

AUCKLAND LIGHT RAIL

Urban Design, Streetscape Design, Architecture

Technical Report

06/04/2018 REVISION E

CONFIDENTIAL



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Revision History

REVISION	DATE	DESCRIPTION	ISSUED BY	REVIEWED BY	APPROVED
DRAFT	15 JANUARY 2016	DRAFT ISSUED FOR INTERNAL REVIEW			
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Introduction

Document Purpose

This Appendix document illustrates and explains the current Reference Design for an initial stage of Light Rail Transit (LRT) in Auckland, and in particular the design elements prepared by Architecture, Public Realm and Urban Design disciplines.

Relationship with other documents

This document relates to many others which also describe the Project objectives, requirements and design proposals. These documents provide an understanding of the overall Project. Particular reference should be made to the main Product Definition Report [LRT-SYS-ADM-TA-RPT-000015] for which this is an Appendix, along with the other associated Appendices.

Content in this document duplicates illustrations and descriptions of Project proposals from other sources to providing an accessible document. Where any content in this report re-presents drawings and design information from other sources, the originating source should be regarded as the correct content should there be any conflict.

Project Scope

Project scope includes an initial phase of developing an LRT network for Auckland.

The proposed initial route begins at Jellicoe Street in the Wynyard Quarter, passes through the city centre via Queen Street, and traverses the central Isthmus via Dominion Road to a terminus adjacent to state highway 20.

This document does not address any physical scope beyond the route shown, in particular any potential corridor to Auckland Airport, reflecting the current scope of the Reference Design.

Project Status

This revision is issued as part of the 100% Reference Design issue. Future stages of design development are expected to include consultation, preparation of a Notice of Requirement (NoR), construction consents, tendering, construction and operation.

The Reference Design stage is concurrent with parallel processes led by Auckland Transport, in particular a Planning workstream including Options Papers for key decisions; a constructability workstream; a costing workstream; and a consultation workstream.

Options papers currently in progress

This document revision is based on the current status of decisions associated with Options papers. It is important to note that the following papers are currently awaiting decisions:

- Depot location; an interim assumption of Stoddard Road is shown
- Alternative Access to affected private properties in Village centres

Future Project stages

The delivery method for consenting and constructing this proposed LRT Project has not yet been confirmed. Next steps shown in the diagram are based on 'traditional' consenting and are indicative only.

LRT Notice of Requirement

The LRT Reference Design is intended to inform any Notice of Requirement (NoR) or equivalent for this proposed LRT Project. However specific consideration to the NoR conditions is outside the scope of this document and will be addressed at time of lodgement.

Project Background

Project Objectives

The LRT Project is being guided by a set of overarching Project objectives defined by Auckland Transport, which was updated in November 2017 as set out in the table on this page.

While these objectives all feed into an overall design approach, those under the headings of “Urban Form and Public Realm” and “Environment and People”, are addressed most directly as part of the Project by the design elements addressed by the Architecture, Public Realm and Urban Design.

	Transportation
Objective 1	CONTRIBUTE TO EFFICIENT, EFFECTIVE, SAFE, QUALITY AND INTEGRATED TRANSPORT ACCESS INTO AND AROUND THE CITY CENTRE TO ADDRESS CURRENT PROBLEMS AND FOR A RAPIDLY GROWING AUCKLAND: <ul style="list-style-type: none"> • Provide a transport system that is best able to satisfy the immediate needs and the long term, rapidly growing customer demand in the City Centre and centres along the route through moving more people with high reliability. • Facilitate opportunities to better serve critical corridors such as the Airport or North Shore.
Objective 1a	IMPROVE TRAVEL EFFICIENCY, RESILIENCE AND TRAVEL RELIABILITY OF THE TRANSPORT NETWORK OF THE CITY CENTRE: <ul style="list-style-type: none"> • Improve journey time, frequency and reliability of transport access into and within the City Centre and centres along the route. • Improve linkages and service of key destinations, particularly those not served by the CRL. • Maximise the benefits of existing and proposed investment in transport (including CRL). • Release the capacity constraints around the City Centre’s most important approach routes and nodes.
Objective 1b	<ul style="list-style-type: none"> • Future proof infrastructure to provide for patronage growth and integration with other transport projects.
	Urban Form and Public Realm
Objective 2	CONTRIBUTE POSITIVELY TO A LIVEABLE, VIBRANT, HEALTHY AND SAFE CITY CENTRE AND CENTRES ALONG THE ROUTE: <ul style="list-style-type: none"> • Enhance the attractiveness of the City Centre and centres along the route as an outstanding place to live, work and visit. • Help safeguard the city and community against rising transport costs. • Reduce surface public transport congestion. • Maintain and enhance the amenity and vitality of the public realm within the City Centre and centres along the route.
Objective 2b	<ul style="list-style-type: none"> • Integrate transport and land use planning by supporting opportunities for quality compact growth within and close to centres.
	Environment and People
Objective 3	PROVIDE A SUSTAINABLE TRANSPORT SOLUTION THAT MINIMISES ENVIRONMENTAL IMPACTS: <ul style="list-style-type: none"> • Limit environmental effects associated with the public transport network. • Protect our cultural, natural and physical heritage for future generations. • Contribute to the country’s carbon emission targets. • Take account of ‘whole of life’ sustainability impacts
	Economic
Objective 4	SUPPORT AUCKLAND’S PROSPERITY AND ECONOMIC GROWTH BY IMPROVING THE ACCESSIBILITY TO THE CITY CENTRE: <ul style="list-style-type: none"> • Support economic development opportunities including serving and stimulating the development of areas of potential higher activity in the City Centre and centres along the route. • Enable a more productive and efficient city. • Provide the greatest amount of benefit for cost. • Constructability/Financial
Objective 5	OPTIMISE THE POTENTIAL TO IMPLEMENT A FEASIBLE SOLUTION: <ul style="list-style-type: none"> • Ensure that the preferred option is achievable within target timeframes and budget constraints – to allow urgent issues to be addressed and to provide for the longer term. • Take account of the ability to stage a solution.

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1.0 Introduction

Overview

This report has been prepared by Arup, Jacobs, Jasmax and LandLAB jointly in their role as Technical Advisor (TA) for Auckland Transport's Light Rail Transit (LRT) Project. It sets out a design proposal for the route and associated streetscapes within Auckland's City Centre.

The report has been prepared to support the Product Definition: Basis of Design report. Plans, sections and 3D visualisations have been prepared to articulate the design proposals. This report is to be read in conjunction with Light Rail Transport - Urban Design Framework.

These drawings are supported with design standards and technical information adapted from international best practice specific for the construction of light rail infrastructure.

1.1 Background

The design proposals in this report cover the first phase of the LRT network proposed for Auckland. The full proposed network was identified through objective assessment of options in the City Centre Future Access Study 2 carried out in late 2014.

This phase will be an important enabler for future phases which may include routes to the airport and additional routes through the suburban Isthmus south of the City Centre.

1.2 Strategic Context

The following documentation provides the strategic context to the City Centre. Although light rail has not featured heavily in these documents it is the view of this report that the introduction of light rail will provide benefits that support the intent of these documents.

THE AUCKLAND PLAN

The Auckland Plan provides the strategic direction for Auckland over the next 30 years. The plan sets out the vision to create the world's most livable city. Central to this vision is the delivery of high quality urban environments, intensification in centres and corridors and a world class public transport network. Safe and attractive streets that support sustainable modes of transportation are key aspirations in realising this vision, as well as driving high quality outcomes within the Auckland Light Rail Project.

THE CITY CENTRE MASTERPLAN 2012

The Auckland City Centre Masterplan (CCMP) is a 20-year vision that sets the direction for the future of the City Centre as the cultural, civic, retail and economic heart of the city. It is Auckland Council's guiding document which outlines the key factors and outcomes for the future of the City Centre.

To achieve the vision the CCMP has identified eight transformational moves to guide delivery of the masterplan. The proposed Auckland Light Rail Project supports and reinforces these key moves, particularly:

- Transformational Move 1 – 'The Harbour Edge Stitch': Uniting the

waterfront with the City Centre

- Transformational Move 3 – 'The Engine Room': Queen Street Valley the City Centre business and retail district
- Transformational Move 5 – 'City Rail Link': New heavy rail stations and development opportunities
- Transformational Move 7 – 'City to the Villages': Connecting the city and the fringe.
- Transformational Move 8 – 'Water City': Revitalising the waterfront.

The introduction of LRT to Auckland supports these moves by improving the legibility, connectivity and amenity of the city centre.

THE WATERFRONT PLAN

The Waterfront Plan 2012 sets the vision and goals for the long-term development of the City Centre waterfront. To be delivered by Waterfront Auckland in partnership with a range of other parties, including other landowners.

Waterfront Auckland has set five goals for Auckland's waterfront;

- A Blue Green Waterfront, - enhance the marine and natural ecosystems, conserve natural resources, minimise environmental impacts.
- A Public Waterfront - A place for all Aucklanders and visitors to Auckland
- A Smart Waterfront - Attracts high-value, innovative, creative and green businesses and investment to achieve a significant lift in productivity
- A Connected Waterfront - A place that is highly accessible, easy to get to and to move around in, where people feel connected to the wider city and beyond
- A Livable Waterfront - A welcoming and resilient neighbourhood that is safe, diverse and attractive, with plentiful open space and access to local services and facilities

The introduction of LRT to supports these key outcomes, particularly a 'public, 'connected' and livable' waterfront.

THE DOWNTOWN FRAMEWORK 2014

The Downtown Framework is a non-statutory document that builds on the CCMP and provides guidance based on the council's strategic direction for the area between The Viaduct Basin, Fort Street and Britomart Place within the City Centre. The framework is a 'living document' with the intention to adapt to new projects in the City Centre such as Auckland Light Rail.

The downtown framework is based on the following principles which are used to guide assessment of individual projects:

- Reconnect the city to the Waterfront
- Creative, active, people-focused places
- Improve access to downtown
- Support and grow a thriving economy

1.0 Introduction

Overview

- Ensure quality buildings from the ground up
- Strengthen the maritime character
- Celebrate Mana Whenua and cultural richness
- Enhance Sustainability and environment.

The proposed LRT alignment builds on and contributes positively to the design concepts for Northern Queen Street and Quay Street Waterfront Boulevard as identified in the Downtown Framework.

OTHER SUPPORTING STUDIES INCLUDE:

Aotea Precinct Plan, Fanshawe Street Urban Busway, City East West Transport (CEWT) Study, Northwestern Cycleway, CMJ Walking and Cycling Master Plan 2012, Dominion Road Busway Project, Central Access Plan Programme Business Case (CAP PBC), City Centre Future Access Study (CCFAS).

1.3 Report Structure

This design report is structured into three sections:

- Context and Overview
- Design Strategies and Standards
- Design Proposals - the kit of parts, generic stop, and corridor designs

1.4 Assumptions

GENERAL

- The report and drawings have been prepared to be read in conjunction with the Product Definition: Basis of Design report.
- Design proposals are subject to further stakeholder consultation, design development and approvals
- Design proposals are subject to resolution of critical interdependencies and interfaces

LEVEL OF DESIGN DEVELOPMENT

- The proposals reflect the design intent and key outcomes sought for the provision of a LRT alignment within the extents of Wynyard-Fanshawe, Queen Street, and Dominion Road.
- The proposals indicate the proposed LRT alignment and associated stops and infrastructure within the Project scope and are illustrated in plan and section.
- The proposals identify key design outcomes with regard to critical LRT, public transport and general traffic design parameters
- The proposals illustrate desired outcomes for the associated provision of pedestrian and cycling infrastructure.
- The proposals indicate the intended design outcomes for associated streetscape and open space works which will ensure that the LRT

alignment is successfully integrated into the existing and/or proposed public realm of the city

- The proposals illustrate indicative surface finishes, furniture elements, and soft landscaping which is intended to ensure consistency with existing city centre design strategies and approved/agreed materials and furniture elements but are subject to further design development and refinement.
- The architectural treatment of the LRT stop shelters, and Karangahape Road Underpass are indicative only and intended to demonstrate the bulk and location of the elements in their context. These elements will be subject to further design development in future stages of the Project.
- Development of the design has involved limited stakeholder engagement to date, at the instruction of Auckland Transport. A programme of wider engagement and subsequent design development is understood by the Technical Advisor to be planned for completion by Auckland Transport.

LIGHT RAIL DESIGN PARAMETERS

The general arrangement of the LRT alignment has been based on the data in the Product Definition: Basis of Design report. The alignment and DKE (Developed Kinetic Envelope) is based on an assumed LRV design vehicle

STREETSCAPE DESIGN PARAMETERS

- The proposal is complimentary to the city's existing land uses, destinations and character structures and buildings
- The proposal builds on the existing city centre palette of materials, vegetation and streetscape elements
- The proposal builds on existing design themes, outcomes and look and feel of the Queen Street upgrade (2004-2009)
- The proposal supports the proposed Auckland Cycle Network (ACN)
- The proposal tie in at intersections and with side streets are indicative only and subject to further design development
- The proposal assumes no loss of existing pedestrian or cycling amenity (typically an improvement) within the city centre
- The proposal prioritises public transport, walking and cycling over private vehicle access
- Service diversions will be required to enable optimal streetscape outcomes
- Streets will be lit to relevant Auckland Council design standards
- Multi-function poles will enable the combined mounting of lighting, catenary (if required), traffic signals and regulatory/way-finding signage to minimise street clutter
- The proposal retains all existing scheduled trees along the corridor
- A 600mm wide tactile and delineator strip has been positioned between pedestrian and LRV/vehicle/cycle spaces within the typical street cross sections in accordance with Auckland Council city centre design standards

- The proposal will require compliance with relevant accessibility codes and best practice (subject to further consultation and design development)

1.5 Route extents currently on hold

Note that the parts of the route are currently on hold for design progress as follows:

- Provision for the LRT depot. At the time of issue this is being considered within the Options process for identifying a site location, led by Auckland Transport. 100% reference design includes Stoddard Road design information at 80% Reference Design as a placeholder
- Public Realm design information for Dominion Junction and Mt Roskill Bus Interchange are to be completed in future stages of design.

1.6 Glossary

The following abbreviations have been used throughout this document:

- LRT - Light Rail Transit
- LRV - Light Rail Vehicle
- DKE - Developed Kinetic Envelope
- CBD - Central Business District
- CMJ - Central Motorway Junction
- TDM - Transport Design Manual
- CCTV - Closed Circuit Television
- PID - Passenger Information Display



2.0 Route Overview

Introduction

The key elements of Light Rail - alignment, character zones, stop locations and power delivery methodology have been considered across the entire network. These include;

2.1 Work Packages and Character Zones

The proposed work packages are identified for their specific character and their transport functional requirements.

These correspond with the Project's key corridor character zones which are Wynyard/Fanshawe, Queen Street, and Dominion Road. The scope of each is as follows.

1. WYNYARD/ FANSHAWE

Between the north end of Daldy Street (adjacent to the Sanfords Fish Market) via Daldy Street, Fanshawe Street, Sturdee Street and Customs Street to the northern end of Queen Street.

2. QUEEN STREET

Comprises the Northern, and Southern and Upper Queen Street sections. The Northern Queen Street section extends from Customs Street to Mayoral Drive, and includes the pedestrian/LRT area between Customs Street and Wakefield Street.

Southern and Upper Queen Street refers to the section of Queen Street between Mayoral Drive (north) and Ian McKinnon Drive (south) including the Karangahape Road Underpass and the CMJ bridge.

3. DOMINION ROAD

Comprises of Ian McKinnon Drive and Dominion Road from the CMJ (north) to State Highway 20 (south).

The Dominion Road corridor includes the village centres of Eden Valley, Balmoral and Mt Roskill as well as the mid block sections and stops located between these.

2.2 Light Rail Route and Alignment and Stop Locations

The proposed route alignment and stop locations have been developed for each work zone to optimise alignment, provide stops in appropriate locations to support patronage, amenity and operation and support access and connectivity with the proposed LRT network.

STOP LOCATIONS

The stop location and options rationale is covered by separate technical papers. This document illustrates the design of the locations identified in those papers.

2.3 Power Delivery Methodology

Two approaches to LRT power delivery are proposed which are informed by a contextual response to the existing character, urban design outcomes and technical parameters of the LRT system. These are:

Side Poles - overhead wire supported by side poles. Side poles located in street furniture zone to minimise visual and physical impact on street. Side poles integrated with light poles to minimise number of poles in the streetscape.

Wire-free - no overhead wire and associated poles between stops. LRV will be powered by on-board batteries for these route sections, with charging input at stops, or by a segmented power rail between the running rails.

The technical method of charging has not been determined as part of the current Reference Design process - allowance has been made for both overhead charging and in-ground charging, subject to design constraints for each stop. Overhead charging would comprise of short lengths of rigid overhead rail, mounted on side poles. Both segmented third rail and in-ground charging are proprietary systems. For the purpose of progressing the design and documentation of the Project the assumptions has been made for overhead charging and batteries, with allowances for inground installations where potentially required.

2.0 Route Overview

Work Packages

The proposed work packages are identified for their specific character and their transport functional requirements. These packages are:

1. Wynyard Fanshawe

2. Queen Street

3. Dominion Road



Figure 1 Route overview work packages diagram

2.0 Route Overview

Stop Locations and Types

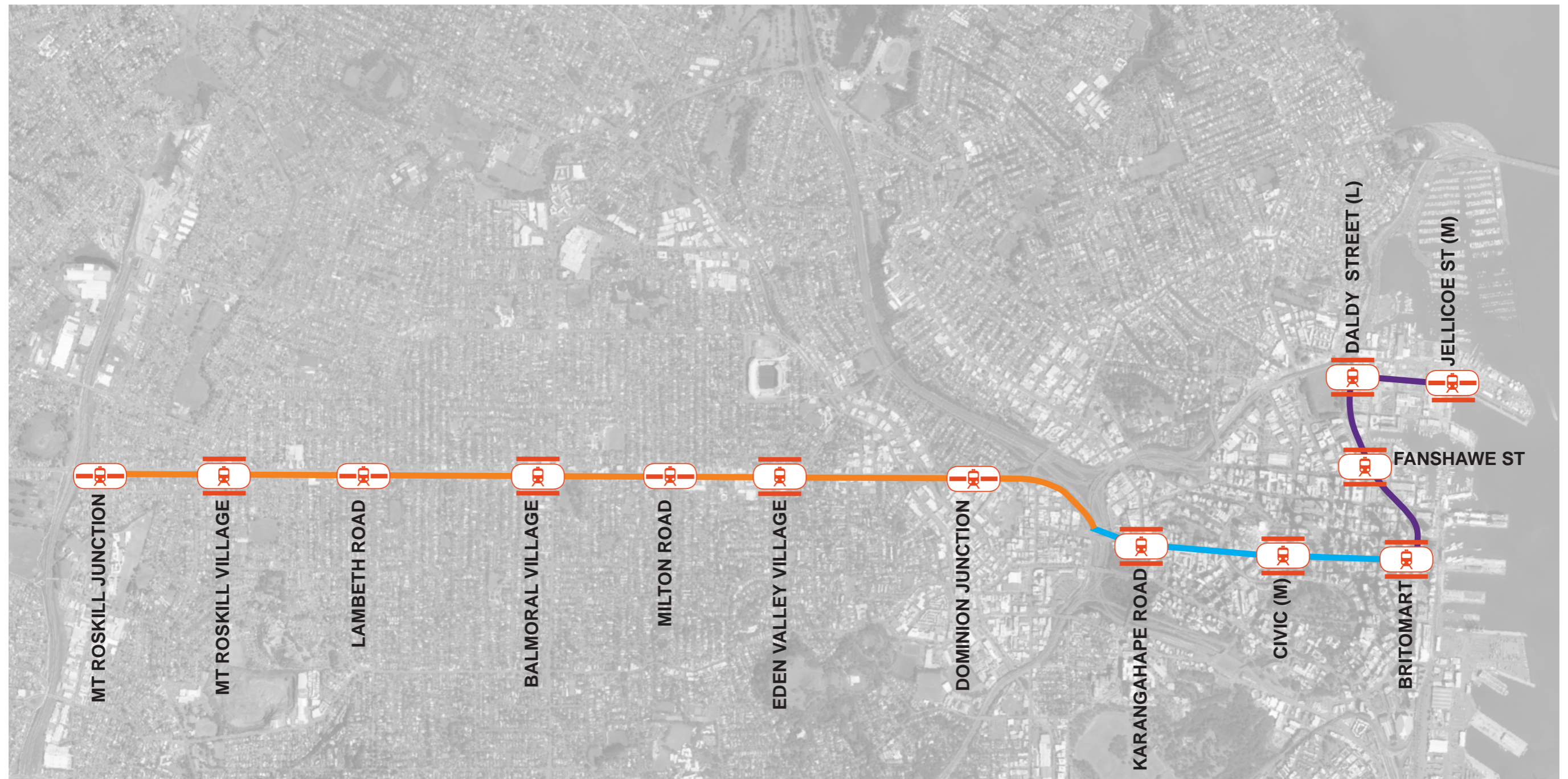


Figure 2 Route overview stop locations and type diagram

2.0 Route Overview

Power Delivery Diagram

Two approaches to LRV power delivery are proposed which are informed by a response to the existing character, urban design outcomes and technical parameters of the LRT system. These are:

● 1. Side poles

Overhead wire supported by side poles. Side poles located in street furniture zone to minimise visual and physical impact on street. Side poles integrated with light poles to minimise number of poles in the streetscape

● 2. Wire-free running

No overhead wire and associated poles between stops. LRV will be powered by on-board batteries for these route sections, with charging input at stops.

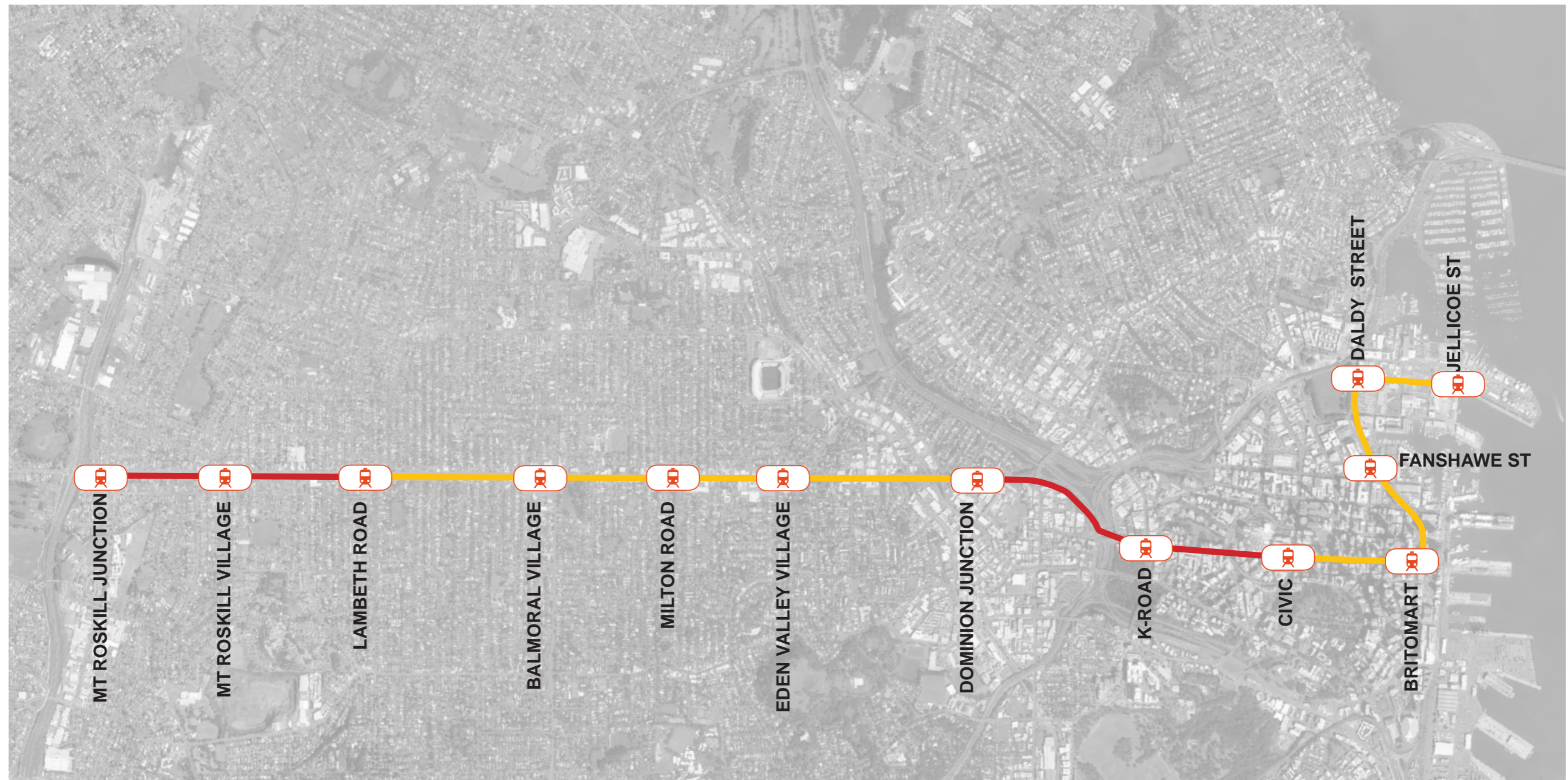


Figure 3 Route overview power delivery diagram



3.0 LRT Spatial Design Standards

Overview

3.1 Introduction

This section of the report summarises the spatial design standards that have been adopted to inform the design of the LRT route, including the streetscapes and LRT stops.

These spatial standards have been adopted from international best practice with the assistance of the TA's light rail experts.

As the light rail vehicle (LRV) and power delivery system has not yet been selected, the spatial design standards adopted allow for all the LRV's that are considered and also allow for side catenary, central catenary and catenary-free power delivery systems.

3.2 Associated Design Standards

The design standards used for this work are as per Section 3.1 of the Product Definition: Basis of Design LRT-SYS-SSA-TA-RPT-000001

3.3 Static Envelope

The Static Envelope is the envelope formed by the maximum cross-sectional dimensions of the LRV. The spatial design standards have adopted a 2.65m static envelope for the LRV. These dimensions allow for all the LRV's that might be considered.

3.4 Developed Kinematic Envelope (DKE)

The DKE is the maximum envelope occupied by the LRV when in motion, including the effects of tilt, sway, track cant, etc. The spatial design standards have adopted a DKE for the LRV when running straight, with larger values for the LRV when turning. These dimensions allow for all the LRV's that might be considered.

3.5 Clearances Between DKE's

Refer to DKE & Clearance Diagrams for standard dimensions.

DRAWING SYS-TRK-TA-DRG-000025 (Fulcrum LRT-SYS-TRK-TA-DRG-000184)

3.6 Clearances Between DKE'S & Structures

Refer to DKE & Clearance Diagrams for standard dimensions.

DRAWING SYS-TRK-TA-DRG-000025 (Fulcrum LRT-SYS-TRK-TA-DRG-000184)

3.7 OLE Standards

Refer to DKE & Clearance Diagrams for standard dimensions.

DRAWING SYS-TRK-TA-DRG-000025 (Fulcrum LRT-SYS-TRK-TA-DRG-000184)

3.8 LRT Stop Standards

Refer to DKE & Clearance Diagrams and Generic Stop Diagrams for LRT Stop standard dimensions.

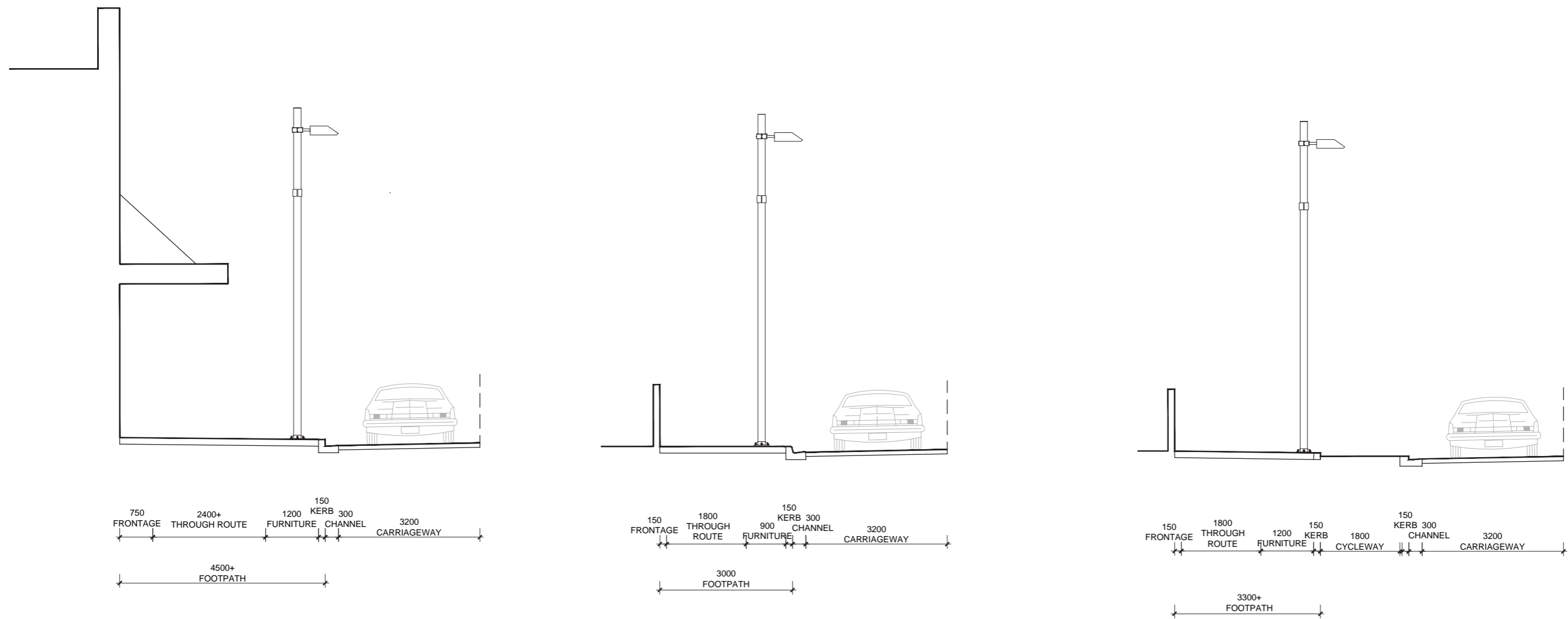
DRAWING SYS-TRK-TA-DRG-000025 to TA-00026 (Fulcrum LRT-SYS-TRK-TA-DRG-00184 to TA-000185)

3.0 LRT Spatial Design Standards

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3.0 LRT Spatial Design Standards

Footpath Set-Out



TDM - Footpath width for city centre, city fringe, outside major pedestrian generators and around transport hubs.

TDM - Footpath width for pedestrian districts

TDM - Footpath and raised cycle lane width

Figure 4 Footpath setout sections



4.0 Kit of Parts

Overview

The following kit-of-parts elements indicate the proposed look and feel for the LRT corridor, associated infrastructure and streetscapes.

4.1 Light Poles

- A cohesive suite of poles is proposed for the LRT corridor to provide visual consistency and ease of maintenance.
- Where existing design themes are evident – such as Queen Street - a site or Project specific pole may be appropriate.
- It is anticipated that where possible the LRT poles will replace existing street lighting poles to reduce clutter.
- New poles and luminaires will incorporate LED technology in alignment with best practice.
- Proposed levels of lighting will enhance the existing level of lighting provided within the streets and associated open spaces.
- Poles will be expected to be multi-functional and accommodate the LRT infrastructure, street and area lighting, way-finding and regulatory signage as well as traffic signals required.
- The final design of the suite of poles will be informed by consultation with asset owners and the selection of the LRT infrastructure and power delivery system.
- Lighting to comply with AT TDM requirements

4.2 Street Furniture

- Street furniture associated with the LRT corridor will utilise existing street furniture suites - existing and conceptual.
- Bespoke suites of furniture will be used to reinforce the distinctive identities envisaged for the various places along the LRT corridor.
- For mid-block areas outside of these unique places the existing CBD furniture suite will be used throughout the LRT corridor.
- Furniture will be placed where required to support the enhanced pedestrian amenity associated with the proposed LRT lines.
- Additional street furniture will be required at and adjacent the proposed stop locations to support passenger comfort and amenity.

4.3 Paving Materials

- The proposed suite of paving materials associated with the LRT corridor is intended to build upon the existing look and feel of the city centre to ensure a cohesive fit with the existing and proposed projects.
- Materials have been borrowed from the city centre, Queen Street, shared space and Wynyard Quarter materials palette.
- Queen Street will reflect the existing distinctive look and feel while the Dominion Road Village Centres will adapt previous proposed design work.
- Throughout the corridor attention will be given to delineating movement zones encouraging improved accessibility for visually impaired pedestrians.

4.4 Street Trees

- The LRT works are seeking to minimise impacts on existing street trees along the full length of the corridor.
- However, in some situations existing trees will need to be removed to enable construction and the associated upgrade of infrastructure and services.
- Additional planting will be added in conjunction with Auckland Council community facilities where it makes a positive contribution to the street, assists with the visual definition of the LRT corridor and mitigates the impacts of overhead wires and catenary poles to reinforce existing streetscape palettes.
- Planting of trees will be restricted to areas where there is no possibility of impacting on LRT operations
- The existing planting palettes associated with Queen Street (Nikau Palm) and Daldy Street (native coastal mix) will be continued.
- Fanshawe Street, Sturdee Street, and Ian McKinnon Drive provide opportunities for new planting strategies reflecting a co-ordinated city wide approach.
- The plant palette for Dominion Road will reflect previous concepts for a range of native trees situated around the town centre. These will carry through the mid-block sections where feasible.
- The Project requires the removal of street trees which will be replaced on a like for like basis where possible and offset planting where it is not possible on the LRT corridor.
- Additional trees have been added where they make a positive contribution to the revised streetscapes associated with the works.
- It is anticipated that additional opportunities for street tree planting may be identified as the Project design develops.

4.5 Stop Elements description

- The stop structures and design components are envisaged to be a well designed and cohesive suite which reflects the urban identity of Auckland and the LRT network.
- It is anticipated that further design of these elements will develop a uniquely Auckland look and feel.
- The suite of elements includes; steel and glass canopy structures, integrated stop name signage/graphics, CCTV, PIDS, route maps/graphics, seating and services cabinets.
- Integrated ticketing facilities can be located within proposed shelter structures and/or freestanding depending on operational requirements.

4.6 Footpath design

- Detailed design to comply with TDM

4.0 Kit of Parts

Light Poles

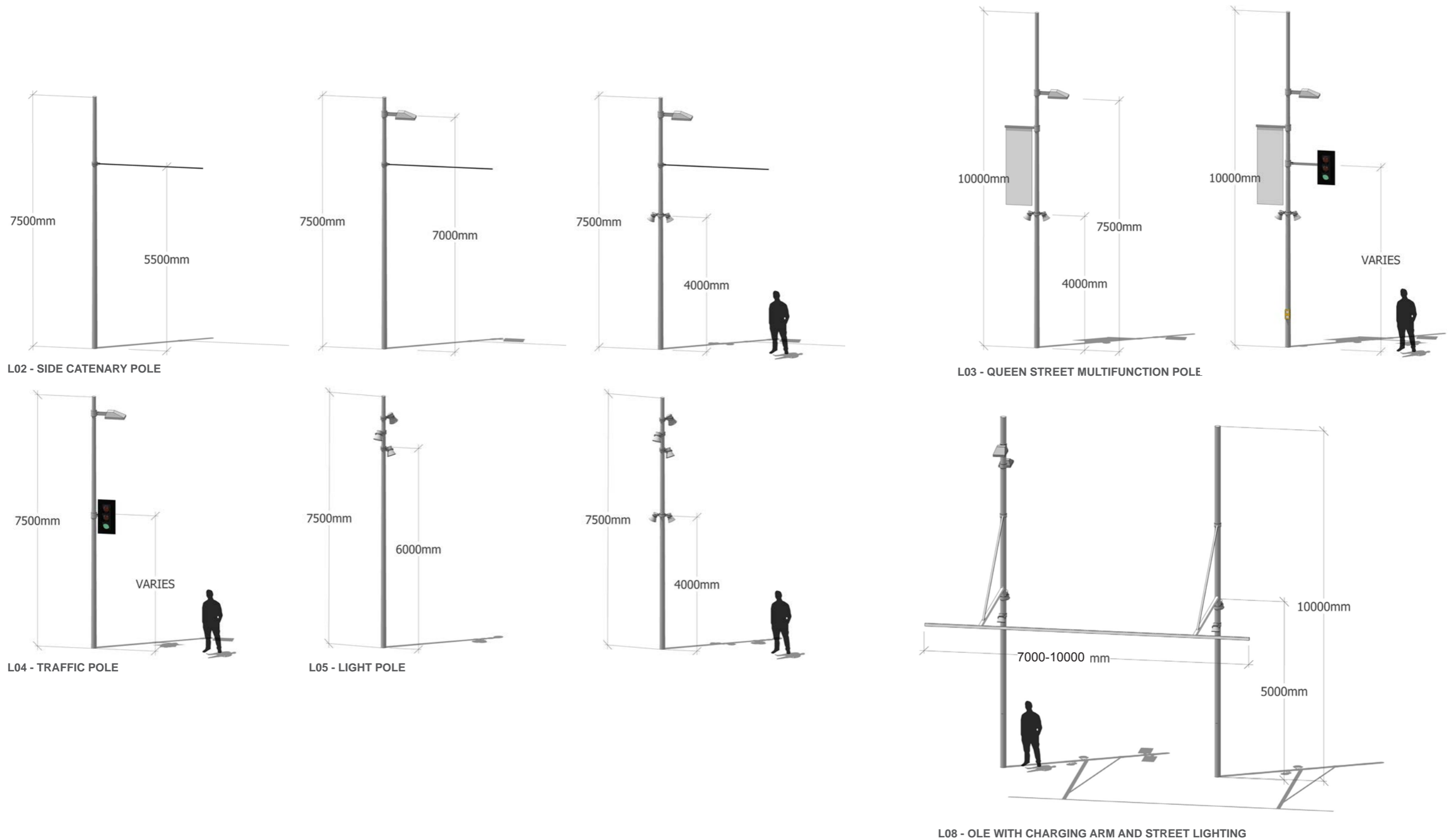
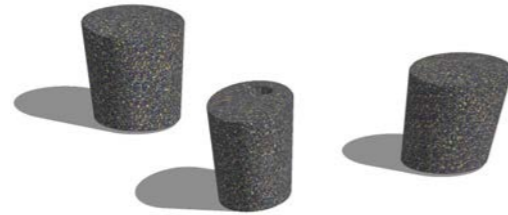


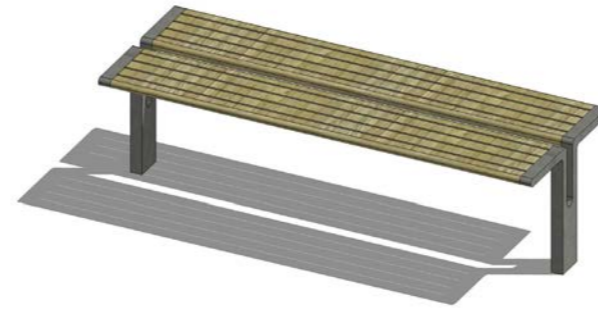
Figure 5 Poles for OHLE, overhead charging and lighting

4.0 Kit of Parts

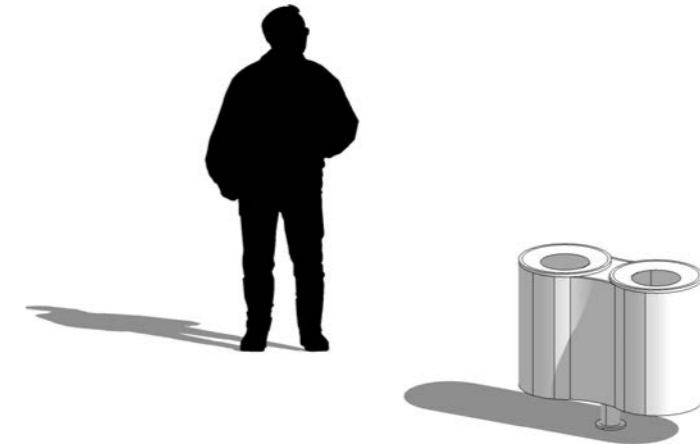
Street Furniture



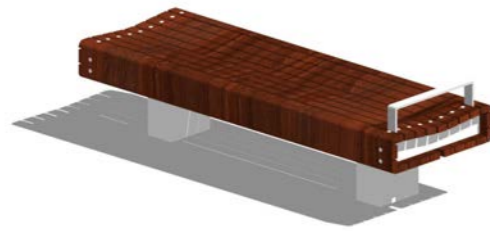
QUEEN STREET PERCHABLE SEAT



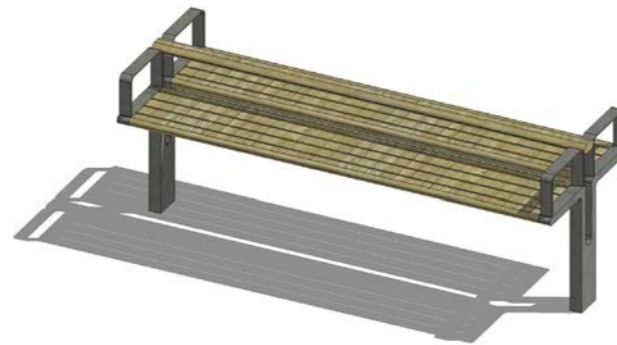
CITY CENTRE SUITE DOUBLE BENCH



CITY CENTRE BIN



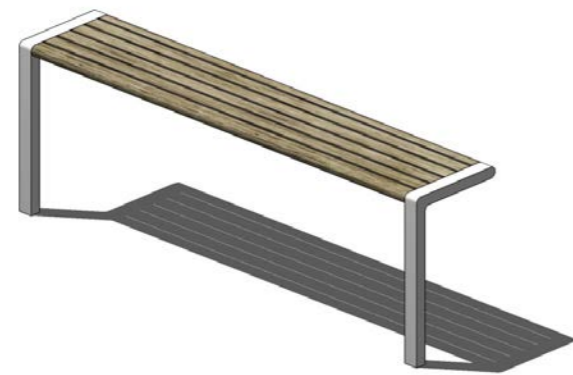
QUEEN STREET STYLE BENCH SEAT



CITY CENTRE SUITE DOUBLE BENCH WITH SIDES



CITY CENTRE BICYCLE RACK
Sheffield where possible, Harrogate only where low bike demand and high footpath user demand for same space.



CITY CENTRE SUITE SINGLE BENCH



CITY CENTRE SUITE SEAT

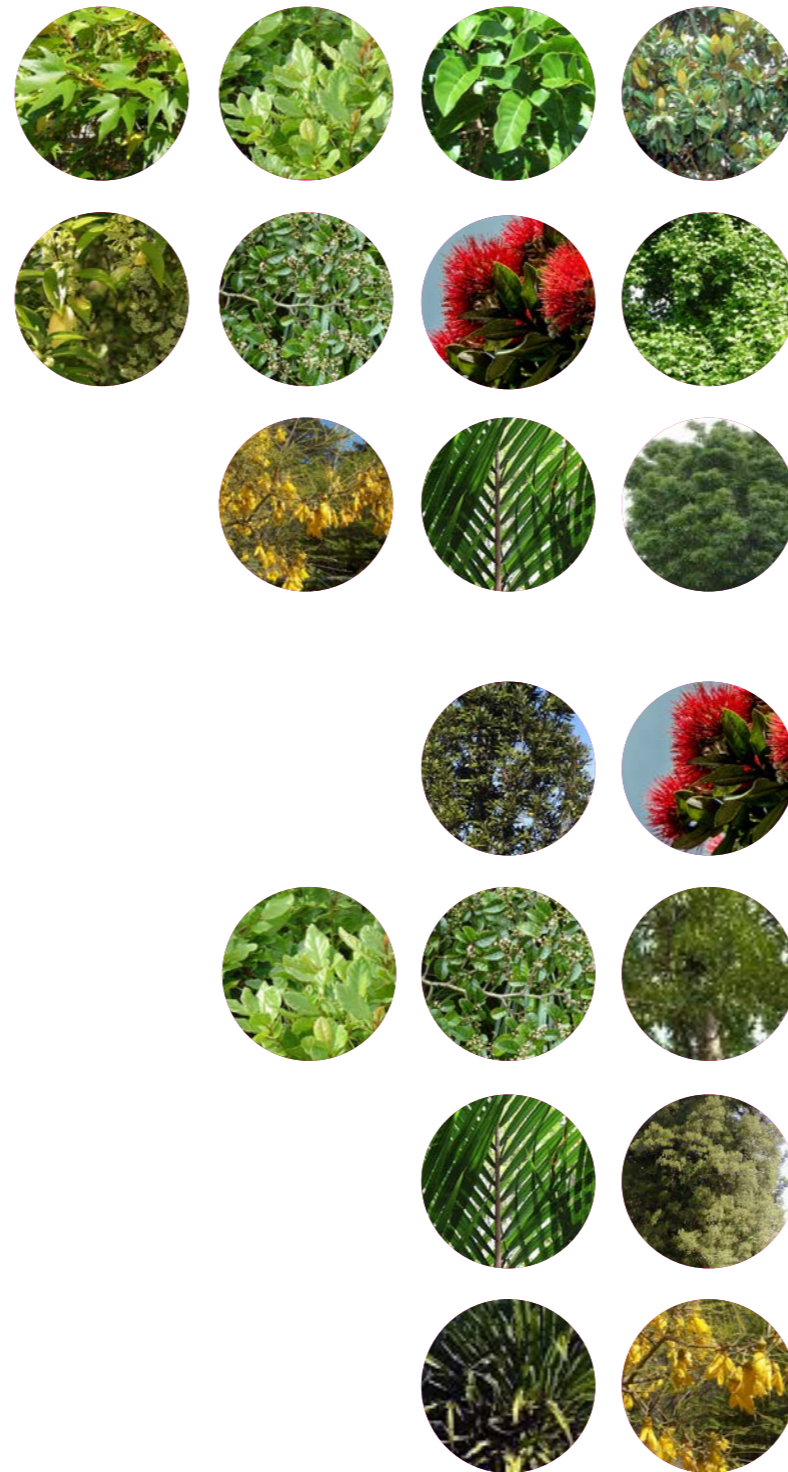


CITY CENTRE DRINKING FOUNTAIN

Figure 6 Street furniture suite

4.0 Kit of Parts

Street Trees



Wynyard + Queen Palette

- Magnolia*
- Vitex lucens* - Puriri
- Belschmeida taraire* - Taraire
- Liriodendron* spp.
- Rhopalostylis sapida* - Nikau
- Hedycarya arborea* - Pigeonwood
- Sophora* spp - Kowhai
- Metrosideros excelsa* + *M. excelsa* 'Mistral' - Pohutukawa
- Alectryon excelsus* - Titoki
- Carpodetus serratus* - Putaputaweta
- Platanus* spp. - Plane tree

Dominion + Ian McKinnon

- Metrosideros excelsa* - Pohutukawa
- Knightia excelsa* - Rewarewa
- Alectryon excelsus* - Titoki
- Carpodetus serratus* - Putaputaweta
- Agathis australis* - Kauri
- Rhopalostylis sapida* - Nikau
- Dacrycarpus dacrydiodes* - Kahikatea
- Sophora microphylla* - Kowhai
- Cordyline australis* - Cabbage Tree

Figure 7 Planting palettes

4.0 Kit of Parts

Paving



A) ASPHALT

Asphalt laid over compacted basecourse. Typical mid block surface treatment



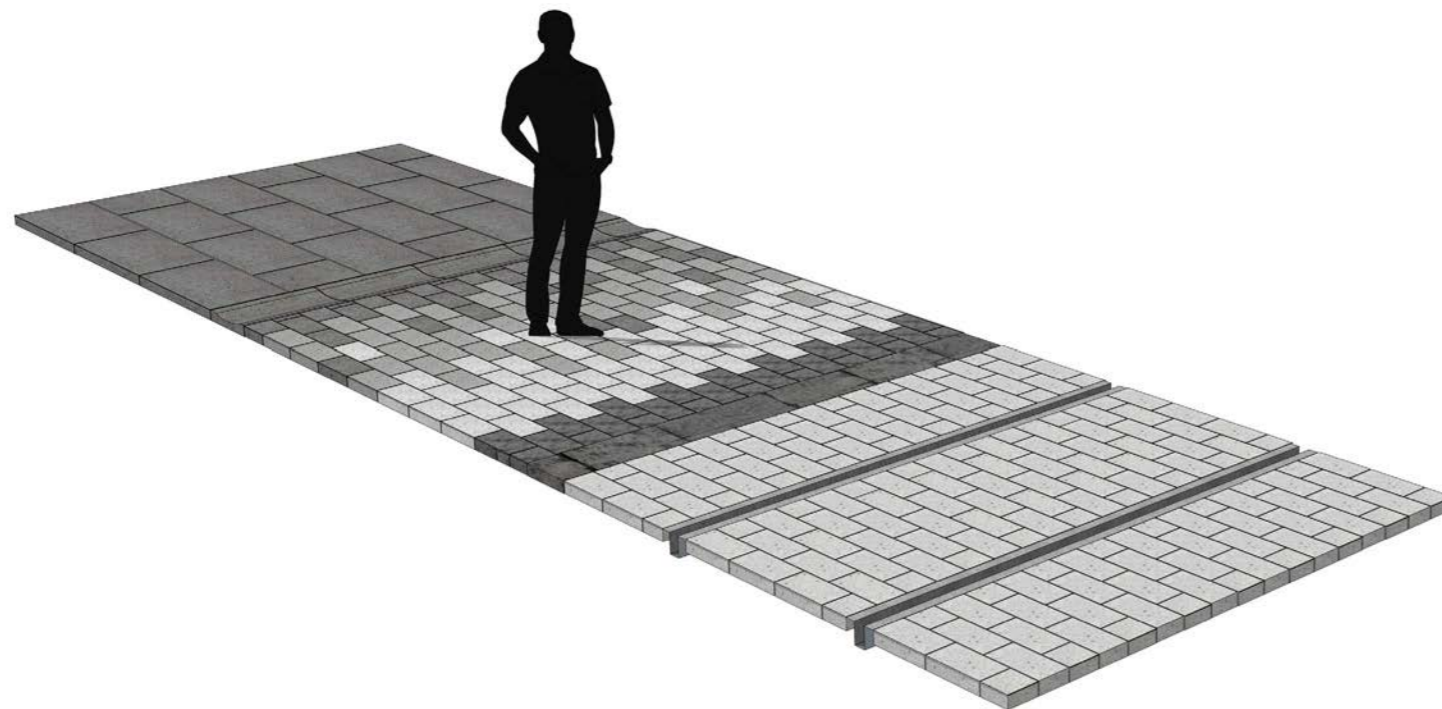
B) CONCRETE

Concrete pathway with alternating finishes. Different aggregates and oxide ratios can be used to differentiate places along the length of the LRT corridor. Typical mid-block or shop fronts outside of village centres.



C) BASALT/GRANITE PAVING

Varying sizes and tones of basalt/granite paving laid on concrete foundation. Typical village centre and CBD footpath and stop finish. Paving patterns can be incorporated to differentiate places along the LRT corridor.



D) QUEEN STREET FLEXILANE PAVING

Varying sizes and tones and textures of basalt/granite paving laid on concrete foundation. Ties into existing Queen Street paving. Pitched outside edge against LRT track.

Figure 8 Paving suite

4.0 Kit of Parts

Key Notes - Architecture

KEYNOTES - K RD STOP AND CMJ BRIDGE		KEYNOTES - SHELTERS	
KEY	COMPONENT DESCRIPTION	KEY	COMPONENT DESCRIPTION
E01	SPECIALITY EQUIPMENT - FREE STANDING HELP POINT	E01	SPECIALITY EQUIPMENT - FREE STANDING HELP POINT
E02	SPECIALITY EQUIPMENT - TAG ON / TAG OFF	E02	SPECIALITY EQUIPMENT - TAG ON / TAG OFF
E03	TICKET VENDING MACHINE	E03	TICKET VENDING MACHINE
E04	SPECIALITY EQUIPMENT - DOUBLE SIDED PASSENGER INFORMATION DISPLAY SYSTEM	E04	SPECIALITY EQUIPMENT - DOUBLE SIDED PASSENGER INFORMATION DISPLAY SYSTEM
E07	STOP SIGN NAME	E06	ROUTE MAP
E10	SPECIALITY EQUIPMENT - EXTERNAL LIFT - TRANSPORT GRADE - FOR MOBILITY AND DISABLED PERSONS	E07	STOP SIGN NAME
E11	STAINLESS STEEL HANDRAILS AND BARRIER	F51	STOP FURNITURE - LEANER
E16	OLE TENSION TRANSITION/ BAR MOUNT - REFER RAIL SYSTEMS	F52	PLATFORM SEAT INTEGRATED INTO SHELTER
F53	STOP FURNITURE - SEAT	P09	TACTILE GROUND SURFACE INDICATORS (TGSi) - WARNING - REFER PUBLIC REALM DRAWINGS
M09	POLYESTER POWDERCOATED GALV STEEL FRAMED BARRIER 1000mm HIGH WITH HORIZONTAL BARS BETWEEN VERTICALS.	P32	TYPICAL ISLAND PLATFORM CONCRETE - REFER PUBLIC REALM DRAWINGS
P09	TACTILE GROUND SURFACE INDICATORS (TGSi) - WARNING - REFER PUBLIC REALM DRAWINGS	P53	PLATFORM EDGE REFER PUBLIC REALM DRAWINGS
P51	TACTILE INDICATORS - STAIRS AND RAMPS	S01	TYPICAL STOP PRIMARY STRUCTURE POLYESTER POWDERCOATED GALV STEEL SECTIONS TO STRUCTURAL ENGINEER DESIGN
P53	PLATFORM EDGE REFER PUBLIC REALM DRAWINGS	S02	TYPICAL STOP SECONDARY STRUCTURE POLYESTER POWDERCOATED GALV STEEL SECTIONS TO STRUCTURAL ENGINEER DESIGN
P54	STAIR AND LIFT RUNOFF	S07	STRUCTURAL STEEL SEAT SUPPORT 200 X 100 X 5 RHS POLYESTER POWDERCOATED TO STRUCTURAL ENGINEER DESIGN
P55	LINEAR DRAIN	S08	CONCRETE FOOTING TO STRUCTURAL ENGINEERS DESIGN
S05	CONCRETE BOX BEAM - REFER STRUCTURAL ENGINEER	S20	LIGHT RAIL TRACKS - REFER RAIL SYSTEMS
S09	STAIR ENTRANCE PORTAL - POLYESTER POWDERCOATED GALV STEEL SECTIONS TO STRUCTURAL ENGINEER DESIGN	S23	OLE POLE - REFER RAIL SYSTEMS
S10	TRACK BASE SLAB - REFER STRUCTURAL ENGINEER	W01	FRITTED GLASS ROOF PANELS
S13	D-WALL REFER TO STRUCTURAL ENGINEER	W02	FRITTED GLASS WALL PANELS
S14	PILE WALL - REFER STRUCTURAL ENGINEER	W03	3mm FOLDED ALUMINIUM PANEL ANODISED ON 15MM MARINE PLY
S15	INSITU 1000MM THICK CONCRETE ROOF SYSTEM. BLACK PAINT TO UNDERSIDE - REFER STRUCTURAL ENGINEER	W05	BLUE TRANSLUCENT GLASS FAÇADE PANELS
S16	INSITU 800MM THICK CONCRETE ROOF SYSTEM. BLACK PAINT TO UNDERSIDE - REFER STRUCTURAL ENGINEER	W20	POLYESTER POWDERCOATED GALV STEEL BOX SECTION CUSTOM SPOUTING
S20	LIGHT RAIL TRACKS - REFER RAIL SYSTEMS	W21	STAINLESS STEEL DOWN PIPE
S23	OLE POLE - REFER RAIL SYSTEMS		
S30	PRECAST CONCRETE PANELS WITH ARCHITECTURAL FINISH (SANDSTONE TBC)		
S35	CUSTOM TL-4 CONCRETE BARRIER 1100 HIGH WITH PC ALUMINIUM CYCLE RAIL AT 1400 HIGH		
S40	700 THICK CONCRETE ROOF SYSTEM - REFER STRUCTURAL ENGINEER		
S41	300 THICK TOPPING SLAB - REFER STRUCTURAL ENGINEER		
S50	FOOTPATH SURFACE - REFER TO PUBLIC REALM DRAWINGS		
S51	ROAD SURFACE - REFER TO CIVIL ENGINEER		
S53	POLYESTER POWDERCOATED GALV WEBFOREGE STEEL DECK - REFER STRUCTURAL ENGINEER		
S54	CUSTOM PRECAST CONCRETE BRIDGE SIDING - REFER STRUCTURAL ENGINEER		
S60	PLATFORM SURFACE HONED CONCRETE FINISH TO STRUCTURAL SLAB - REFER STRUCTURAL ENGINEER		
S61	PRECAST WALL 200 NOMINAL THICKNESS		
S70	PRECAST STAIRS WITH ARCHITECTURAL FINISH AND NOSING		
W02	FRITTED GLASS WALL PANELS		
W06	CEILING - ARCHITECTURAL PERFORATED POWDERCOATED METAL CEILING PANELS ON GRID SUPPORT SYSTEM. SERVICES ABOVE PAINTED BLACK		
W11	FRAMED FRITTED LAMINATED SAFETY GLASS LIFT ENCLOSURE		
W12	LAMINATED SAFETY GLASS STAIR ENTRANCE CANOPY WITH GLASS MULLION SUPPORTS		
W16	LAMINATED SAFETY GLASS ANGLED BALUSTRADE WITH POWDERCOATED GALV STEEL JOINERY		
W17	POLYESTER POWDERCOATED GALV STEEL TOPRAIL WITH LED STRIP LIGHTING TO UNDERSIDE		

Figure 9 Architectural keynotes describing finishes, design elements and kit of part components for LRT corridor and associated works

4.0 Kit of Parts

LRT Stop Furniture Elements : Side Platform Integrated with Footpath

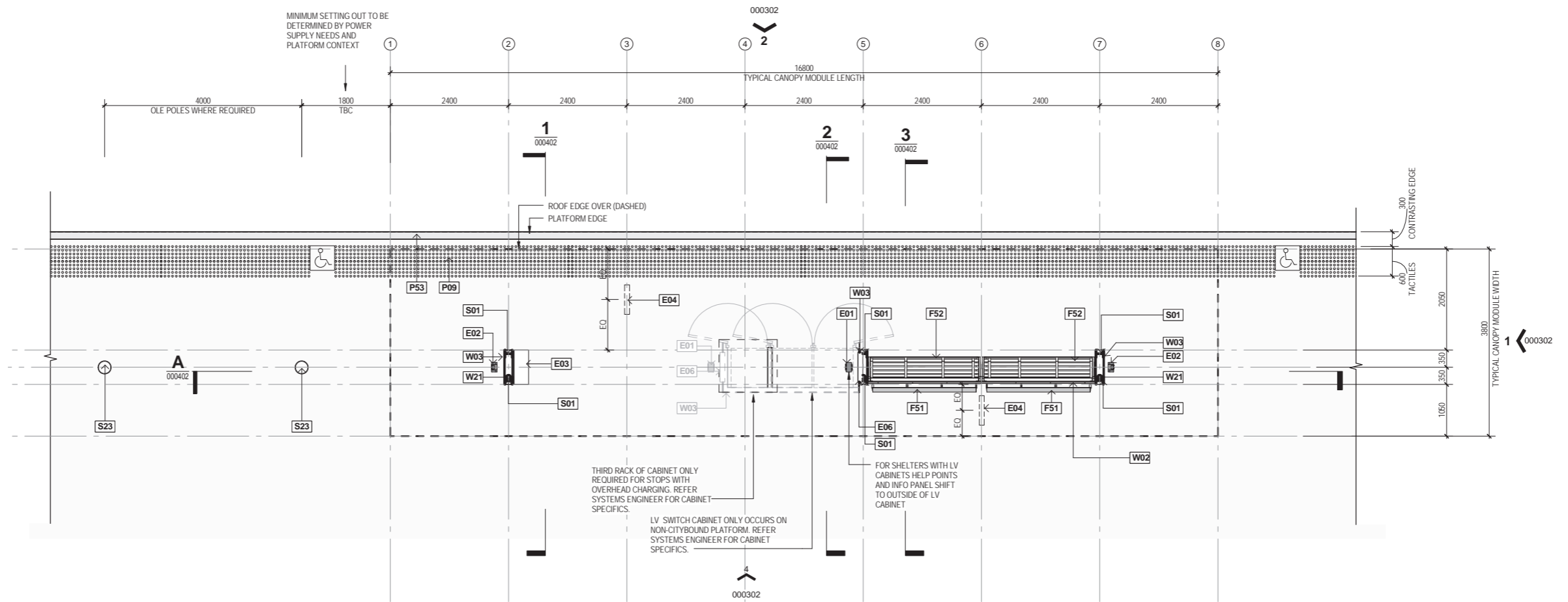


Figure 10 Typical side stop shelter plan (Architectural drawing SYS-ARC-TA-DRG-00102)

4.0 Kit of Parts

LRT Stop Furniture Elements : Side Platform Integrated with Footpath

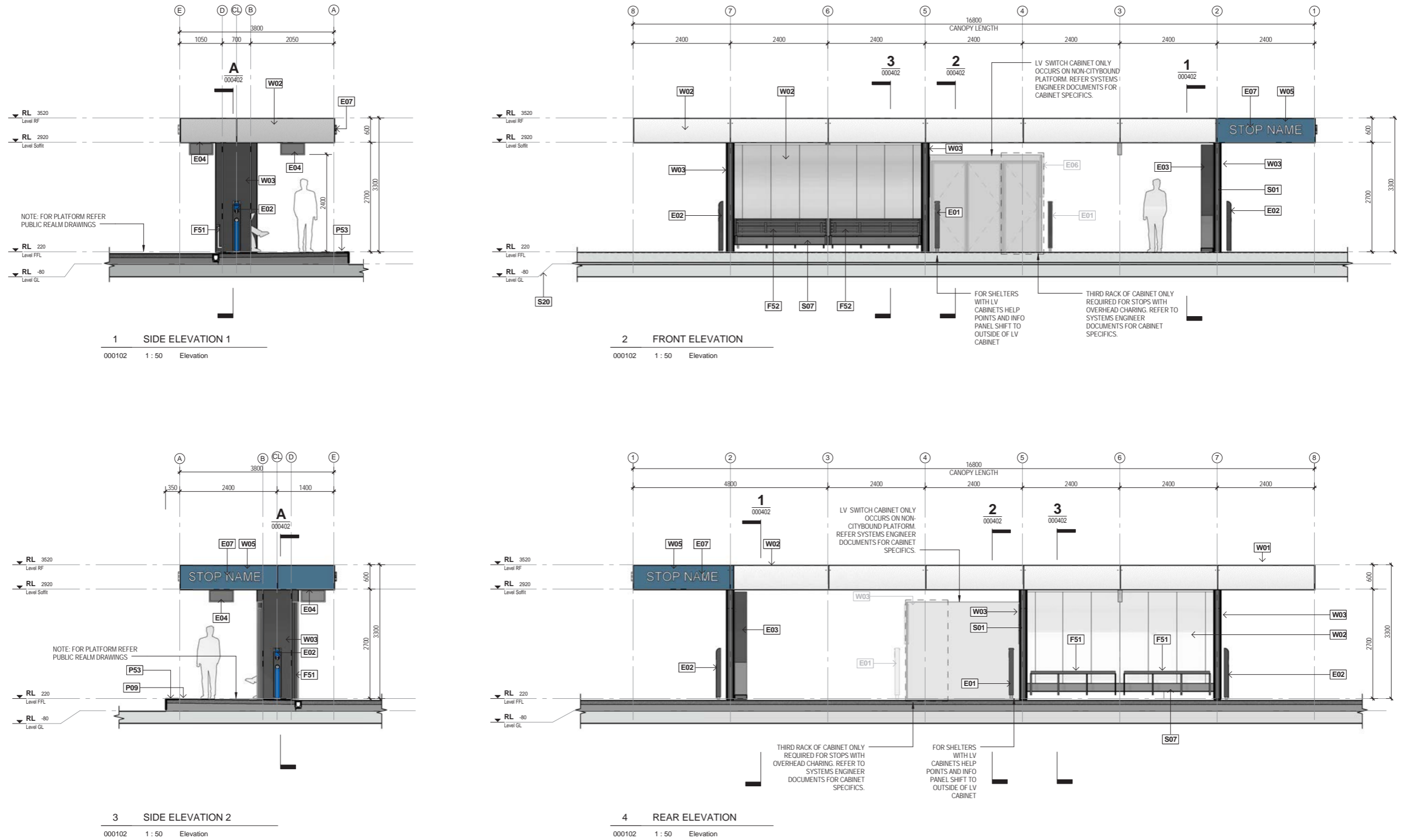


Figure 11 Typical side stop shelter elevations (Architectural drawing SYS-ARC-TA-DRG-00302)

4.0 Kit of Parts

LRT Stop Furniture Elements : Centre Narrow Platform

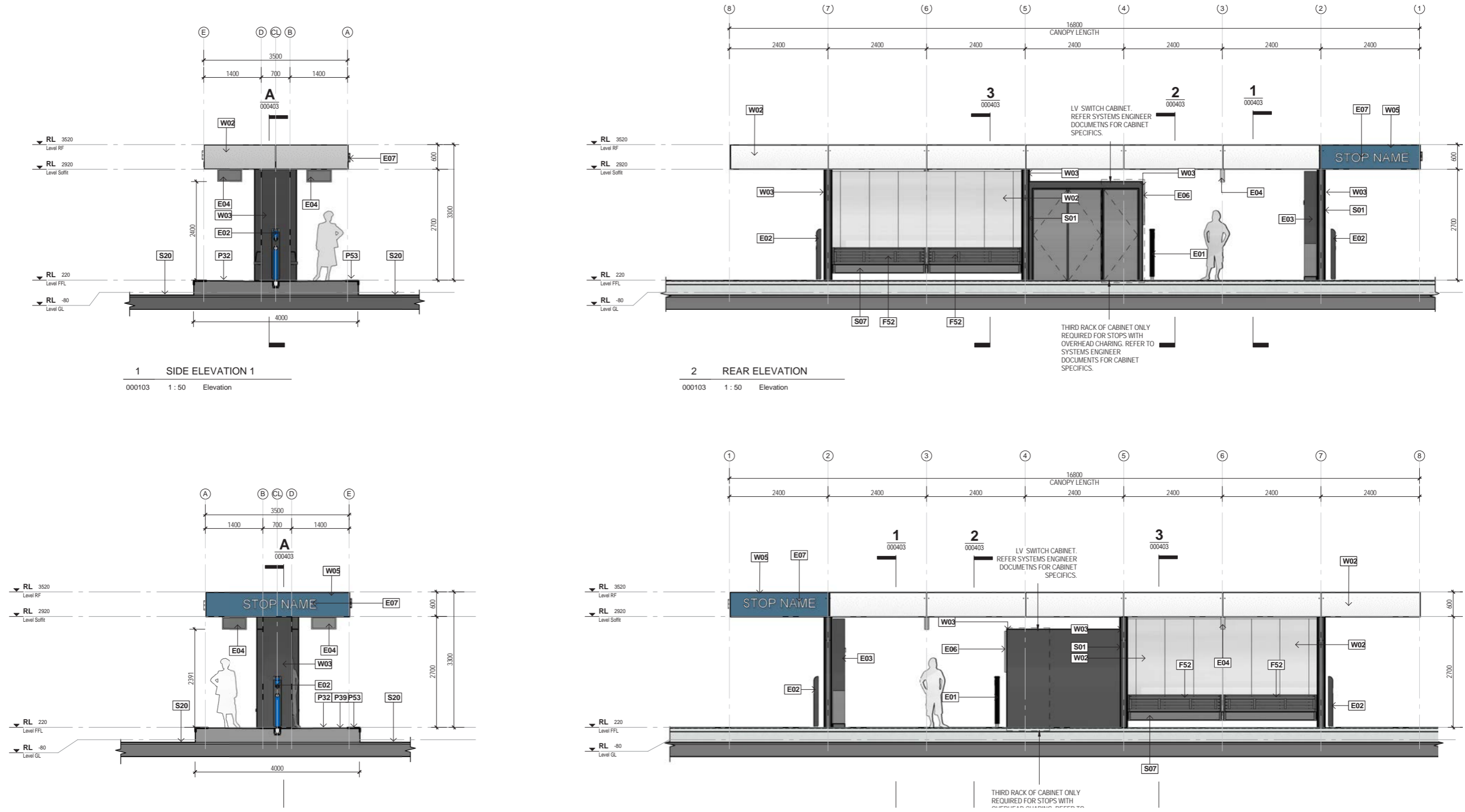


Figure 13 Typical narrow centre stop shelter elevations (Architectural drawing SYS-ARC-TA-DRG-00303)

4.0 Kit of Parts

Key Notes - Public Realm

PAVING EXISTING

- PE1 EXISTING FOOTPATH/PAVING RETAINED**
Existing footpath finishes retained
- PE2 EXISTING FOOTPATH/PAVING LIFTED AND RETAINED**
Existing footpath finishes retained. Allow to uplift and relay.
- PE3 EXISTING CARRIAGEWAY**
Existing asphaltic concrete carriageway surface retained

- PE4 EXISTING CARRIAGEWAY**
Existing asphaltic concrete carriageway re-surfaced

- PE5 EXISTING TREE GRATE RETAINED**
Existing tree grate retained

PAVING PROPOSED

- P01 ASPHALT FOOTPATH**
Asphaltic concrete footpath to Auckland Transport (TDM) standards.

- P02 ASPHALT CARRIAGEWAY**
Asphaltic concrete carriageway to Auckland Transport (TDM) standards.

- P03 TYPICAL CONCRETE PATH**
Insitu concrete footpath to Auckland Transport (TDM) standards. Final mix and finishes tbc in detailed design.

- P04 TYPICAL CONCRETE CARRIAGEWAY**
Insitu concrete footpath to Auckland Transport (TDM) standards. Final mix and finishes tbc in detailed design.

- P05 TYPICAL STONE SETS**
100x100x60mm thick Asian Basalt Type B sets with sawn or flamed finish laid in grid pattern over reinforced concrete slab. Concrete slab to engineers details

- P06 TYPICAL STONE SETS CARRIAGEWAY**
100x100x100mm thick Asian Basalt Type B sets with pitched finish +/- 5mm surface variation to top face laid in grid pattern over reinforced concrete slab. Concrete slab to engineers details

- P07 TYPICAL TACTILE DELINEATOR BAND**
100x100x100mm thick Asian Basalt Type B sets with pitched finish +/- 5mm surface variation to top face laid in grid pattern over reinforced concrete slab. Concrete slab to engineers details

- P08 TACTILE GROUND SURFACE INDICATORS (TGS) - DIRECTIONAL**
297x297x60mm thick yellow concrete TGSi directional indicator pavers laid as 600mm wide band to Auckland Transport (TDM) and RTS14 standards.

- P09 TACTILE GROUND SURFACE INDICATORS (TGS) - WARNING**
297x297x60mm thick yellow concrete TGSi warning indicator pavers laid as 600mm wide band to Auckland Transport (TDM) and RTS14 standards.

- P10 INSITU CONCRETE PRAM RAMP**
Insitu reinforced concrete pram ramp with max 1:20 grade. Exposed aggregate finish with 4% black oxide concrete mix to match Auckland Council standard

- P11 STONE PRAM RAMP**
Stone pram ramp with max 1:20 grade. Asian Basalt Type B with sawn or flamed finish laid over reinforced concrete slab. Concrete slab to engineers details

- P12 CONCRETE RAISED CROSSING TABLE**
Insitu reinforced concrete raised crossing table with exposed aggregate finish with 4% black oxide. Concrete slab to engineers details. Raised table approach ramps and dimensions to Auckland Transport (TDM) standards.

- P13 STONE PAVING - FOOTPATH**
150x300x60mm thick Asian Basalt Type B sets with sawn or flamed finish laid in grid pattern over reinforced concrete slab. Concrete slab to engineers details.

- P14 STONE RUMBLE STRIP**
100x100x100mm thick Asian Basalt Type B sets with pitched finish +/- 5mm surface variation to top face laid in grid pattern over reinforced concrete slab. Concrete slab to engineers details.

- P15 CYCLEWAY MARKING**
Standard Auckland Council cycleway paint markings to Auckland Transport (TDM) standards.

- P16 ROAD MARKINGS - PEDESTRIAN CROSSING**
White reflectorized Chlorinated Rubber Paint roadmarking in accordance with LTSa's MOTSAM regulations

- P17 ROAD MARKINGS - WARNING SURFACE (RED)**
Red (need example)

- P20 QUEEN STREET PAVING**
900x450x80mm thick G3027 basalt flagstones with flamed finish laid in stretcher bond pattern. Laid over reinforced concrete slab. Concrete slab to engineers details

- P21 TRAFFICABLE PAVING**
300x150x80mm thick G654 Asian Granite paver with flamed finish. To match existing city centre shared space specification. Laid on Steintec bedding over reinforced concrete slab. Concrete slab to engineers details

- P22 QUEEN STREET FLEXILANE**
300x150x80mm thick Asian Granite pavers in 3 contrasting colours from light to dark. Pavers on LRT edge pitched for textural contrast. To match existing city centre shared space specification. Laid on Steintec bedding over reinforced concrete slab. Concrete slab to engineers details

- P23 QUEEN STREET MAKE UP STRIP**
100x100x60mm thick Asian Basalt Type B sets with sawn or flamed finish laid in grid pattern over reinforced concrete slab. Concrete slab to engineers details

- P24 QUEEN STREET TREE PIT PAVING**
300x150x80mm thick Asian Basalt Type B sets with sawn or flamed finish laid in stretcher bond pattern over tree pit structure. Refer engineers details

- P25 NEW TREE GRATE - NIKAU**
Steel treepit grate to match existing Queen Street standard

- P26 NEW TREE GRATE - LIRODENDRON**
Steel treepit grate to match existing Queen Street standard

- P27 EXISTING QUEEN STREET THRESHOLD PAVER**
Existing basalt threshold paver to be retained

- P28 QUEEN STREET FLEXILANE PAVING - PLATFORM**
300x150x80mm thick Asian Granite pavers in 3 contrasting colours from light to dark. Laid on Steintec bedding over reinforced concrete slab. Concrete slab to engineers details

- P30 VILLAGE CENTRE PAVING**
600x300x80mm thick Asian Basalt Type B flagstones with flamed finish laid in stretcher bond pattern. Laid over reinforced concrete slab. Concrete slab to engineers details

- P31 VILLAGE CENTRE PAVING - PLATFORM**
600x300x80mm thick Asian Basalt Type B flagstones mixed with 600x300x80mm thick G654 Asian Granite paver with flamed finish laid in stretcher bond pattern. Laid over reinforced concrete slab. Concrete slab to engineers details

- P32 ISLAND PLATFORM - CONCRETE**
Insitu reinforced concrete. Concrete mix and finish TBC. Concrete slab to engineers details.

- P33 NEW TREE GRATE - VILLAGE CENTRE**
Circular steel treepit grate details TBC

- P40 TYPICAL CONCRETE FOOTPATH - WYNYARD**
Insitu reinforced concrete with lightly exposed aggregate finish. Concrete mix to match Wynyard standard. Decorative saw cuts to typical layout.

- P41 WYNYARD LINEAR PARK PAVING**
Stone paving to match existing linear park paving.

- P42 DALDY STYLE SHARED PATH**
Insitu concrete shared path. Concrete mix and finish to match existing Daldy standard

- P43 TACTILE DELINEATOR BAND - WYNYARD**
400/600mm wide tactile delineator to match existing Wynyard standard

- P44 AGGROK**
75mm thick layer of compacted bound aggregate paving laid to manufacturers specifications

- P45 WYNYARD PLATFORM - CONCRETE**
Insitu reinforced concrete with lightly exposed aggregate finish. Concrete mix to match Wynyard standard. Decorative saw cuts to typical layout.

TRAM TRACKS

- TR1 LRT TRACK - INFILL ASPHALT PAVING**
Tracks laid on recessed concrete slab with 45mm asphalt overlay to standard Auckland Council specifications. Refer engineers specifications and details

- TR2 LRT TRACK - INFILL CONCRETE PAVING**
Tracks laid in flush concrete slab with 4% oxide mix and brushed/broom finish. Refer engineers specifications and details

- TR2A LRT TRACK - MAKE UP**
Insitu reinforced concrete slab to match track mix/finish. Refer engineers specifications and details

- TR3 LRT TRACK - INFILL STONE PAVING PED/CYCLE DETERRENT**
Tracks laid on recessed concrete slab with 100x100x80mm thick Asian Basalt Type B pavers with pitched finish +/- 5mm variation to surface. Laid in running bond pattern on Steintec mortar bedding. Refer engineers specifications and details

- TR3A LRT TRACK - INFILL STONE PAVING PED CROSSING**
Tracks laid on recessed concrete slab with 100x100x80mm thick Asian Basalt Type B pavers with sawn or flamed finish. Laid in running bond pattern on Steintec mortar bedding. Refer engineers specifications and details

- TR3B LRT TRACK - INFILL STONE PAVING QUEEN STREET**
Tracks laid on recessed concrete slab with 300x150x80mm thick Asian Granite (light coloured) pavers with pitched finish +/- 5mm variation to surface. Laid in running bond pattern on Steintec mortar bedding. Refer engineers specifications and details

- TR4 LRT TRACK - TUNNEL**
Tram tracks laid in flush concrete slab with 4% oxide in mix and brushed/broom finish. Refer engineers specifications and details.

- TR5 LRT TRACK - PAINTED PEDESTRIAN CROSSING**
White reflectorized Chlorinated Rubber Paint roadmarking in accordance with LTSa's MOTSAM regulations

- TR7 LRT TRACK - GRASS**
Tracks laid on recessed concrete slab with grass infilled between edge of slab and recessed concrete.

KERBS AND CHANNELS

- KE1 EXISTING KERB RETAINED**
Existing kerb to be retained insitu

- KE2 EXISTING KERB RE-USED**
Existing kerb to be up-lifted and relaid in existing location

- K01 IN-SITU CONCRETE KERB - FULL HEIGHT**
Standard Auckland Council in-situ concrete kerb 200mm wide with 150mm high upstand and 300mm wide channel.

- K01A STONE KERB - FULL HEIGHT**
Standard Auckland Council kerb profile with Asian Basalt Type B 200mm wide with 150mm high upstand and 300mm wide concrete channel.

- K02 INSITU CONCRETE KERB - MOUNTABLE**
Standard Auckland Council insitu concrete mountable kerb to TDM standards

- K03 INSITU CONCRETE KERB - LOW**
Standard Auckland Council insitu 60mm high concrete kerb to TDM standards

- K04 INSITU CONCRETE KERB - RAINGARDEN**
Standard Auckland Council insitu 150mm high concrete kerb to TDM standards laid in a hit-and-miss arrangement to raingarden edge

- K05 TYPICAL PRECAST CONCRETE PLATFORM EDGE**
300mm wide x 300mm high x 3000mm length precast concrete kerb to platform edge. F5 finish

- K06 TYPICAL PRECAST CONCRETE PLATFORM EDGE - TRANSITION**
300mm wide x 300mm high x 3000mm length precast concrete kerb to platform edge with slope/angled transition. F5 finish

- K07 TYPICAL STONE PLATFORM EDGE**
300mm wide x 300mm high x 600mm length G654 Asian Granite kerb to platform edge. Sawn or flamed finish

- K08 TYPICAL STONE PLATFORM EDGE - TRANSITION**
300mm wide x 300mm high x 600mm length G654 Asian Granite kerb to platform edge with slope/angled transition. Sawn or flamed finish

- K09 KERB TRANSITION**
300mm wide x 150mm high x 600mm length basalt kerb tapering from 300mm at one end to 150mm at other end. Pitched finish

- K10 TYPICAL SLOT DRAIN**
100mm wide slot drain with steel grate installed to manufacturers specifications

- K11 RE-USED STONE KERB - QUEEN STREET**
300mm wide ZM granite kerb with pitched finish to be lifted from Queen Street and reused.

- K12 STONE KERB - QUEEN STREET**
300mm wide x 600mm long x 150mm high ZM granite kerb with pitched finish match existing Queen Street specification

- K13 MOUNTABLE STONE KERB - QUEEN STREET**
300mm wide x 600mm long x 150mm high ZM granite kerb with pitched finish to match existing Queen Street specification. 45 degree mountable profile

- K14 STONE DROP KERB - QUEEN STREET**
300mm wide x 600mm long x 60mm high ZM granite kerb with pitched finish match existing Queen Street specification

- K15 STONE DRAINAGE CHANNEL - QUEEN STREET**
400mm wide x 600mm long ZM granite channel with sawn or flamed finish to match existing Queen Street specification. Custom channel profile to upper face of channel

- K15A STONE DRAINAGE CHANNEL GRATE - QUEEN STREET**
400mm wide x 600mm long ZM granite channel with cast iron grate to match custom profile.

- K16 FLUSH KERB - QUEEN STREET**
300mm wide x 600mm long ZM granite kerb with pitched finish laid flush with 300x150x80mm thick ZM granite with pitched finish match existing Queen Street specification

- K20 STONE KERB - VILLAGE CENTRE**
300mm wide x 600mm long x 150mm high Asian Basalt Type B kerb with sawn finish

- K21 STONE DROP KERB - VILLAGE CENTRE**
300mm wide x 600mm long x 60mm high Asian Basalt Type B kerb with sawn finish

- K22 STONE DRAINAGE CHANNEL - VILLAGE CENTRE**
300mm wide x 600mm long Asian Basalt Type B channel with sawn or flamed finish. Custom channel profile to upper face of channel

- K23 STONE RAIN GARDEN KERB - VILLAGE CENTRE**
150mm high stone kerb to TDM standards laid in a hit-and-miss arrangement to raingarden edge

- K30 RE-USED STONE KERB - WYNYARD**
250mm wide basalt kerb with sawn finish to be lifted from Wynyard and reused.

- K31 STONE KERB - WYNYARD**
250mm wide x 600mm long x 150mm basalt kerb with sawn finish to match existing Wynyard specification

- K32 STONE DROP KERB - WYNYARD**
250mm wide x 600mm long x 60mm basalt kerb with sawn finish to match existing Wynyard specification

- K33 STONE FLUSH KERB - WYNYARD**
250mm wide x 600mm long flush basalt kerb with sawn finish to match existing Wynyard specification

Figure 14 Public realm keynotes describing finishes, design elements and kit of part components for LRT corridor and associated works

4.0 Kit of Parts

Key Notes - Public Realm

ARCHITECTURAL

- A01 SHELTER (SIDE)**
New steel and glass stop shelter. Refer SYS-ARC-TA-DRG-000102
- A01A SHELTER (DALDY SIDE)**
New steel and glass stop shelter. Refer WYN-ARC-TA-DRG-000103
- A02 SHELTER (CENTRE)**
New steel and glass stop shelter. Refer SYS-ARC-TA-DRG-000102
- A02A SHELTER (DALDY TERMINUS CENTRE)**
New steel and glass stop shelter. Refer WYN-ARC-TA-DRG-000105
- A03 SHELTER (FANSHAWE)**
New steel and glass stop shelter. WYN-ARC-TA-DRG-000100

STREET FURNITURE

- FE1 EXISTING STREET FURNITURE**
Existing street furniture element to be retained in-situ.
- FE2 EXISTING STREET FURNITURE**
Existing street furniture element to be uplifted and relocated
- FE3 EXISTING STREET FURNITURE**
Existing furniture removed
- F01 NEW CITY CENTRE BENCH**
New City Centre style slatted timber and cast aluminum bench seat 2000mm long. Plant mounted to paving slab.
- F02 NEW CITY CENTRE PEARCHABLE SEAT**
New City Centre style slatted timber and cast aluminum bench seat 1000mm long. Plant mounted to paving slab.
- F03C NEW CITY CENTRE RUBBISH BIN**
New City Centre style rubbish bin with aluminum cladding and stainless steel top. Plant mounted to paving slab.
- F03W NEW WYNYARD RUBBISH BIN**
New Wynyard style rubbish bin with aluminum cladding and stainless steel top. Plant mounted to paving slab.

GENERAL NOTES FOR DRAFT REFERENCE DESIGN ISSUE

GENERAL

1. DRAWINGS PRODUCED AS 'REFERENCE DESIGN'. DESIGN DEVELOPMENT HAS FOCUSED ON ENSURING THE TECHNICAL REQUIREMENTS, FUNCTIONAL PLANNING AND BULK AND LOCATION OF THE LRT INFRASTRUCTURE MEETS THE PRODUCT DEFINITION SPECIFICATIONS AND ARE ABLE TO BE SUCCESSFULLY INTEGRATED INTO THE PRIMARY URBAN CONTEXT, NARRATIVE AND CONCEPT TO BE DEVELOPED FURTHER IN PROCEEDING DESIGN STAGES THROUGH STAKEHOLDER CONSULTATION.

SYSTEM WIDE

1. OLE AND LIGHTING POLES TO BE COORDINATED WITH SERVICE LOCATIONS
2. UNIVERSAL ACCESS AND TACTILE GROUND SURFACE INDICATORS AT PLATFORMS ARE INDICATIVE ONLY. STRATEGY TO BE AGREED WITH AUCKLAND TRANSPORT
3. GENERAL FALLS OF FOOTPATHS, TRACKSLAB AND PLATFORMS IN CROSS SECTIONS INDICATIVE ONLY

- F04C NEW CITY CENTRE TWIN RUBBISH BIN**
New City Centre style twin rubbish bin with aluminum cladding and stainless steel top. Plant mounted to paving slab.
- F04W NEW WYNYARD TWIN RUBBISH BIN**
New Wynyard style twin rubbish bin with aluminum cladding and stainless steel top. Plant mounted to paving slab.
- F05C NEW CITY CENTRE BICYCLE RACK**
New City Centre style bicycle rack. Plant mounted to paving slab.
- F05W NEW WYNYARD BICYCLE RACK**
New Wynyard style bicycle rack. Plant mounted to paving slab.
- F06 NEW QUEEN STREET STYLE BENCH SEAT**
New Queen Street style timber slatted bench seat. Plant mounted to paving slab.
- F07 NEW QUEEN STREET PERCHABLE SEAT**
New Queen Street style stone perch able seat. Plant mounted to paving slab.
- F08 NEW WYNYARD STREET SEAT**
New Waterfront style timber slatted and stainless steel bench seat. Plant mounted to paving slab.
- F09 WAYFINDING SIGNAGE**
New Auckland Council standard way finding signage. Sign content TBC. Footing to engineers details
- F10 WHEEL STOP**
200mm width x 130mm high FSC certified hardwood timber on timber spaces. Length may vary
- F11 MONTROSE BOX**
Waterfront Auckland lighting control box
- F12 WATERFRONT STYLE BENCH SEAT**
Steel and timber bench 1995mm length, 45 x 45mm FSC certified hardwood slats (various lengths) fixed with countersunk stainless steel fixings. Steel sub-frame, bead blasted 316 end plates and arm rests. Sitting height 450mm.
- F13 SCULPTURAL STOOL**
500x500mm sculptural stool. Placed in clusters, three material typologies
- F14 DALDY STREET CONCRETE UNITS**
500x500x400mm precast concrete terrace finished to match Daldy specification
- F15 RAINGARDEN BRIDGE - TIMBER**
Approved FSC certified hardwood (species TBC) timber in lengths fixed on frame with countersunk ss fixings.
- F16 RAINGARDEN BRIDGE - CORTEN STEEL**
10mm thick weathering steel plate folded and cut to size over steel sub-frame
- F17 OVERSIZED CIVIC STOP PLATFORM SEATS**
Large oversized platform seats parametrically designed with timber finishes. Sizes vary between 1000mm to 4000mm in width x 8000mm to 15000mm in length

QUEEN STREET

1. EXTENT OF WORKS AND FOOTPATH CROSSFALLS INDICATIVE ONLY. EXTENT OF WORKS MAY CHANGE IN DETAILED DESIGN AS CROSSFALLS MAY REQUIRE LESS/MORE TO TIE IN TO EXISTING FOOTPATHS

DOMINION ROAD

1. ALTERNATIVE ACCESS LANEWAYS UNRESOLVED AT DOMINION ROAD VILLAGE CENTRES - TO BE RESOLVED BASED ON OUTCOMES OF VILLAGE CENTRE TECHNICAL PAPER
2. NO PUBLIC REALM DRAWINGS FOR DOMINION JUNCTION. FOR DETAILS REFER TO LRT-QNS-ROA-TA-DRG-000101 TO -000102
3. DOMINION ROAD ROAD CLOSURES/SIDE PLAZAS INDICATIVE ONLY - DESIGN STRATEGY AND EXTENT OF CLOSURE TO BE CONFIRMED WITH AUCKLAND TRANSPORT IN CONJUNCTION WITH ALTERNATIVE ACCESS AND PARKING OFFSET OPPORTUNITIES

VEGETATION

- TE1 VEGETATION EXISTING TREE RETAINED**
- TE2 EXISTING TREE REMOVED**
- TE3 EXISTING TREE REPLACED**
Existing tree removed and replaced with fastigated native
- V01 RAINGARDEN RETAINED**
Existing raingarden retained
- V02 RAINGARDEN - TYPICAL TYPE A**
Generally 2500mm wide x 1000mm depth of planting medium (soil and mix), subsoil drainage and overflow sump.
- V03 GARDEN BED**
Typical garden bed cut into existing substrate to minimum 500mm depth of planting medium (soil and mix) and subsoil drainage
- V04 VAULTED GARDEN BED**
Generally 2500mm wide x 500mm depth of planting medium (soil and mix), subsoil drainage and overflow sump. To match Daldy Street specification
- V05 RAINGARDEN - WYNYARD**
Generally 2500mm wide x 1000mm depth of planting medium (soil and mix), subsoil drainage and overflow sump. To match Daldy Street specification
- V06 UNDERSTORY/SHRUB PLANTING**
Native and exotic groundcover, fern and shrub. Including ground preparation, topsoiling and mulch as specified.
- V07 TURF - NEW**
New grassed areas (turf or hydroseed), Grades 1 - 3 as specified, including ground preparation and topsoiling.
- V08 TURF - REINSTATED**
Replace grassed areas and tie into existing up to 1000mm (turf or hydroseed), Grades 1 - 3 as specified, including ground preparation and topsoiling.
- T01 PROPOSED TREE**
New 400l tree, with staking etc. (species TBC). Planted in Auckland Council standard detail tree pit.
- T02 NEW QUEEN STREET TREE PIT - NIKAU PALM**
Formed block work tree pit typically 2000mm wide x 4000mm long x 1250mm deep with Queen Street mix soil media. Sub soil drains and AllProof drain/irrigation pipe
- T03 NEW QUEEN STREET TREE PIT - LIRODENDRON**
Formed block work tree pit typically 2000mm wide x 4000mm long x 1250mm deep with Queen Street mix soil media. Sub soil drains and AllProof drain/irrigation pipe.
- T04 NEW TREE PIT**
Formed block work tree pit typically 2000mm wide x 4000mm long x 1250mm deep with Queen Street mix soil media. Sub soil drains and AllProof drain/irrigation pipe.
- T05 EXISTING STREET TREE PIT**
Existing formed block work tree pit typically 2000mm wide x 4000mm long x 1250mm deep with Queen Street mix soil media. Sub soil drains and AllProof drain/irrigation pipe.

ELECTRICAL/LIGHTING

- ELP EXISTING LIGHT POLE**
Existing Light Pole retained in-situ
- ELR EXISTING LIGHT POLE**
Existing Light Pole removed
- EMP EXISTING TRAFFIC SIGNAL POLE**
Existing Traffic Signal Pole retained in-situ
- L01A OLE-CENTRE-POLE**
New 7500mm high 300mm diameter steel LRT centre pole. Twin OLE outreach arm mounted at 5500mm height with associated LRT catenary wire fixings. Twin street luminaires Type A (TBC) mounted at 7000mm height with fixing bracket. Resene Blast Grey 3 paint finish (or similar) colour TBC. Footing to engineers detail.
- L01B OLE-CENTRE-POLE-WITH-STREET-LIGHTING**
New 7500mm high 300mm diameter steel LRT centre pole. Twin OLE outreach arm mounted at 5500mm height with associated LRT catenary wire fixings. Twin street luminaires mounted at 7000mm height with fixing bracket. Twin pedestrian luminaire Type A (TBC) mounted at 4000mm height. Resene Blast Grey 3 paint finish (or similar) colour TBC. Footing to engineers detail.
- L01C OLE-CENTRE-POLE-WITH-STREET + PEDESTRIAN LIGHTING**
New 7500mm high 300mm diameter steel LRT centre pole. Twin OLE outreach arm mounted at 5500mm height with associated LRT catenary wire fixings. Twin street luminaires Type A (TBC) mounted at 7000mm height with fixing bracket. Twin pedestrian luminaire Type B (TBC) mounted at 4000mm height. Resene Blast Grey 3 paint finish (or similar) colour TBC. Footing to engineers detail.
- L02A OLE SIDE POLE**
New 7500mm high 400mm diameter steel LRT side pole. OLE wires mounted at 5500mm height with associated LRT catenary wire fixings. Resene Blast Grey 3 paint finish (or similar) colour TBC. Pole mounting to be sub-surface where space constrained in footways
- L02B OLE SIDE POLE WITH STREET LIGHTING**
New 7500mm high 400mm diameter steel LRT side pole. OLE wires mounted at 5500mm height with associated LRT catenary wire fixings. Twin Type A (TBC) street luminaires mounted at 7000mm height with fixing bracket. Resene Blast Grey 3 paint finish (or similar) colour TBC. Pole mounting to be sub-surface where space constrained in footways
- L02C OLE SIDE POLE WITH STREET + PEDESTRIAN LIGHTING**
New 7500mm high 400mm diameter steel LRT side pole. OLE wires mounted at 5500mm height with associated LRT catenary wire fixings. Twin Type A (TBC) street luminaires mounted at 7000mm height with fixing bracket. Twin pedestrian luminaire mounted at 4000mm height. Resene Blast Grey 3 paint finish (or similar) colour TBC. Pole mounting to be sub-surface where space constrained in footways
- L03A NEW MULTI-FUNCTION POLE (QUEEN STREET) TYPICAL**
New 10000mm high 300mm diameter Queen Street multi-function pole. Single street luminaires mounted at 7500mm height with fixing bracket. Twin pedestrian luminaire mounted at 4000mm height. Includes adjustable bracket for accommodation of regulatory traffic signage.
- L03B NEW MULTI-FUNCTION POLE (QUEEN STREET) INTERSECTION**
New 10000mm high 300mm diameter Queen Street multi-function pole. Single Type C (TBC) street luminaires mounted at 7500mm height with fixing bracket. Twin pedestrian luminaire mounted at 4000mm height. Includes adjustable bracket for accommodation of regulatory traffic signage.
- L04 NEW TRAFFIC SIGNAL POLE**
New nom, 7500mm high traffic signal pole to Auckland Council standards/guidelines.
- L05A STREET LIGHT POLE**
New 7500mm high 300mm diameter pedestrian scale light pole. Single Type B (TBC) luminaires mounted between 5000 and 7000mm height with fixing bracket. Resene Blast Grey 3 paint finish (or similar) colour (TBC). Pole mounting to be sub-surface where space constrained in footways
- L05B PEDESTRIAN LIGHT POLE**
New 7500mm high 300mm diameter pedestrian scale light pole. Multiple Type B (TBC) luminaires mounted between 5000 and 7000mm height with fixing bracket. Resene Blast Grey 3 paint finish (or similar) colour (TBC). Pole mounting to be sub-surface where space constrained in footways
- L06A STREET LIGHT POLE (WYNYARD)**
New 10000mm high 300mm diameter Wynyard style street light pole. Single Type C (TBC) street luminaires mounted at 7500mm height with fixing bracket. Twin pedestrian luminaire mounted at 4000mm height. Includes adjustable bracket for accommodation of regulatory traffic signage. Resene Blast Grey 3 paint finish (or similar) colour (TBC). Pole mounting to match existing Wynyard
- L06B PEDESTRIAN LIGHT POLE (WYNYARD)**
New 7500mm high 300mm diameter Wynyard style pedestrian scale light pole. Single Type C (TBC) street luminaires mounted at 7500mm height with fixing bracket. Twin pedestrian luminaire mounted at 4000mm height. Includes adjustable bracket for accommodation of regulatory traffic signage. Resene Blast Grey 3 paint finish (or similar) colour (TBC). Pole mounting to match existing Wynyard
- L07 CATENARY LIGHTING**
Luminaires mounted to catenary cable to manufacturers specs. Catenary cable to be installed to engineers specs.
- L08A OLE CHARGING ARM - SIDE PLATFORM**
2 x 7500mm high 300mm diameter steel poles set with cantilever arms supporting a 10000mm high bar LRT charging arm on either side. Arms mounted at 5500mm height. Twin Type A (TBC) street luminaires mounted at 7000mm height with fixing bracket. Twin pedestrian luminaire mounted at 4000mm height. Resene Blast Grey 3 paint finish (or similar) colour TBC. Pole mounting to be sub-surface where space constrained
- L08B OLE CHARGING ARM - ISLAND PLATFORM**
2 x 7500mm high 300mm diameter steel poles set with cantilever arms supporting a 10000mm high bar LRT charging arm on either side. Arms mounted at 5500mm height. Twin Type A (TBC) street luminaires mounted at 7000mm height with fixing bracket. Twin pedestrian luminaire mounted at 4000mm height. Resene Blast Grey 3 paint finish (or similar) colour TBC. Pole mounting to be sub-surface where space constrained
- E21 CONTROLLED ACCESS PANEL**
Electronic swipe key access to control retractable bollards at streets with restricted access
- E22 BOLLARD - RETRACTABLE**
Ø280mm x 600mm high heavy duty retractable bollard activated by swipe access. Installed to manufacturers specs. Foundations TBC by engineer
- E23 SPECIALITY EQUIPMENT - TAG ON / TAG OFF**
Typical Auckland Transport tag on/ tag off hop card stand. Foundations TBC by engineer
- MISCELLANEOUS ITEMS**
- M01 SCRUFFY DOME**
Proprietary scruffy dome installed to manufacturers specs. Product to be selected at Detailed Design
- M02 BALUSTRADE (UPPER QUEEN STREET TUNNEL)**
Refer QNS-ARC-TA-DRG-000015 - 405 for details
- M03 PRECAST CONCRETE RETAINING WALL**
New 1000mm high x 200mm thick precast concrete wall. Refer QNS-ARC-TA-DRG-000015 - 405 for details
- M04 BRIDGE/TUNNEL TRAFFIC BARRIER**
Pre-cast concrete T5 rated traffic barrier to NZTA specifications. Refer QNS-ARC-TA-DRG-000015 - 405 for details
- M05 BRIDGE/TUNNEL PRECAST PANELS**
Decorative pre-cast concrete tunnel walls. Refer QNS-ARC-TA-DRG-000015 - 405 for details
- M06 BALUSTRADE (IAN MCKINNON DRIVE)**
New 1400mm high steel balustrade custom designed to TDM standards
- M07 BALUSTRADE (CMJ BRIDGE)**
New 1400mm high steel balustrade custom designed to TDM standards
- M08 BOLLARD - FIXED**
Ø280mm x 600mm high heavy duty fixed bollard installed to manufacturers specification. To be confirmed by engineer at Detailed Design
- M09 BALUSTRADE - FANSHAWE**
New continuous steel balustrade to 1800mm high.

Figure 15 Public realm keynotes describing finishes, design elements and kit of part components for LRT corridor and associated works



5.0 LRT Generic Stop Design

Overview

5.1 Introduction

This section gives an overview of the generic LRT stop designs that have been developed to inform the design of the specific stops on the LRT network.

The generic LRT stop designs set out the following information:

- Minimum LRT stop design standards;
- Key LRT stop components;
- General arrangement of platforms, pedestrian access and furniture elements for the different platform typologies;
- Indicative shelter designs for the different platform typologies;
- Indicative level of shelter for local, intermediate and major LRT stops.

5.2 LRT Stop Shelter Size

The specific categorisation of LRT stops has not been undertaken. This work will likely happen at the next stage of network design development. For the purpose of Reference Design LRT shelter sizing has been assumed based on functionality of what is required on stop, existing context and estimated ATP3 patronage data. Three sizes of shelter have been developed:

- Typical stop
- Medium stop
- Large stop

The major difference between the Typical, Medium and Large will be the level of shelter provided on the platforms and the amount of passenger amenity. The level of platform shelter coverage ranges between 25% for a Typical Stop up to 45% for a Large Stop. The vast majority of stops proposed along the route are sized as typical shelters. Due to estimated large patronage of Daldy and Civic stops and lack of existing shelter immediately adjacent the shelters are proposed to be sized Medium and Large, respectively. The Jellicoe Terminus stop has been sized as a medium shelter due to its estimated patronage and assumed usage for events.

5.3 Platforms

The LRT Stops utilise both centre platforms or side platforms depending on location.

- Side platforms are 67m long and a minimum of 3.2m wide.
- Centre Platforms are 67m long and are desired to be minimum of 5.5m wide. In constrained locations and where passenger loadings are relatively low, centre platforms are reduced to a minimum width of 4.0m wide.

Three generic platform configurations are proposed, to respond to the various contextual situations along the LRT route:

- Flush side platform stops; where the platforms are conceived as an extension of the footpath and are formed to be essentially flush with the adjacent footpath. This stop typology is typically used where there are no other vehicle lanes, or the LRT carriageway is shared with vehicle traffic, allowing the footpath to be extended up to the edge of the LRT carriageway.
- Raised side platform stop where the platforms are raised in relation to the surrounding pedestrian and vehicle context. In this scenario the platforms are typically accessed by accessible ramps at each end of the platforms. This stop typology is typically used where there are vehicle lanes adjacent the LRT carriageway.
- Centre platform stop where the platform is positioned between two LRT tracks. In this scenario platforms typically have accessible ramps at each end of the platform.

5.4 Shelter Design

The architecture of the LRT Stop Shelter is indicative and will require further design development at the next stage of the Project. However, a proposed design has been put forward to demonstrate the bulk and location of the Shelter and indicate some of the architectural and urban design opportunities that the Shelter could provide.

The LRT Stop Shelters have been designed as a volumetric modular canopy system. The volumetric modular design allows the canopies to be largely fabricated off-site, which improves build quality, reduces on-site construction timeframes and consequently reduces cost. Modular design and positioning also enables future expansion for increased patronage.

Indicatively the shelters are constructed from steel and glass. The shelter canopy, glass wind breaks and seating are supported off steel columns cantilevered from in ground foundations. Lighting, CCTV, PA, PIDS and Stop Name Signage would all be fully integrated into the shelter.

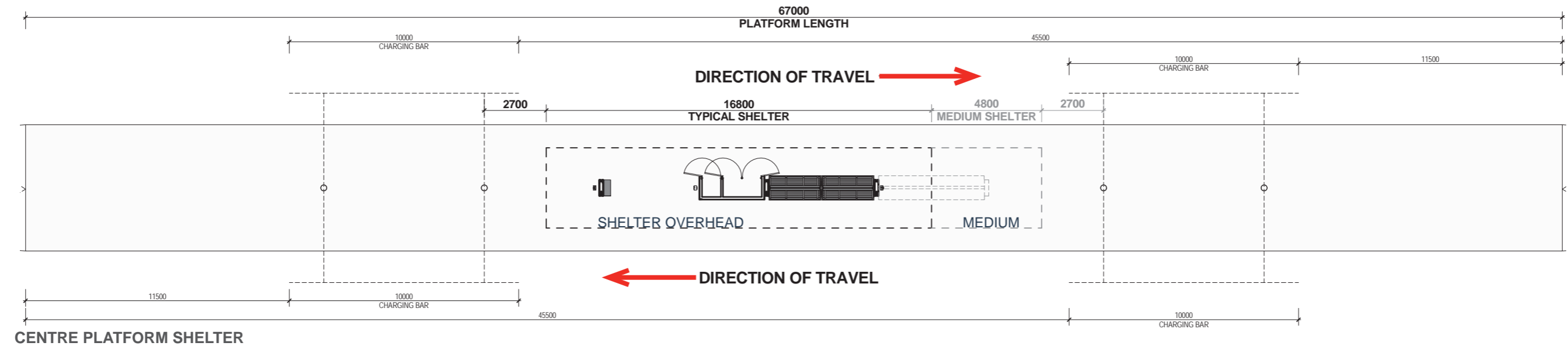
5.5 Stop Components

Each LRT Stop will have the following key components located within the station shelter zone:

- Ticket vending machine (TVM)
- Pan tilt zoom closed circuit television (PTZ CCTV)
- Combined help and information point
- Electrical and communications equipment cabinet;
- Bench seating with armrests
- Provision for wheelchair under shelter
- Electronic real-time public information display (PIDS)
- Station name signage
- Route map and timetable
- PA equipment
- Wayfinding signage

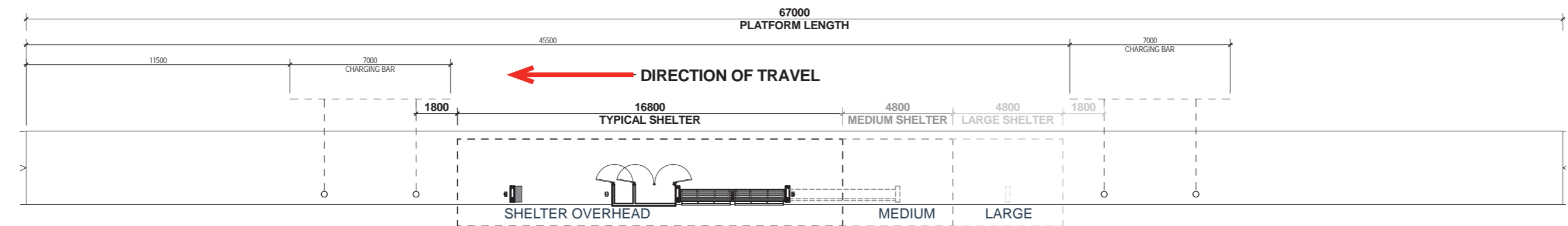
5.0 LRT Generic Stop Design

LRT Stop Shelter - Expansion Setout



CENTRE PLATFORM SHELTER

Note: Medium shelter is the largest module that can fit between overhead charging posts

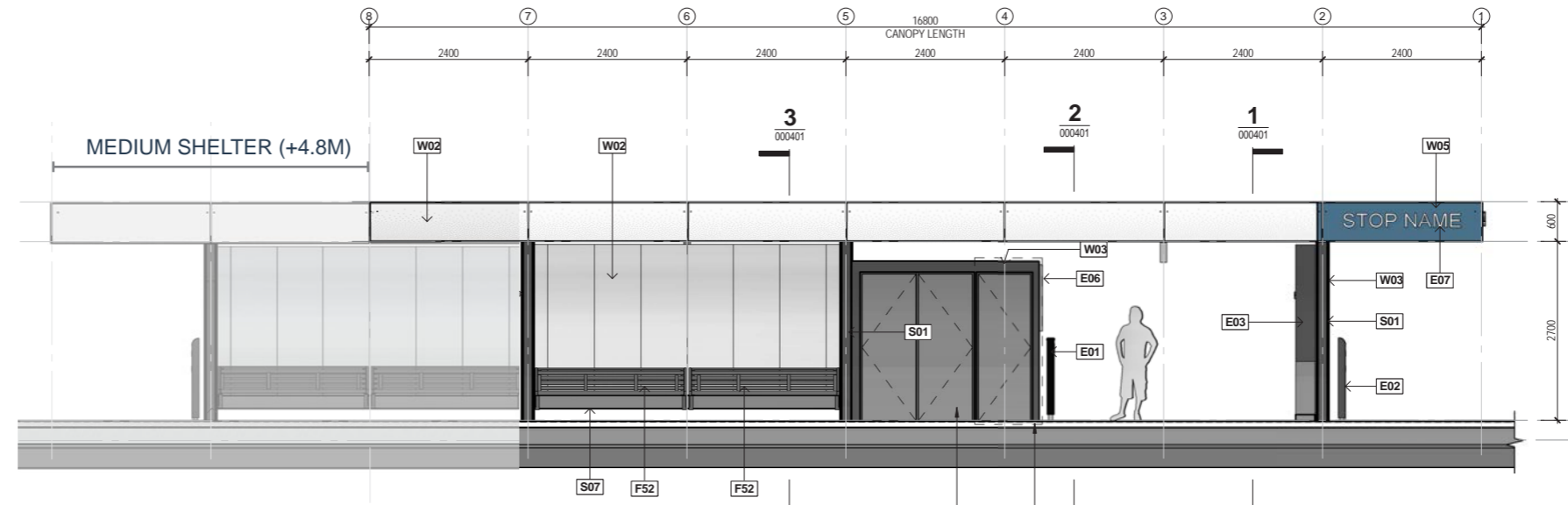


SIDE PLATFORM SHELTER

Figure 16 Stop shelter setout and expansion plans

5.0 LRT Generic Stop Design

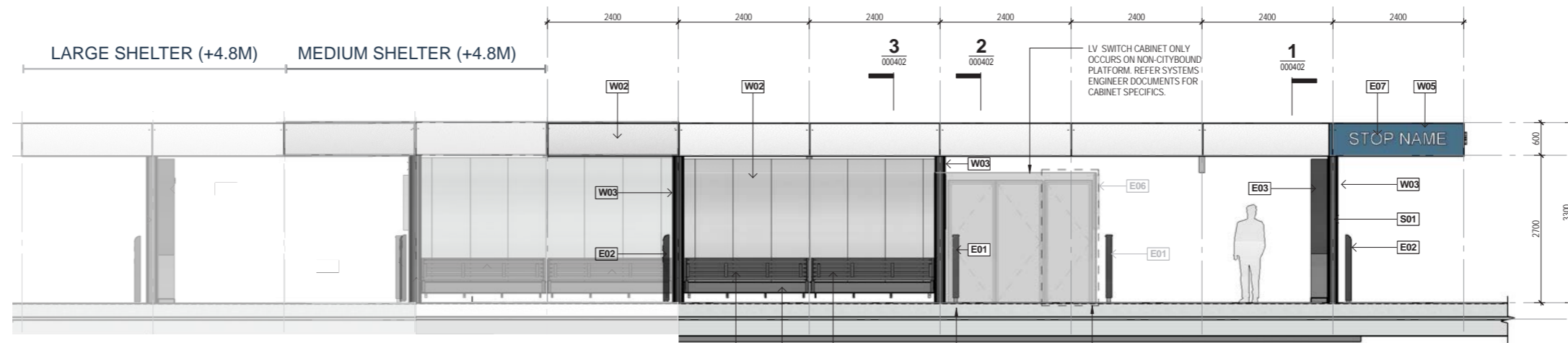
LRT Stop Shelter - Expansion Elevations



CENTRE PLATFORM SHELTER

Note: Medium shelter is the largest module that can fit between overhead charging posts

LV SWITCH CABINET. REFER TO SYSTEMS ENGINEER DOCUMENTS FOR CABINET SPECIFICS.
 THIRD RACK OF CABINET ONLY REQUIRED FOR STOPS WITH OVERHEAD CHARGING. REFER TO SYSTEMS ENGINEER DOCUMENTS FOR CABINET SPECIFICS.



SIDE PLATFORM SHELTER

LV SWITCH CABINET ONLY OCCURS ON NON-CITYBOUND PLATFORM. REFER SYSTEMS ENGINEER DOCUMENTS FOR CABINET SPECIFICS.

FOR SHELTERS WITH LV CABINETS HELP POINTS AND INFO PANEL SHIFT TO OUTSIDE OF LV CABINET
 THIRD RACK OF CABINET ONLY REQUIRED FOR STOPS WITH OVERHEAD CHARGING. REFER TO SYSTEMS ENGINEER DOCUMENTS FOR CABINET SPECIFICS.

Figure 17 Stop shelter setout and expansion elevations



6.0 Wynyard-Fanshawe

Package Overview

6.1 Introduction

This section illustrates proposals for the Wynyard-Fanshawe LRT corridor.

6.2 Overview

This section of the proposed LRT route extends from the northern terminus at the head of Daldy Street near North Wharf, to the intersection of Customs Street and Queen Street at Britomart.

This corridor section includes the area of urban regeneration within Wynyard Quarter, the high-volume movement corridor of Fanshawe and Sturdee Streets, and the interface with the pedestrian-focussed areas of the central CBD, the Viaduct Harbour, and the downtown waterfront.

6.3 Precincts

Three precincts have been proposed which are identified for their specific character and their transport functional requirements. These Precincts are:

- Wynyard Quarter - linear park streetscape with light rail priority, and limited general vehicle movements.
- Fanshawe Street-Sturdee Street - mixed-mode public transport corridor (bus and LRT) with separated general vehicle movements.
- Customs Street - urban street.

6.4 Precinct Street Furniture

- Fanshawe Street to Customs Street will feature a site wide furniture and paving suite consistent with the city centre suite used throughout.
- Daldy Street will feature a site wide furniture and paving suite consistent with the Wynyard Quarter suite used throughout.
- Furniture will be placed where required to support the enhanced pedestrian amenity associated with the proposed alterations to the existing LRV lines.
- Additional street furniture will be required at and adjacent the proposed stop locations to support passenger comfort and amenity.

6.5 Precinct Paving Materials

- A similar strategy to the furniture suite will be applied. Wynyard Quarter will reflect the existing distinctive palette, with Fanshawe Street to Customs Street reflecting the existing CBD palette.
- Materials will vary in colour, texture or pattern between the town centres.

6.6 Precinct Street trees

- The Wynyard planting palette will follow the established Wynyard palette.
- Fanshawe Street to Customs Street will use the existing palette of species used in the Viaduct Harbour area.

6.7 Substation Location & Form

- The Wynyard LRT substation location, within Linear Park adjacent Madden Street, is a Reference Design placeholder pending confirmation from Panuku on an alternative available location.
- Substation form is proposed to be in keeping with the language of 'tank farm' forms and Wynyard materiality. Current layout form are functional placeholders. Narrative and concept to be developed further in proceeding design stages through stakeholder consultation and confirmation of location.

6.0 Wynyard-Fanshawe

Package Overview : Stop Locations



Figure 18 Route map of Wynyard work package

- **Wynyard Quarter** - linear park streetscape with light rail priority, and limited general vehicle movements.
- **Fanshawe Street-Sturdee Street** - mixed-mode public transport corridor (bus and LRT) with separated general vehicle movements.
- **Customs Street** - urban street.

6.0 Wynyard-Fanshawe

Wynyard Quarter Precinct

6.8 Introduction

This section illustrates proposals for the Wynyard Precinct.

DESIGN INTENT

- Support the envisaged design framework for Wynyard Quarter.
- Prioritise movement for LRT, with general vehicles only where local access to property is required.
- Integrate with the existing and planned high quality public realm to support LRT and pedestrian priority.
- Retain existing heritage/character buildings and landscape features.
- Promote world class public transport experience through good design particularly at stops.
- Minimise effects of catenary by providing a wire-free solution and minimise street clutter through co-ordination of furniture/signage/poles etc.

AMENITY AND COMFORT

- Integration with the establishing Linear Park, providing amenity for pedestrians and cyclists.

CHARACTER AND HERITAGE

- The intended character of Daldy Street as a Linear Park is supported through the removal of general vehicle traffic wherever possible, limiting land take for the corner at Fanshawe Street intersection, and the use of LRT to achieve high movement capacity with few vehicles.
- Contextual views to Victoria Park are protected through use of wire-free running. Design of the terminus seeks to maximise views towards the waterfront area through consideration of the location and form of the terminus.

ACCESS AND SAFETY

- Changes to local property access are required for a number of private properties along the Daldy corridor, and this is provided in most cases through alternative vehicle entrances from side streets.
- Other existing access and connectivity is maintained or improved by the proposed design changes. In a few cases, alternative access from side streets is not possible, and limited vehicle movements are reduced to emergency vehicle access only.
- LRT patronage and associated pedestrian activity contributes to more vibrant, safe and usable streets environments.

LEGIBILITY

- The strong identity of Daldy Street is maintained, providing a key link from Victoria Park towards the waterfront and headland.
- The integration of LRT stop infrastructure emphasises nodes for development activity as part of the Wynyard framework plan.

MATERIALITY

- The proposed palette of surface finishes features high quality elements which support the linear park concept, and which emphasise pedestrian and cyclist amenity.
- The indicative proposed palette for the Daldy Street precinct includes: asphalt footpaths, basalt kerbs (re-used), asphalt carriageways for private vehicles and a concrete LRV carriageway.

STREET TREES AND VEGETATION

- The existing recently planted trees along and adjacent the corridor are maintained wherever possible. Refer Public Realm drawings for extent of tree removal and planting.
- Modification to the existing park space adjacent to the north end of Daldy Street will be required to accommodate the terminus stop.

PEDESTRIANS

- Maintain the existing mid block footpath widths 3000mm+/-.
- Integrate crossings with the planned mid-block laneway network, as well as the side street network.

LIGHT RAIL CARRIAGEWAY AND STOPS

- Two centrally located LRV lanes run on a 6600mm wide raised concrete carriageway.
- Raised side and centre platforms are provided at the terminus.
- Raised side platforms are provided at the Daldy Street stop.
- A wireless design approach is adopted for the full length of Daldy Street.

VEHICLES

- Vehicles are generally prohibited from Daldy Street, with local property access permitted in specific locations.

PARKING

- No parking for private vehicles is provided for along Daldy Street.

6.0 Wynyard-Fanshawe

Jellicoe Street Terminus Section AA

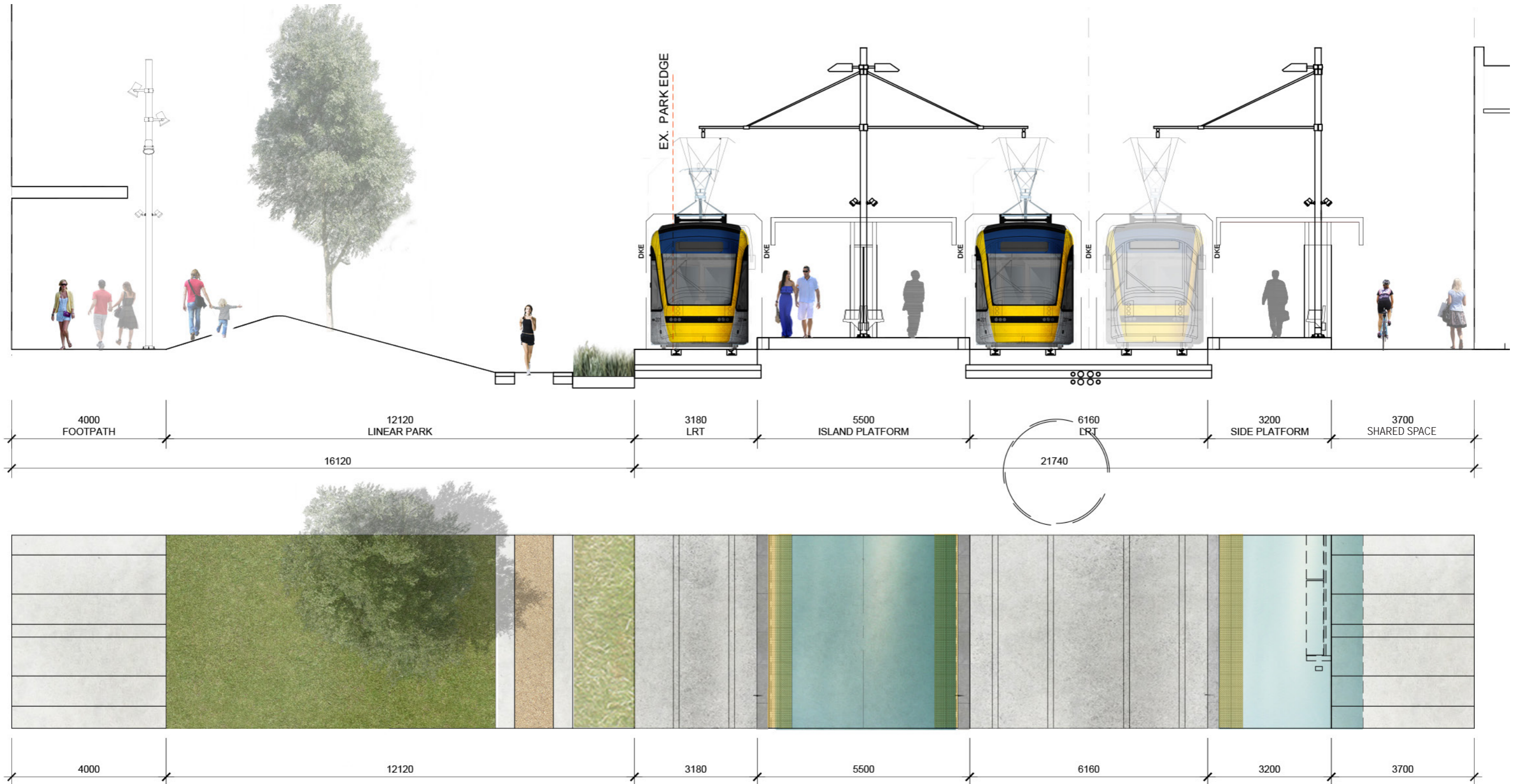


Figure 19 Partial plan and section of Jellicoe Street Terminus looking north

6.0 Wynyard-Fanshawe

Daldy Street : Existing Perspective



Figure 20 Existing Perspective: Daldy Street looking towards Jellicoe Street

6.0 Wynyard-Fanshawe

Daldy Street: Proposed Perspective



Figure 21 Proposed Perspective: Daldy Street looking towards Jellicoe Street showing Jellicoe Terminus and Linear Park

6.0 Wynyard-Fanshawe

Daldy Street Section BB



Figure 22 Partial plan and section of Daldy Street midblock looking north

6.0 Wynyard-Fanshawe

Daldy Street typical: Axonometric



Figure 23 Typical cross section of Daldy Street, showing LRT corridor, walking and cycling paths, and linear park.

6.0 Wynyard-Fanshawe

Daldy Street Stop Section CC

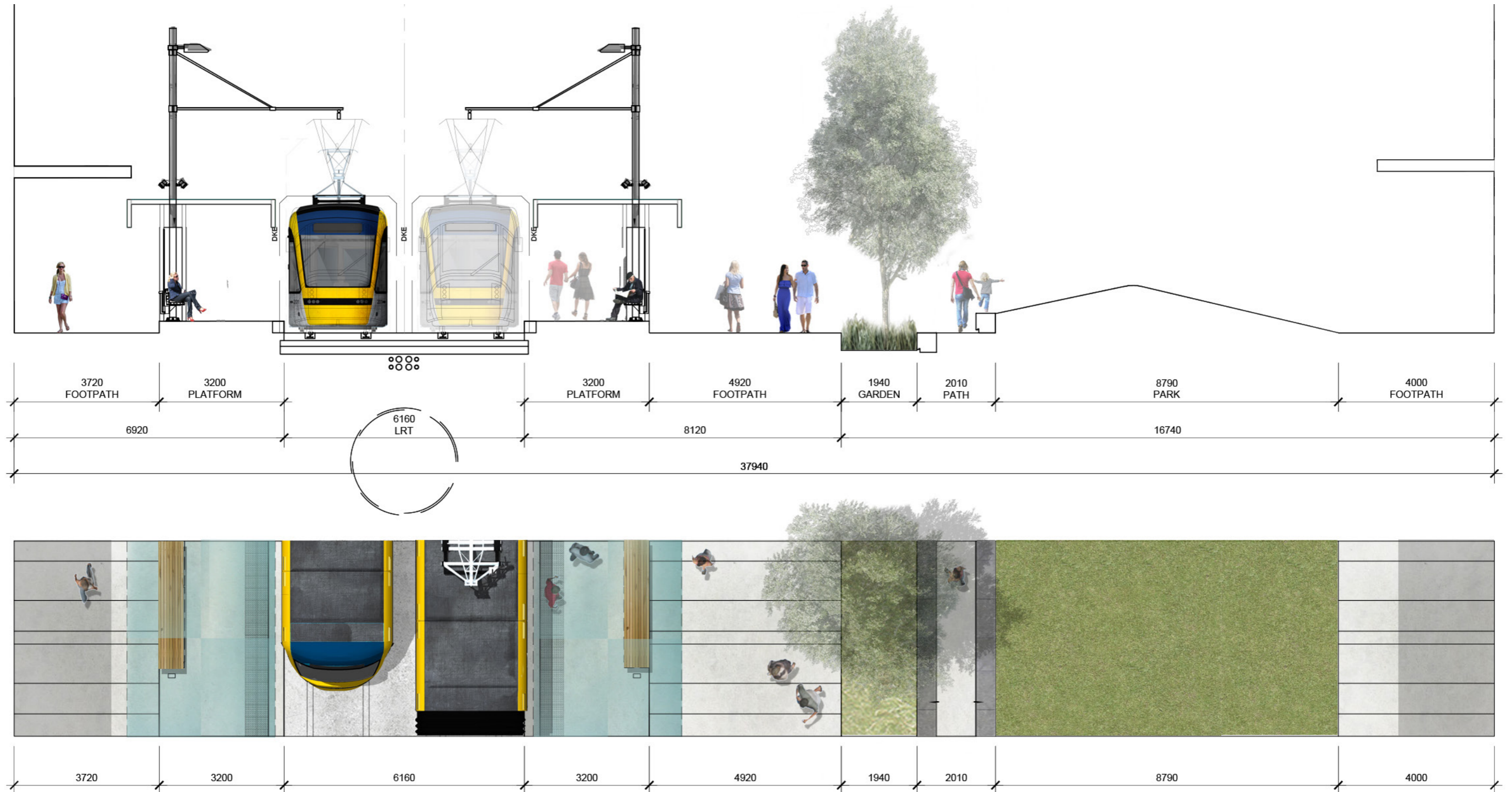


Figure 24 Partial plan and section of Daldy Stop looking north

6.0 Wynyard-Fanshawe

Fanshawe Street : Daldy Stop



Figure 25 Daldy Stop sketch render to illustrate design consideration and context.

6.0 Wynyard-Fanshawe

Daldy Street : Existing Perspective



Figure 26 Existing Perspective: Daldy Street looking south towards Victoria Park

6.0 Wynyard-Fanshawe

Daldy Street: Proposed Perspective



Figure 27 Proposed Perspective: Daldy Street looking south towards Victoria Park with proposed LRT along Daldy Street with Linear Park adjacent

6.0 Wynyard-Fanshawe

Fanshawe-Sturdee Precinct

6.9 Introduction

This section illustrates proposals for the Fanshawe-Sturdee Precinct.

DESIGN INTENT

- Facilitate improved access to Wynyard Quarter, Viaduct Harbour and Victoria Quarter via Light Rail.
- Create an interchange with current bus services from the North Shore, and future-proof for potential extension towards the North Shore.
- Balance provision for pedestrians, LRT, buses and general vehicle modes within the street.
- Integrate with current bus-based project planning for a dedicated North Shore Public Transport corridor separated from general vehicle traffic.
- Improve the public realm along the full length of the corridor to support LRT and pedestrian priority.
- Retain existing heritage/character buildings and landscape features.
- Promote world class public transport experience through good design particularly at stops.
- Support businesses with high quality streetscapes promoting good visibility, unobstructed movement and areas to rest/wait within the street.
- Minimise effects of catenary by providing a wire-free solutions and minimise street clutter through co-ordination of furniture/signage/poles etc.

AMENITY AND COMFORT

- Mid-block sections are considered as places of movement enabling pedestrian access to the surrounding areas.
- Where possible footpath widths are enhanced in conjunction with the integration of the LRT corridor.

CHARACTER AND HERITAGE

- The existing character of Fanshawe Street and Sturdee Street is enhanced through creation of a more human scale of infrastructure.
- Contextual views to Victoria Park, Wynyard Quarter and the Viaduct Harbour are protected and celebrated wherever possible
- The wire free approach minimises visual impacts on the corridor.
- Light rail canopies have been carefully positioned to both cater to projected passenger demand and to integrate with adjacent building forms and spaces.

ACCESS AND SAFETY

- Existing access and connectivity from Fanshawe Street and Sturdee Street is removed to create a dedicated public transport corridor on the north side of the roads. Alternative access is provided where access to private properties and side streets is removed.
- Separation of general traffic from LRT and bus movements improves

pedestrian safety by reducing crossing distances.

- Upgrades of footpaths improve accessibility standards.
- LRT patronage and associated pedestrian activity contributes to more vibrant, safe and usable streets environments.
- Allowance is provided for a future pedestrian footbridge over Fanshawe Street linking Bouzaid Way to Graham Street.

LEGIBILITY

- Existing patterns of movement and access are maintained on Fanshawe Street to the west of Nelson Street, and reinforced by the proposed design changes. Closure of side streets affects only minor connections.
- Sturdee Street is reconfigured into a Public Transport corridor, with Fanshawe Street east of Nelson Street reconfigured into a two-way layout for general traffic.
- The integration of LRT stop infrastructure increases Fanshawe Street's appeal as a node serving nearby destinations such as the Viaduct Harbour and Victoria Quarter.

MATERIALITY

- The proposed palette of surface finishes clearly distinguishes between LRV, vehicular and pedestrian zones.
- The indicative proposed palette includes: concrete footpaths, concrete kerbs, asphalt carriageways for private vehicles and a concrete LRV and bus carriageway.

STREET TREES AND VEGETATION

- The existing trees along Fanshawe Street and Sturdee Street are affected by the corridor reconfiguration. New street trees will be incorporated wherever practical.

CYCLISTS

- East-West cycle routing is assumed to be provided parallel to the route via Wynyard Quarter and Viaduct Harbour, broadly in line with recent Auckland Transport consultation proposals.
- North-South cycle routing is assumed to cross the corridor at Nelson Street, and at Daldy Street.

PEDESTRIANS

- Provide mid block footpath widths at 3000mm+/-.
- Provide improved crossing facilities at all intersections, integrated with LRT priority and signal controlled intersections.

LIGHT RAIL CARRIAGEWAY AND STOPS

- Two LRV lines run in a dedicated public transport corridor on the north side of the street, with the LRT alignment sharing this space with

buses, and 'weaving' into the LRT platforms and around the bus stop platforms.

- A side platform stop is provided between Halsey Street and Hobson Street, with the Wynyard-bound LRT stop positioned in the centre of the street between the public transport corridor and general traffic lanes.

VEHICLES

- Four general vehicle lanes are proposed on the south side of the dedicated public transport corridor, with general vehicle movements at intersections matching current intersection movements with the exception of the existing right turn from Fanshawe Street into Daldy Street and left turn into Halsey Street.
- An access lane is provided on the north side of Sturdee Street between Hobson Street and Nelson Street.

PARKING

- No parking for private vehicles is provided for along Fanshawe Street and Sturdee Street.

6.0 Wynyard-Fanshawe

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6.0 Wynyard-Fanshawe

Fanshawe West : Section DD

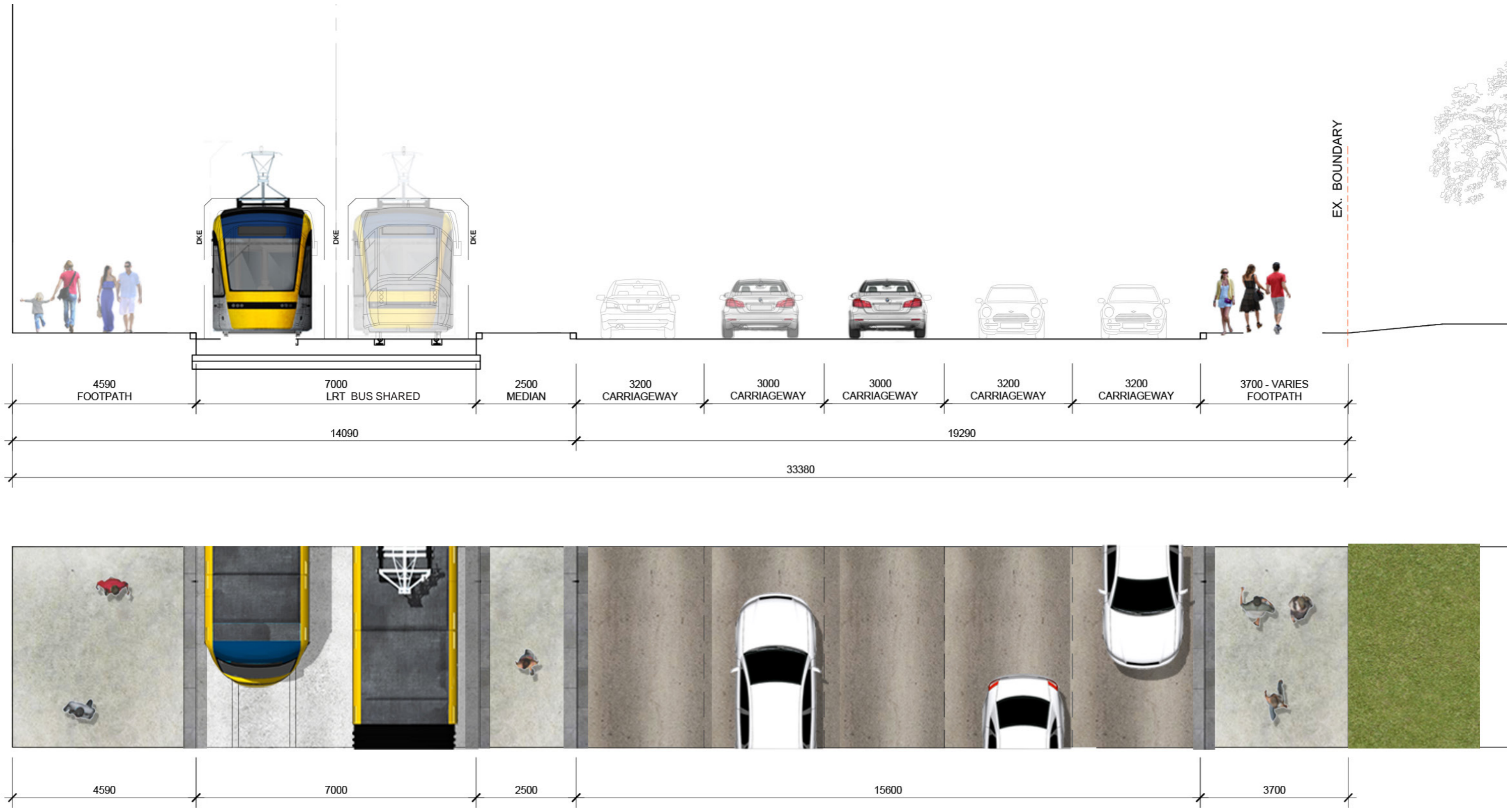


Figure 28 Partial plan and section of Fanshawe Street between Daldy Street and Halsey Street looking east

6.0 Wynyard-Fanshawe

Fanshawe Bus Stop : Section EE

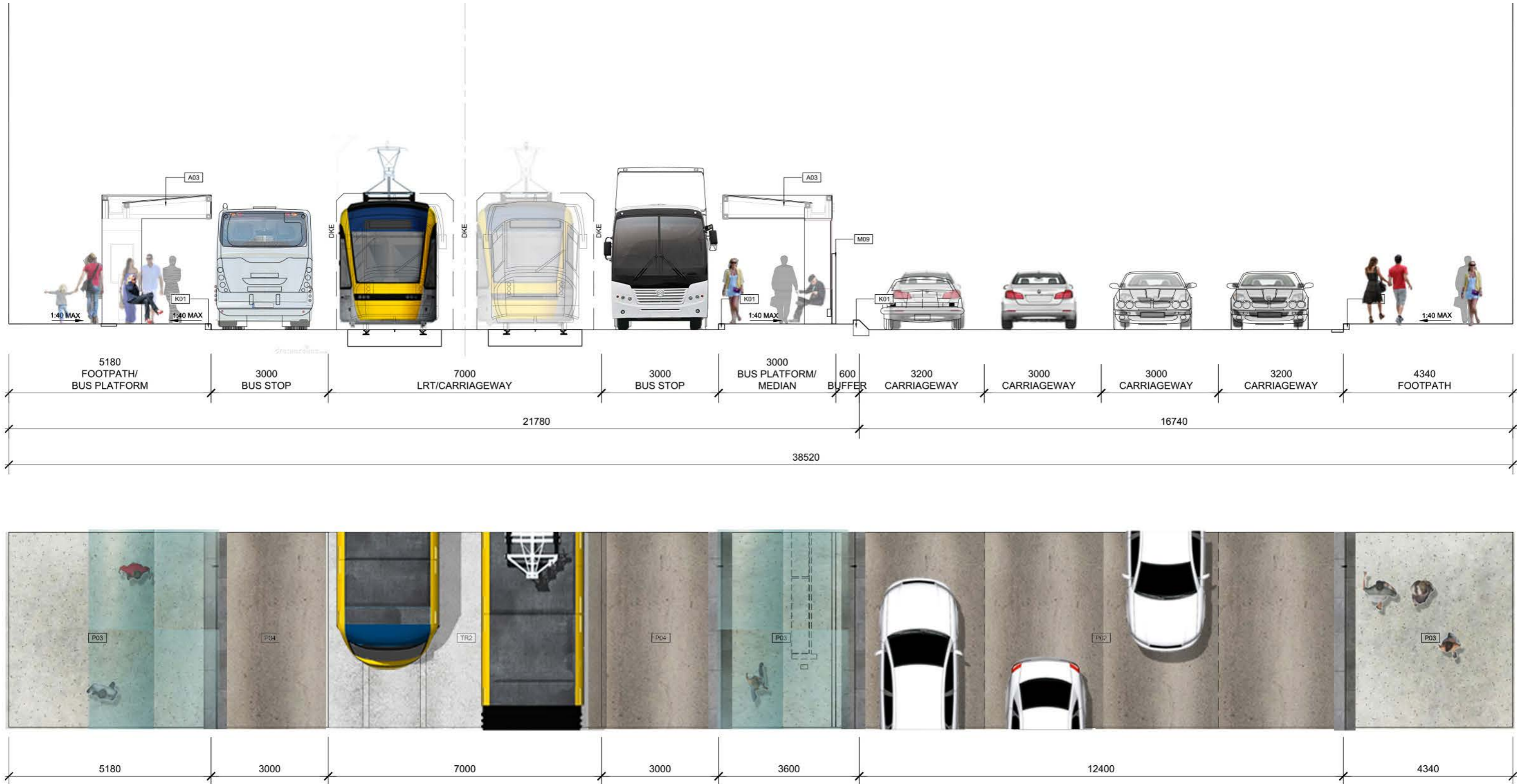


Figure 29 Partial plan and section of Fanshawe Street at bus stop looking east

6.0 Wynyard-Fanshawe

Fanshawe LRT Stop : Section FF

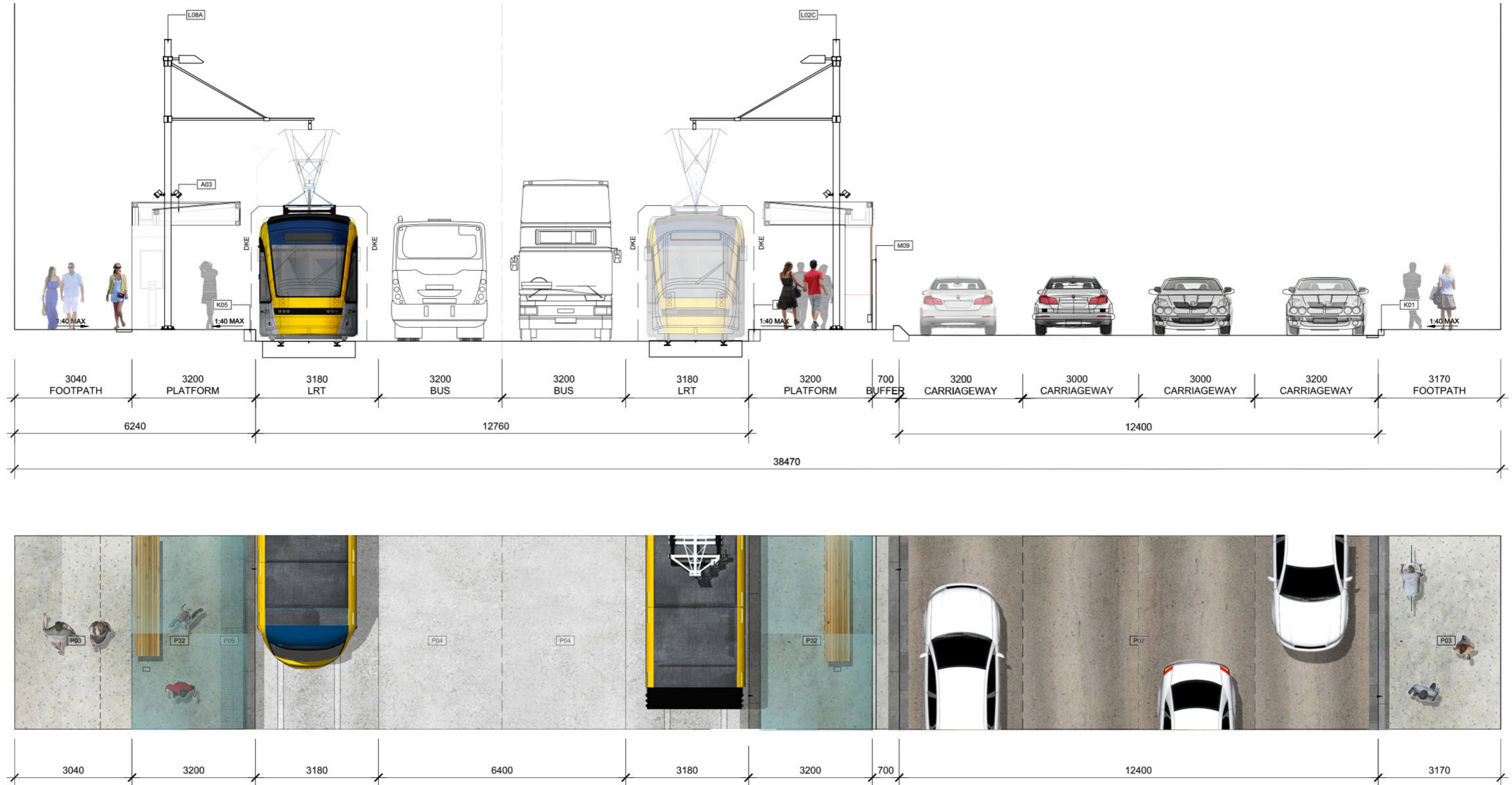


Figure 30 Partial plan and section of Fanshawe Street at Fanshawe Stop looking east

6.0 Wynyard-Fanshawe

Fanshawe Stop: AXO

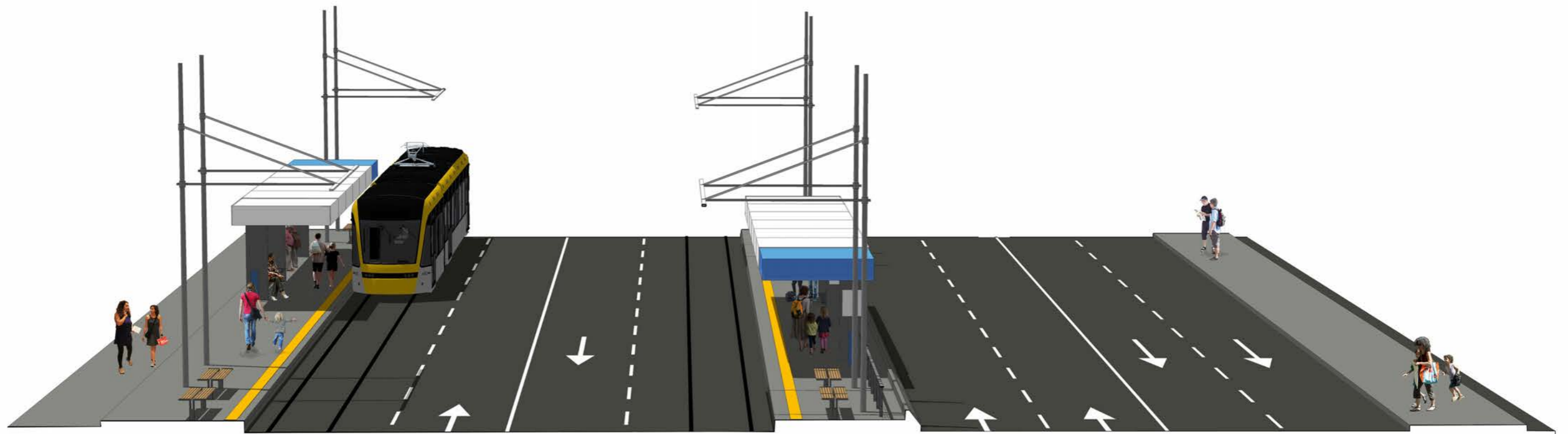


Figure 31 Cross section of Fanshawe Stop, showing LRT corridor, footpaths, and traffic lanes.

6.0 Wynyard-Fanshawe

Fanshawe Street : Existing Perspective



Figure 32 Existing Perspective: Fanshawe Street looking towards CBD

6.0 Wynyard-Fanshawe

Fanshawe Street: Proposed Perspective



Figure 33 Proposed Perspective: Fanshawe Street looking towards CBD showing proposed LRT stop shelters, segregated LRT and bus corridor, footpaths, and road layout

6.0 Wynyard-Fanshawe

Sturdee Street : Section GG

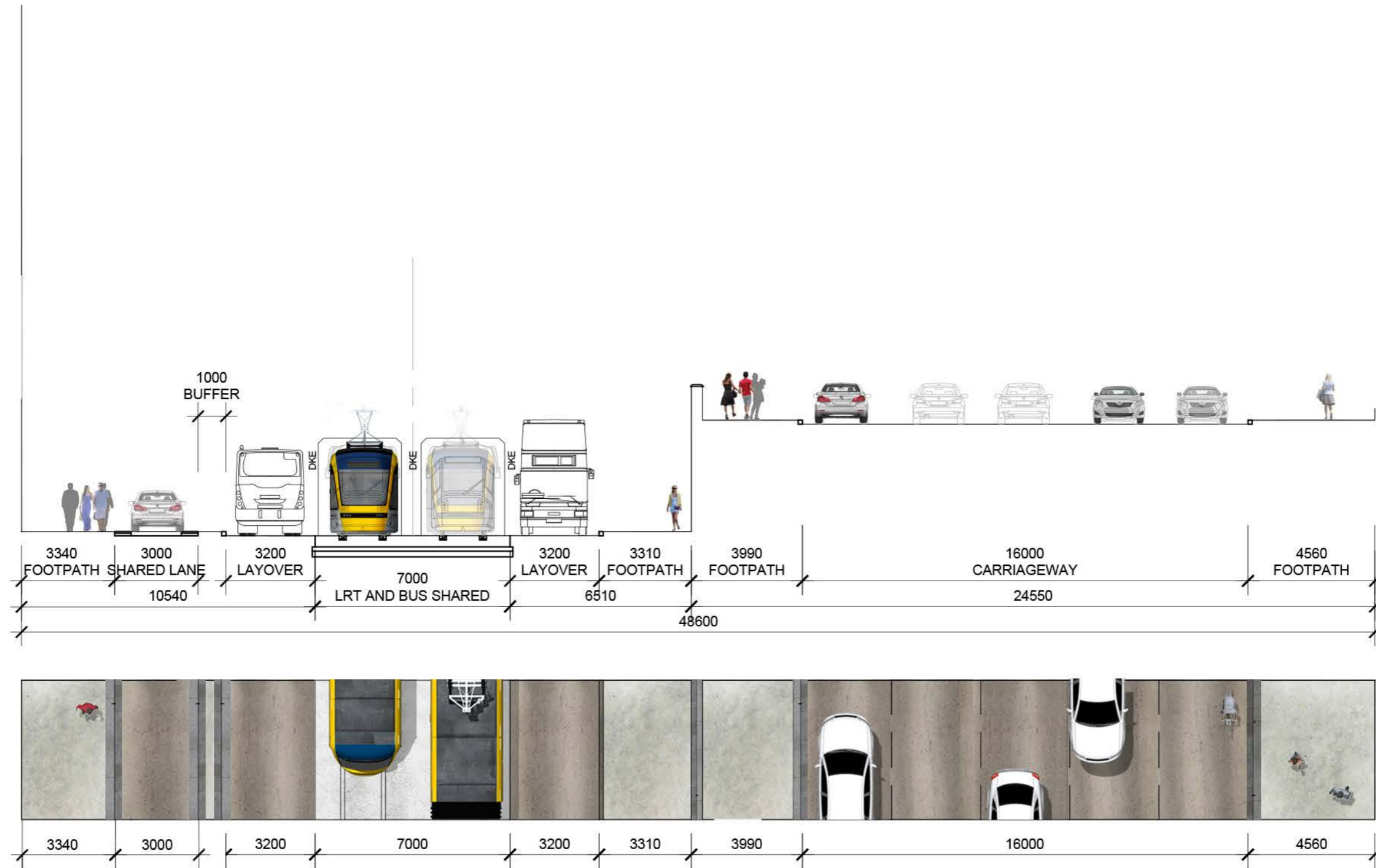


Figure 34 Partial plan and section of Sturdee Street looking east towards Britomart

6.0 Wynyard-Fanshawe

Customs Street Precinct

6.10 Introduction

This section illustrates proposals for the Customs Street Precinct.

DESIGN INTENT

- Facilitate improved access from the central CBD to Viaduct Harbour and the downtown waterfront via Light Rail and pedestrian routes.
- Support reconfiguration of terminating and layover bus movements from the North Shore and Albert Street corridors, and future-proof for potential extension eastbound along Customs Street.
- Balance provision for pedestrians, LRT, buses and general vehicle modes within the street.
- Integrate with current bus-based project planning for a dedicated North Shore Public Transport corridor separated from general vehicle traffic.
- Integrate with the sub-surface design levels of the CRL around Albert Street intersection.
- Improve the public realm along the full length of the corridor to support LRT and pedestrian priority.
- Retain existing heritage/character buildings and landscape features.
- Promote world class public transport experience through good design particularly at stops.
- Support businesses with high quality streetscapes promoting good visibility, unobstructed movement and areas to rest/wait within the street.
- Minimise effects of catenary by providing a wire-free solutions and minimise street clutter through co-ordination of furniture/signage/poles etc.

AMENITY AND COMFORT

- Mid-block sections are considered as places of movement enabling pedestrian access to the surrounding areas.
- Where possible footpath widths are enhanced in conjunction with the integration of the LRT corridor.

CHARACTER AND HERITAGE

- The existing character of Customs Street is maintained or enhanced through creation of a more human scale of infrastructure.
- Contextual views to the Viaduct Harbour and downtown waterfront are protected and celebrated wherever possible.
- The wire free approach minimises visual impacts on the corridor.

ACCESS AND SAFETY

- Existing access and connectivity is modified around the Downtown Car Park to maximise pedestrian amenity and safety, and to optimise the dedicated public transport corridor.
- Separation of general traffic from LRT and bus movements improves pedestrian safety by reducing crossing distances.

- Additional pedestrian crossing points increase footpath connectivity and choice of routes between the elevated level of Fanshawe Street and the waterfront areas.
- Upgrades of footpaths improve accessibility standards.
- LRT patronage and associated pedestrian activity contributes to more vibrant, safe and usable streets environments.

LEGIBILITY

- Existing patterns of movement and access are substantially changed as part of separating the public transport and general vehicle movements to the west of Albert Street.
- Sturdee Street is reconfigured into a Public Transport corridor, with Fanshawe Street reconfigured into a two-way layout for general traffic.

MATERIALITY

- The proposed palette of surface finishes clearly distinguishes between LRV, vehicular and pedestrian zones.
- The indicative proposed palette includes: concrete footpaths, concrete kerbs, asphalt carriageways for private vehicles and a concrete LRV and bus carriageway.

STREET TREES AND VEGETATION

- The existing trees along Fanshawe Street and Sturdee Street are affected by the corridor reconfiguration. New street trees will be incorporated wherever possible.

CYCLISTS

- East-West cycle routing is assumed to be provided parallel to the route via Viaduct Harbour and Quay Street, broadly in line with recent Auckland Transport consultation proposals.

PEDESTRIANS

- Provide mid block footpath widths at 3000mm+/- . This will vary in the region of the Downtown Car Park to accommodate local access.
- Provide improved crossing facilities at all intersections, integrated with LRT priority and signal controlled intersections.

LIGHT RAIL CARRIAGEWAY AND STOPS

- Two LRV lines run in a dedicated public transport corridor along Sturdee Street and Customs Street West, and on the north side of Customs Street.

VEHICLES

- Four general vehicle lanes are proposed for the elevated section of Fanshawe Street between Nelson Street and Albert Street.
- An access lane serving the Downtown Car Park, AMP Tower, PWC Tower and M Social Hotel is provided on the north side of Customs Street West, accessed only via Market Lane and Lower Hobson Street.

PARKING

- No parking for private vehicles is provided for along Fanshawe Street, Customs Street West, and Customs Street

6.0 Wynyard-Fanshawe

Customs Street : Section HH

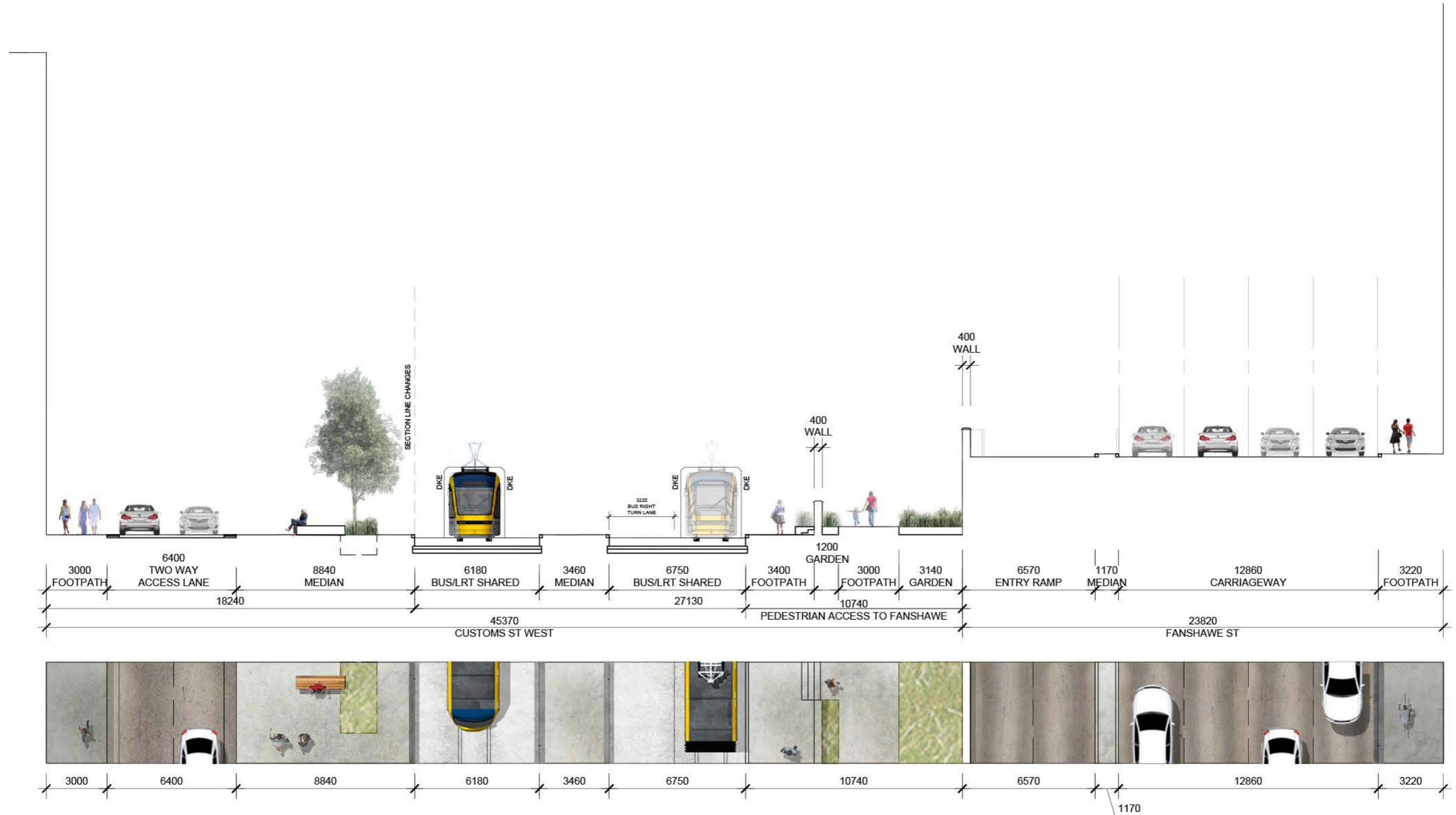


Figure 35 Partial plan and section of Customs Street West looking east towards Britomart

6.0 Wynyard-Fanshawe

Customs Street : Section II

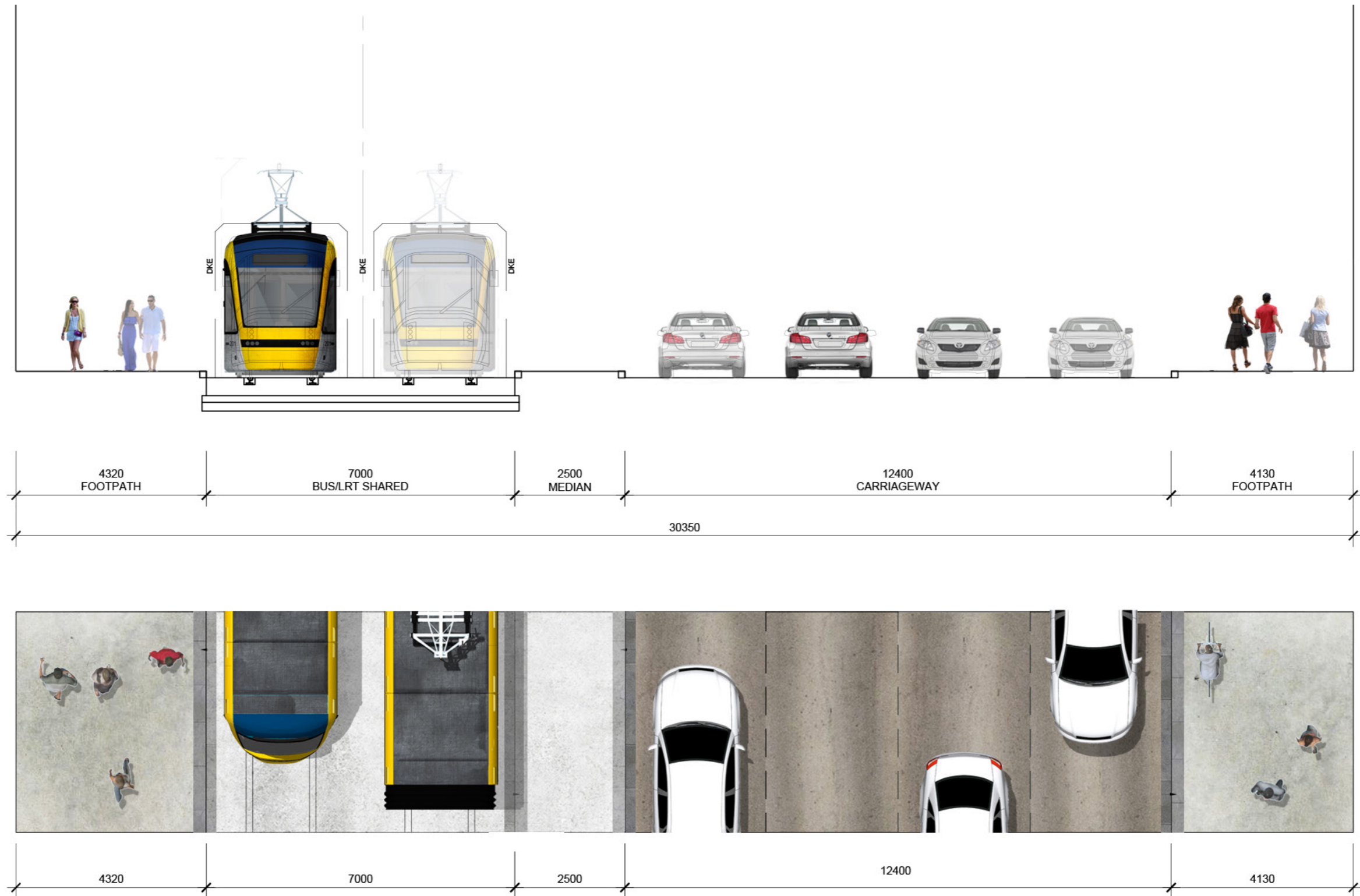


Figure 36 Partial plan and section of Customs Street West looking east towards Britomart



7.0 Queen Street

Package Overview

7.1 Introduction

This section illustrates proposals for the Queen Street Precincts.

7.2 Overview

The identified LRT route has two sections. Firstly the Britomart to Civic Centre section, and secondly Civic Centre to Ian McKinnon drive which includes the Karangahape Road Underpass and CMJ bridge.

7.3 Precincts

Two precincts have been proposed which are identified for their specific character and their transport functional requirements. These Precincts are:

1. Northern Queen Street - Mass Transit Priority Zone (wire free)
2. Southern/Upper Queen Street (past Mayoral Drive) - Median LRT reservation, vehicle traffic and footpaths

7.4 Precinct Specific Street Furniture

- Utilise street furniture from the existing Queen Street suite of seats
- Furniture will be placed where required to support the enhanced pedestrian amenity associated with the proposed LRT lines.
- Additional street furniture will be required at and adjacent the proposed stop locations to support passenger comfort and amenity and to deter pedestrian movement over light rail points.

7.5 Precinct Specific Paving Materials

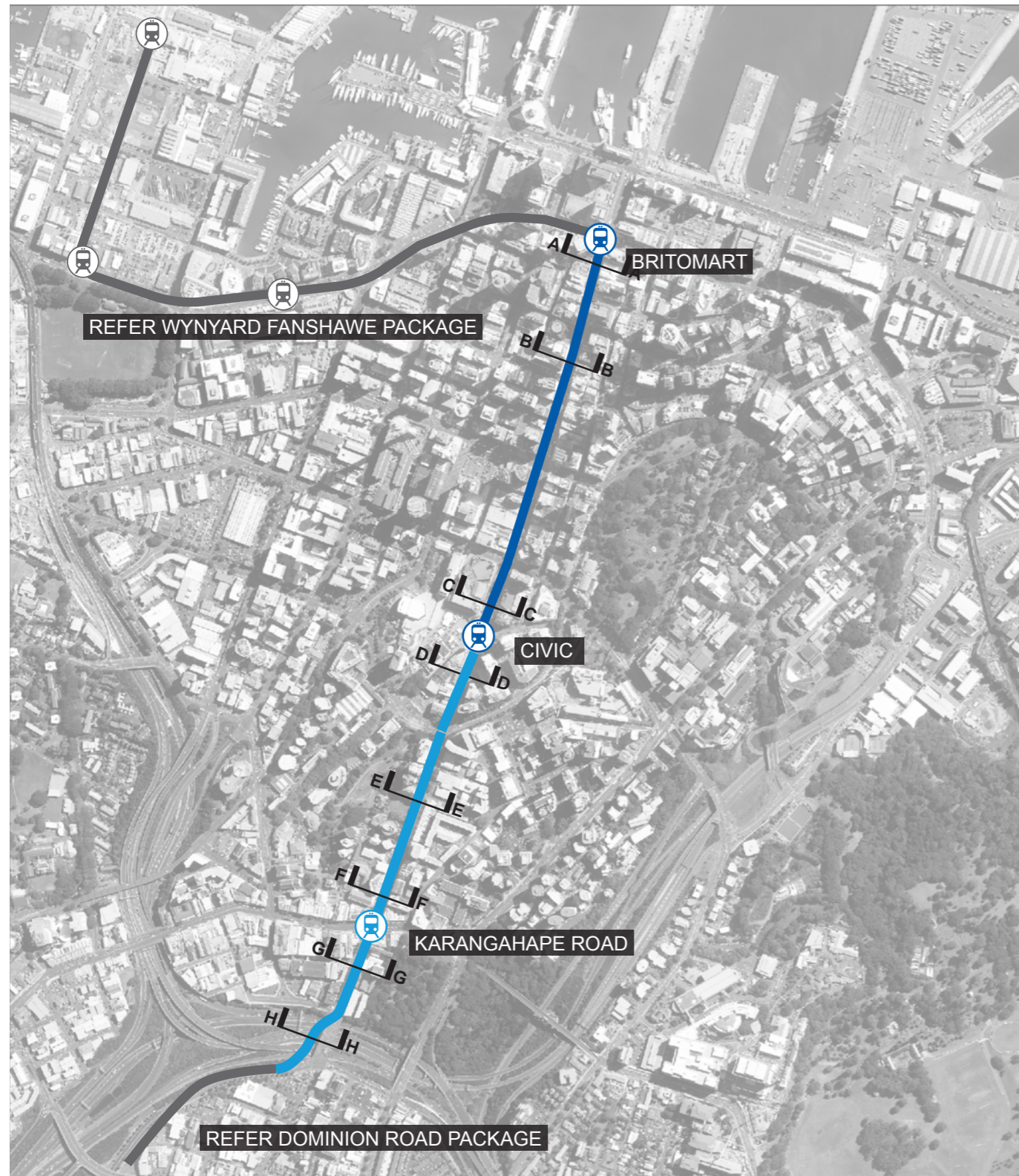
- Queen Street will reflect the existing distinctive look and feel.
- The use of basalt tactile delineator strips contrasting colours, tones, and textures through Queen Street will provide appropriate definition of the LRV corridor and pedestrian movement zones improved accessibility for visually impaired pedestrians

7.6 Precinct Specific Street trees

- Queen Street planting palette to match existing species currently used where compliant with safe LRT operation on steep grades

7.0 Queen Street

Package Overview : Stop Locations



- 1. Northern Queen Street - Mass Transit priority zone (wire free)
- 2. Southern/Upper Queen Street - Median light rail reservation

Figure 37 Route map of Queen Street work package

7.0 Queen Street

Northern Queen Street

7.7 Introduction

This section illustrates proposals for the Northern Queen Street Precinct.

DESIGN INTENT

- Enhance the amenity and potential of Northern Queen Street by excluding general traffic, creating a mass transit priority zone
- Provide for off-peak servicing of businesses by controlling access and designating a flexilane area for vehicles to unload which doubles as a widened footpath
- Promote world class public transport experience through good design particularly at stops.
- Integrate with existing Northern Queen Street streetscapes and established design language with widened footpaths, high quality materials and street furniture.
- Support businesses with high quality streetscapes promoting good visibility, unobstructed movement and areas to rest/wait within the street.
- Minimise effects of catenary by providing a wire-free power solution.
- Minimise street clutter through co-ordination of furniture/signage/poles etc.
- Maintaining existing street tree planting and providing additional street trees wherever possible.
- Enhance the surrounds to adjacent heritage/character buildings.

AMENITY AND COMFORT

- The integration of an LRV carriageway and stops within Queen Street and removal of general traffic enables the re-allocation and expansion of space for pedestrians.
- This greatly improves the quantum of open space available for recreational and civic events and will assist in Queen Street functioning as a pedestrian focussed space, with light rail priority.
- The additional space enables the enhancement of the existing furniture or occupation zone to provide for additional amenity.

CHARACTER AND HERITAGE

- The LRV carriageway and removal of bus services and general traffic will enable the existing streetscape to achieve a more generous and 'civic' proportion.
- The creation of this additional space will enhance the presence and appreciation of existing heritage and character buildings.
- The simplification of the streetscape improves sightlines and visual prominence of these buildings.

ACCESS AND SAFETY

- The more generous provision of space for pedestrians enhances access and safety and minimises pedestrian congestion and conflict

along the street corridor.

- The removal of general traffic will enhance the ability to cross the street and move through the city centre improving pedestrian access and connectivity.
- The less frequent movement and appropriate speeds of the LRV's will contribute to a safer environment.
- The design of the street will clearly differentiate between movement zones for pedestrians and LRV's.

LEGIBILITY

- The proposed LRV carriageway and stops enables the rationalisation of existing vehicle movements and desire-lines through this area to improve pedestrian legibility.
- The proximity of the stops to key destinations and landmarks such as the Shortland Street, Victoria Street and Wellesley Street reinforce these locations as points of confluence within the city centre movement network.

MATERIALITY

- The proposed palette of surface finishes will build upon existing city centre and Queen Street materials, details and design elements. This will be subject to further design development.
- Materiality of the ground plane in the space will clearly distinguishes between LRV and pedestrian spaces.
- The use of a flush surface will enable flexibility to appropriate the space for civic ceremonies and celebrations.

STREET TREES AND VEGETATION

- Some existing trees are effected by the proposed LRV carriageway in this section of Queen Street.
- Careful detailing and construction methodologies will be required to mitigate damage of existing trees through construction.
- Opportunities arise to complement existing trees along this section of Queen Street

7.0 Queen Street

Northern Queen Street Britomart Stop: Section AA



Figure 38 Partial plan and section of Britomart stop looking north towards Britomart

7.0 Queen Street

Northern Queen Street Britomart Stop: Section AA Axonometric



Figure 39 Cross section of Queen Street, showing LRT corridor and footpaths

7.0 Queen Street

Northern Queen Street : Britomart Stop

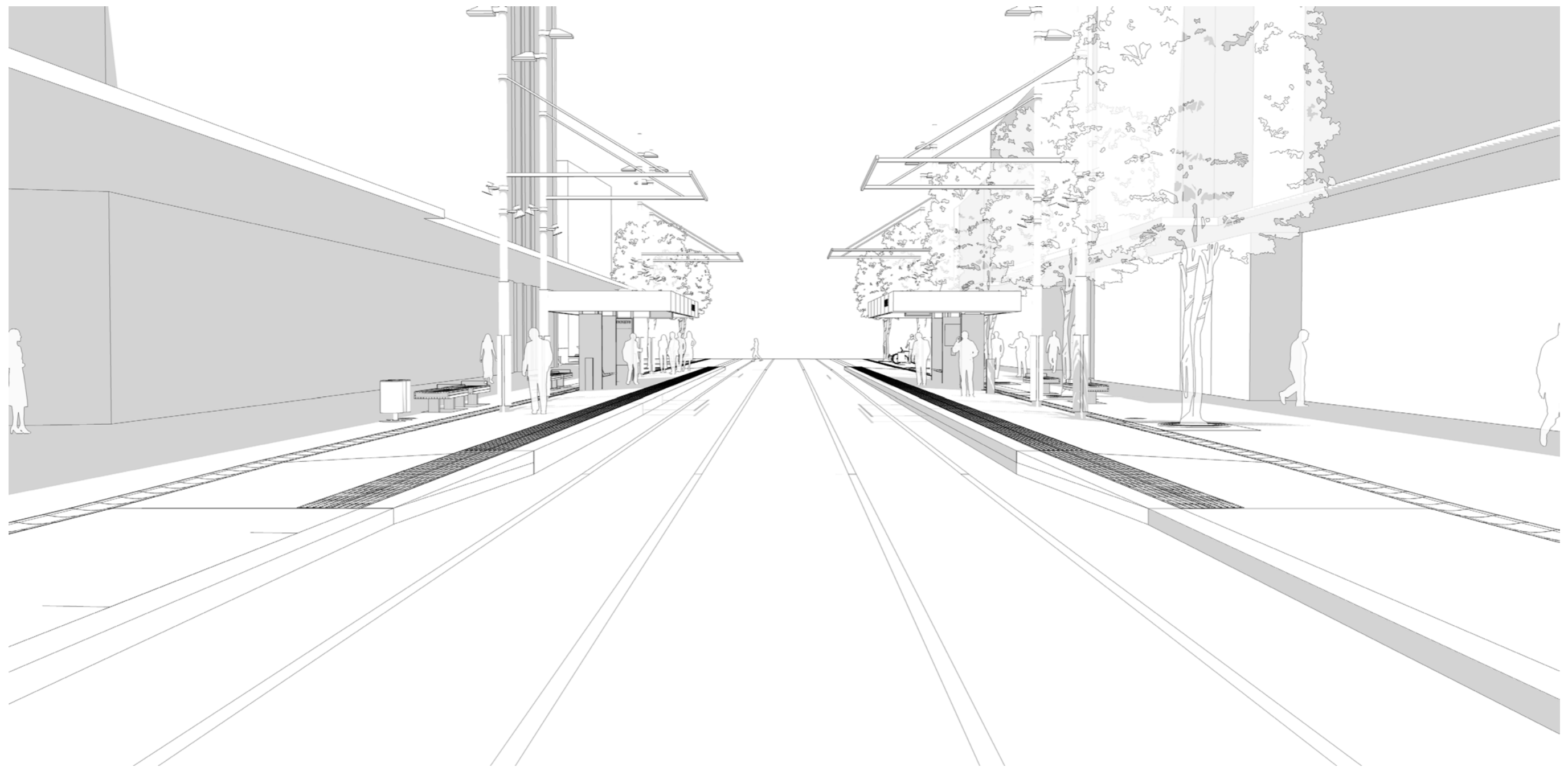


Figure 40 Britomart sketch view to illustrate design consideration and context

7.0 Queen Street

Northern Queen Street : Britomart Stop



Figure 41 Existing Perspective: Northern Queen Street from eastern footpath looking north towards Ferry Building

7.0 Queen Street

Northern Queen Street : Britomart Stop



Figure 42 Existing Perspective: Northern Queen Street from eastern footpath looking north towards Ferry Building showing proposed Britomart LRT stop shelters

7.0 Queen Street

Northern Queen Street : Section BB

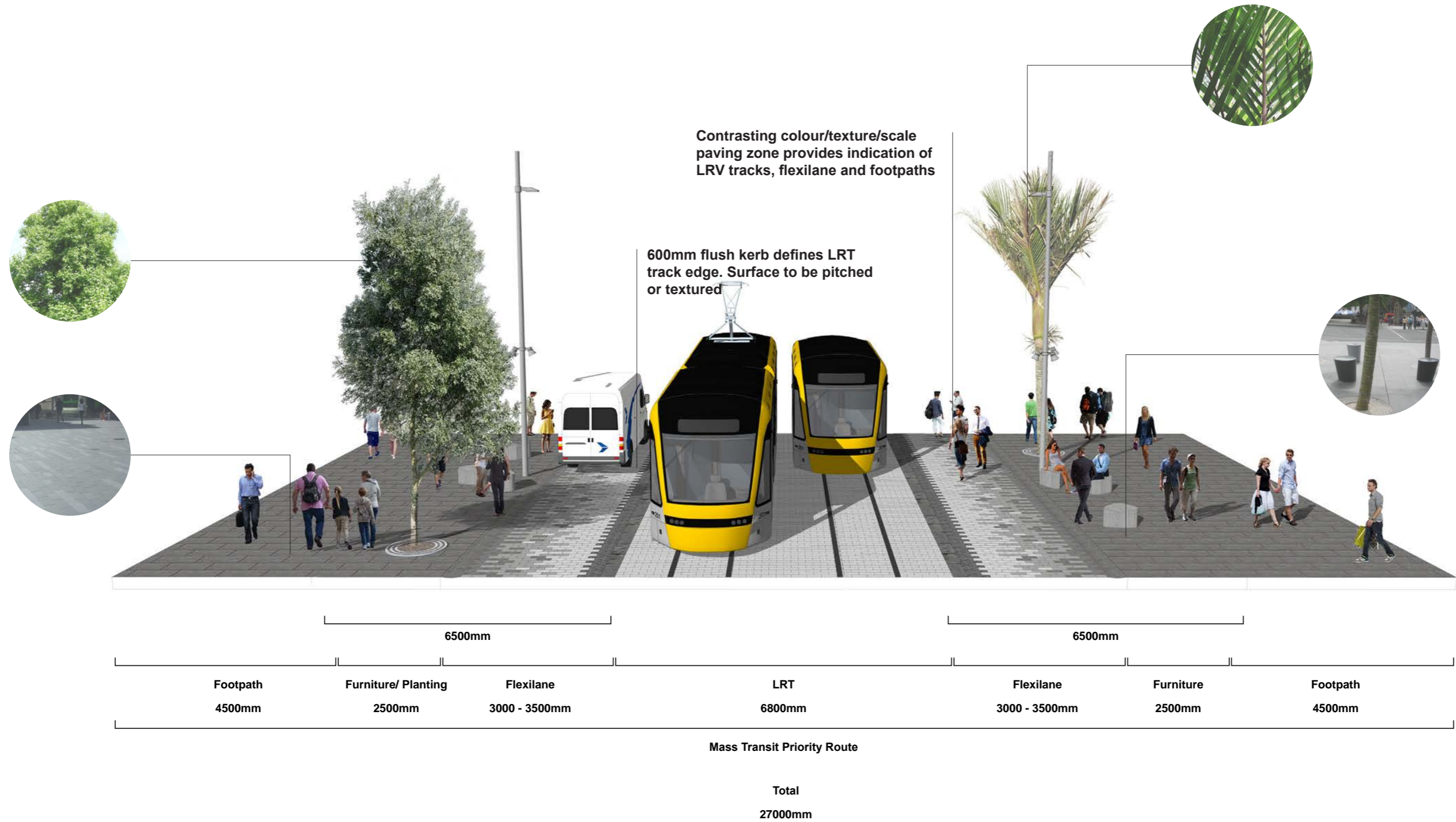


Figure 43 Partial plan and section of Queen Street between Wellesley Street and Customs Street looking north. Centrally located carriageway with through vehicular traffic removed. servicing provided at offpeak hours via 3000-3500mm

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7.0 Queen Street

Northern Queen Street : Section BB Axonometric



Establishes a widened footpath zone and additional opportunities for occupation of the street. Flexilane located between LRV carriageway and existing 'furniture zone'. All existing significant street (Liriodendron and Nikau) street trees to be retained. Additional street trees and furniture proposed in areas previously indented parking bays to enhance the spatial structure and continuity of the street. Additional opportunities for occupation provided in these areas.

Figure 44 Sectional perspective of Queen Street showing LRV carriageway and indicative streetscape treatments through the Queen Street valley retail precinct

7.0 Queen Street

Northern Queen Street : Existing Perspective



Figure 45 Existing Perspective: looking down Queen Street towards Customs Street from adjacent Vulcan Lane

7.0 Queen Street

Northern Queen Street : Proposed Perspective



Figure 46 Proposed Perspective: looking north down Queen Street towards Customs Street from adjacent Vulcan Lane showing widened footpaths and occupation zones

7.0 Queen Street

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7.0 Queen Street

Southern Queen Street and Upper Queen Street

7.8 Introduction

This section illustrates proposals for the Southern Queen Street and Upper Queen Street Precinct.

7.9 Civic Centre to Mayoral Drive

DESIGN INTENT

- Balance provision for pedestrians, cyclists, and LRT modes within street.
- Improve pedestrian connection between Karangahape Road and Aotea Square.
- Maintain vehicular access to properties which require access from the front.
- Minimise effects of catenary by providing integrated street light pole side catenary or catenary free solutions.
- Minimise street clutter through co-ordination of furniture/signage/poles etc.
- Maintain existing street tree planting and add to this wherever possible.
- Enhance the surrounds to adjacent heritage/character buildings.

AMENITY AND COMFORT

- Central Queen Street will balance the requirements of vehicle movements and local amenity.
- Reduced vehicle traffic on Queen Street will improve the quality of the streetscape.
- Proposed streetscape improvements will enhance existing pedestrian amenity.

CHARACTER AND HERITAGE

- The creation of additional space within the footpaths along this section of Queen Street will enhance the presence and appreciation of existing heritage and character buildings.
- The simplification of the streetscape improves sightlines and visual prominence of these buildings.

ACCESS AND SAFETY

- Existing access and connectivity is maintained or improved by the proposed design changes.
- Reduced vehicle presence along the street will encourage safe incidental crossing

LEGIBILITY

- Existing patterns of movement and access are maintained and reinforced by the proposed design changes.

MATERIALITY

- The proposed palette of surface finishes clearly distinguishes between LRV, vehicular and pedestrian/cycling zones.
- The indicative proposed palette for Central Queen Street is: Asphalt footpaths, Basalt stone inlays surrounding heritage buildings, asphalt carriageways for private vehicles, a concrete LRV carriageway.

STREET TREES AND VEGETATION

- Trees on this section of Queen Street will be retained where possible, noting that many will need to be removed to accommodate stops and new street layout. Refer to Public Realm drawings for details.

PEDESTRIANS AND CYCLISTS

- Approximately 4500mm to 8000mm footpaths on both sides of the street.
- The threshold between the separated cycleway south of Karangahape Road and Queen Street section to Mayoral Drive is managed through the Karangahape Road intersection.
- Changes in surface treatments help to suggest a separation between pedestrians and cyclists.

LIGHT RAIL CARRIAGEWAY AND STOPS

- Two centrally located LRV lanes run on a 7500mm wide raised concrete carriageway.
- The carriageway sits 150mm lower than adjacent footpaths.
- The light rail stop north of Mayoral Drive is designed as side platforms however the eastern platform essentially functions as a centre platform due to the service vehicle lane running behind the platform.
- The platform is accessed raised pedestrian tables which double as street crossings.

BUSES

- The existing City Link (red bus) which currently operates along Queen Street will be superseded by the LRV.

VEHICLES

- A single 3500mm south bound vehicle lane provides access to Mayoral Drive intersection from Wakefield Street.
- General traffic capacity will be reduced in both directions along Queen Street.

PARKING

- No parking is provided along this section of Queen Street

7.0 Queen Street

Southern Queen Street and Upper Queen Street

7.10 Mayoral Drive to Ian McKinnon Drive

DESIGN INTENT

- Balance provision for pedestrians, cyclists, LRT and general vehicle modes within street.
- Improve pedestrian connection between Karangahape Road and Aotea Square.
- Improve pedestrian and cycle access over Queen Street motorway bridge.
- Minimise visual impact of LRT underpass and cutting under Karangahape Road.
- Provide integrated cycle facilities connecting the North-western Cycleway, Grafton Gully, Te Ara Whiti (the Lightpath) Karangahape Road with a new bridge over the CMJ, and with new cycle lanes on Upper Queen Street.
- Maintain vehicular access to properties which require access from the front.
- Minimise effects of catenary by providing integrated street light pole side catenary or catenary free solutions.
- Minimise street clutter through co-ordination of furniture/signage/poles etc.
- Replace existing street tree planting with varieties which create less safety risk on steep streets associated with leaf fall on steel rails.
- Enhance the surrounds to adjacent heritage/character buildings.

AMENITY AND COMFORT

- Central Queen Street will balance the requirements of vehicle movements and local amenity.
- The proposed Karangahape Road Stop portal and cutting will be designed sympathetically to the surroundings to minimize impacts on amenity.
- Reduced vehicle traffic on Queen Street will improve the quality of the streetscape.
- Proposed streetscape improvements and the shared path for pedestrians on the new CMJ bridge will enhance pedestrian amenity.

CHARACTER AND HERITAGE

- The Karangahape Road Portal and cutting has been designed and located to minimize impacts on heritage buildings.
- The creation of this additional space within the footpaths along this section of Queen Street will enhance the presence and appreciation of existing heritage and character buildings.
- The simplification of the streetscape improves sightlines and visual prominence of these buildings.

ACCESS AND SAFETY

- Access into Canada Street from Upper Queen Street will be closed.
- The portal trenches approaching Karangahape Road stop will require TL-4 barriers and are proposed to have a 1400mm high cycle barrier rail.
- Other existing access and connectivity is maintained or improved by the proposed design changes.
- The Karangahape Road intersection is improved with a 'barns dance' signal crossing.
- The Canada Street intersection is improved for pedestrians and cyclists with an additional crossing leg and signal phase.
- Reduced vehicle presence along the street will encourage safe incidental crossing
- The proposed walking and cycling path on the new CMJ bridge, and cycle lanes on Queen Street enhances cycling access and safety.

LEGIBILITY

- Amendments to Canada Street access, creation of the new CMJ shared path, and the Karangahape Road stop portal trenches will change the existing urban pattern.
- Other patterns of movement and access are largely maintained and reinforced by the proposed design changes.
- Access to the Karangahape Road stop is identified by the architectural expression of the stair and lift entrances.

MATERIALITY

- The proposed palette of surface finishes clearly distinguishes between LRV, vehicular and pedestrian/cycling zones.
- The indicative proposed palette for Southern Queen Street and Upper Queen Street is: Asphalt footpaths, Basalt stone inlays surrounding heritage buildings, asphalt carriageways for private vehicles, a concrete LRV carriageway.

STREET TREES AND VEGETATION

- The existing trees will be removed and replaced with varieties that create less safety risk on steep streets associated with leaf fall on steel rails.
- All other trees on Queen Street will be retained where possible.

PEDESTRIANS AND CYCLISTS - CMJ BRIDGES

- A new 4.0m wide shared path is provided as part of a new bridge which integrates LRT and the pedestrian / cycle paths.
- The existing Upper Queen Street CMJ bridge is maintained as currently configured.

LIGHT RAIL CARRIAGEWAY AND STOPS - NEW CMJ BRIDGE

- Two LRV lanes run on a track supported on precast concrete plinths.

BUSES - CMJ BRIDGES

- No bus services are anticipated to operate on the existing or new CMJ Bridges.

VEHICLES - CMJ BRIDGES

- Vehicle lanes on the current CMJ bridge will be modified as existing.
- The new CMJ bridge will not be accessible to vehicles.
- General traffic capacity will be reduced in both directions along Upper Queen Street.

PARKING - EXISTING CMJ BRIDGE

- No parking is provided along the length of the CMJ Bridge, as existing arrangements.

PEDESTRIANS AND CYCLISTS - UPPER QUEEN STREET

- 4000mm pedestrian paths are provided on both sides of the street.
- A 1800mm wide cycleway is proposed on both sides, level with the road.
- The cyclists are separated by a kerb-height separator.
- Raised pedestrian crossings are provided at Cross Street provide improved street crossing convenience for pedestrians.

LIGHT RAIL CARRIAGEWAY AND STOPS - UPPER QUEEN STREET

- Two centrally located LRV lanes run on a 7500mm wide concrete carriageway, with the LRV lanes dropping below existing road level within a cutting to enter the Karangahape Road stop.
- The cutting is protected with traffic barriers to prevent accidental vehicle movement over the trench edge.

BUSES - UPPER QUEEN STREET

- No current or proposed Auckland Transport - contracted bus service operates on this section of Upper Queen Street.

VEHICLES - UPPER QUEEN STREET

- A 3500mm single carriageway in each direction is provided.
- General traffic capacity will be reduced in both directions along Upper Queen Street.

PARKING - UPPER QUEEN STREET

- No parking is provided along the length of street between Upper Queen Street Bridge and Karangahape Road.

7.0 Queen Street

Southern Queen Street and Upper Queen Street

PEDESTRIANS – KARANGAHAPE ROAD STOP

- Pedestrian access to the stop below is provided by four stairs, one on each corner of the intersection and two lifts on the southern side of Karangahape Road .

LIGHT RAIL CORRIDOR AND STOPS – KARANGAHAPE ROAD STOP

- Two centrally located LRV lanes run on a 7900mm wide concrete carriageway through the Karangahape Road underpass.
- Overhead catenary wires are to be attached to poles over the carriageway and roof of the underpass.

BUSES – KARANGAHAPE ROAD STOP

- The existing City Link (red bus) which operates along Karangahape Road and Queen Street will be superseded by the LRV.

VEHICLES – KARANGAHAPE ROAD STOP

- A 3500mm single carriage way in each direction is provided, with additional right-turn lanes at the intersection.
- Signalised crossing and chicanes around the top of the underpass help to slow traffic at key pedestrian crossing points.
- General traffic capacity will be reduced in both directions along Queen Street.
- Karangahape Road will continue to function as an east west distributor for general traffic. Design proposals for Karangahape Road are being developed as a separate project.

PARKING – KARANGAHAPE ROAD STOP

- No parking is provided along this section of Queen Street.

PEDESTRIANS - KARANGAHAPE ROAD TO MAYORAL DRIVE

- 4000mm to 6500mm footpaths are provided on either side of the street
- Drop/flush kerb and continuous footpath surfacing material across all side streets provide improved pedestrian access and priority along the street.

LIGHT RAIL CARRIAGEWAY AND STOPS - KARANGAHAPE ROAD TO MAYORAL DRIVE

- Two centrally located LRV lanes run on a 7500mm wide raised concrete carriageway.
- Side catenary poles, if required, help to define the Queen Street axis.

BUSES - KARANGAHAPE ROAD TO MAYORAL DRIVE

- The existing City Link (red bus) which currently operates along Queen Street will be superseded by the LRV.

VEHICLES - KARANGAHAPE ROAD TO MAYORAL DRIVE

- A 3500mm single carriageway in each direction is provided.
- General traffic capacity will be reduced in both directions along Queen Street.
- Continuous footpath material across all side streets and at the entrance to Myers Park helps to slow traffic.

7.0 Queen Street

Northern Queen Street : Section CC

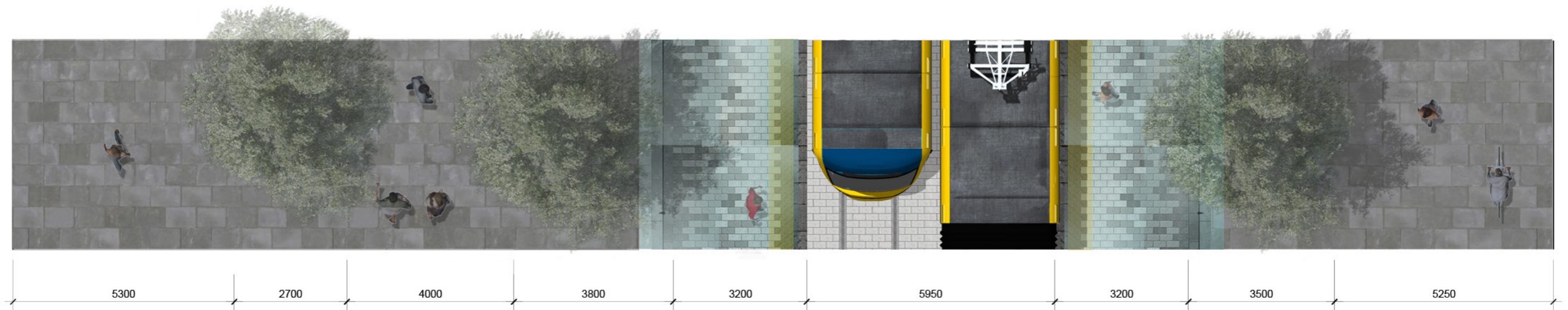
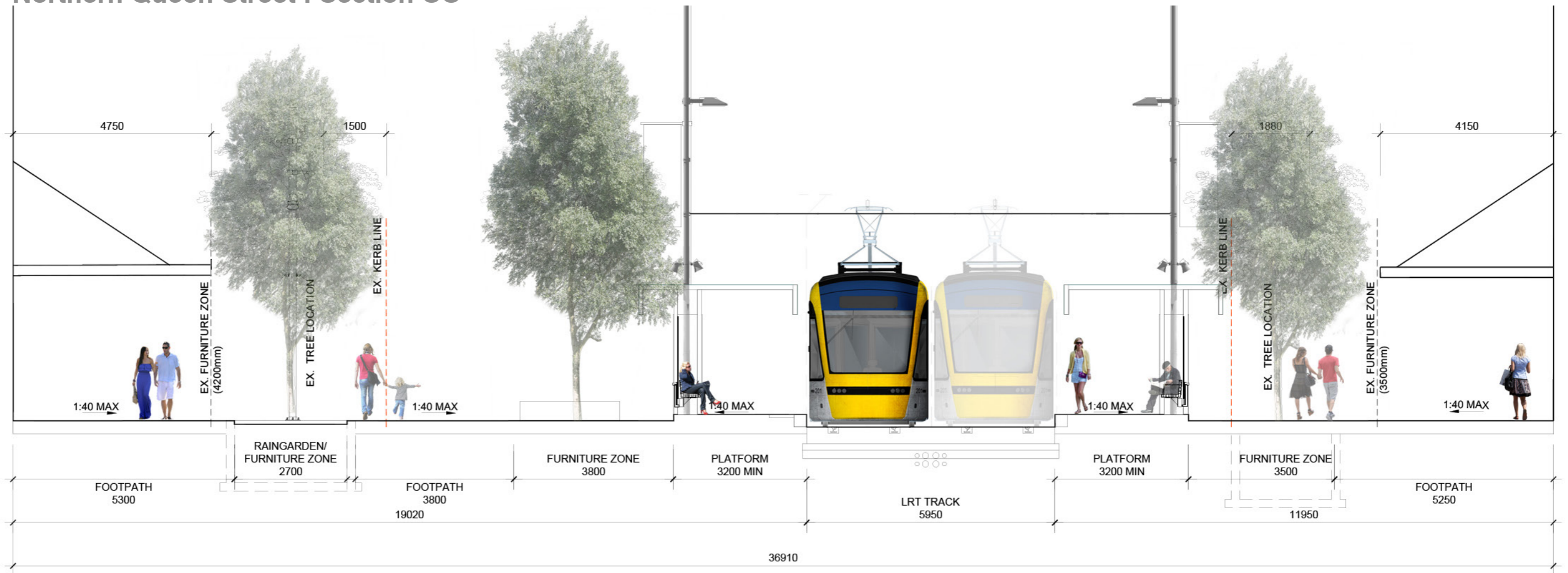


Figure 47 Partial plan and cross section of Queen Street between Wakefield Street and Wellesley Street looking north at Civic Stop.

7.0 Queen Street

Northern Queen Street : Section CC Axonometric



Establishes a widened pedestrian priority zone linking Aotea Square, Town Hall and the Civic and St James Theatres either side of the street. Side mounted catenary poles. Additional street tree planting and street furniture proposed to enhance civic nature and opportunities for occupation of this section of the street.

Figure 48 Sectional perspective of Queen Street showing LRT carriageway, Civic Stop platform and indicative streetscape treatments

7.0 Queen Street

Northern Queen Street : Existing Perspective



Figure 49 Existing Perspective: looking southwest across Queen Street from the Rutland Street corner towards Aotea Square and the Town Hall

7.0 Queen Street

Northern Queen Street : Proposed Perspective



Figure 50 Proposed Perspective: looking southwest across Queen Street from the Rutland Street corner towards Aotea Square and the Town Hall

7.0 Queen Street

Northern Queen Street : Section DD



Figure 51 Cross section of Queen Street between Mayoral Drive (south) and Airedale Street (north) looking north towards Aotea Square. Centrally located LRV carriageway with adjacent south band traffic lane running between Wakefield Street and Mayoral Drive.

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7.0 Queen Street

Northern Queen Street : Section DD Axonometric

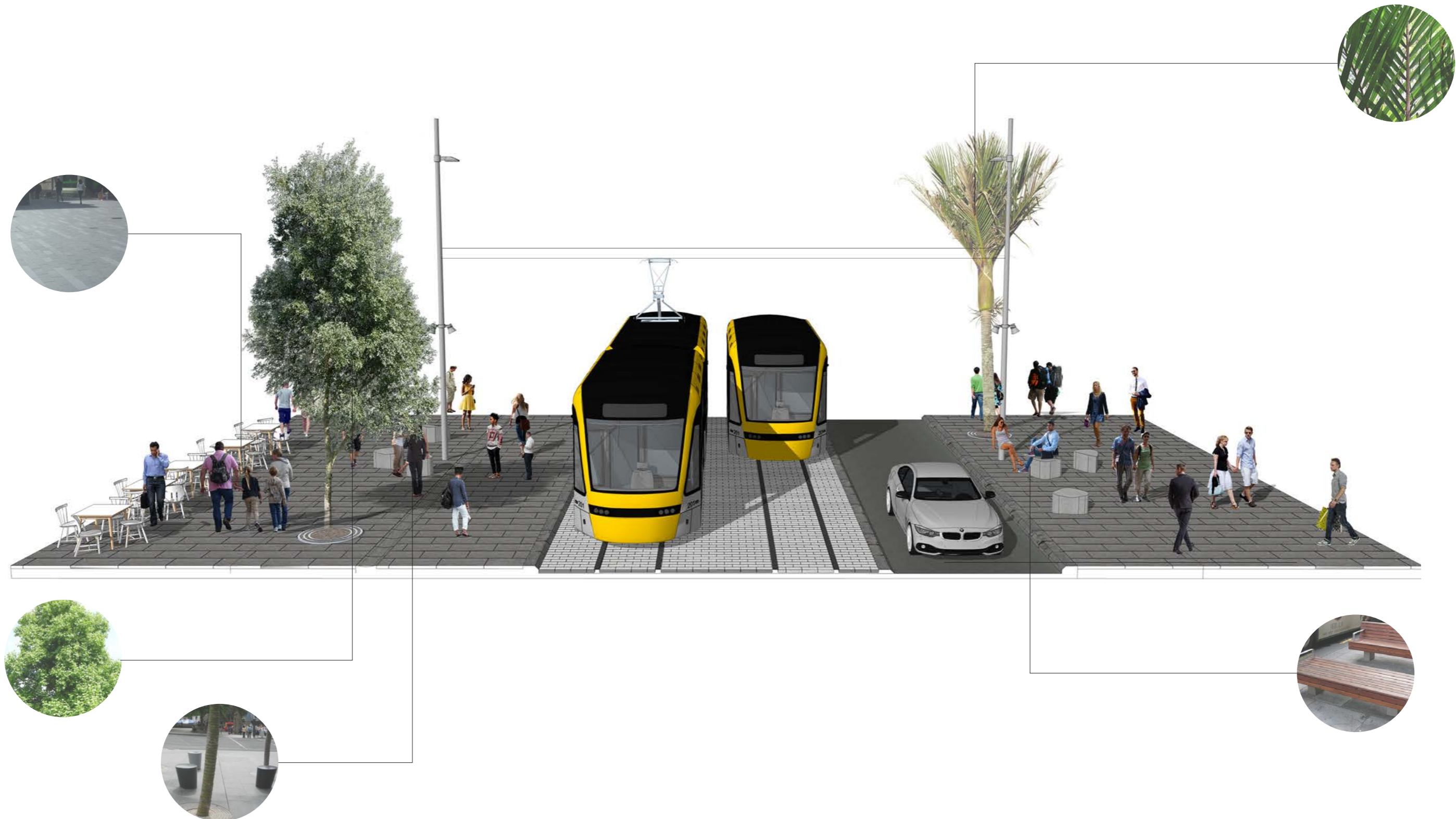


Figure 52 Sectional Perspective of Queen Street with LRV carriageway and indicative streetscape treatments. All existing significant street (Liriodendron) street trees retained. Side mounted catenary poles. Existing footpath widened on west (Town Hall side) by 1600mm. Existing heritage kerbs integrated within footpath.

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AUCKLAND LRT
LRT-SYS-SSA-TA-RPT-000002
REVISION: E. DATE: 06 APRIL 2018

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Civic Stop

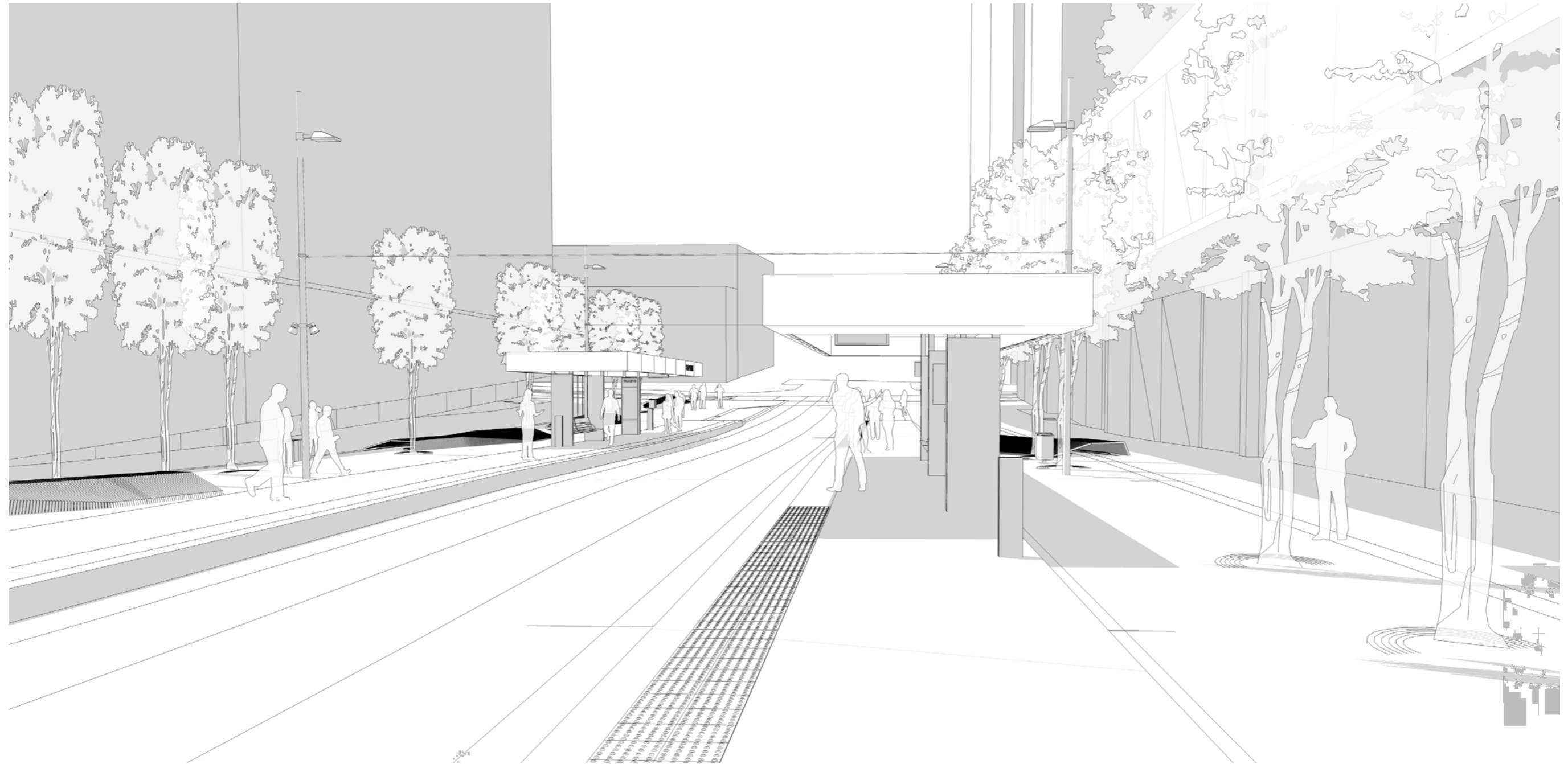


Figure 53 Civic Stop sketch view to illustrate design consideration and context

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Civic Stop

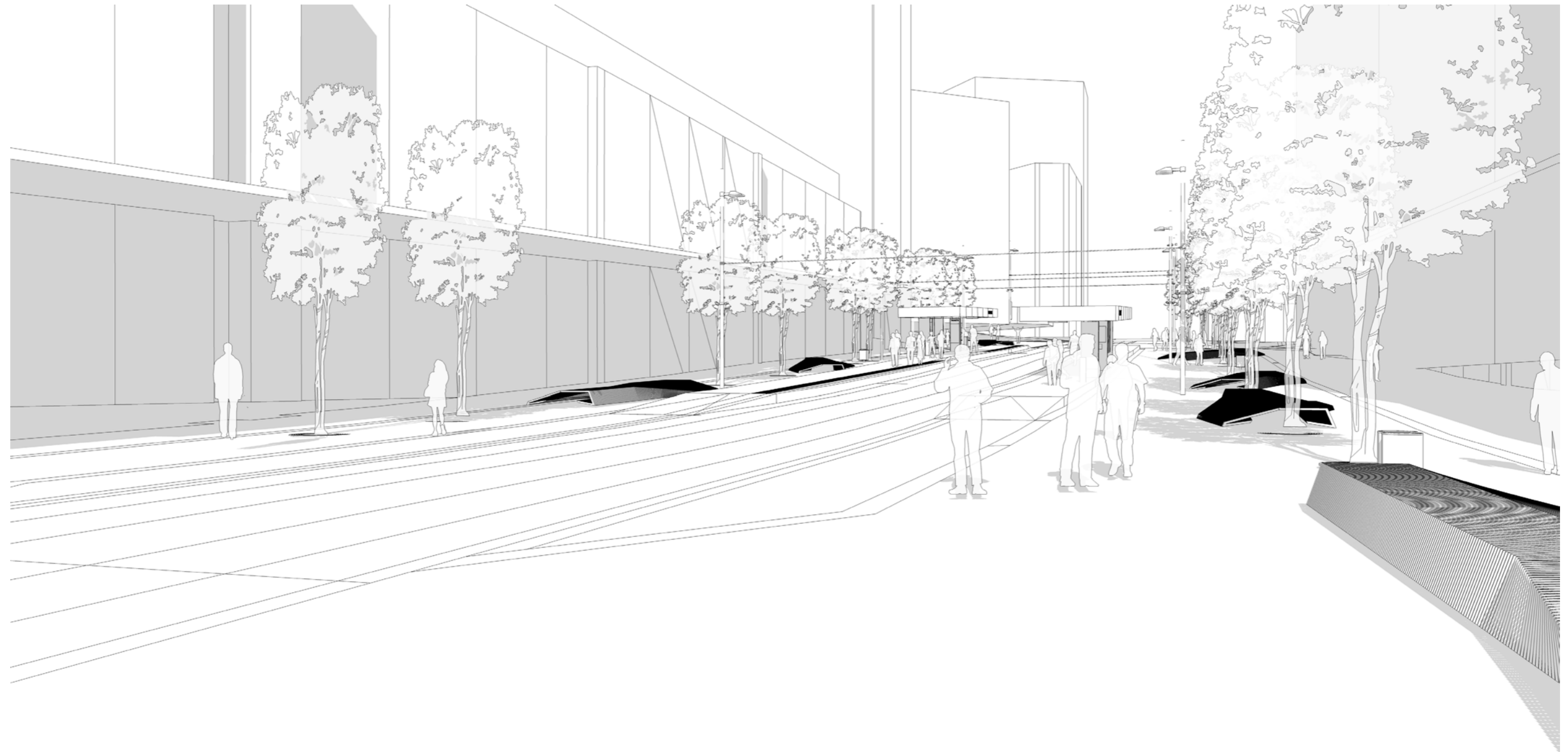


Figure 54 Civic Stop sketch view to illustrate design consideration and context.

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section EE

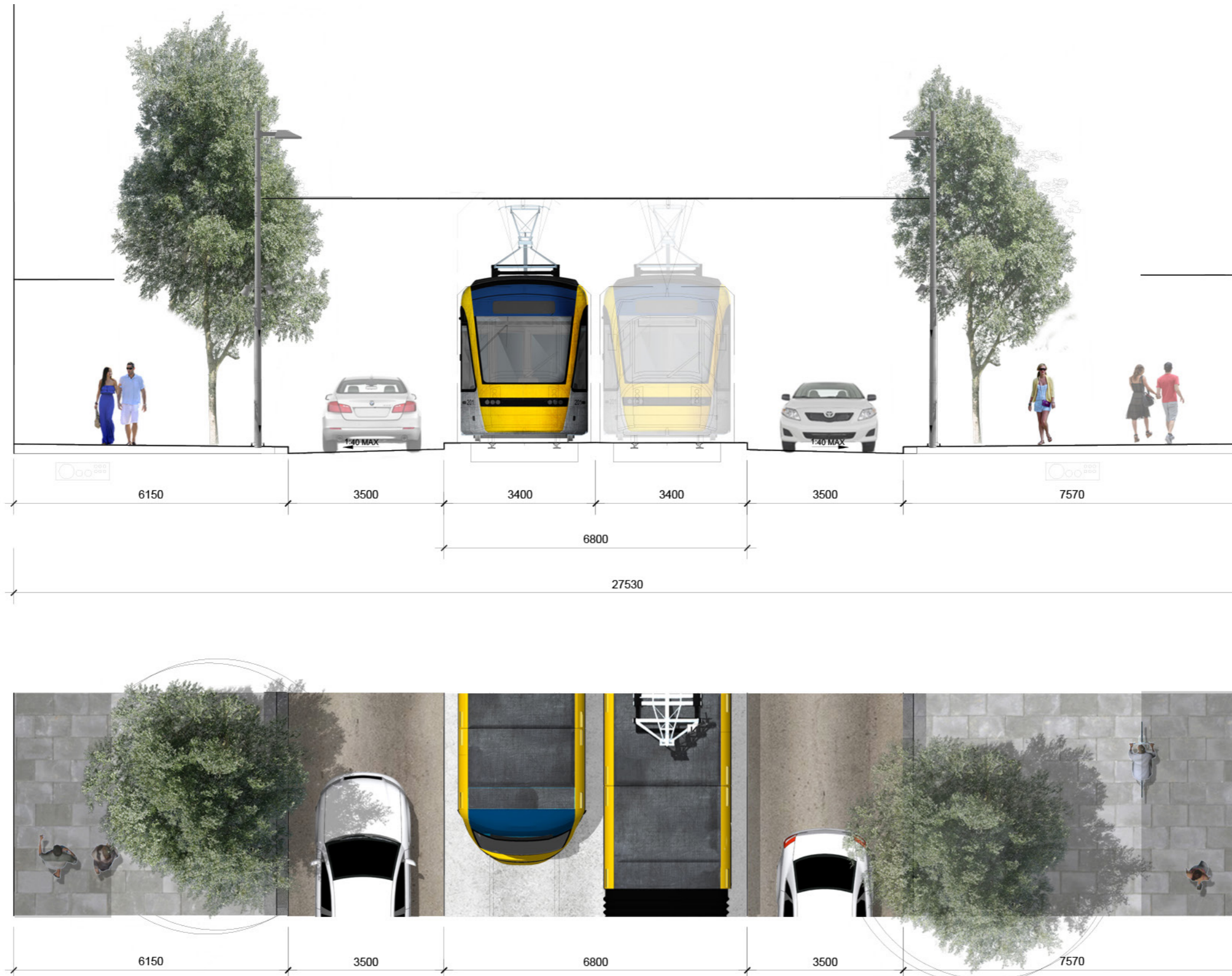


Figure 55 Cross section of Upper Queen Street looking north towards Mayoral Drive in the vicinity of Myers Park. Centrally located LRV carriage with adjacent general traffic lanes x 1 in each direction (reduced from 4 general traffic lanes)

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7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section EE Axonometric

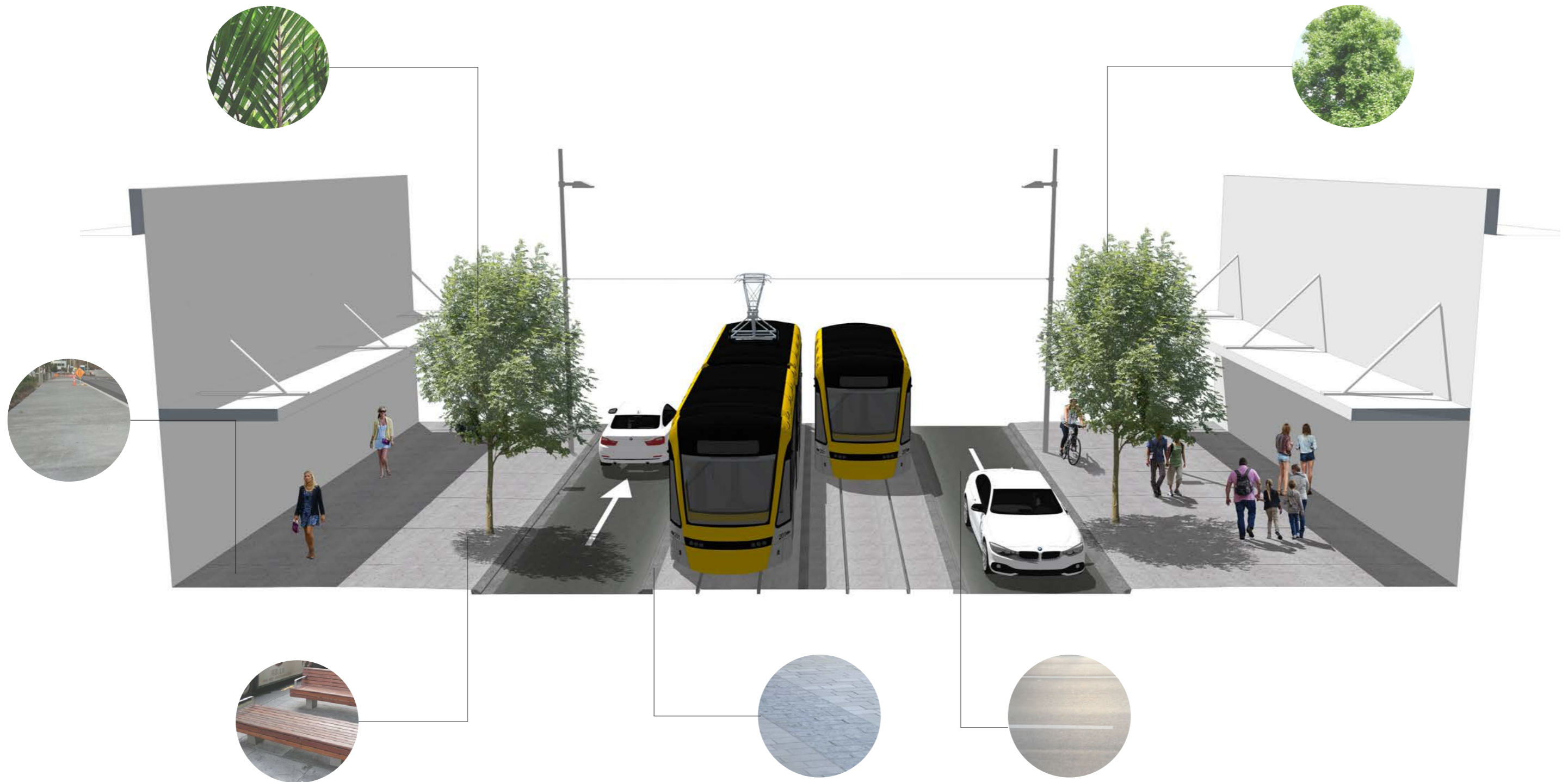


Figure 56 Sectional Perspective of existing Upper Queen Street with LRV carriageway and indicative streetscape treatments. Existing significant street (Liriodendron) street trees retained. Existing footpath widened on both sides by 1500mm.

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7.0 Queen Street

Southern Queen Street and Upper Queen Street : Existing Perspective



Looking south east up Queen Street towards Karangahape Road.

Figure 57 Existing Perspective: Queen Street looking south east towards Karangahape Road

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Proposed Perspective



Figure 58 Proposed Perspective: Queen Street looking south east towards Karangahape Road with proposed LRV underpass extending south under Karangahape Road showing indicative underpass architectural treatments and traffic safety barriers.

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section FF

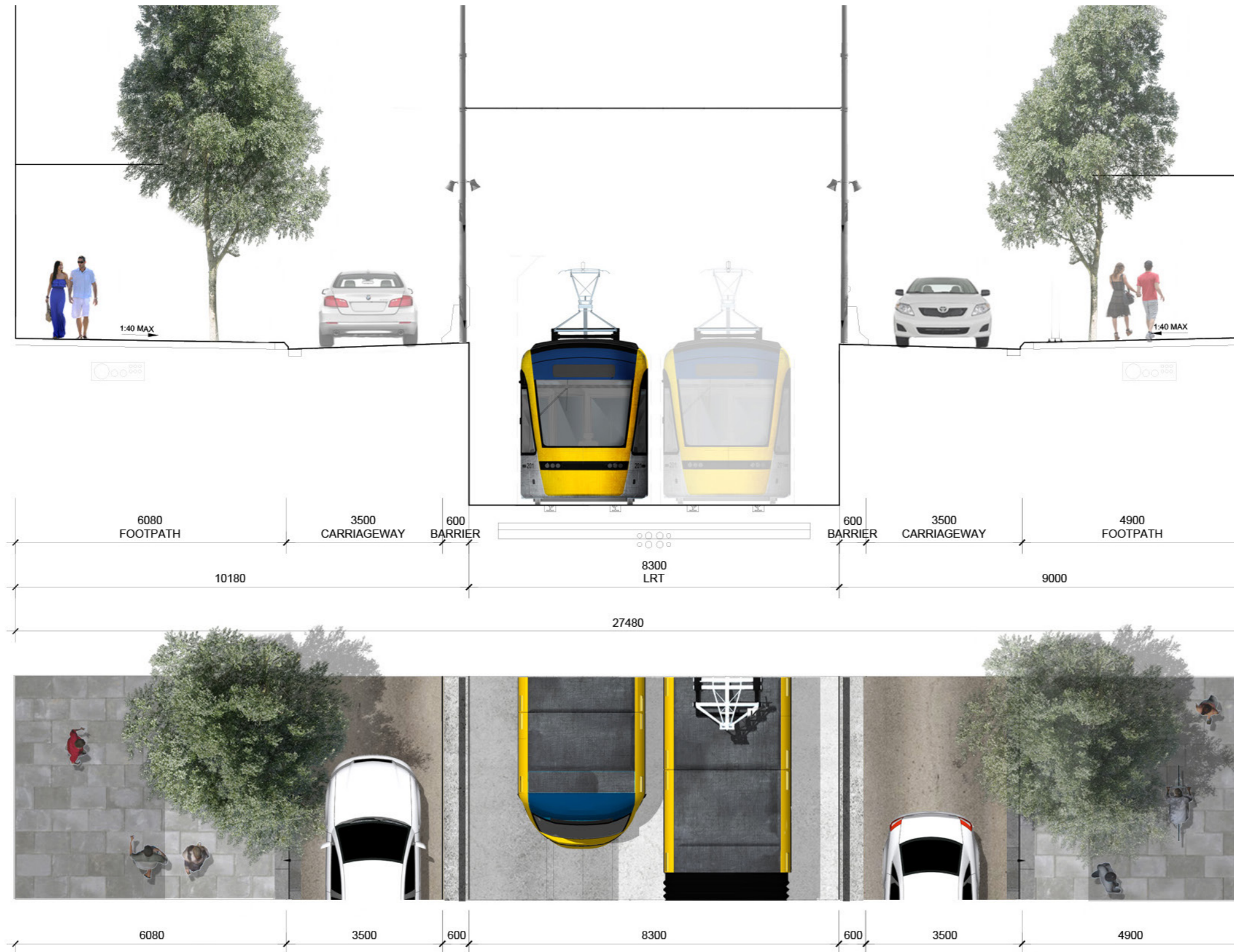


Figure 59 Cross section of Upper Queen Street showing Karangahape Road Underpass looking north towards Mayoral Drive. Centrally located LRV carriageway in recessed underpass structure. Adjacent general traffic lanes x 1 in each direction (reduced from 4 general traffic lanes) retained at grade.

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section FF Axonometric



Figure 60 Sectional Perspective of existing Upper Queen Street portal with LRV carriageway underpass and indicative streetscape treatments. Existing significant (Liriodendron) street trees retained where possible or replaced with additional native trees in similar locations.

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7.0 Queen Street

Southern Queen Street and Upper Queen Street : Existing Perspective



Figure 61 Existing Perspective: Looking east along Karangahape Road intersection from the south west corner with Upper Queen Street left and right.

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Proposed Perspective



Figure 62 Proposed Perspective: Looking east along Karangahape Road intersection from the south west corner with Upper Queen Street left and right. Showing proposed underpass stair enclosures and revised intersection geometry. Indicative streetscape treatments provide consistency with existing Karangahape Road paving palette.

7.0 Queen Street

Southern Queen Street and Upper Queen Street Station: Proposed Perspective



Figure 63 Proposed Perspective: Karangahape Road underpass stop looking South towards CMJ bridge showing indicative internal architectural treatments.

7.0 Queen Street

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7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section GG

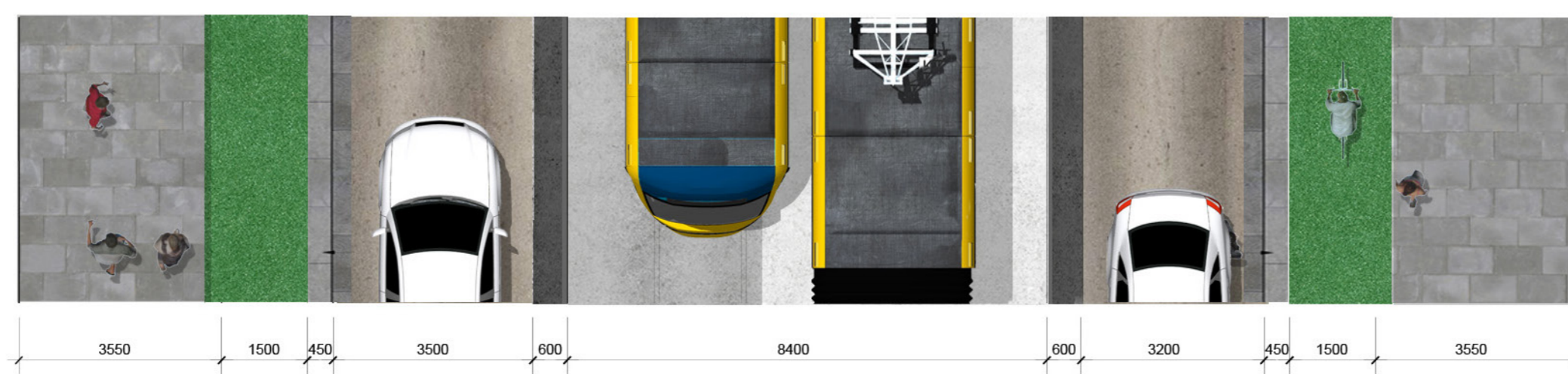
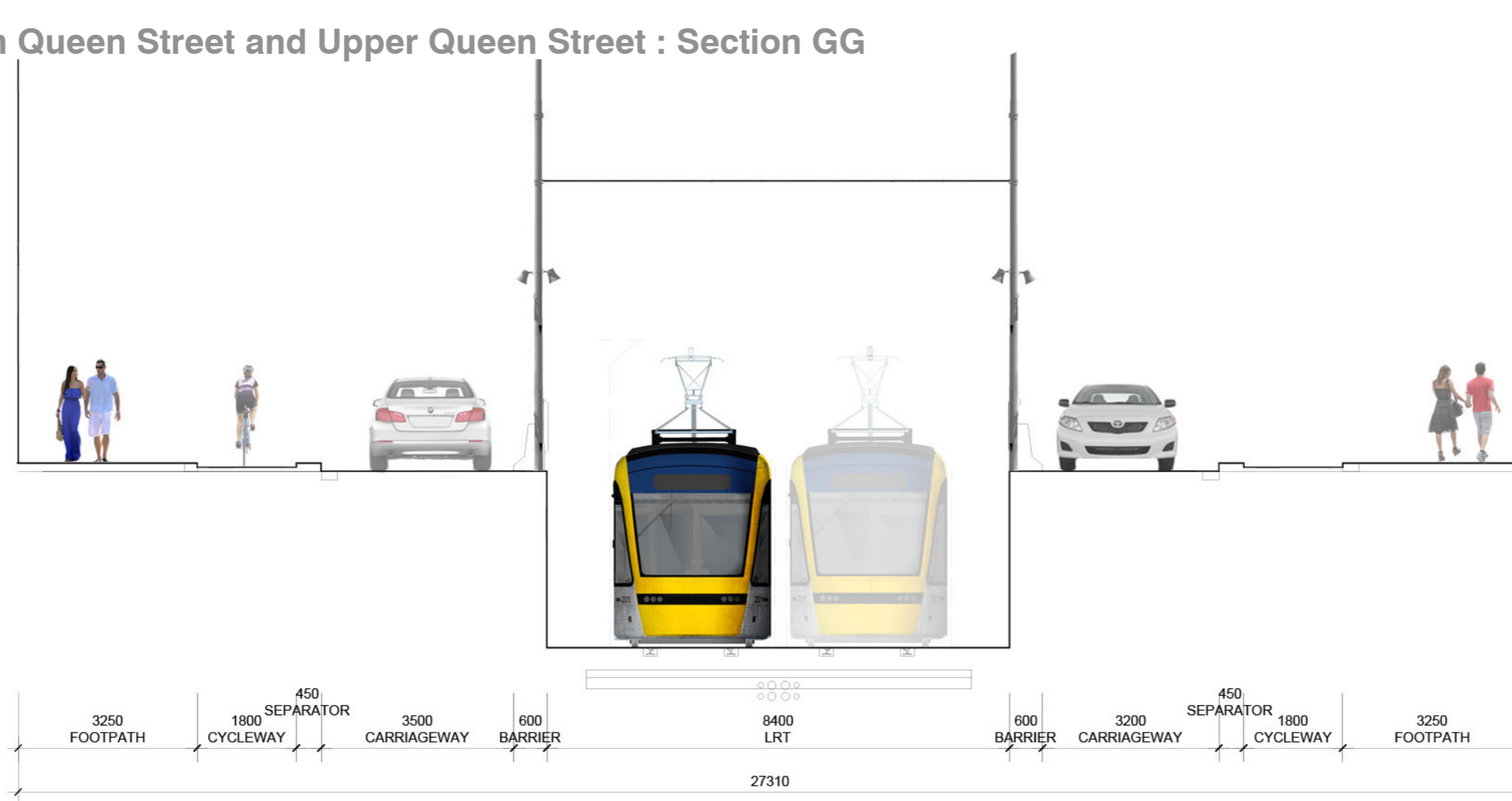


Figure 64 Partial Plan and cross section of Upper Queen Street looking north towards Karangahape Road. Centrally located LRV carriageway on raised platform with adjacent general traffic lanes x 1 in each direction (reduced from 4 general traffic lanes). Centrally located catenary poles. Existing footpath zones integrated with cycle paths.

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section GG Axonometric

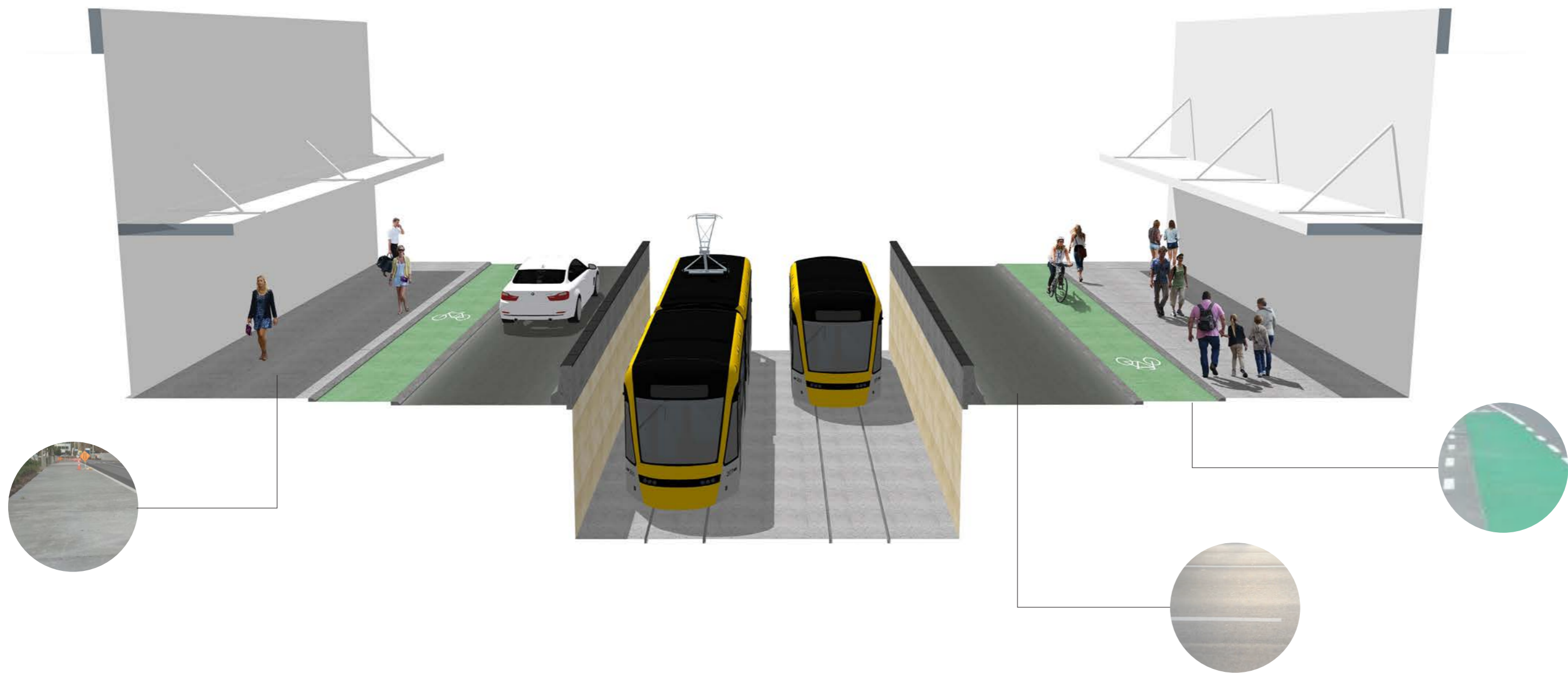


Figure 65 Sectional Perspective of existing Upper Queen Street portal with LRV carriageway underpass and indicative streetscape treatments. Existing significant street (Liriodendron) street trees removed and replaced with natives in alternative locations along Queen Street. Cycleways connect between Ian McKinnon and Karangahape Road

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section HH

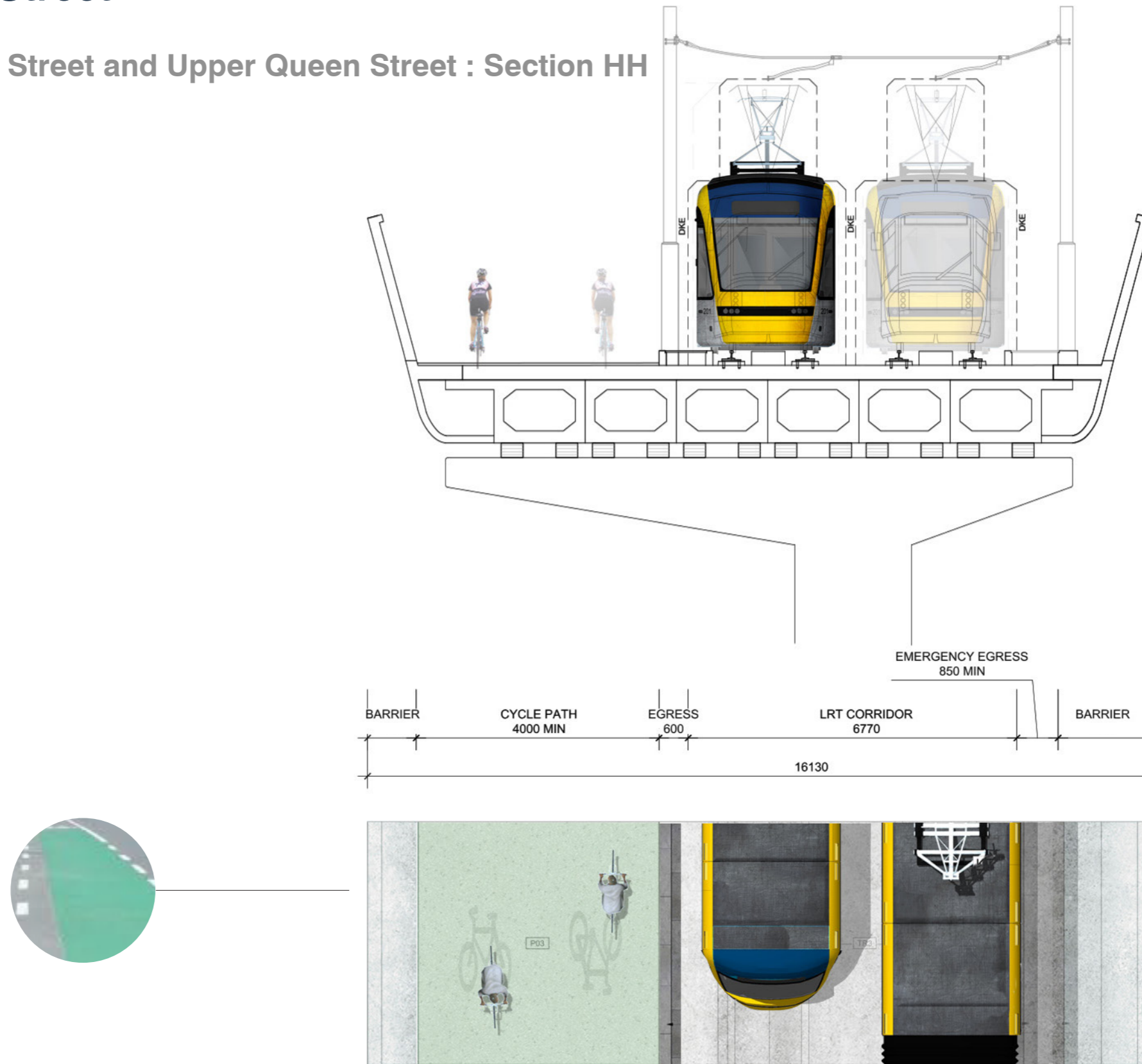


Figure 66 Partial Plan and cross section of the new LRT bridge over the CMJ. With a 4000mm wide cyclepath along the western edge.

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Section HH Axonometric

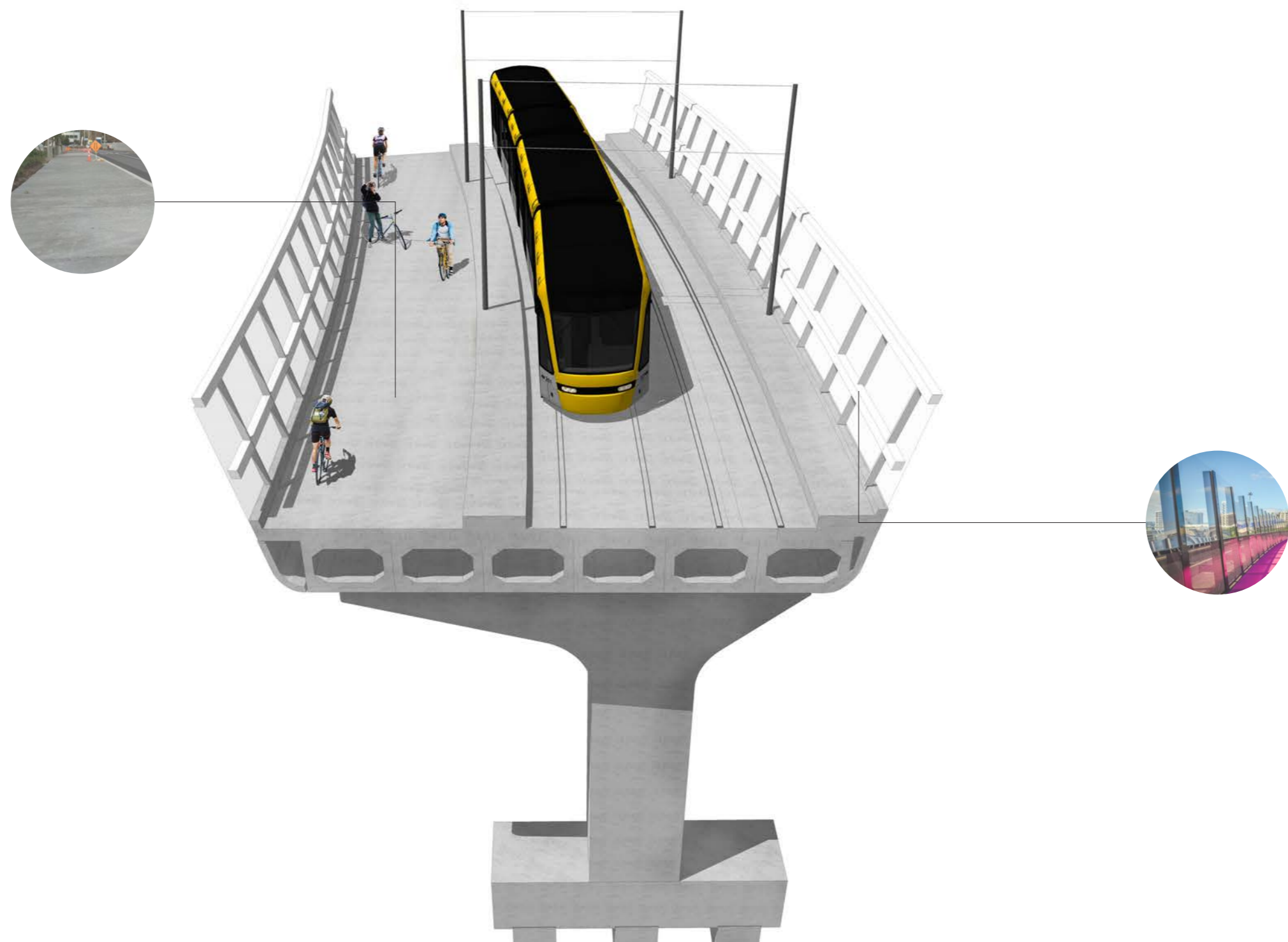


Figure 67 Sectional perspective of existing Upper Queen Street Bridge structure with LRV carriageway and indicative streetscape treatments

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Existing Perspective



Figure 68 Existing Perspective: Central Motorway Junction from Canada Street looking East towards CMJ bridge

7.0 Queen Street

Southern Queen Street and Upper Queen Street : Proposed Perspective



Figure 69 Proposed Perspective: Central Motorway Junction from Canada Street looking east, showing new combined LRT, walking and cycling bridge from Upper Queen Street to Ian McKinnon Drive

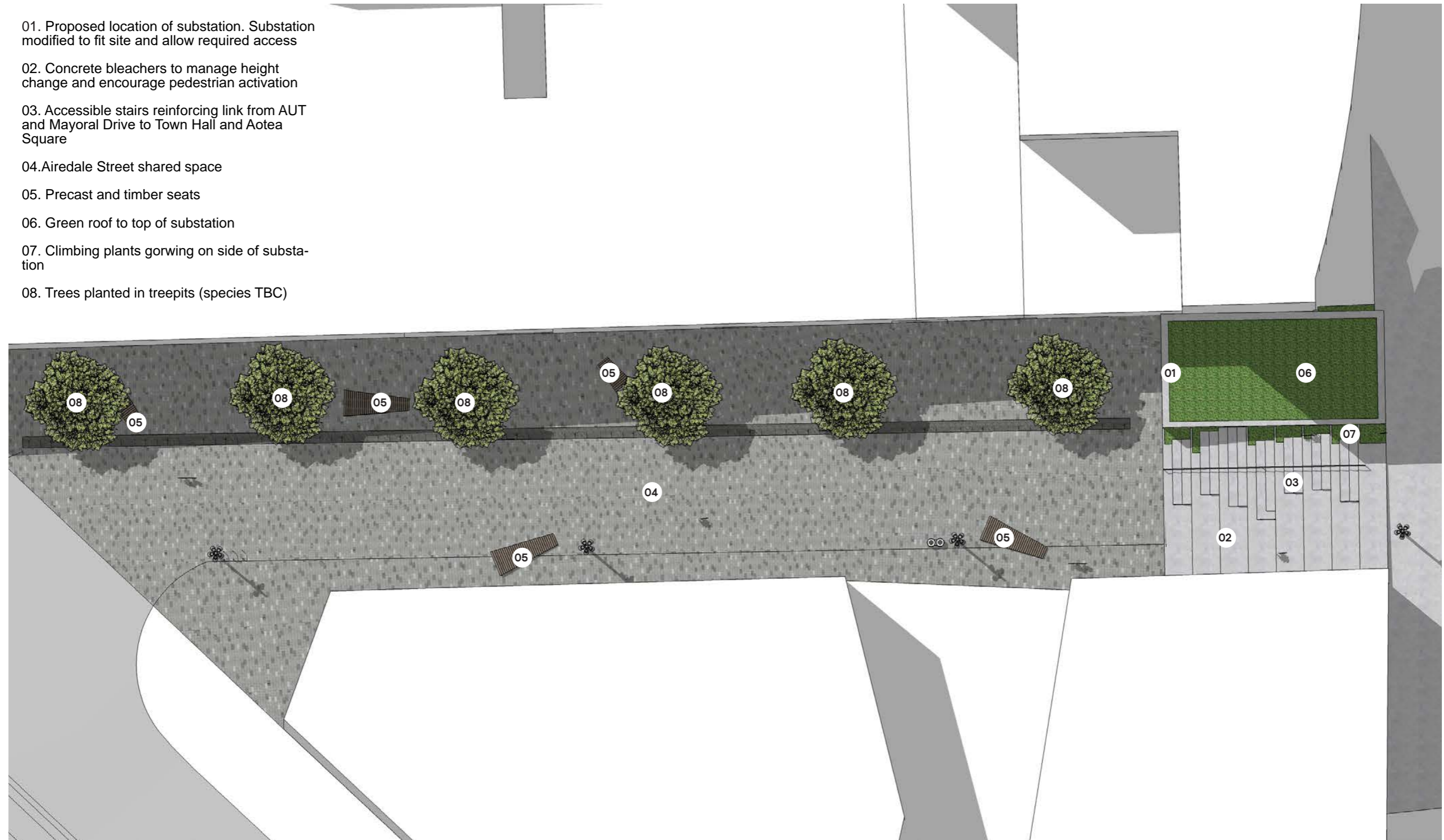
The following 6 pages are an Urban
Design sketch study for the proposed
Airedale Street substation

Substation - TPS 3 Airedale Street

1. Airedale Substation

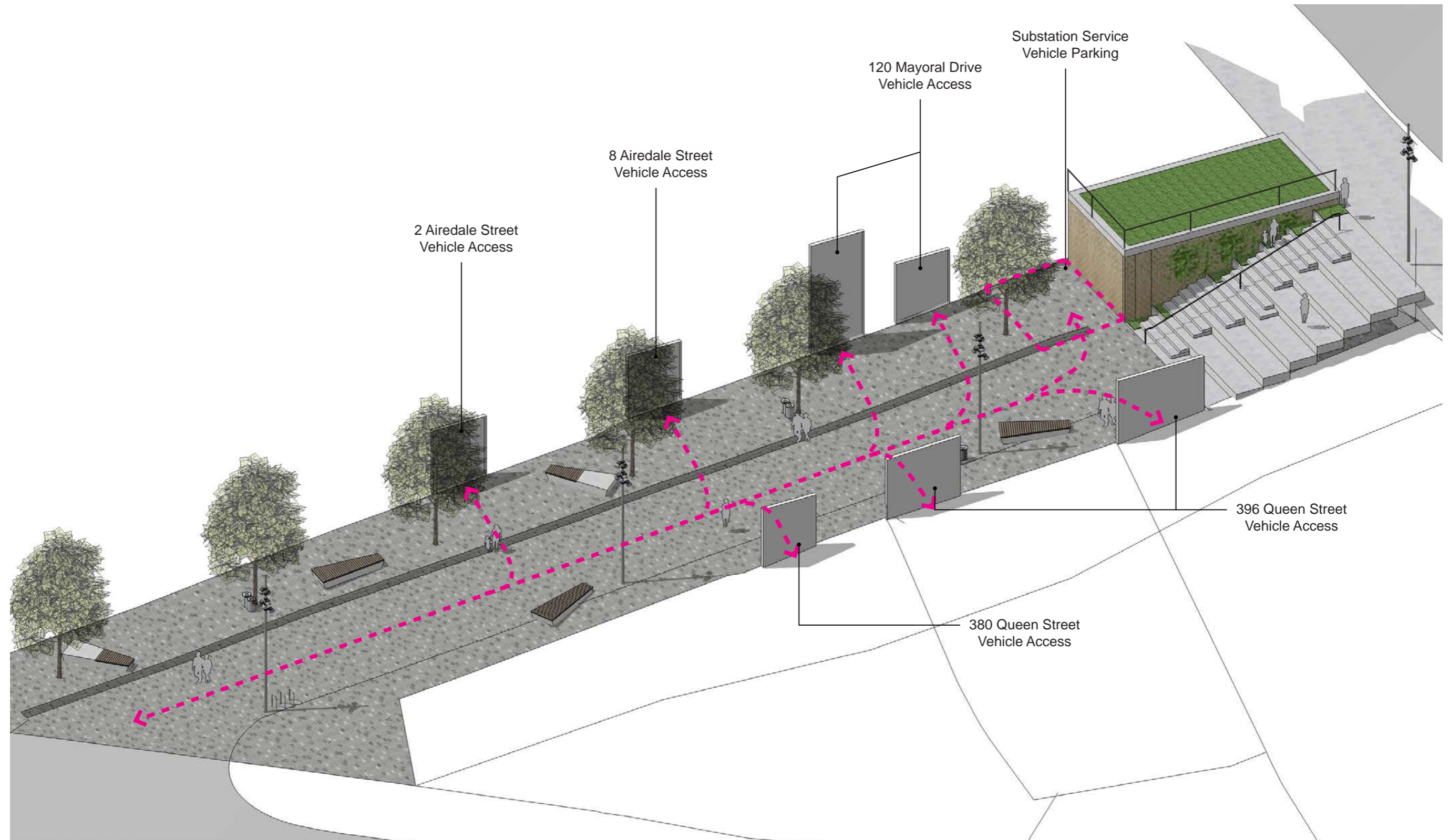
PROPOSED LOCATION AND TREATMENT

- 01. Proposed location of substation. Substation modified to fit site and allow required access
- 02. Concrete bleachers to manage height change and encourage pedestrian activation
- 03. Accessible stairs reinforcing link from AUT and Mayoral Drive to Town Hall and Aotea Square
- 04. Airedale Street shared space
- 05. Precast and timber seats
- 06. Green roof to top of substation
- 07. Climbing plants growing on side of substation
- 08. Trees planted in treepits (species TBC)



1. Airedale Substation

SHARED STREET ACCESS AND SUBSTATION SERVICE



1. Airedale Substation

PROPOSED LOCATION AND TREATMENT

- 01. Green roof with native planting to substation roof
- 02. Perforated steel access panel to side of substation
- 03. Climbing plants trained to grow up substation wall
- 04. Accessible handrail for stairs
- 05. Custom concrete structure and roof to house substation



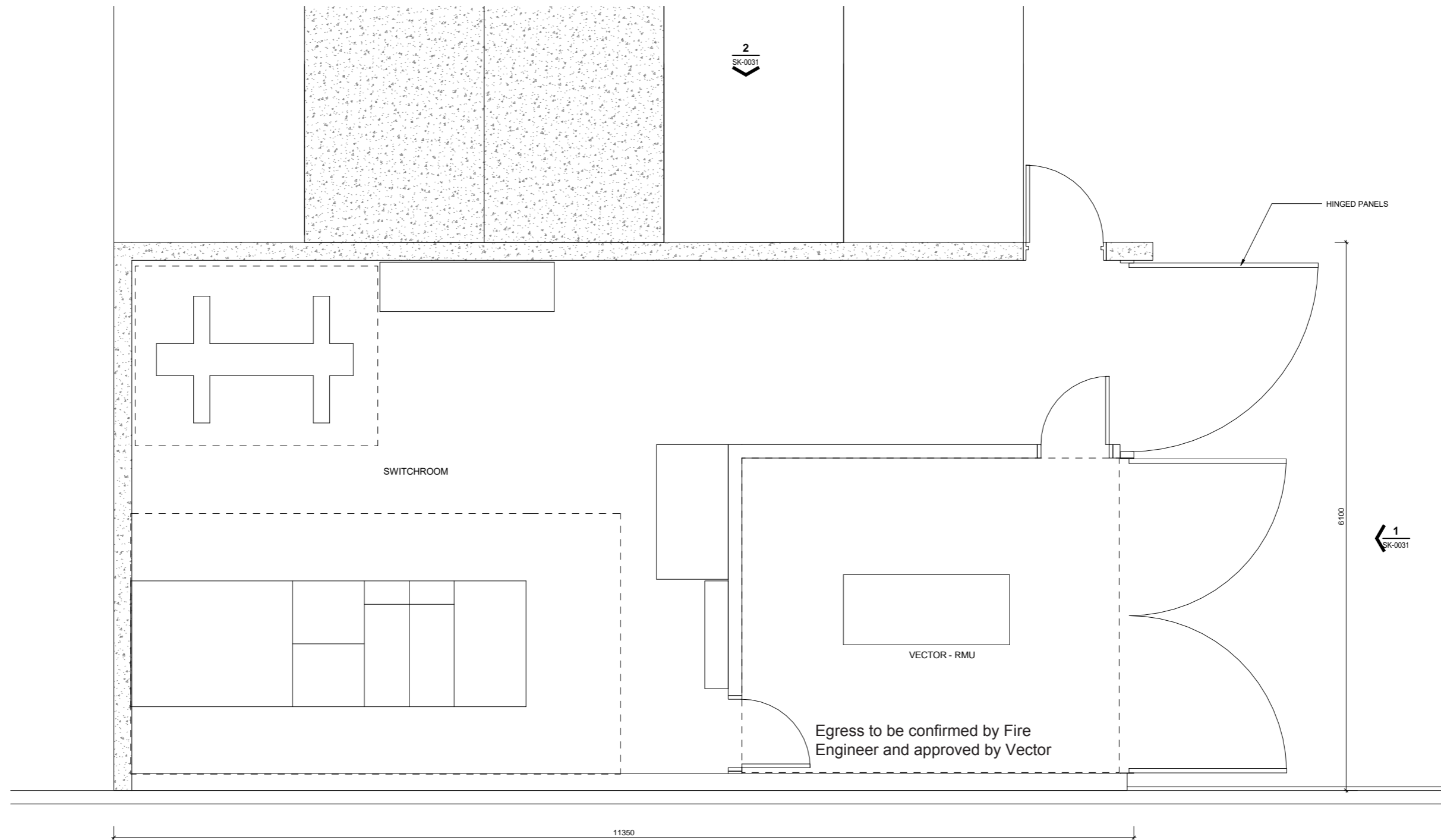
1. Airedale Substation

PROPOSED LOCATION AND TREATMENT



2. Airedale Substation Layout

SKETCH PLAN OF REVISED LAYOUT



Plan showing proposed modifications to internal layout of substation for adapting to Airedale location



8.0 Dominion Road

Package Overview

8.1 Introduction

This section illustrates proposals for the Dominion Road Corridor including; Ian McKinnon Drive, Dominion Road (Typical) Dominion Road Local Centres (Eden Valley, Balmoral and Mt Roskill).

8.2 Overview

The extent of works for the Dominion Road route is shown in the diagram opposite. The route extends from Ian McKinnon Drive to Stoddard Road. It is broken into 4 sections:

- Ian McKinnon Drive.
- New North Road to Eden Valley Village Centre.
- Eden Valley Village Centre to Balmoral Village Centre.
- Balmoral Village Centre to Mt Roskill Junction. Note that the extent from Mt Albert Road to State Highway 20 is on hold pending the outcome of an MCA Options assessment by Auckland Transport.

The design proposals for the street, Light Rail infrastructure and local centre public realm seeks to provide a high quality and integrated design solution which enhances Dominion Roads unique character, and improves the public realm and functionality of the street.

8.3 Precincts

Four precincts have been proposed which are identified for their specific character and their transport functional requirements. These Precincts are:

- Ian McKinnon Drive - Urban Boulevard with light rail and traffic priority. Possible cycle integration.
- Eden Valley - Urban Boulevard with central LRT track and 1 lane of traffic either side. Switches to kerb side LRT at village centre (Wire Free)
- Balmoral - Urban Boulevard with central LRT track and 1 lane of traffic either side. Switches to kerb side LRT at village centre (Wire Free)
- Mt Roskill - Urban Boulevard with central LRT track and 1 lane of traffic either side. Switches to kerb side LRT at village centre

8.4 Precinct Street Furniture

- Dominion Road will feature a site wide furniture suite consistent with the city centre suite used throughout the CBD and Queen Street.
- Furniture will be placed where required to support the enhanced pedestrian amenity associated with the proposed alterations to the existing LRV lines.
- Additional street furniture will be required at and adjacent the proposed stop locations to support passenger comfort and amenity.

8.5 Precinct Paving Materials

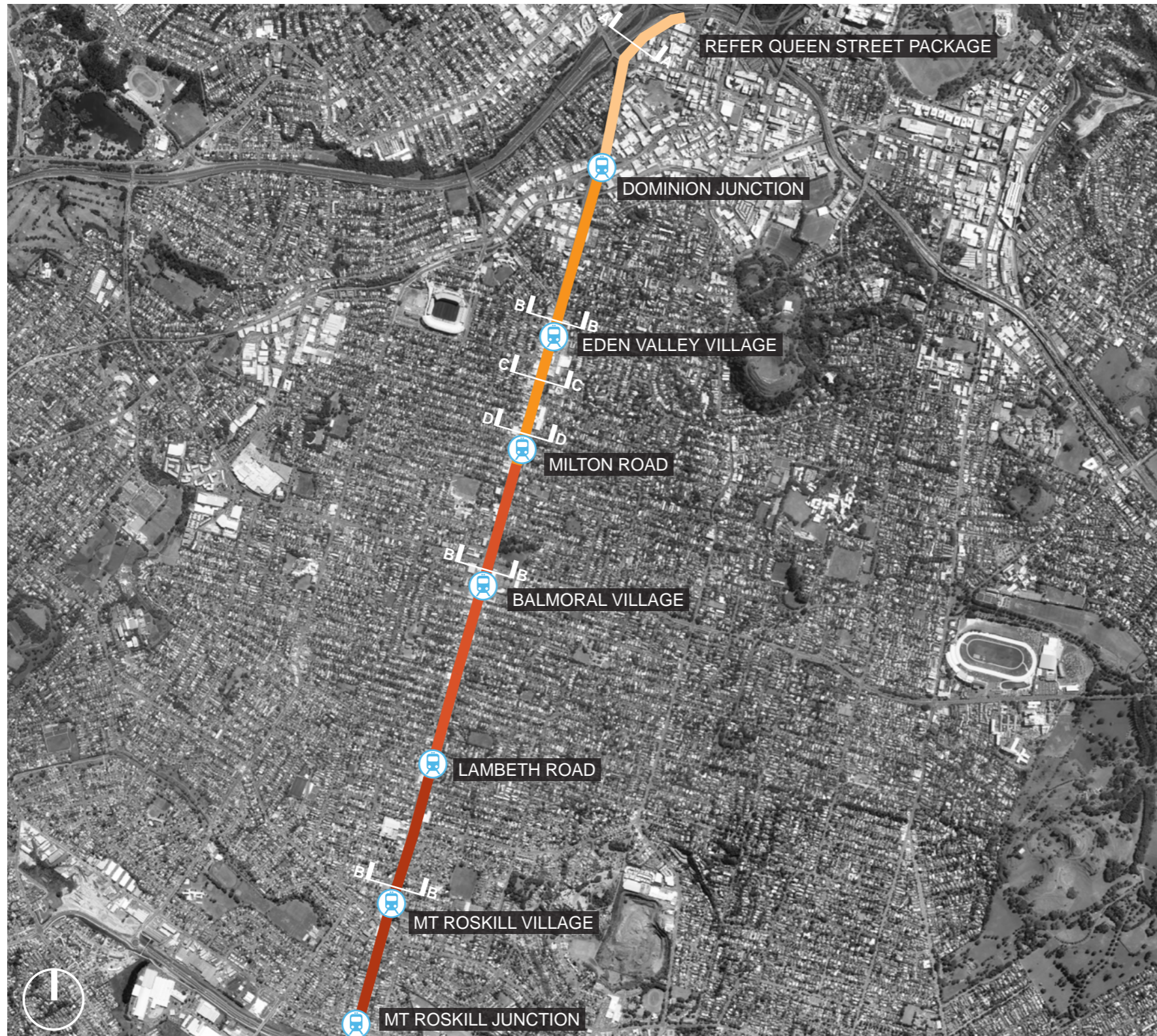
- A similar strategy to the furniture suite will be applied. Typical site wide finishes will be used along the mid-block sections while the local centres will have higher quality finishes similar to Queen Street.
- Materials will vary in colour, texture or pattern between the town centres.

8.6 Precinct Street trees

- The street tree palette along Dominion Road will consist of native New Zealand trees.

8.0 Dominion Road

Package Overview : Stop Locations



- 1. **Ian McKinnon Drive** - Urban Boulevard with light rail and traffic priority. Cycle integration.
- 2. **Eden Valley** - Urban Boulevard with central LRT track and 1 lane of traffic either side. Switches to kerb side LRT at village centre (Wire Free)
- 3. **Balmoral** - Urban Boulevard with central LRT track and 1 lane of traffic either side. Switches to kerb side LRT at village centre (Wire Free)
- 4. **Mt Roskill** - Urban Boulevard with central LRT track and 1 lane of traffic either side. Switches to kerb side LRT at village centre

Figure 70 Route map of Dominion Road work package

8.0 Dominion Road

Ian McKinnon Drive

8.7 Introduction

This section illustrates proposals for the Ian McKinnon Precinct. This section includes the regrading of Dominion Road and removal of existing flyover.

DESIGN INTENT

- Balance provision for pedestrians, cyclists, LRT and general vehicle modes within street.
- Integrate a new link between the North-Western Cycleway and the CMJ bridge.
- Enhance existing street tree planting wherever possible
- Integrate with wider Newton Quarter pedestrian network.

AMENITY AND COMFORT

- Ian McKinnon Drive is a place of movement rather than occupation.
- Proposed streetscape improvements will enhance existing pedestrian and cyclist amenity.

CHARACTER AND HERITAGE

- Character of Ian McKinnon Drive is enhanced. Existing views to the city centre (north) and inner city fringe (west) are maintained.

ACCESS AND SAFETY

- Access to Devon Street and Haslett Street is restricted to left-in, left-out only.
- Other existing access and connectivity is maintained or improved by the proposed design changes.
- The proposed cycleway enhances cycling access and safety.

LEGIBILITY

- Existing patterns of movement and access are maintained and reinforced by the proposed design changes.

MATERIALITY

- The proposed palette of surface finishes clearly distinguishes between LRT, vehicular and pedestrian/cycling zones.
- The indicative proposed pallet for Ian McKinnon Drive is: concrete footpaths and cycleways, asphalt carriageways for private vehicles, a concrete LRT carriageway.

STREET TREES AND VEGETATION - NEW CMJ BRIDGE TO PIWAKAWAKA STREET

- Some of the existing magnolia (*Magnolia grandiflora*) will be removed to allow reconfiguration of the existing road reserve within the constraints of the CMJ and the existing land uses to the south.
- Additional street trees on the south side of the street are proposed wherever possible.

- The existing planting of the existing motorway embankment (west) will be modified as part of forming the new cycleway and approach to the new CMJ integrated LRT, walking and cycling bridge.

STREET TREES AND VEGETATION - PIWAKAWAKA STREET TO MINNIE STREET

- Maintain existing planting on embankment areas adjacent to the road.

STREET TREES AND VEGETATION - MINNIE STREET TO HOROPITO STREET

- Pending design development

PEDESTRIANS - NEW CMJ BRIDGE TO PIWAKAWAKA STREET

- The existing 4000mm shared cycle and pedestrian path on the southern side of Ian McKinnon Drive is reduced to 3500mm generally, with a minimal length of path reduced to 1800mm wide due to existing property and structures.
- Connection to the shared path link between Takau Street and Ian McKinnon Drive currently being implemented.

PEDESTRIANS - PIWAKAWAKA STREET TO MINNIE STREET

- The existing footpaths widths on either side of the road will be maintained at 1800mm.

PEDESTRIANS - MINNIE STREET TO NEW NORTH ROAD

- At grade footpaths to suit regrading of Dominion Road .

CYCLISTS - NEW CMJ BRIDGE TO PIWAKAWAKA STREET

- 4000mm dedicated two way shared path on the western side of Ian McKinnon Drive connecting the North-Western Cycleway with the new integrated LRT, walking and cycling bridge over the CMJ.
- Connection to the shared path link between Takau Street and Ian McKinnon Drive currently being implemented.

CYCLISTS - PIWAKAWAKA STREET TO MINNIE STREET

- The existing 1800mm wide one-way cycle lanes are modified by raising them half-way to the level of the adjacent footpath, in a so-called Copenhagen lane arrangement.

CYCLISTS - MINNIE STREET TO NEW NORTH ROAD

- Pending design development

LIGHT RAIL CARRIAGEWAY AND STOPS - NEW CMJ BRIDGE TO PIWAKAWAKA STREET

- Two LRV lanes run on a 7500mm wide raised concrete carriageway located to the west of the two-way vehicle lanes.

LIGHT RAIL CARRIAGEWAY AND STOPS - PIWAKAWAKA STREET TO NEW NORTH ROAD

- Two centrally located LRV lanes run on a 7500mm wide raised concrete carriageway.

BUSES

- No current or proposed bus service is anticipated to operate on Ian McKinnon Drive.
- Bus interchange is planned at New North Road.

VEHICLES - NEW CMJ BRIDGE TO PIWAKAWAKA STREET

- A two-way arrangement of 3200mm general vehicle lanes is proposed to the east of the LRT carriageway.

VEHICLES - PIWAKAWAKA STREET TO NEW NORTH ROAD

- A 3200mm general vehicle lane is proposed either side of the LRT carriageway.
- Road lowered to suit regrading of Dominion Road and removal of existing flyover.
- Access out of Minnie Street and Haslett Street limited to left in left out only.

PARKING - NEW CMJ BRIDGE TO NEW NORTH ROAD

- No parking is provided for along Ian McKinnon Drive.

8.0 Dominion Road

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8.0 Dominion Road

Ian McKinnon Drive: Section AA

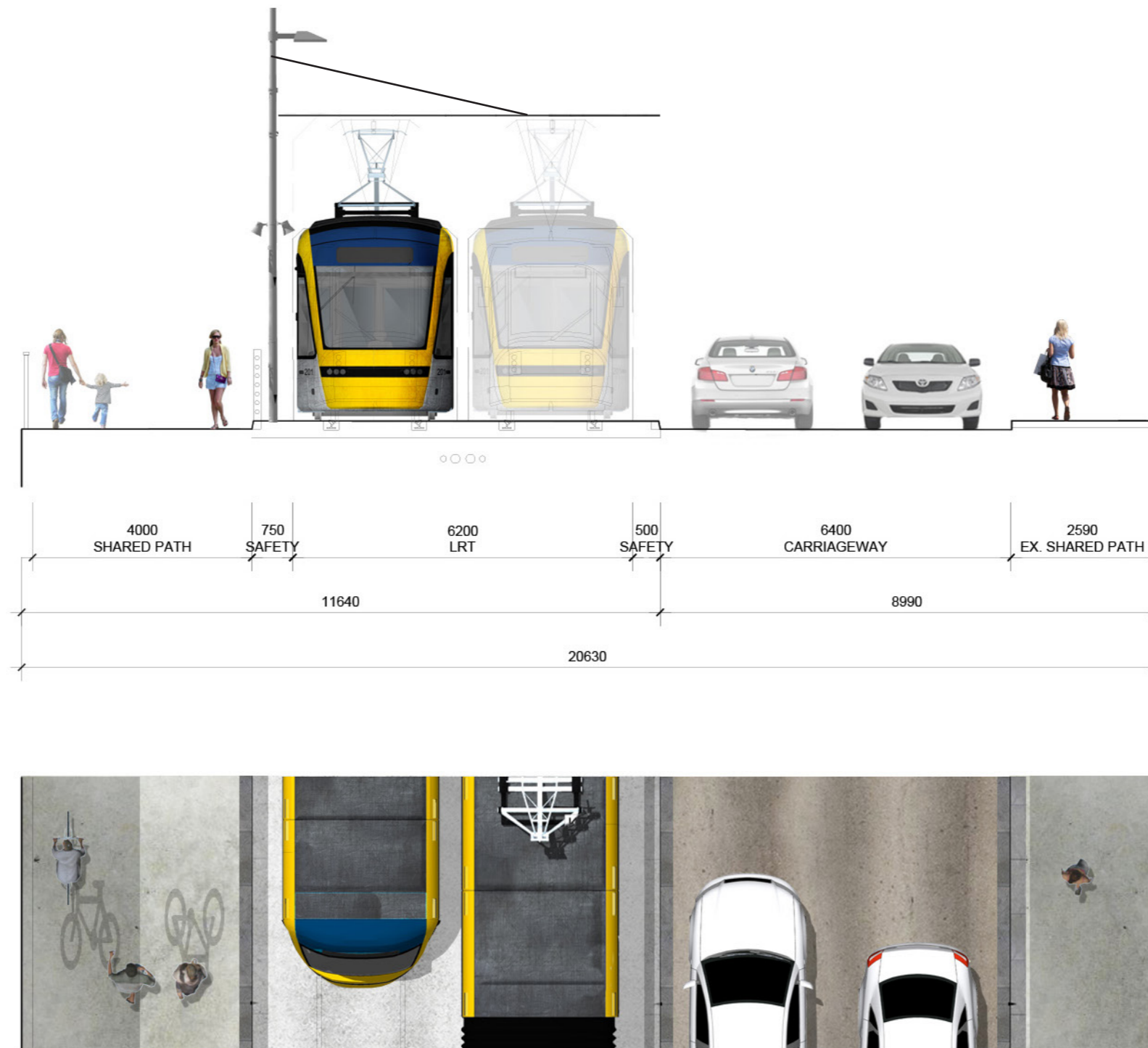


Figure 71 Partial plan and cross section of Ian McKinnon Drive looking north. Centrally located LRV carriageway. Adjacent general traffic lanes north and south bound (reduced from 4 general traffic lanes). Cycle path west side. Footpath east side.

8.0 Dominion Road

Ian McKinnon Drive: Section AA Axonometric

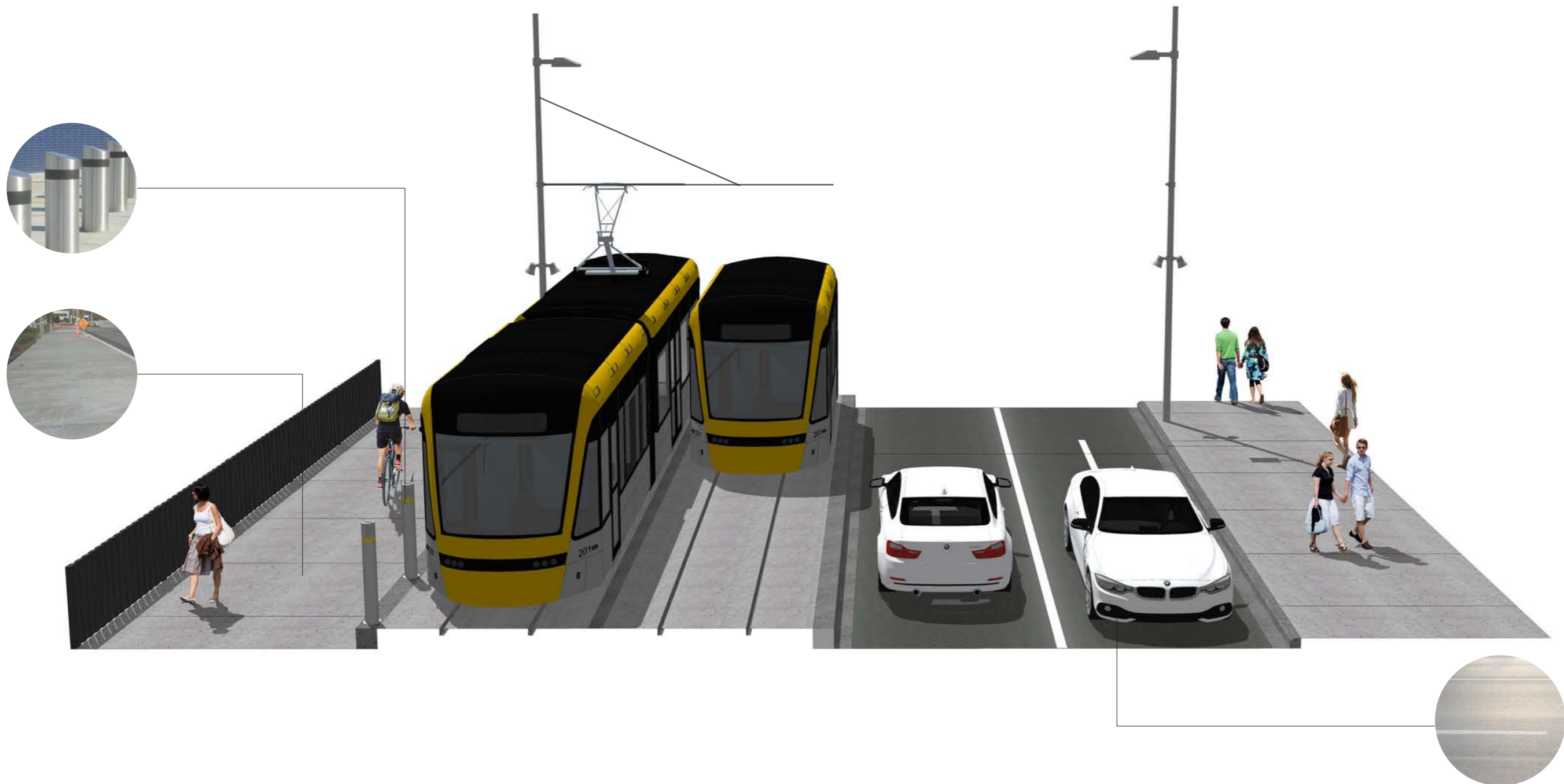


Figure 72 Sectional perspective of Ian McKinnon Drive showing indicative streetscape treatments and LRV infrastructure.

8.0 Dominion Road

Ian McKinnon Drive : Existing Perspective



Figure 73 Existing Perspective: Looking north along Ian McKinnon Drive near Haslett Street from the west side kerb.

8.0 Dominion Road

Ian McKinnon Drive : Proposed Perspective



Figure 74 Proposed Perspective: Looking north along Ian McKinnon Drive near Haslett Street from the west side kerb with proposed LRV carriageway and streetscape treatments.

8.0 Dominion Road

Dominion Road Corridor

8.8 Introduction

This section illustrates proposals for the Dominion Road Corridor.

DESIGN INTENT

- Balance provision for pedestrians, cyclists, LRT and general vehicle modes within the street in a cohesive and co-ordinated manner.
- Improve the public realm along the full length of the corridor to support LRT and pedestrian priority.
- Minimise land take/property acquisition especially within existing Local Centres.
- Retain existing heritage/character buildings and landscape features.
- Support the development and regeneration of the existing Local Centre environments as distinctive and appealing destinations.
- Promote world class public transport experience through good design particularly at stops.
- Create a distinctive Local Centre and Mid-Block streetscape environments which provides both continuity, distinctiveness and episodic experience.
- Employ a design language featuring widened footpaths, high quality materials and street furniture.
- Support businesses with high quality streetscapes promoting good visibility, unobstructed movement and areas for pedestrians to rest/wait within the street.
- Avoid the effects of catenary by using wire-free solutions and minimise street clutter through co-ordination of furniture/signage/poles etc.

AMENITY AND COMFORT

- Dominion Roads mid-block sections are considered as places of movement enabling pedestrian access to the Local Centres and context.
- Where possible footpath widths are enhanced in conjunction with the integration of the LRT corridor.
- The proposed shared running design approach for the Local Centres enables footpath widths to be extended from approx. 3m to 6m enabling Local Centre footpaths to support both movement and occupation functions.
- Widened footpaths support street activity and use by adjacent business.

CHARACTER AND HERITAGE

- The existing character of Dominion Road is maintained and in many places enhanced through the improvement of public open space for pedestrians, rationalisation of parking and infrastructure associated with the LRT network.
- Contextual views to the surrounding Maunga (Mt Eden, One Tree Hill, Mt Roskill) are maintained. The proposed wire-free design approach supports the strong north south sight line along the street as well as

oblique views.

- The wire-free approach minimises visual impacts on the existing Local Centre environments.
- Light rail stop shelter canopies have been carefully positioned within the existing built form of the Local Centres.
- The addition of public open spaces where side streets are needed to be closed off to vehicle access, but retaining pedestrian access, from Dominion Road within the Local Centres enables the provision of additional urban amenity and infrastructure such as public toilets, seating, street tree planting which make a positive contribution to the public life and identity of these centres.

ACCESS AND SAFETY

- In local centres, the location of LRT stops and the configuration of shared running requires loss of access into some side streets and directly into some private properties from Dominion Road. Alternative access solutions are currently being appraised by Auckland Transport as part of an Options assessment process. Design development for alternative accesses will proceed once a preferred Option has been identified.
- Other existing access and connectivity is maintained or improved by the proposed design changes.
- Reduced traffic speeds in the Local Centres (30km/ph) creates a safer, more pedestrian friendly environment.
- Upgrades of Local Centre footpaths enable best practice design and accessibility standards to be achieved.
- LRT patronage and associated pedestrian activity contributes to more vibrant, safe and usable streets environments.

LEGIBILITY

- Some changes to urban patterns are required within Local centres due to closure of some side street connections.
- Other existing patterns of movement and access are maintained and reinforced by the proposed design changes.
- The integration of LRT stop infrastructure reinforces the Local Centres as destinations and their role along the corridor.

MATERIALITY

- The proposed palette of surface finishes clearly distinguishes between LRV, vehicular and pedestrian/cycling zones.
- The indicative proposed palette for the typical Dominion Road sections includes: asphalt footpaths, basalt kerbs (re-used), asphalt carriageways for private vehicles and a concrete LRV carriageway.
- The indicative proposed palette for the Local Centres includes: high quality stone paved (basalt/granite) footpaths, matching basalt/granite kerb stones (new), asphalt carriageways for private vehicles and a concrete LRV carriageway.

STREET TREES AND VEGETATION

- The existing significant trees along and adjacent the corridor are maintained.
- Additional Street trees will be located on street corners where space allows.

PEDESTRIANS AND CYCLISTS

- Maintain the existing mid block footpath widths at 3000mm+/-.
- Provide improved crossing facilities at all intersections with Dominion Road integrated with new priority and signal controlled intersections.
- Raised pedestrian crossings are provided at both ends of light rail stops.

LIGHT RAIL CARRIAGEWAY AND STOPS

- Two centrally located LRV lanes run on a 7500mm wide raised concrete carriageway.
- Raised side platforms are provided within Local Centres.
- A central Island Stop is provided in mid-block zones.
- A wireless design approach is proposed between Dominion Junction and Lambeth Road stops. Catenary is required in other areas due to gradients.

BUSES

- No future bus services are anticipated to operate on Dominion Road.
- Bus interchange is planned at Eden Valley Village, Balmoral Village, and Mount Roskill Village.

VEHICLES

- A 3200mm general vehicle lane is proposed either side of the LRT carriageway.
- The changing character of the Local Centre environments helps reduce vehicle speeds to 30km/ph.

PARKING

- No parking for private vehicles is provided for along Dominion Road.
- Opportunities for additional parking spaces on side streets within Local Centres will be identified.

8.0 Dominion Road

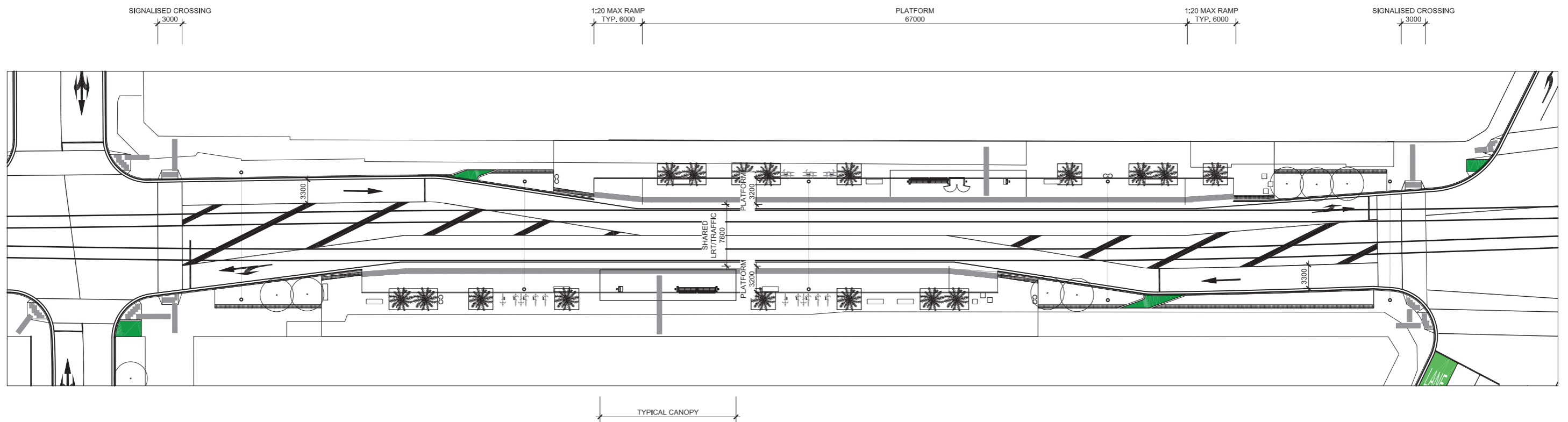


Figure 75 Plan of typical local centre stop layout

8.0 Dominion Road

Typical Local centre Stop: Section BB

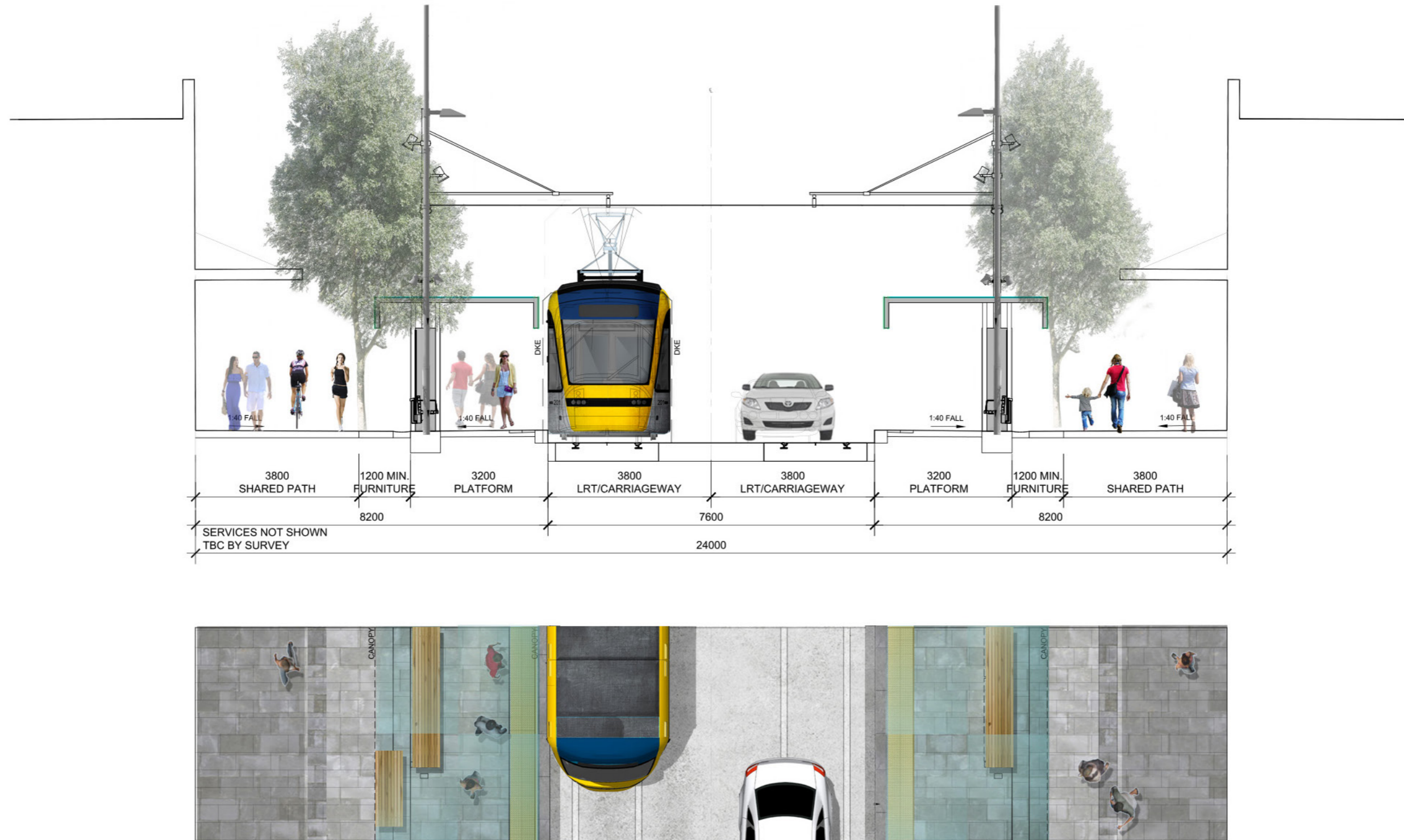


Figure 76 Partial plan and cross section of Dominion Road. Shared carriageway with side platform shared with footpath. Intersections signalled to allow alternating LRV and vehicle traffic

8.0 Dominion Road

Typical Local Centre Stop: Section BB Axonometric

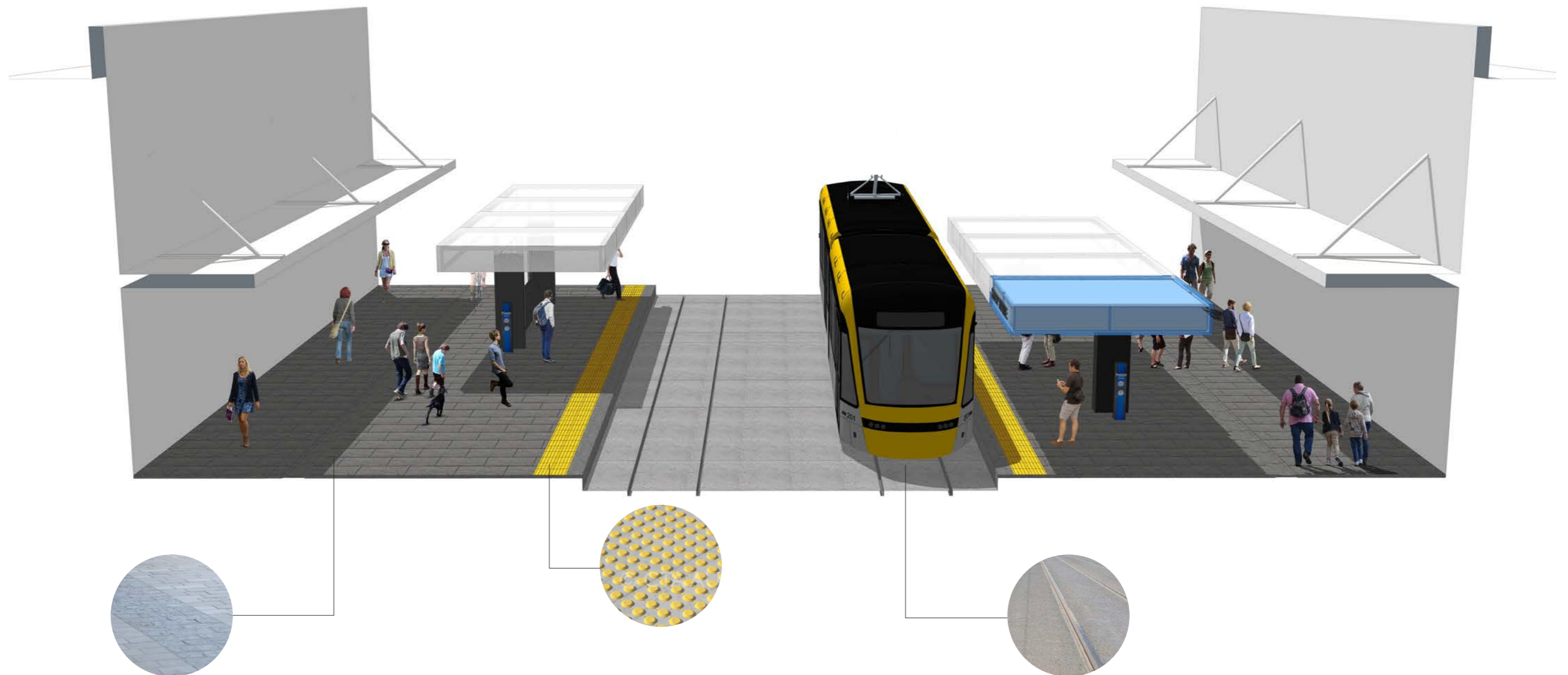


Figure 77 Sectional Perspective: of Eden Valley depicting stop shelter and platform integrated with the footpath. LRVs and vehicles share the carriageway at different times controlled by signals at the intersection either end of the local centre.

8.0 Dominion Road

Dominion Road: Typical Village Centre - Side Platform



Figure 78 Typical Dominion side platform sketch view to illustrate design consideration

8.0 Dominion Road

Dominion Road: Typical Village Centre - Side Platform

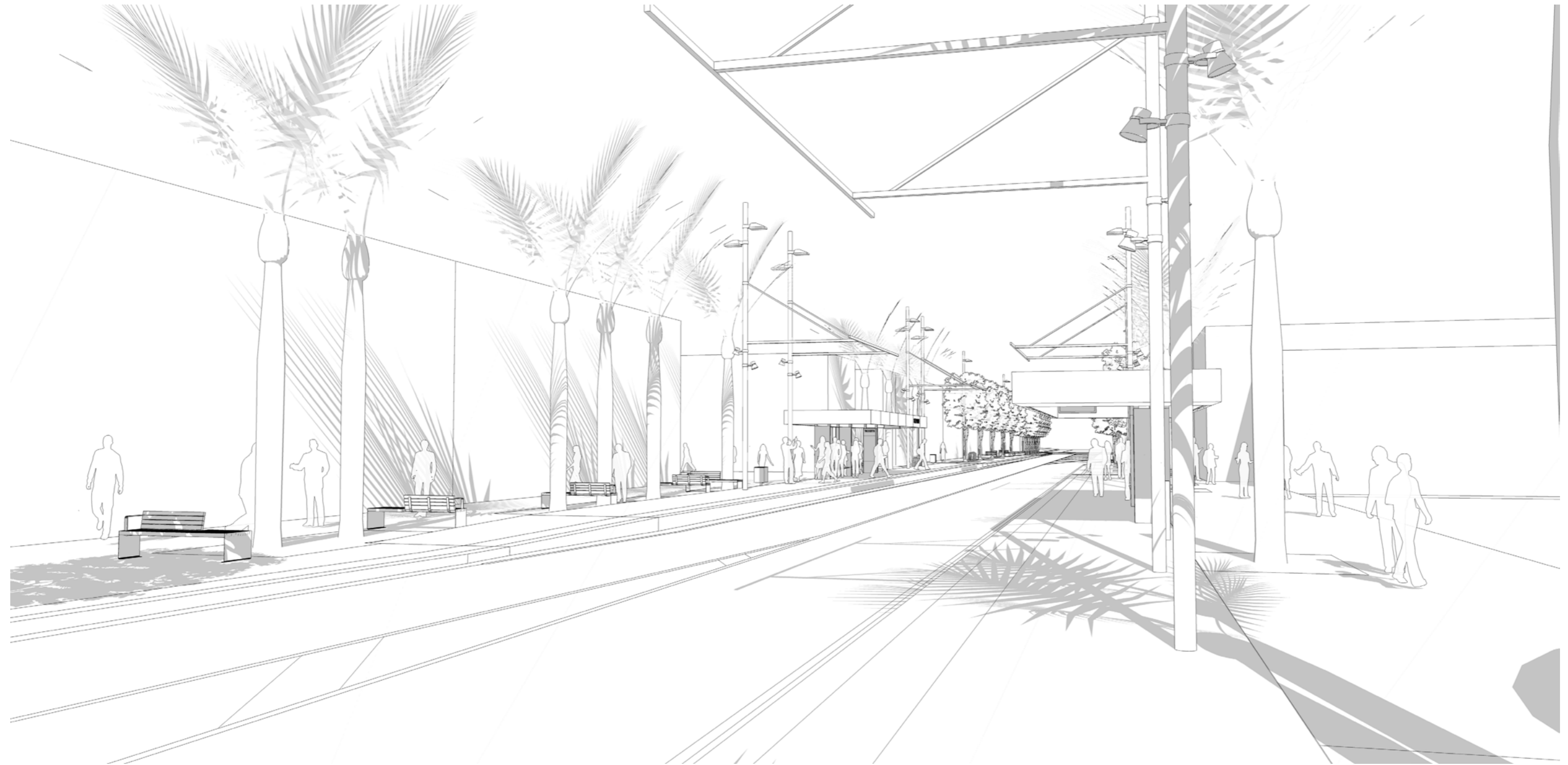


Figure 79 Typical Dominion side platform sketch view to illustrate design consideration

8.0 Dominion Road

Eden Valley Village: Existing Perspective



Figure 80 Existing Aerial Perspective: From Eden Valley looking south along Dominion Road

8.0 Dominion Road

Eden Valley Village: Proposed Perspective



Figure 81 Proposed Aerial Perspective: From Eden Valley looking south along Dominion Road

8.0 Dominion Road

Typical Mid-block: Section CC

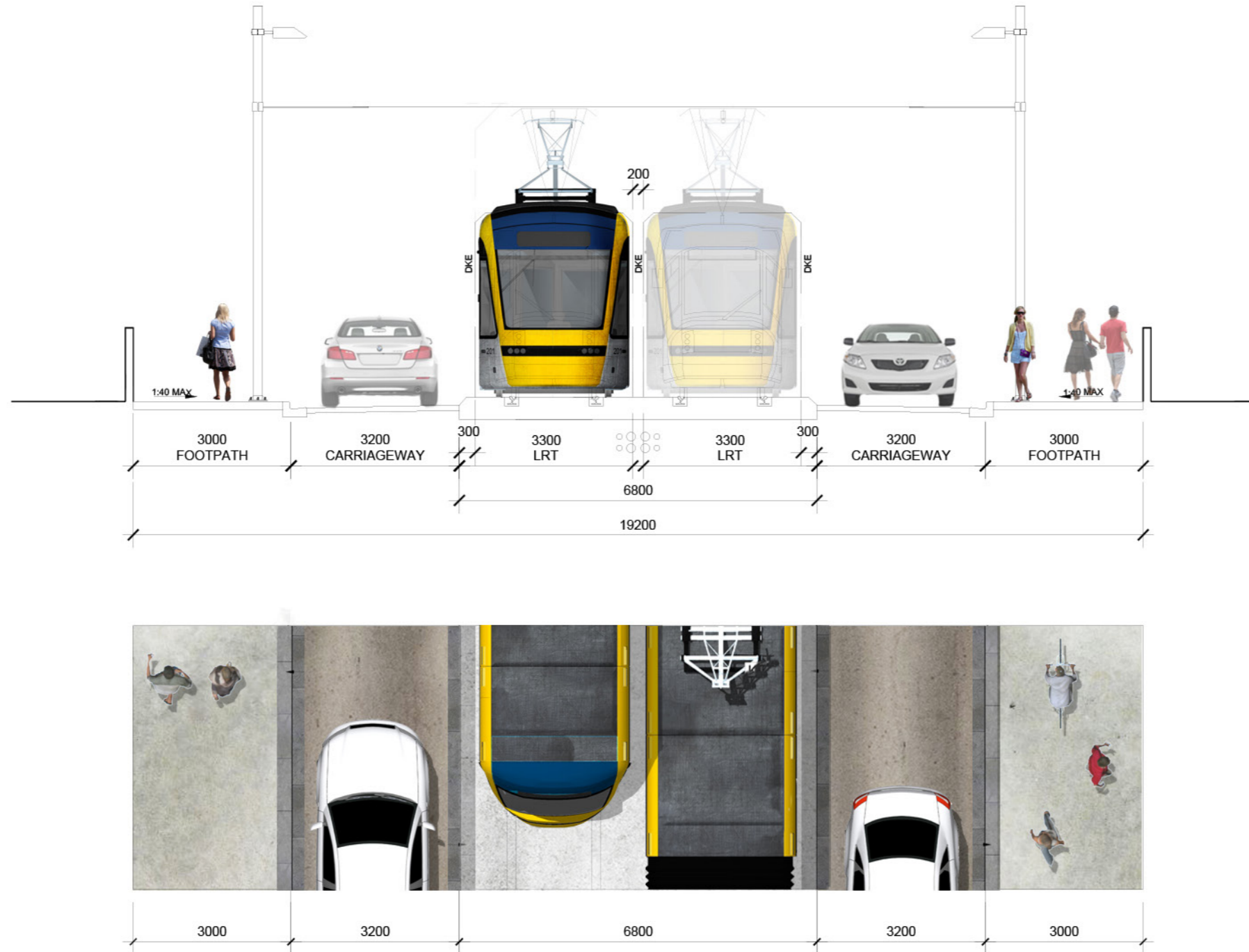


Figure 82 Partial plan and typical cross section of Dominion Road. Central LRV carriageway with kerb side general traffic lanes x 1 in each direction (reduced from 4 general traffic lanes).

8.0 Dominion Road

Typical Mid-block: Section CC Axonometric

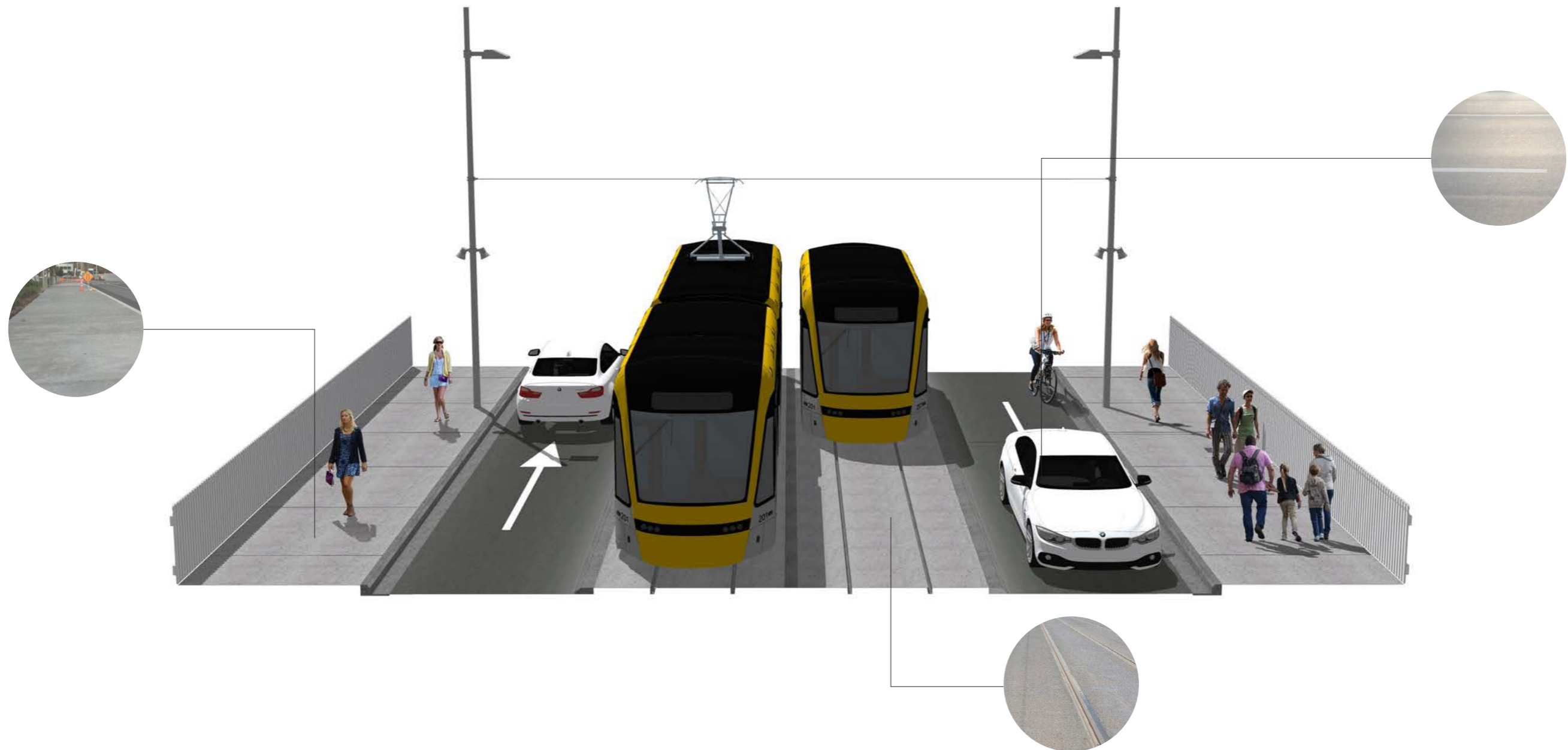


Figure 83 Sectional Perspective: Sectional study of typical Dominion Road mid-block

8.0 Dominion Road

Dominion Road Centre Platform : Section DD - Centre Running LRT with Kerb Side Vehicle Traffic

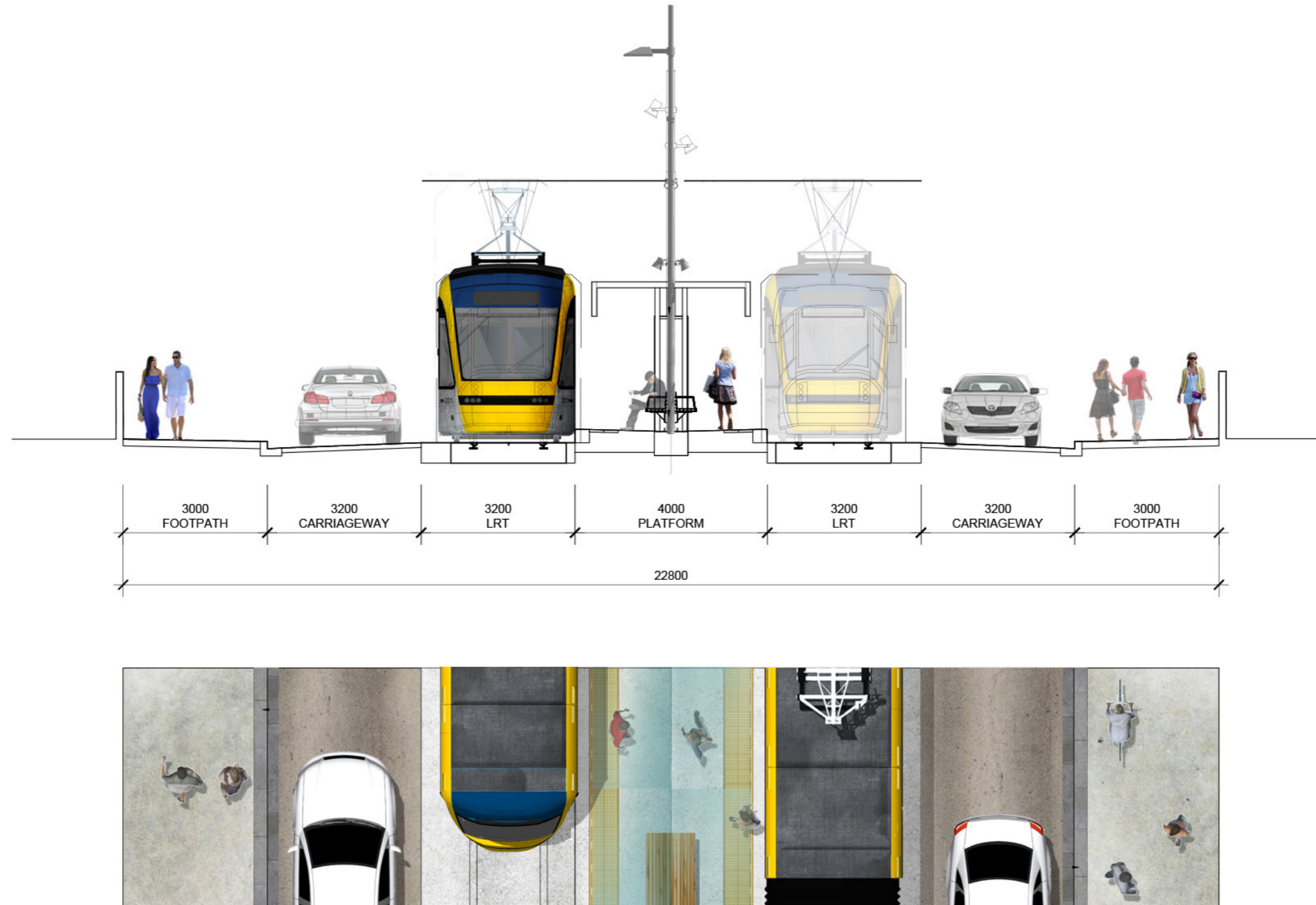


Figure 84 Partial plan and typical cross section of Dominion Road centre stop. Central LRT platform with split carriageway side general traffic lanes x 1 in each direction (reduced from 4 general traffic lanes).

8.0 Dominion Road

Dominion Road Centre Platform : Section DD Axonometric



Figure 85 Sectional Perspective: Sectional study of typical Dominion Road centre stop platform

8.0 Dominion Road

Centre Platform : Centre Running LRT with Kerb Side Vehicle Traffic

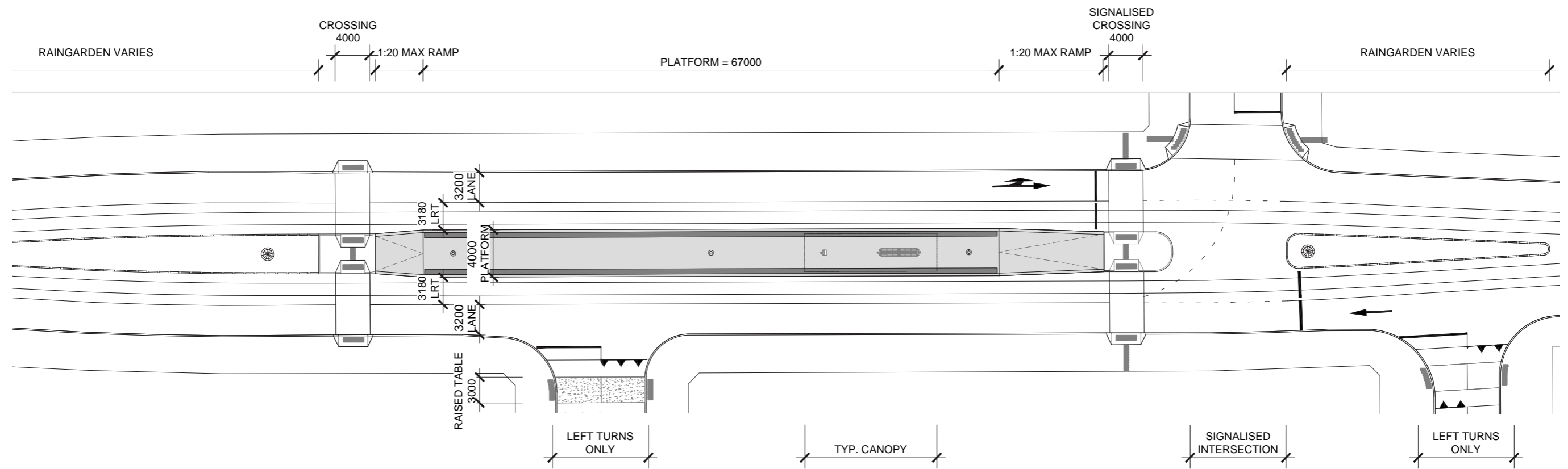


Figure 86 Plan of typical Dominion Road centre stop. Central LRT platform with split carriageway side general traffic lanes x 1 in each direction (reduced from 4 general traffic lanes).

8.0 Dominion Road

Dominion Road: Typical Centre Platform



Figure 87 Typical Dominion centre platform sketch view to illustrate design consideration

8.0 Dominion Road

Dominion Road: Typical Centre Platform



Figure 88 Typical Dominion centre platform sketch view to illustrate design consideration

8.0 Dominion Road

Dominion Road: Typical Centre Platform

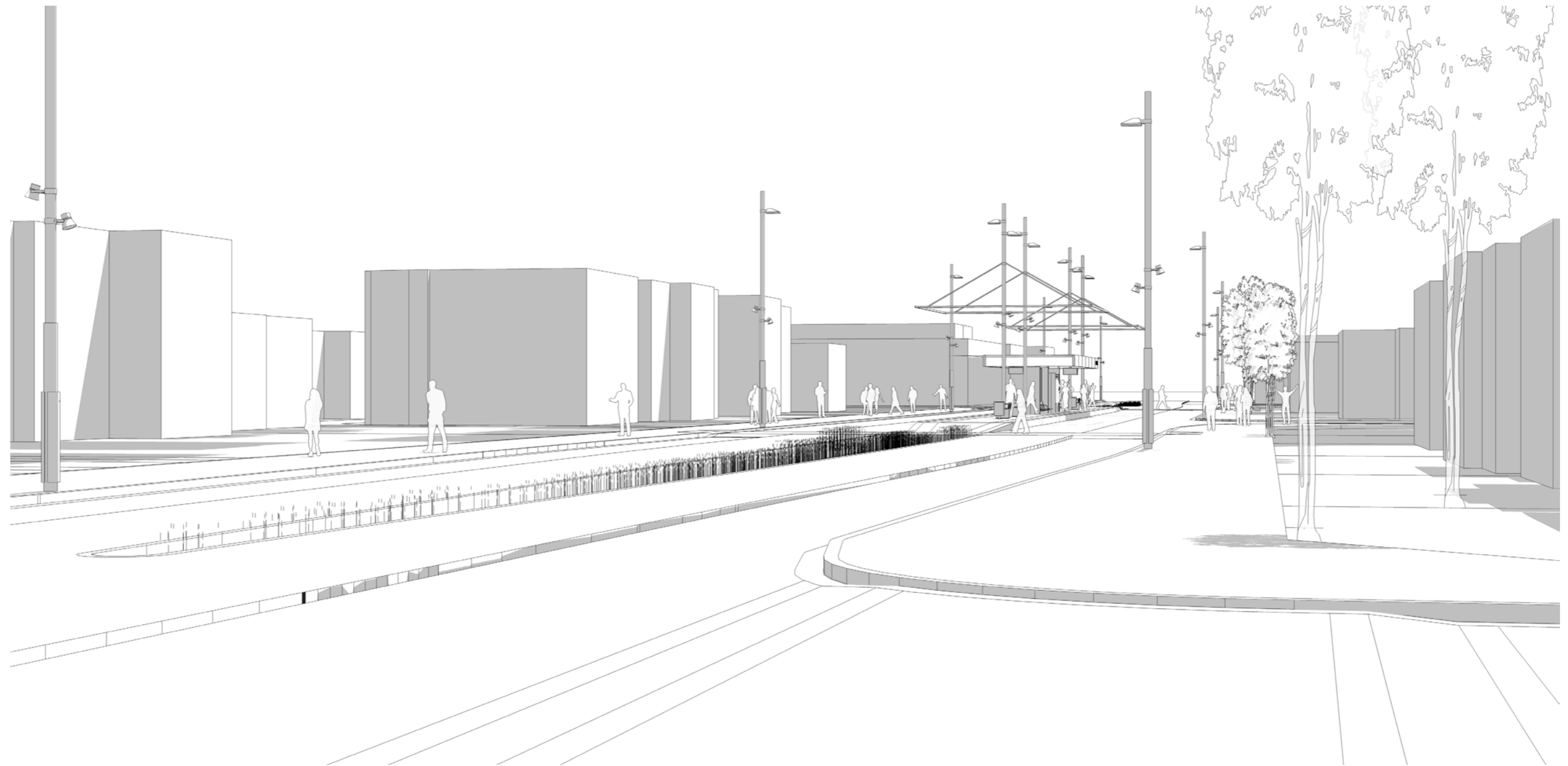


Figure 89 Typical Dominion centre platform sketch view to illustrate design consideration

8.0 Dominion Road

Balmoral Village : Existing Perspective

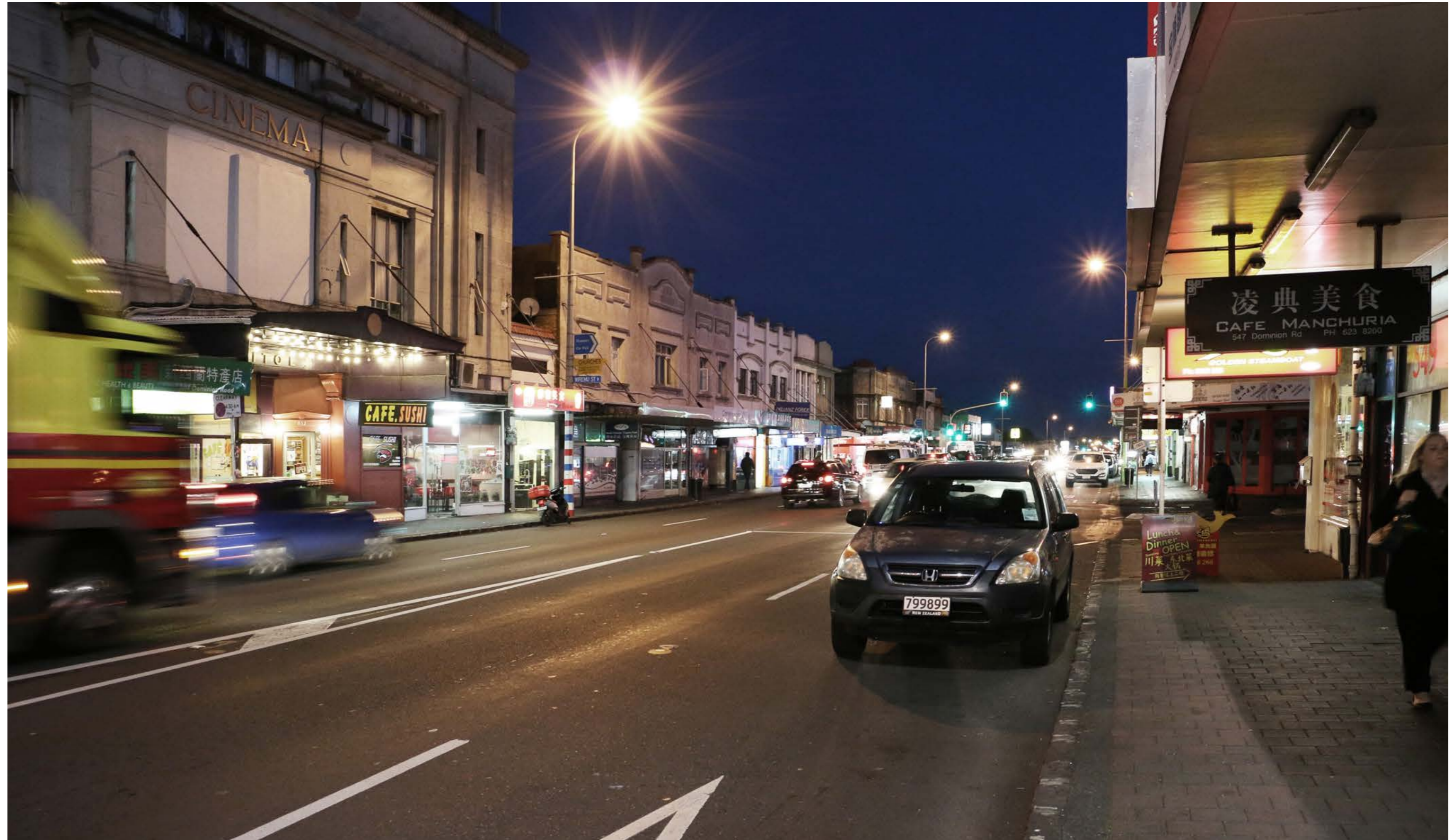


Figure 90 Existing Perspective: Dominion Road Balmoral shops western footpath looking south.

8.0 Dominion Road

Balmoral Village: Proposed Perspective



Figure 91 Proposed Perspective: Dominion Road Balmoral shops western footpath looking south with proposed LRV carriageway and streetscape treatments.

8.0 Dominion Road

Mt Roskill Village : Existing Perspective



Figure 92 Existing Perspective: Looking north along Dominion Road from centre of road at Mt Roskill shops

8.0 Dominion Road

Mt Roskill Village : Proposed Perspective



Figure 93 Proposed Perspective: Looking north along Dominion road from centre of road at Mt Roskill shops showing LRV carriageway and streetscape treatments.