busway corridor and adjoins a permanent watercourse. This is the largest of the three areas, with a footprint of 7500m². Given its size and landform, potential mitigation could include both active play/recreation and passive recreational uses. Examples of such mitigation include:

- Pump track
- Mara hupara – traditional Māori play
- Seating
- Parkour elements using existing basalt stones.

4.2.4.4 *Mitigation at Burswood Park*

As part of the Project's development, the Open Space Effects Assessment (Appendix 10) and AC Community Facilities have identified that further mitigation is required for EB3C beyond its immediate footprint. This mitigation would be provided at Burswood Park, which is approximately 400m from Burswood Station at 170R Burswood Drive and 33R Fernbrook Close. Given the flat and open nature of the park, as well as its relatively central position on the Burswood Peninsula, mitigation measures could include:

- Shade and or shelter
- Improved play elements to cater for all abilities and ages
- Better planned space for the community.

AT will continue to work with AC to develop the mitigation package at Burswood Park as part of the landowner approval process for works at Burswood Esplanade Reserve and Burswood Park, as well as the requirements of the CCP, UDLP and mana whenua framework.

4.2.5 **Stormwater Management**

As detailed in the Stormwater Effects Assessment (Appendix 11Appendix 6), EB3C will involve new and upgraded stormwater infrastructure that will be built and operated in accordance with the Council's Healthy Waters (Healthy Waters) network discharge consent (the NDC). The Project's stormwater design was designed to comply with existing AT standards, the requirements of the NDC, and the aspirations of mana whenua. The stormwater design has considered the existing hydrological characteristics of the Project area, including the presence of both 1 in 100 ARI flood plains and overland flow paths (OLFPs).

This design approach has used a best practicable option (BPO) method in determining the stormwater attenuation and treatment methods employed by EB3C. In addition, the stormwater upgrades follow, where practical, AT's adopted "maintenance-led" approach to the Project. This involves providing stormwater infrastructure which reduces life-time maintenance/operational costs.

Given the brownfield location for EB3C, there are a series of constraints which have impacted the stormwater design, including:

- The presence of major underground utilities (e.g., high voltage transmission cables)
- Topography, particularly the low points along Tī Rākau Drive

- Limited opportunities for adjustment of the proposed vertical alignment within road corridors
- Capacity issues, as current assets are designed for a 2-Year ARI event.

Taking into consideration the above-mentioned philosophy and constraints, a range of responses are proposed to address EB3C’s stormwater flows. These works include the construction of new stormwater catchpits, pipes, treatment devices and outfalls. Improvements will be made to existing assets, including outfalls. While the specific stormwater design responses are discussed in detail in the Stormwater Effects Assessment, the following provides a brief summary of the design’s main elements in relation to EB3C.

The EB3C footprint will rely on 8 existing outfalls and 2 new outfalls, as shown in

Figure 4-16. The new and existing outfalls discharge into freshwater or coastal locations. A summary of EB3C’s outfalls (new and existing) is provided in Table 4-1.

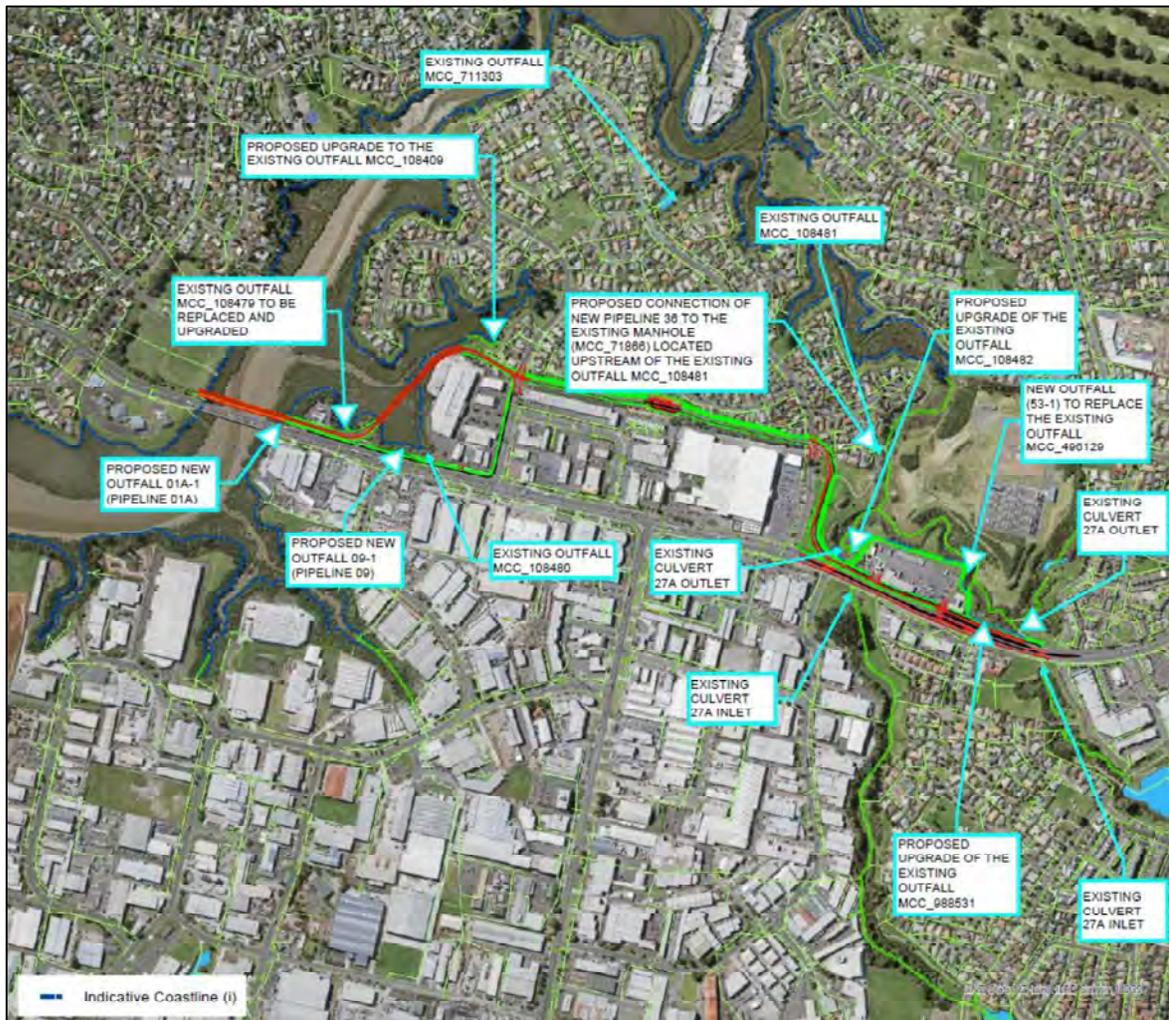


Figure 4-16 EB3C Stormwater Outfalls (Existing and Proposed)

Table 4-1 Summary of Outfalls proposed to receive discharges from EB3C stormwater networks

| Outfall | Existing Outfall | Discharges to CMA or Stream | Outfall Works in CMA | Outfall Works in Stream or Wetland | Comment |
|---|------------------|-----------------------------|----------------------|------------------------------------|---|
| New Outfall 01A-1 | × | CMA | ✓ | × | New Outfall (Outfall 01A-1) will tie into the abutment scour protection for the busway bridge. The discharge is only from the cycleway and therefore is not treated. |
| Existing outfall MCC_108479 (SAP ID 2000029871) | ✓ | CMA | ✓ | × | The existing outfall is to be replaced and upgraded to accommodate the new busway network (pipeline 04). Stormwater from the busway (including Bridges A and B) is treated within two raingardens/bio-retention devices. The outfall is within the AUP(OP) indicative CMA boundary and scour protection will further extend into CMA. |
| New Outfall 09-1 | × | CMA | ✓ | × | New outfall (Outfall 09-1) and pipe (pipeline 09) to be constructed approximately 56m to the northwest of MCC_108480. The proposed outfall provides flood relief at the low point of Ti Rākau Drive. The outfall is approximately 15m landward of the AUP(OP) indicative CMA boundary. However, the scour protection works will extend into the CMA. |
| Existing Outfall MCC_108480 | ✓ | CMA | × | × | No works are proposed to this existing outfall. The project is not discharging new stormwater from the busway into the network. The only works is the installation of a treatment device (i.e. a GPT) to improve existing stormwater discharge quality in accordance with the treatment strategy. The outfall is approximately 15m landward of the AUP(OP) indicative CMA boundary. |
| Existing Outfall MCC_108409 (SAP ID 2000893599) | ✓ | CMA | ✓ | × | The existing outfall will be upgraded with a second pipe (pipeline 10) to be installed immediately adjacent to the existing pipe and the scour protection works to be extended to provide a single integrated outfall. The outfall is approximately 3m landward of the AUP(OP) indicative CMA boundary. However, the scour protection works will extend into the CMA. |
| Existing Outfall MCC_711303 (SAP ID 2000097466) | ✓ | Stream | × | × | No works are proposed to the outfall, which includes a stormwater treatment wetland. The Project connects a small section of cycleway (pipeline 27) and the bus station (pipeline 26) between Dulwich Place and Heathridge Place. The treatment wetland discharges to a short length of overland flow path before reaching the CMA based on the AUP(OP) indicative CMA boundary. |
| Existing Outfall MCC_108481 | ✓ | Stream | × | × | No works to this outfall with the new network (pipeline 36) connecting to upstream manhole (manhole MCC_71866). The existing outfall is within a natural wetland and stream in the |

| Outfall | Existing Outfall | Discharges to CMA or Stream | Outfall Works in CMA | Outfall Works in Stream or Wetland | Comment |
|---|------------------|-----------------------------|----------------------|------------------------------------|---|
| (SAP ID - 2000533442) | | | | | Burswood Esplanade Reserve. The outfall is not within the CMA, based on the AUP(OP) indicative CMA boundary. |
| Existing Outfall MCC_108482 (SAP ID - 2000380606) | ✓ | Stream | ✗ | ✓ | The existing outfall will be upgraded. A new pipeline will be constructed to the upgraded outfall to accommodate the existing and new networks (pipeline 43). The outfall is within the stream in the Burswood Esplanade Reserve and not within the CMA based on the AUP(OP) indicative CMA boundary. |
| Existing Outfall MCC_496129 (SAP ID 2000507038) | ✓ | Stream | ✗ | ✓ | The existing outfall will be removed and replaced with a new outfall (Outfall 53-1) in a new location to accommodate the cycleway. This new outfall will be within the stream in the Burswood Esplanade Reserve and not within the CMA based on the AUP(OP) indicative CMA boundary. |
| Existing Outfall MCC_988531 (SAP ID 2000295186) | ✓ | Stream | ✗ | ✓ | The existing outfall will be upgraded. A new pipeline will be constructed to the upgraded outfall to accommodate the new network (pipeline 47). The outfall will be within the stream in the Burswood Esplanade Reserve and not within the CMA based on the AUP(OP) indicative CMA boundary. |

The typical arrangement for these outfalls is shown in Figure 4-17. Generally, the outfalls will feature a culvert discharging via a wingwall²⁹. Discharged stormwater will flow downwards across rip rap (or similar), before entering the CMA, wetlands, or streams. The outfalls have been designed to minimise potential scour during storm flows and will be landscaped to integrate with the surrounding environment.

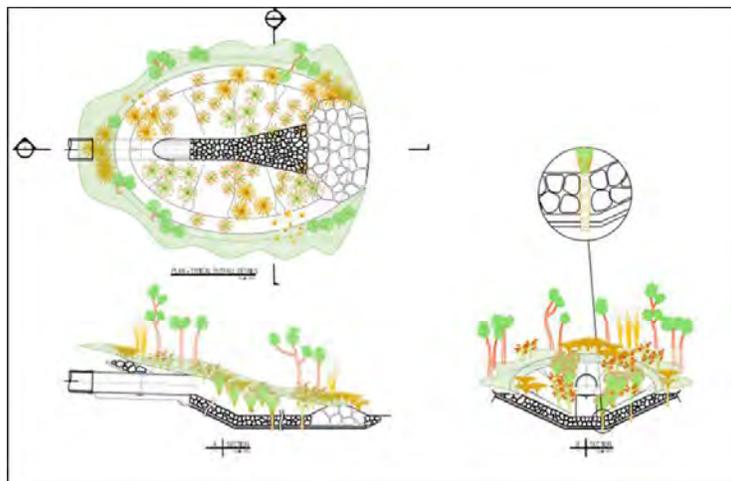


Figure 4-17 Typical Outfall Arrangement

²⁹ Wingwalls are headwalls that have vertical concrete slabs that extend at an angle from the pipe opening. They can be made with aprons or footings as needed, offering superior bridge support and erosion control.

Upstream stormwater works include new pipework and the upgrading of existing stormwater infrastructure to address new stormwater volumes. These works are detailed in Table 4-2.

Table 4-2 Stormwater Network Improvements

| Network Name/Location | Details |
|-----------------------------|---|
| New Outfall 01A-1 | This is a new outfall for the cycleway on Bridge A over Pakuranga Creek. |
| Existing outfall MCC_108479 | <p>A new network will connect to the existing stormwater network on the northern kerb of Tī Rākau Drive. This will involve upgrades of a downstream pipe to the outfall and an upgrade of the outfall itself, including scour protection. This existing and new network services a catchment covering:</p> <ul style="list-style-type: none"> • Tī Rākau Drive westbound and eastbound carriageways from east of Bridge A to Trugood Drive • Commercial properties along the westbound carriageway between 247 and 257 Tī Rākau Drive • Commercial properties 242 and 254 Tī Rākau Drive along the eastbound carriageway • Bridge A across Pakuranga Creek • The busway between Bridge A and Bridge B • Bridge B between the southern abutment and the crest near the northern abutment. |
| New Outfall 09-1 | This is a new outfall and pipeline upgrade between 257 and 269 Tī Rākau Drive. This upgrade is proposed to improve existing flooding conditions at this location. The pipeline will only receive flow when the existing network capacity is exceeded ³⁰ . |
| Existing Outfall MCC_108480 | <p>No busway stormwater will be directed to this existing network. A gross pollutant trap (GPT) is proposed as part of the stormwater treatment strategy for EB3C to target high contaminant generating roads (as discretionary treatment). The existing and new network services a catchment covering the following areas:</p> <ul style="list-style-type: none"> • Commercial property along the southern side of Tī Rākau Drive (number 263 to 295), and the western side of Harris Road (numbers 142 to 150) • Commercial property along and to the north of Tī Rākau Drive (number 245 to 316), 32 Torrens Road and 212 Burswood Drive • Tī Rākau Drive (westbound from 263 to Harris Road and eastbound from 245 to Torrens Road), Burswood Drive (from 239 to Tī Rākau Drive), Harris Road (northbound from Cryers Road to Tī Rākau Drive). |
| Existing Outfall MCC_108409 | <p>A new network will tie into the existing outfall location to form one outfall with twin pipes (i.e., existing and new) with additional scour protection. The existing and new network services a catchment covering the following areas:</p> <ul style="list-style-type: none"> • Residential properties along Burswood Drive (between Elderberry Road to the busway), Tullis Place (numbers 24 to 9) |

³⁰The network associated with Outfall MCC_108480.

| Network Name/Location | Details |
|-----------------------------|--|
| | <ul style="list-style-type: none"> Commercial properties along Burswood Drive (from 239 to the busway) and Torrens Road (from Burswood Drive to 32 Torrens Road) Busway from Bridge B crest (near eastern abutment) to the bus station at Dulwich Place cu-de-sac A section of the cycleway will connect to this network. |
| Existing Outfall MCC_711303 | <p>An existing outfall and network with proposed connections from the Project as follows:</p> <ul style="list-style-type: none"> Bus stop between Dulwich Place and Heathridge Place. The existing network receives stormwater from 14 properties that will become part of the busway and bus station. The impervious area contributing to this network reduces as all, but six properties will be diverted to new busway networks A section of the cycleway will connect to this network. |
| Existing Outfall MCC_108481 | <p>The new network (pipeline 36) will connect into the existing manhole (MCC_7186) upstream of this outfall. The pipe downstream of the connection point has sufficient capacity and does not require upgrading. The existing and new network services a catchment covering the following areas:</p> <ul style="list-style-type: none"> Residential properties and road carriageway along part of Heathridge Place, Midvale Place, Burswood Drive east (between Heathridge Place and the boundary between Burswood Esplanade Reserve and properties at the southern end of Midvale Place) Commercial property (Bunnings Warehouse and Supercheap Auto) and adjacent road carriageway along Burswood Drive. The busway from the bus station at Heathridge Place cul-de-sac to Burswood Esplanade Reserve. |
| Existing Outfall MCC_108482 | <p>The existing outfall and pipes from Tī Rākau Drive to the outfall will be upgraded to accommodate the busway's stormwater. The new pipes and upgraded outfall are shown on the design drawings as pipeline 43 with an upgraded outfall at 43-1. The existing and new network services a catchment covering the following areas:</p> <ul style="list-style-type: none"> Commercial property south of Tī Rākau Drive between Harris and Greenmount Drive Tī Rākau Drive westbound and eastbound carriageway between Harris Road and the eastern end of 380 Tī Rākau Drive Busway from where it starts to run along the northern side of Tī Rākau Drive to the eastern end of 380 Tī Rākau Drive. |
| Existing Outfall MCC_496129 | <p>The existing outfall is to be shifted to accommodate the cycleway (shown as pipeline 53 in the design) with a new outfall location at 53-1. The existing network receives stormwater from two catchpits on Tī Rākau Drive and the 386 Tī Rākau Drive. The existing network will no longer receive stormwater from Tī Rākau Drive after the EB3C works and will only service 386 Tī Rākau Drive.</p> |

| Network Name/Location | Details |
|-----------------------------|--|
| Existing Outfall MCC_988531 | <p>A new busway network connects to the existing network with an upgrade to the outfall and pipe sections downstream of the connection points. The existing and new network services a catchment covering the following areas:</p> <ul style="list-style-type: none"> Commercial and residential land to the south of Tī Rākau Drive and Huntington Drive Tī Rākau Drive westbound and eastbound between the eastern end of 380 Tī Rākau Drive and Te Koha Road Busway between the eastern end of 380 Tī Rākau Drive and the end of the EB3C section of the busway immediately adjacent to the EB4L boundary. |

Three types of stormwater treatment will be provided:

- Green infrastructure (i.e., swales and bio-retention raingardens where feasible (i.e., adjacent to the busway where there is sufficient space)
- Gross Pollutant Traps (GPTs) designed to remove at least 50% of TSS, are proposed at the downstream end of a network at its outfall where the busway couldn't be treated by green infrastructure
- Discretionary targeted treatment of high use roads and carparks, outside of areas where the Project is modifying or creating new impervious areas, has been included where necessary to achieve an overall reduction in existing contaminant loads as stated in the design philosophy (subject to ongoing discussions between mana whenua, Healthy Waters and EBA).

The stormwater treatments for EB3C are summarised in Table 4-3.

Table 4-3 Summary of Proposed EB3C Stormwater Devices

| Outfall | Treatment Devices | Comment |
|-----------------------------|-------------------------------------|---|
| New Outfall 01A-1 | None | Cycleway stormwater from busway bridge. |
| Existing outfall MCC_108479 | Bioretention swales and raingardens | Busway stormwater (including busway bridge over Pakuranga Creek and Bridge B around the back of China Town) treated by three green infrastructure devices. |
| New Outfall 09-1 | None | This pipeline only conveys high flows that bypass the network for outfall MCC_108480 to reduce flooding at the low point on Tī Rākau Drive. |
| Existing Outfall MCC_108480 | GPT | A GPT (designed to remove 50% TSS) will be provided for the existing network targeting stormwater from high use roads (Tī Rākau Drive and Harris Road). |
| Existing Outfall MCC_108409 | Bioretention raingardens and swale | Bioretention raingardens and a swale will provide treatment for the busway and discretionary treatment targeting roads within commercial land (i.e., Burswood Drive, Torrens Road). |
| Existing Outfall MCC_711303 | Existing wetland | Cycleway stormwater from an area at the back of the commercial land discharges to this existing network, which is treated by an existing wetland, no additional treatment is proposed. |
| Existing Outfall MCC_108481 | Bioretention raingarden and GPT | A bioretention raingarden in the median will provide treatment of the busway and eastbound carriageway and a GPT will provide treatment of the existing network and the west bound carriageway. |

| Outfall | Treatment Devices | Comment |
|-----------------------------|---------------------------------|---|
| Existing Outfall MCC_108482 | Bioretention raingarden and GPT | A bioretention raingarden in the median will provide treatment of the busway and eastbound carriageway and a GPT will provide treatment of the existing network and the westbound carriageway. |
| Existing Outfall MCC_496129 | None | No Project networks discharge to this outfall and the outfalls' existing Tī Rākau Drive catchment will be diverted to Outfall MCC_988531. The outfall will only service the Gull branded service station site once the busway is constructed. |
| Existing Outfall MCC_988531 | Bioretention raingarden and GPT | The eastbound lane of Tī Rākau Drive and the busway are treated by bioretention raingardens, while a GPT upstream of the outfall ensures the westbound lane of Tī Rākau Drive has discretionary treatment. |

4.2.6 Lighting

Lighting for EB3C will include a mix of lighting types and designs appropriate to location and purpose to ensure pedestrian safety, to enable access and wayfinding. All proposed lighting will comply with all relevant lighting permitted standards under the AUP (OP).

All new street lighting will comply with AT roading standards.

4.2.7 Noise Barriers

An assessment of EB3C’s operational noise effects has been undertaken and is provided as Appendix 12. As is described later in this report, the construction of a 2.4m high noise barrier along the northern side of the Burswood section of EB3C between Burswood Drive east and west as shown below by Figure 4-18, with details of its layout shown in the general arrangement drawings (Appendix 7)



Figure 4-18. The noise barriers will be constructed from materials compliant with mitigation requirements of NZS 6806 Acoustics - Road-traffic noise - New and altered roads.



Figure 4-18 Proposed EB3C Noise Barrier (Indicative)

4.2.8 Retaining Walls and other Stabilisation Structures

Several retaining walls are required along the alignment of EB3C including within Burswood Esplanade Reserve, as shown on the general arrangement plans (Appendix 7).

Given a desire to minimise the permanent footprint of EB3C, retaining walls are proposed to contain cut and/or fill batters. These retaining walls generally, but not limited to, fall into two categories; mechanically stabilised earth walls (MSE) that are principally used for bridge embankments and L shaped walls/gravity walls generally to retain small heights.

EB3C includes the construction of a permanent retaining wall between 242 and 254 Tī Rākau Drive (RW304) which is approximately 2m long and 2m in distance from the boundary of the CMA (i.e., the total footprint of the wall within the CMA is approximately 4m²). The retaining wall will be vertical with a concrete face approximately 2m in height.

Construction of MSE embankment at the northern end of Bridge B behind Chinatown will partially fall within the CMA. The embankment will have wick drains installed below the embankment to provide a passive drainage path in order to accelerate settlement.

4.3 EB3C Construction

The following sub-sections address the methodology employed for the construction of EB3C. A detailed methodology is provided as Appendix 13 and has been summarised below.

4.3.1 Methodology Development

The EB3C construction methodology has been developed through a series of multi-disciplinary exercises and reviews to consider the following matters:

- Construction effects on surrounding properties and businesses
- Seasonal influences on construction
- Optimising construction to meet planned programme delivery dates
- Construction cost
- AT's own construction guidelines and standards.