

ARMADALE LINE UPGRADE PROJECT

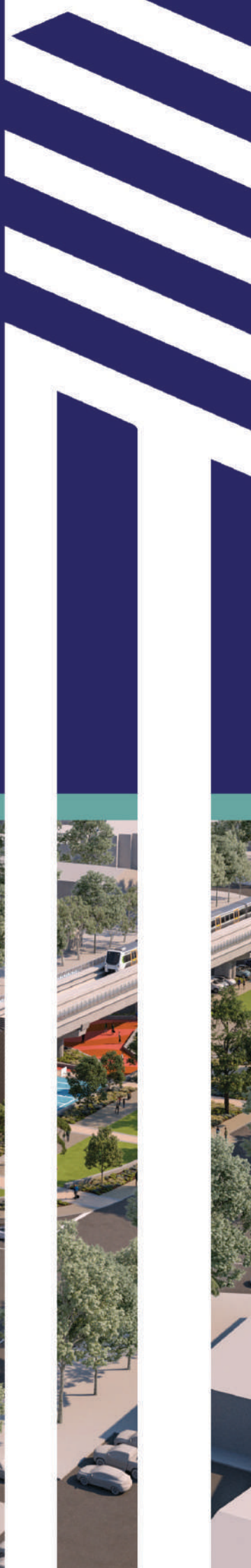
QUEENS PARK AND CANNINGTON TRAIN STATIONS, STATION PRECINCTS AND PUBLIC REALM – DEVELOPMENT APPLICATION NO. 2

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ARMADALE LINE UPGRADE ALLIANCE



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We acknowledge the Whadjuk people of the Noongar nation as Traditional Owners of the land on which we live and work.

We acknowledge and respect their enduring culture, their contribution to the life of this city, and Elders, past and present.

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Executive Summary

The Victoria Park-Canning Level Crossing Removal Project (VPCLXR) forms part of the METRONET rail program, which represents the single largest investment in public transport that Perth has seen.

In delivering approximately 77 kilometres of new passenger rail and 22 new train stations, the METRONET rail program acts as a catalyst to turn more than 8,000 hectares of land around new stations into desirable places to live, work and play.

The VPCLXR project is Perth's first major elevated rail line that will improve public transport safety, reduce traffic congestion and create new publicly accessible spaces for ongoing use by the community within the existing rail corridor. The VPCLXR project includes the following key components:

- Three sections of new elevated rail line, or viaduct, comprising piers, pier headstock and 'U trough/s'.
- The removal of six (6) existing level crossings at Mint Street, Oats Street, Welshpool Road, Hamilton Street, Wharf Street and William Street.
- The development of five (5) new, modern elevated train stations at Carlisle, Oats Street, Queens Park, Cannington and Beckenham.
- The removal of the existing Welshpool Train Station.
- New station precincts at ground plane level around each of the new train stations including bus interchanges at Oats Street and Cannington Stations, passenger parking and landscaping.
- New ground level public realm works between station precincts incorporating public spaces and facilities.

The VPCLXR project will be delivered by the Armadale Line Upgrade Alliance (ALUA) on behalf of the Office of Major Transport Infrastructure Delivery (OMTID) and the rail operator, the Public Transport Authority of Western Australia (PTA). The project is expected to be completed in the first half of 2025.

It was determined very early in the planning phases to make the VPCLXR project an elevated rail line, as opposed to putting the rail line underground. In this regard the extensive early planning and assessments undertaken by the State Government determined that an underground rail solution was not a feasible option, due to the availability of land for the project within the existing Metropolitan Region Scheme (MRS) Railways Reservation, the cost differential (both capital and ongoing operational costs) for sinking the rail rather than elevating it and given the success of similar elevated rail projects in the Eastern States such as the Caulfield to Dandenong Level Crossing Removal project and the Coburg to Moreland Level Crossing Removal project. It was clearly established as part of early planning processes that elevated rail, if done well, provides many positive benefits.

This development application is the second and final development application for the VPCLXR project within the City of Canning (the City). It relates only to that section of the VPCLXR project that is located in the City and is referred to as 'CDA2'. CDA2 follows the earlier development application (CDA1) which was lodged in October 2022 for the early works and structural components of the rail line, including the elevated rail line (viaduct) and associated structures, and operational railway infrastructure.

This development application includes the following scope of works:

- Elevated train station at Queens Park, including ground level station entry and concourse;
- Queens Park Station passenger parking (including Park 'n' Ride and Kiss 'n' Ride parking);
- Elevated train station at Cannington, including ground level station entry and concourse;
- Bus interchange at Cannington;
- Cannington Station passenger parking (including Park 'n' Ride, Kiss 'n' Ride and staff parking);
- At grade Principal Shared Path (PSP) modifications to augment the existing PSP adjacent to Railway Parade;
- Public realm initiatives and improvements between the north abutment adjacent to Mills Street and the southern abutment adjacent to Grosse Avenue, incorporating construction of new civic spaces, community nodes, a playground, youth plaza, dog park, pathways and landscaping; and
- Local road works and intersection modifications.

This application is the culmination of many months of design work for the VPCLXR project. As set out in the Design Report prepared by the ALUA (refer to Appendix F), the design process commenced with the METRONET Preliminary Place Plans, which were derived from engagement with the local community as undertaken by METRONET. ALUA built on this early METRONET work with the preparation of high level concept designs which were then refined and developed with more detailed community engagement. This further engagement was undertaken through: the MySay Transport website; Community Reference Groups (CRGs); pop up information booths; and through targeted consultation with business groups and key stakeholders.

The Final Place Plans, architectural plans and landscape plans have also been subject to design review and refinement through the State Design Review Panel (SDRP) and the Design Working Group which was formed to continue the consultative design review process in between SDRP reviews and has continued following the final SDRP review. The Design Working Group includes representatives from the Office of the Government Architect (OGA) and METRONET.

The proposed CDA2 works are located within the rail corridor and local road reserves adjoining the rail corridor, all of which are within Planning Control Area No.165 (PCA), which extends generally from Mills Street to Grosse Avenue as shown in Figures 1, 2, 3 and 4. A PCA is an enabling planning mechanism that allows the development application for this significant public infrastructure project to be considered and determined by the Western Australian Planning Commission (WAPC).

Refer to Figure 1 – Location Plan

Refer to Figure 2 – Aerial Plan

Refer to Figure 3 – Indicative extent of VPCLXR Works Included in the Development Application

Refer to Figure 4 – Concept diagram of extent of VPCLXR Project, with the extent of work that is included in this development application shown highlighted in blue outline (note that the viaduct structure was subject to an earlier, separate development application) (source: METRONET 2022)

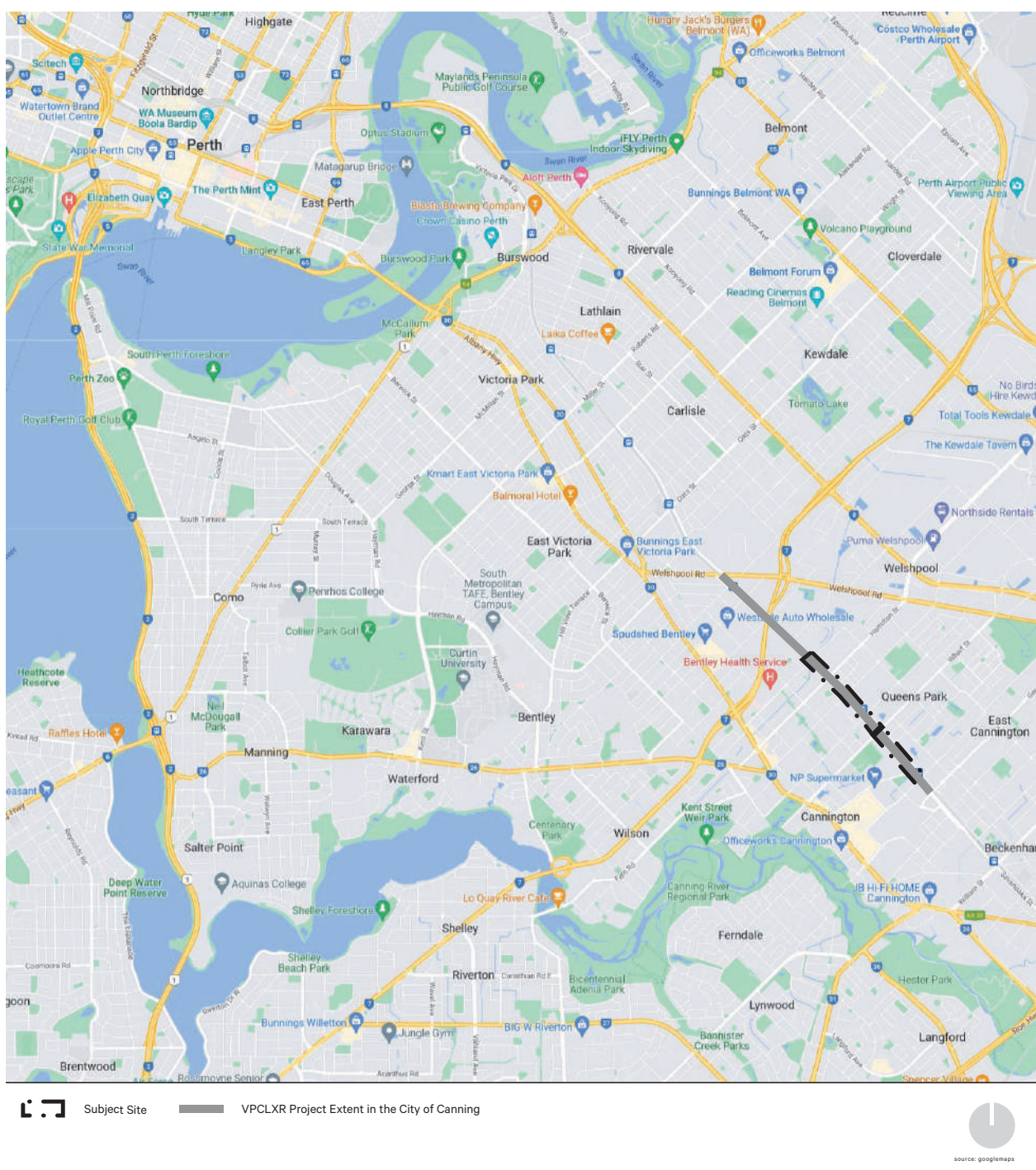





Figure 1. Location Plan



 Subject Site  VPCLXR Project Extent in the City of Canning  Existing Train Station


source: spookfish

Figure 2. Aerial Plan



Figure 3. Indicative extent of VPCLXR Works Included in the Development Application

**QUEENS PARK AND CANNINGTON TRAIN STATIONS, STATION PRECINCTS AND PUBLIC REALM –
DEVELOPMENT APPLICATION NO. 2**

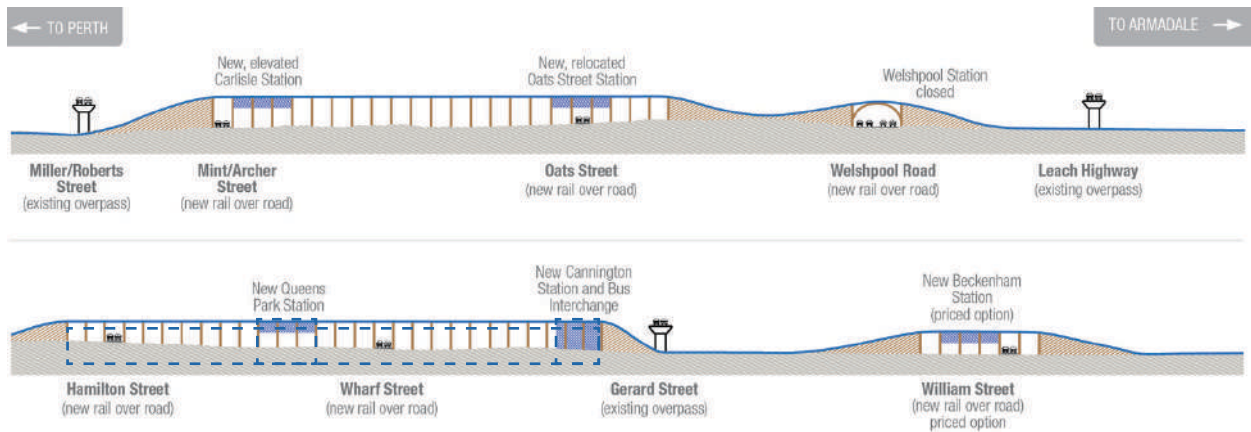


Figure 4. Concept diagram of extent of VPCLXR Project, with the extent of work that is included in this development application shown highlighted in blue outline (note that the viaduct structure was subject to an earlier, separate development application) (source: METRONET 2022)

A separate development application focusing on the Carlisle and Oats Street Train Stations, station precincts and associated public realm initiatives and improvements was submitted to the Town of Victoria Park (the Town) in February 2023. A further development application for the elevated rail line that is located within the City of Gosnells, including the new Beckenham Station and station precinct will be lodged in the second quarter of 2023 once the design work for this section of the upgraded rail line is sufficiently resolved.

Abbreviations

Abbreviation	Definition
ACP	Canning City Centre Activity Centre Plan
CRGs	Community Reference Groups
DAs	Development Applications
DoT	Department of Transport
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
GBN	Ground Borne Noise
GBV	Ground Borne Vibration
ITS	City of Canning Integrated Transport Strategy
LPP 02	Local Planning Policy 02 Public Consultation of Planning Proposals
LPP 03	Local Planning Policy 03 Developer Funded Public Art
LPP 06	Local Planning Policy 06 Design Review Panel and Assessment of Significant Developments
LPP 07	Local Planning Policy 07 Advertising Signs
LPP 09	Local Planning Policy 09 Tree Retention and Planting – Development
LPS	City of Canning Local Planning Strategy
LPS 42	Local Planning Scheme No. 42
METRONET Act	<i>Railway (METRONET) Act 2018</i>
MRWA	Main Roads WA
MNRG	METRONET Noongar Reference Group
OLE	Overhead Line Equipment
OMTID	Office of Major Transport Infrastructure Delivery
OGA	Office of the Government Architect
ORR	MRS Other Regional Roads Reserve
PCA	Planning Control Area
PD Act	<i>Planning and Development Act 2005</i>
PTA	Public Transport Authority
PSP	Principal Shared Path
QPLSP	Queens Park Local Structure Plan
SDRP	State Design Review Panel
SPP 5.1	State Planning Policy 5.1 Land use planning in the vicinity of Perth Airport
SPP 5.4	State Planning Policy 5.4 Road and Rail Noise
SPP 7.0	State Planning Policy 7.0 Design of the Built Environment
The City	City of Canning
The Town	Town of Victoria Park
TOD	Transit Orientated Development
VPCLXR	Victoria Park-Canning Level Crossing Removal project
WAPC	Western Australian Planning Commission



1. Introduction

This report has been prepared by **element**, as the nominated planning consultant for the Armadale Line Upgrade Alliance (ALUA), in support of an application for the delivery of the VPCLXR project within the City of Canning (the City).

This report has been prepared to provide:

- an overview of the VPCLXR project;
- an overview and explanation of the works that form part of this development application, requiring approval from the Western Australian Planning Commission (WAPC);
- an overview and explanation of the enabling works that were included in the first development application (CDA1) for the VPCLXR project, which was lodged in October 2022;
- an overview of the subject site for the purposes of this development application;
- an assessment of the proposal against relevant planning requirements; and
- an examination of the planning merits of the proposal.

This report is accompanied by detailed development plans and elevations as well as supporting technical reports, detailed as follows:

- Appendix A – Subject Site Details
- Appendix B – Requirements for Planning Approval
- Appendix C – Detailed Planning Assessment
- Appendix D – Certificates of Title
- Appendix E – PCA Boundary
- Appendix F – Design Report prepared by ALUA
- Appendix G – Architectural Drawings for Queens Park Train Station (Plans, Elevations, Typical Sections) prepared by ALUA
- Appendix H - Architectural Drawings for Cannington Train Station (Plans, Elevations, Typical Sections) prepared by ALUA
- Appendix I – Civil Corridor Landscape and Urban Design Package prepared by ALUA
- Appendix J – Transport Impact Assessment Report prepared by ALUA
- Appendix K – Public Space Consultation Outcomes Report prepared by ALUA
- Appendix L – Drainage General Arrangement Plans prepared by ALUA
- Appendix M - Public Art Opportunities document prepared by ALUA
- Appendix N – Civil Road Drawings prepared by ALUA
- Appendix O – Bus Interchange and Car Park Swept Path Diagrams prepared by ALUA
- Appendix P – Pier Cross Section
- Appendix Q – Draft Asset and Maintenance Management Plan
- Appendix R – Noise and Vibration Report – Queens Park Station prepared by ALUA
- Appendix S – Noise and Vibration Report – Cannington Station prepared by ALUA
- Appendix T – Environmental Comfort Assessment – Queens Park Station prepared by ALUA
- Appendix U – Environmental Comfort Assessment – Cannington Station prepared by ALUA

The overall VPCLXR project location is shown in Figures 5 to 8.

Further information in relation to the site details relevant to the development application have been included at Appendix A.

Refer to Appendix A – Subject Site Details

Refer to Figure 5 – Indicative extent of full VPCLXR project

Refer to Figure 6 – Location Plan - extent of VPCLXR Project within the City of Canning

Refer to Figure 7 – Aerial Plan – extent of VPCLXR Project within the City of Canning

Refer to Figure 8 – Site Plan – extent of VPCLXR Project within the City of Canning



Figure 5. Indicative extent of full VPCLXR project (extending through the Town of Victoria Park, the City of Canning and the City of Gosnells)

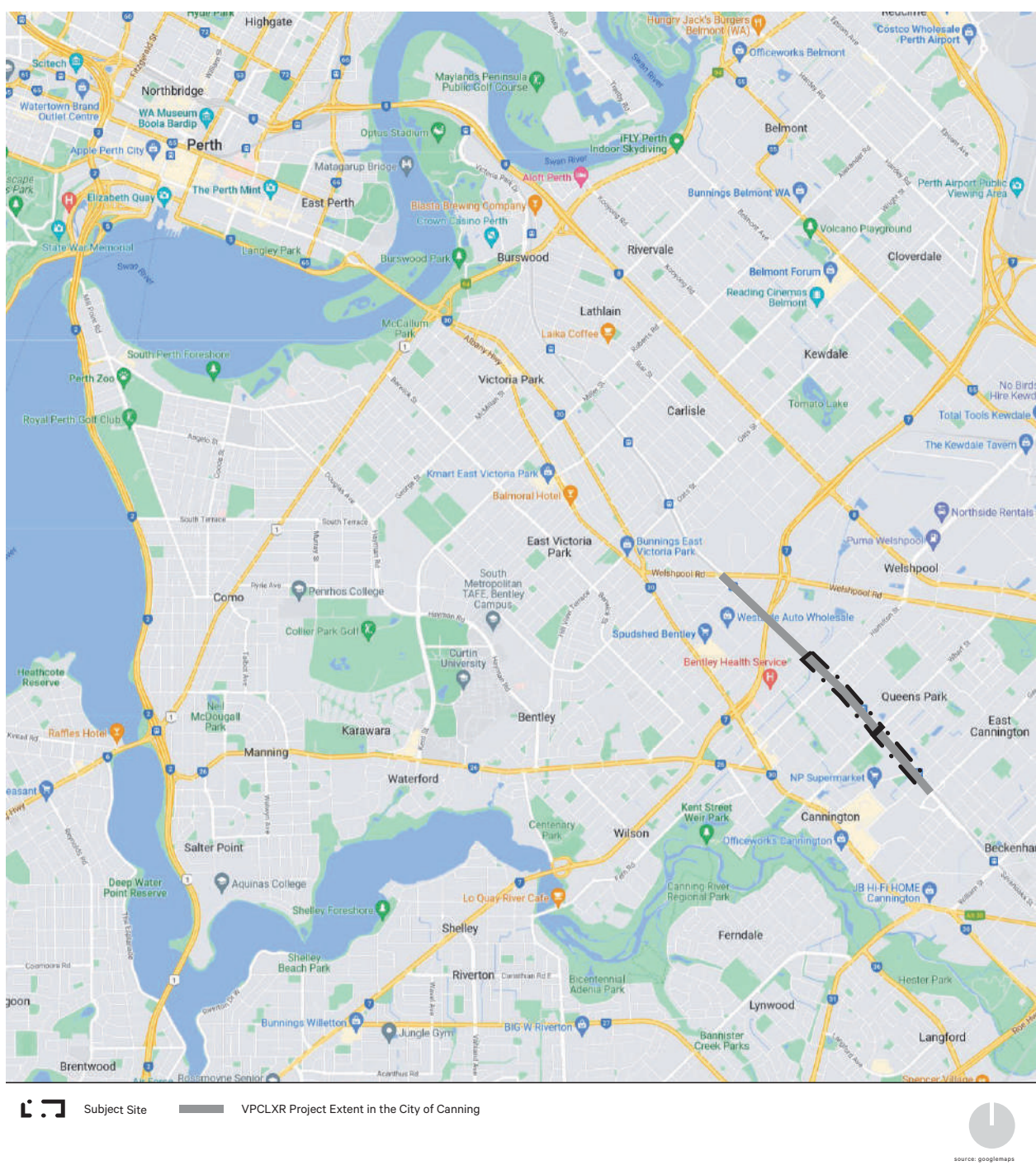





Figure 6. Location Plan - extent of VPCLXR Project within the City of Canning



 Subject Site  VPCLXR Project Extent in the City of Canning  Existing Train Station


source: spookfish

Figure 7. Aerial Plan – extent of VPCLXR Project within the City of Canning

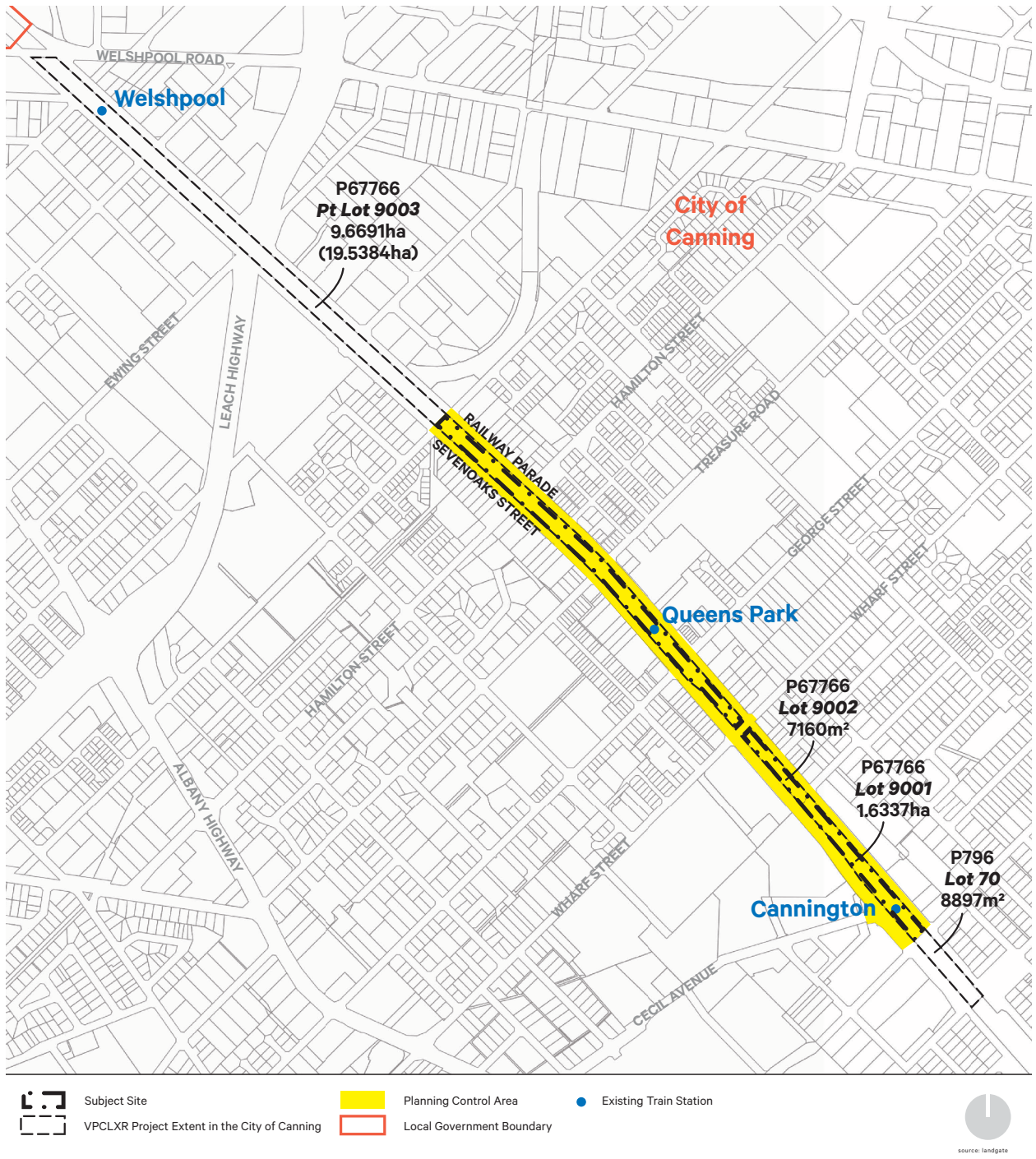


Figure 8. Site Plan – extent of VPCLXR Project within the City of Canning

This development application is the second and final development application for the VPCLXR project within the City of Canning (the City). It relates only to that section of the VPCLXR project that is located in the City and is referred to as 'CDA2'. CDA2 follows the earlier development application (CDA1) which was lodged in October 2022 for the early works and structural components of the rail line, including the elevated rail line (viaduct) and associated structures and operational railway infrastructure. CDA1 was approved by the Western Australian Planning Commission (WAPC) in February 2023.

This application seeks approval for the following VPCLXR project components:

Queens Park Train Station Works:

- Construction of an elevated train station at Queens Park, including ground level station entry and concourse;
- Redevelopment of the Queens Park passenger parking to provide new Park 'n' Ride and Kiss 'n' Ride facilities; and
- Emergency and service parking facilities at Queens Park.

Cannington Train Station Works:

- Construction of an elevated train station at Cannington, including ground level station entry and concourse;
- Construction of a new bus interchange;
- Redevelopment of the Cannington passenger parking to provide new Park 'n' Ride and Kiss 'n' Ride facilities; and
- PTA staff parking, loading bay, emergency and service parking facilities at Cannington.

Other Project Works:

- Modifications to the existing at grade Principal Shared Path (PSP) to augment the existing PSP adjacent to Railway Parade;
- Public realm initiatives and improvements between the north abutment adjacent to Mills Street and the southern abutment adjacent to Grosse Avenue, incorporating construction of new civic spaces, community nodes, a playground, youth plaza, dog park, pathways and landscaping; and
- Local road works and intersection modifications.

This report has been prepared to provide an overview of the subject site and the proposed project works, as well as an assessment against relevant planning requirements and an examination of the planning justifications for the proposal. The application is also accompanied by supporting plans and technical documents, as discussed throughout this report.

Refer to Appendix F – Design Report prepared by ALUA

Refer to Appendix G – Architectural Drawings for Queens Park Train Station (Plans, Elevations, Typical Sections) prepared by ALUA

Refer to Appendix H - Architectural Drawings for Cannington Train Station (Plans, Elevations, Typical Sections) prepared by ALUA

Refer to Appendix I – Civil Corridor Landscape and Urban Design Package prepared by ALUA

1.1 Project Overview

The VPCLXR project will deliver an elevated rail line and rail stations for a section of the Armadale Rail Line commencing to the south east of the existing Miller Street overpass in Victoria Park and extending to the south of the existing William Street crossing in Beckenham. The project will also create new and connected open spaces, parkland and community infrastructure that will act as a catalyst for positive social interaction and urban renewal within the surrounding area.

In August 2022 it was announced that there would be a further section of elevated rail added to the scope of the project, extending the project into the City of Gosnells, to include a new Beckenham Train Station and the removal of the William Street level crossing. Given the late inclusion of this section of the rail line in the VPCLXR project, the development applications for the part of the project that is included in the City of Gosnells will follow at a later stage.

The project is designed to improve public transport safety, improve road safety and reduce traffic congestion, improve accessibility to stations for all users and create new and versatile public spaces for the community. The key project works include:

- Three sections of new elevated rail line, or viaduct, comprising piers, pier headstock and ‘U trough/s’.
- The removal of six (6) existing level crossings at Mint Street, Oats Street, Welshpool Road, Hamilton Street, Wharf Street and William Street.
- The redevelopment five (5) new, modern elevated train stations at Carlisle, Oats Street, Queens Park, Cannington and Beckenham.
- The removal of the existing Welshpool Train Station.
- New station precincts at ground plane level around each of the new stations including bus facilities, passenger parking and landscaping.
- New ground level public realm works between station precincts incorporating public spaces and facilities.

Refer to Figure 9 – Concept diagram of extent of VPCLXR Project

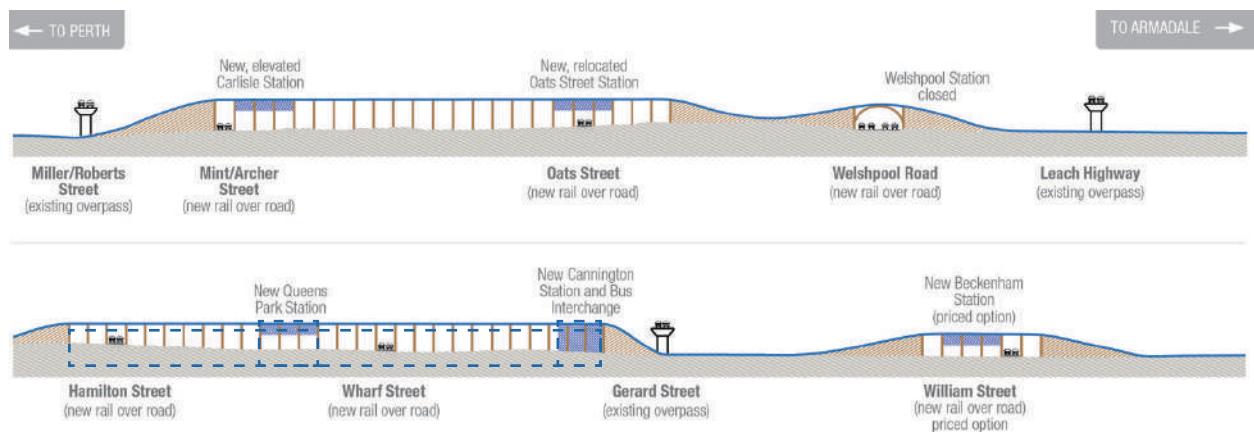


Figure 9. Concept diagram of extent of VPCLXR Project, with the extent of work that is included in this development application shown highlighted in blue outline (note that the viaduct structure was subject to an earlier, separate development application) (source: METRONET 2022)

This development application relates to the Queens Park and Cannington Train Stations, station precincts and associated public realm improvements that are located within the City. This development application follows the earlier development application (CDA1) which was lodged in October 2022 for the early works and structural components of the rail line located within the City, including the elevated rail line (viaduct) and associated structures and operational railway infrastructure. CDA1 was approved by the Western Australian Planning Commission (WAPC) in February 2023.

A separate development application has been prepared and submitted for the Carlisle and Oats Street Train Stations, station precincts and associated public realm improvements that are proposed within the Town of Victoria Park.

The following diagram explains the structure and separation of the development applications for specific components of the VPCLXR project. At this point in time, given the relatively recent inclusion of the Beckenham Station and City of Gosnells section of the rail upgrades in the VPCLXR project, it has not yet been confirmed how the Gosnells components will be progressed or the associated timing for lodgement of applications. At this stage it is anticipated that this is most likely to be a single consolidated development application for the viaduct structure, Beckenham Train Station, Beckenham Station precinct and associated public realm improvements within the City of Gosnells.

Refer to Figure 10 – Anticipated Development Application Staging

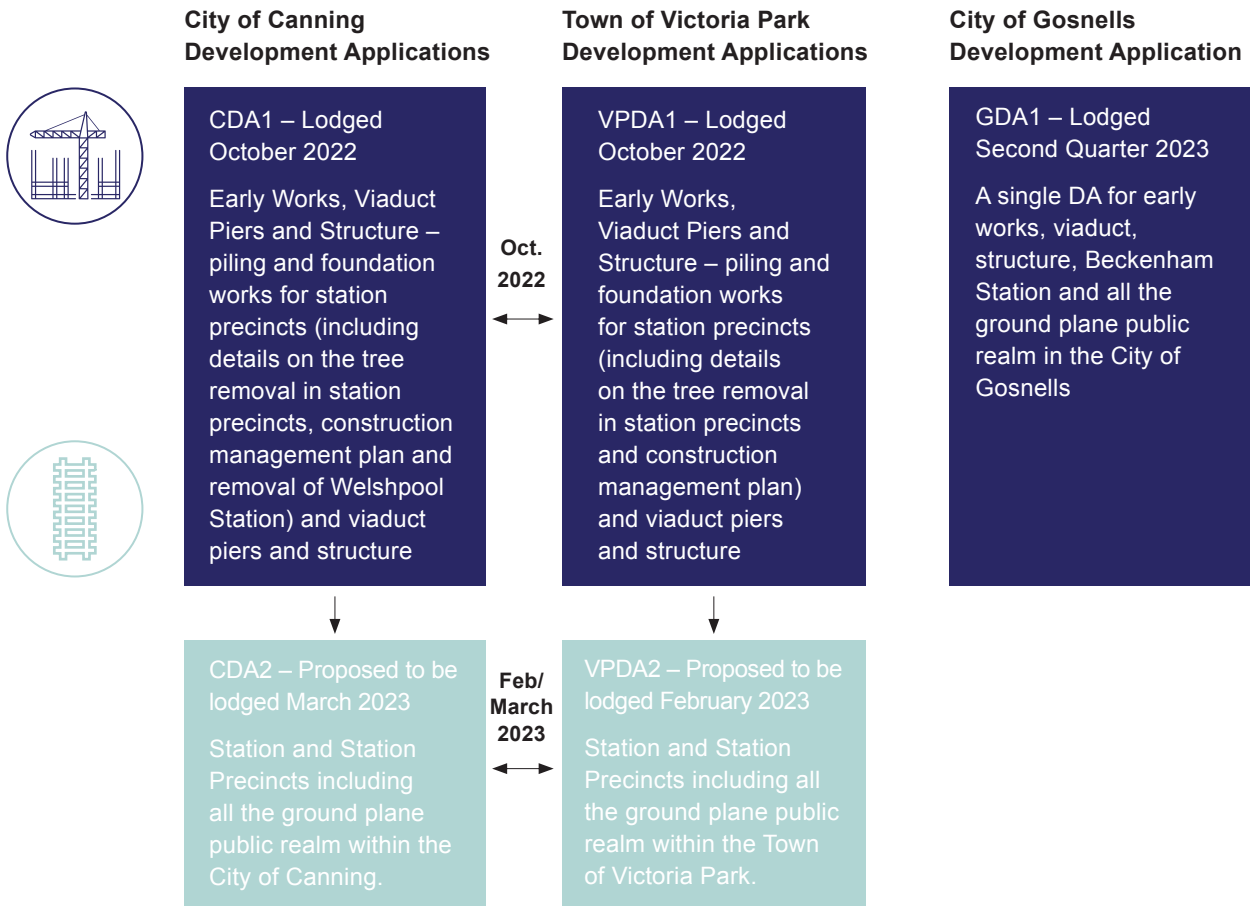


Figure 10. Anticipated Development Application Staging

1.2 Project Team

Table 1: Consultant List

Consortium (providing engineering and construction expertise and delivering the project)	Armadale Line Upgrade Alliance <ul style="list-style-type: none"> • Acciona Construction Australia Pty Ltd; • BMD Constructions Pty Ltd; • WSP Australia Pty Ltd; and • AECOM Australia Pty Ltd.
Planning Consultant	element
Architect and Landscape Architect	Hassell (part of the ALUA consortium)

1.3 Planning Approval Pathway

The planning approval process for the VPCLXR project is controlled by several key legislative and regulatory provisions, as summarised below:

- The *Planning and Development Act 2005* (PD Act), which provides exemptions for ‘public works’ from the need to obtain planning approval for such developments under the applicable local government planning framework (i.e. under a local government local planning scheme);
- The *Metropolitan Region Scheme* (MRS), which exempts all work for, or in connection with a railway that are located inside a designated railways reservations from the need for planning approval, other than for the construction or alteration of a railway station, or any related car parks, public transport interchange facilities or associated means of pedestrian or vehicular access;
- Declaration of Planning Control Area No.165 (PCA) under Part 7 of the PD Act. A PCA is an enabling planning mechanism that requires that all development within the PCA is to be considered and determined by the WAPC; and
- The *Railway (METRONET) Act 2018* (METRONET Act) includes the VPCLXR project, which means that certain METRONET works, other than for the construction or alteration of a railway station, or any related car parks, public transport interchange facilities or associated means of pedestrian or vehicular access, are exempt from the need to obtain planning approval where these METRONET works are situated outside of the designated MRS Railways Reservation. The relevant legislative framework that applies to the VPCLXR project has been described in more detail at Appendix B.

Refer to Appendix B – Requirements for Planning Approval

The VPCLXR project works that form part of this application includes the construction of new railway stations, new related car parks, new public transport interchange facilities and new associated means of pedestrian and/or vehicular access and accordingly, these works would not be exempt under either the MRS or the METRONET Act irrespective of the PCA. Nonetheless the works are also generally located within the railways reservation under the MRS and are all within the PCA and therefore require approval from the WAPC under the provisions that relate to PCAs. Further information on the planning approval process is provided in Section 5 of this report.

1.4 Related Approval Processes

Figure 11 below illustrates the typical assessment process which will be followed for each development application, including required public consultation and notification requirements.

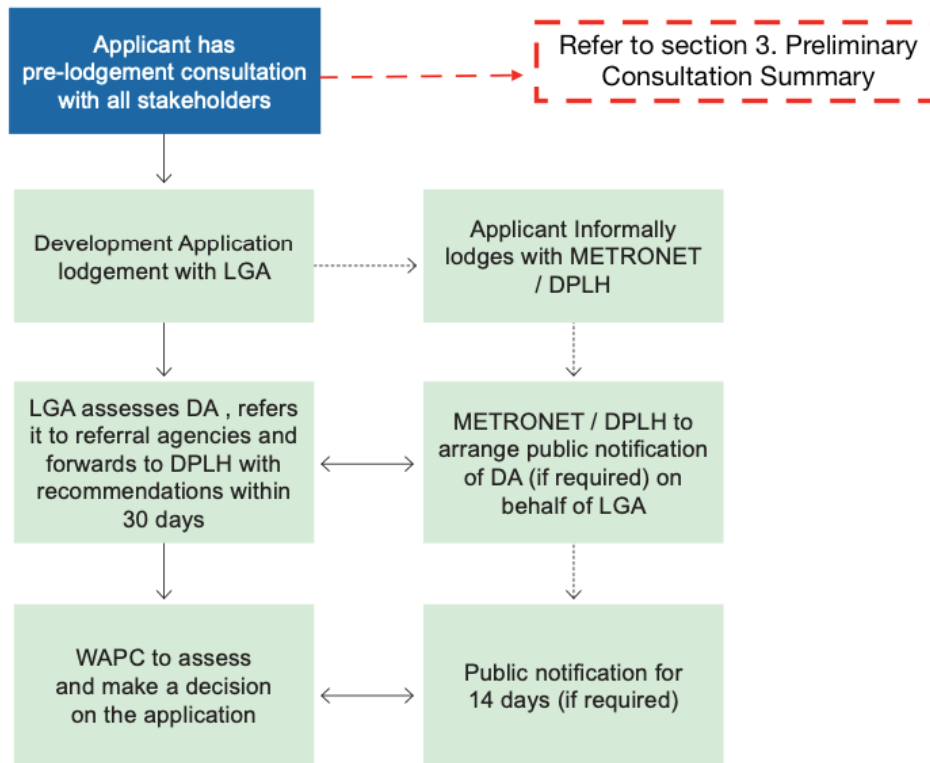


Figure 11. Typical development application assessment flow chart

As demonstrated in Figure 11, the applications will be referred to a number of State Government Agencies, who are key stakeholders for the VPCLXR project. The referral agencies include but are not limited to:

- METRONET;
- Office of the Government Architect;
- Public Transport Authority;
- Main Roads Western Australia; and
- Department of Water and Environmental Regulation.

These stakeholders will be given an opportunity to review the applications and provide comments and recommendations to the WAPC that will be used to inform the assessment of the proposed development and to set any associated conditions of approval.

2. Project Background

The VPCLXR project is Perth's first major elevated rail line designed to improve public transport safety, improve road safety and reduce traffic congestion, improve accessibility to stations for all users and create new and versatile public spaces for the community.

Level crossings on the Armadale Rail Line have been causing significant problems, including vehicle and pedestrian safety issues and traffic congestion and delays. The removal of the level crossings will address the objectives of the METRONET rail program by:

- Supporting sustainable economic growth in Perth;
- Improving connectivity between communities and businesses; and
- Increasing accessible travel and lifestyle options.

The VPCLXR project proposes the removal of six level crossings along the Armadale Rail Line including; the Mint Street, Oats Street, Welshpool Road, Hamilton Street, Wharf Street and William Street level crossings. The new elevated rail line or viaduct will allow the removal of the level crossings by removing the movement barrier associated with the existing at grade rail line. As a consequence of the elevated rail line all existing at grade train stations along this part of the line will need to be removed and replaced with new elevated train stations and associated public parking, bus interchange and public realm treatments, including new public spaces and facilities.

It was determined very early in the planning phases to make the VPCLXR project an elevated rail line, as opposed to putting the rail line underground. In this regard the extensive early planning and assessments undertaken by the State Government determined that an underground rail solution was not a feasible option, due to the availability of land for the project within the MRS Railways Reservation, the cost differential (both capital and ongoing operational costs) for sinking the rail rather than elevating it and given the success of similar elevated rail projects in the Eastern States including the Caulfield to Dandenong Level Crossing Removal project and the Coburg to Moreland Level Crossing Removal project. It was clearly established as part of early planning processes that elevated rail, if done well, provides many positive benefits, which include:

- Elevated rail stations can be configured to have two or more entries, which can improve accessibility and can extend the station catchment, thus enhancing the integration between land use and public transport for the benefit of the local community. Multiple entrances are generally more difficult and costly for underground stations.
- Elevated rail lines are able to be constructed more efficiently and quickly than underground rail, minimising disruption to rail services.
- Opportunities to build over underground rail are limited due to structural load limitations and limitations on basement construction.
- Underground rail can be challenging in areas where the water table is high, introducing risk of flooding and increasing the complexity of construction.
- Elevated rail provides the opportunity to readily add capacity to the rail network at a later date by duplicating the viaduct if needed. These opportunities are much more difficult in an underground scenario and generally require tunnel duplication.
- Elevated rail provides the opportunity to easily integrate ground level development at a later date within the space under the viaduct, which provides the opportunity to stimulate desirable economic and social development around stations at the appropriate time.
- Both elevated rail and underground rail can deliver an extended networks of linear parks and dedicated pathways for safer walking and cycling.
- Elevated rail offers rail passengers a superior passenger experience, with views and way-finding when compared with underground rail.
- Elevated rail requires less electricity for cooling and lighting than underground rail.
- Elevated rail is more efficient and safer for the rail operator in the long term.

Many cities across the world are showing a strong preference for elevated rail over underground rail systems, these include¹:

- Bangkok has the BTS Skytrain, which has been so successful that additional elevated rail is being planned.
- New York and Berlin have systems which mix underground rail and elevated rail.
- Dubai has an elevated metro system.
- Singapore's MRT runs underground through the city centre but is elevated in the less congested outskirts of the city.
- Delhi has a mostly elevated metro system.

The new elevated rail line will create a major opportunity for positive and desirable land use changes that generate:

- Increased recreational opportunities (active and passive) and social interaction associated with new public spaces and facilities at ground level along the length of the viaduct;
- Improved amenity for the surrounding areas from new public open space and an upgraded public realm;
- Reduced urban heat island effect through increasing vegetation and tree canopy along the length of the project;
- Improved passive surveillance and safety as a result of designing the new infrastructure and public realm in a manner that is consistent with the principles of Crime Prevention Through Environmental Design (CPTED);
- Opportunities to increase public use and patronage of the rail line through the provision of new train stations, bus interchanges and parking facilities;
- Opportunities to support enhanced community interaction and activity through the delivery of event spaces within the public realm (station forecourts and appropriately configured public spaces) that support 'pop up' events and markets (or similar); and
- Opportunities to leverage new local development opportunities from the significant investment in public infrastructure and improvements in the local environment.

The project has been designated by the WA Government as a 'project under acceleration' as part of its commitment to economic recovery in the wake of the COVID-19 pandemic and is outlined in the State Government's WA Recovery Plan.

Removing the level crossings will allow road traffic to move more safely and efficiently by travelling beneath the rail line without stopping or queueing for boom-gate closures. The area underneath the raised rail line will be transformed into public open space and will facilitate active transport connectivity through the project area and beyond. The new train stations with longer platform lengths will also be able to service longer train sets.

Whilst most of the existing stations are to be rebuilt as elevated stations, Welshpool Station is to be removed from the system due to its low patronage numbers.

The project is to be principally constructed during an 18 month shut down period during which the rail line will be closed and replacement bus services will be in operation. METRONET has publicly acknowledged that this shutdown process will be disruptive to the community however it was determined as the most appropriate option to deliver the new rail line quickly and safely. Temporary bus stops and bus interchanges will also be established during this period to support replacement bus services until the new permanent bus stops and interchanges come on line as part of the delivery of the VPCLXR project. Importantly, the recent shut down of the Mandurah line in January 2022 has provided Transperth with a number of valuable learnings that will help to ensure that when the Armadale Line is shut the replacement bus network will provide a suitable alternative.

¹ <https://www.hindustantimes.com/mumbai-news/despite-advantages-of-underground-mrt-cities-prefer-a-mix-of-elevated-and-underground-metros/story-I5US12iyHL1WadOS6jXKDI.html> (September 02, 2019)

3. Preliminary Consultation Summary

3.1 Pre-Lodgement Agency and Community Consultation

3.1.1 Community Consultation

METRONET commenced consultation on the VPCLXR project with the community in 2020 with advertisements relating to the project released to the public as early as June 2020 through online mediums and letterbox drops.

Early engagement with the local community included in-person briefings before moving online for a few months due to the restrictions brought on by the COVID-19 pandemic. A summary of the communication and engagement statistics are listed below:

- 2020: A total of 44 sessions/online advertisements reaching approximately 110,347 individuals;
- 2021: A total of 28 sessions/online advertisements reaching approximately 68,941 individuals; and
- 2022: One (1) letterbox drop reaching 60 individuals.

The information provided to the public included updates on the project, requests for input, services notices and general information relating to the project.

Two Community Reference Groups (CRGs) were established to help inform the design concepts for the VPCLXR project. The Oats Street CRG covers the works proposed to Oats Street, Mint Street and Welshpool Road and the Wharf Street Community Reference Group (Wharf Street CRG) covers Wharf, Hamilton and William Streets. The groups are each made up of 10 residents, business owners and community group representatives. The works proposed as part of this report were reviewed by the Wharf Street CRG.

Four (4) meetings were held with the Wharf Street CRG across 2020 and 2021. These CRGs were facilitated by METRONET prior to ALUA's involvement in the project. The CRG members reviewed early design concepts to decide the best locations for public spaces, facilities and access points. These meetings primarily discussed the desired public realm outcomes associated with the project.

Between July and September 2022 ALUA undertook a public space community engagement program to inform the public space design of the VPCLXR project, with the aim of raising awareness of the project, as well as seeking feedback from the community that are living and working around the VPCLXR project boundary.

Key highlights of this most recent ALUA consultation program included:

- Information flyers dropped to 17,266 residents and a social media campaign to raise awareness of the consultation program.
- A dedicated online engagement platform provided affected local communities with information and opportunities to provide feedback into the process.
- An online survey, which was completed by 292 community members, demonstrated community preferences and ideas for future public spaces.
- Key community and interest groups representative of the local communities engaged through tailored workshops.
- Pop up information sessions were held in the VPCLXR project area to connect with the local community.
- Collaboration with the project's two CRGs.
- Engagement with industry and local government representatives to collect their insights.
- Consistent and timely information delivered through the METRONET project website and social media.

The key themes that emerged from the ALUA consultation, which have influenced the design of the public realm improvements include:

- **Connectedness** – a desire to feel more connected to places, people and opportunities.
- **Activation** – the excitement of new activities that support social interaction.
- **Movement** – the opportunity to create convenient ways to travel between home, work, school and local places.
- **Safety** – a strong desire for both individual and community safety through good design.
- **Environment** – a desire for greater connection to the natural environment.

The key themes that emerged from the community's feedback have been fundamental to ALUA's design process, which includes balancing the vision identified by the community within the limitations of the VPCLXR project area. Some stakeholders were interested in elements relating to the whole project while others were interested in the detail. Some of the key design outcomes that have been shaped by this consultation process include:

- High quality and flexible community spaces in station plazas and along the corridor to enable a range of programming including community events (music festivals, food vans, markets etc). The programming of spaces will be reviewed by local governments and the PTA.
- At Cannington Station the design accommodates flexible spaces around the station precinct, allowing for the expansion of small businesses as the City's population continues to grow.
- The Youth Plaza was relocated in response to feedback from the community, to be opposite the Cannington Leisureplex to allow between access to surrounding schools and users. A bouldering zone is also to be incorporated into the Cannington Station precinct.
- Pedestrian links to Queens Park Soccer Stadium have been reinforced from Cannington Station and the proposed Youth Plaza.
- A play opportunity has been created for pre-school children south of the Queens Park Station Plaza. A public art opportunity to reflect the local culture is also being explored for this area.
- In Cannington a dog park will be developed north of the Queens Park Station.
- Refining the location and alignment of pedestrian crossing connections between key destinations identified by the community.
- The online survey identified the most important activity or infrastructure for the community was universally accessible and connected footpaths. On this basis, particular attention has been paid to commuter cyclist routes and community recreational paths. The design team has tested the path width, reviewed sight lines and considered appropriate signage along the corridor.
- Along the length of the rail corridor people were keen to preserve the effectiveness of the existing shared paths. Supporting elements such as drink fountains, bike racks (including bike shelters) will be provided in all station precincts.
- Conflict points along shared paths and other recreational pathways have been reviewed. Paths have been re-aligned to reduce potential collision points and to emphasise the need for fast commuters to be located at the outer boundary of the rail corridor with slower, relaxed cycling and walking to occur under the shade of the elevated rail and trees.
- Ensuring adequate parking is available was important to the community. The number of parking bays currently available will be generally maintained following the delivery of the project.
- Sister Kate's in Queens Park requested an interpretive area that acknowledges the movement of Sister Kate's children along Treasure Road to Queens Park Station and onto Kent Street weir. Positive representation of aboriginal people and stories is one of many local references that will be included in the public art strategy.
- Easy pick up and drop off areas was a re-occurring theme in the feedback and kiss and ride facilities will be made available at all stations.
- The design of the Queens Park station plaza and access to it will be respected and the existing pedestrian crossing opposite the Hambley's IGA will be maintained.

- Queens Park is home to many different ethnic groups and is one of the most multi-cultural suburbs in Perth. Within the Queens Park Station precinct, the design provides culturally safe spaces. This includes:
 - Community eating spaces that enable men and women to sit separately, as is the custom for large gatherings of some cultural groups in the area.
 - The art strategy will respond to the different local stories of these groups.
- Safety includes cultural safety, and the Bush Block at Sister Kate’s is a place of healing, it is the only “Bush Block” in the City of Canning. In response, the Bush Block within the corridor is to be renamed and will integrate first plants and collection of first plant seeds.
- The Sevenoaks Senior College and Canning Community College were identified as important destinations from the Cannington Train Station. Students identified the desire for clear, safe connections between the station and the schools and this has been a key design driver. The design will strengthen key movement networks between these destinations. A signalised crossing has also been introduced opposite Sevenoaks Senior College, which will allow more direct access to the Cannington Station precinct and bus interchange.
- The long stay car park north of the Queens Park Station was separated by landscaping from the train station. Liaison with the PTA has seen the refinement of the design to provide a safer outcome for passengers
- Selecting local, “first”, native seeds in the landscape planting.
- Emphasis on creating shade and tree canopy.
- Increasing the extent of green lawn and open spaces, in consultation with local governments.
- Water came up as an important design element, driven by the community’s desire to reference the river and water ways. A focus on sustainability and Water Sensitive Urban Design (WSUD) has influenced the design outcomes for public spaces.

Further detail on the process undertaken by ALUA and the outcomes that have influenced the final project design are included in the Public Spaces Consultation Report included at Appendix K.

Refer to Appendix K - Public Spaces Consultation Outcomes Report

3.1.2 Stakeholder Consultation

ALUA has continued to engage with a number of key stakeholders that are relevant to VPCLXR project. These have included:

- METRONET;
- Department of Planning, Lands and Heritage Assessment Teams;
- Office of the Government Architect;
- State Design Review Panel;
- Public Transport Authority;
- City of Canning;
- Town of Victoria Park;
- City of Gosnells;
- Community Reference Groups;
- METRONET Noongar Reference Group;
- Main Roads;
- Western Power;
- Other relevant servicing agencies (i.e. ATCO gas).



Cannington

4. Site Analysis and Design Response

4.1 Design Principles

State Planning Policy 7.0 – Design of the Built Environment (SPP 7.0) requires that new development proposals and planning frameworks address design principles within the policy which have been identified to promote good design outcomes. ALUA has prepared design principles responses for the Final Place Plans, for the new train stations and station precincts and for the landscaped public realm to address how the proposed design of the VPCLXR project responds to the SPP 7.0 design principles. These responses are summarised in Table 2 below.

Table 2 – Assessment Against SPP 7.0

Principle	Response
Context and Character	
<i>Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.</i>	<p>The Queens Park and Cannington Train Stations have been carefully designed in response to local context. They have been designed to be 'good neighbours' by enhancing and celebrating the elements that make each place unique, building on local Aboriginal and post-colonial histories and stories. The stations recognise the buildings, streets and landscapes appreciated by the locals from the vernacular Australian homes to the watering holes and wetlands by the Swan River. The stations materiality and colouration is designed to be distinct and responsive to local contexts whilst maintaining a consistent line-wide character. The local context response includes:</p> <p>Queens Park</p> <ul style="list-style-type: none"> • Queens Park Station has been designed to provide a strong sense of community belonging, incorporating a generous station forecourt with seating walls for informal seating, gathering, waiting and resting. The public realm of the station also includes strong pedestrian connections to local schools, shops and businesses. The southern plaza links to the adjacent play space and community hub lawns to provide a large activation space for community events such as markets and music concerts. • The Queens Park Station uses rich, reflective, coppery earth toned materials to the soffit and lattice of the station in reference to the richness of the earth and natural water holes. • The Queens Park Station's distinctive earthy colours are proposed to form a visual landmark which is more visible from a greater distance given the larger urban grain and distance of adjacent properties. • The roof line of the Queens Park Station is proposed to reflect the adjacent St Joseph's school and the wider residential suburb. • Recognising the larger urban grain of the Queens Park Station context, there is greater importance in providing shade and structure in the urban realm, which has been addressed in the design. <p>Cannington</p> <ul style="list-style-type: none"> • At Cannington, the station building is designed to be a visually prominent urban marker when viewed along Cecil Avenue and from further afield. The use of a central island platform provides greater separation to adjoining properties and thus enables the use of a visually permeable platform façade treatment. Accordingly, for the Cannington Train Station it is proposed to utilise an angled lattice façade which retains common design language with the other stations being developed as part of the VPCLXR project but with much higher levels of transparency. • The proposed lattice façade of the Cannington Station provides an opportunity for the integration of artwork and lighting to enhance the building's role as a community landmark. • A large civil forecourt is provided at the Cannington Train Station which will function as part of the existing urban corridor and will reflect the landmark nature of the station whilst providing space for community activation, hospitality, social gathering and recreation. • The Cannington Youth Plaza is located to be proximate to the Cannington Leisureplex given the synergy between these uses.

Principle	Response
Landscape quality	
<i>Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.</i>	<p>The hard and soft landscape, and urban design elements throughout the corridor are imbued with stories and meaningful connection to the community, to First Nations 'Country', to place, and beyond.</p> <p>Each part of the public realm has been carefully designed in a considered manner to provide places that respond to the local identity and streetscape character. The principles applied to each of the areas seeks to enhance sustainability, reinforce identity, encourage connectivity across the rail corridor, connect local communities, create safe and comfortable spaces and to promote activation and development.</p> <p>The consideration of environmental factors such as water and soil management, ground and site conditions, solar access, micro-climate tree canopy, urban heat island impacts, habitat creation and preservation of green infrastructure has also been incorporated in the landscape design. The native planting palette is used to define character and promote biodiversity, with the aim to restore lost and damaged ecosystems and endemic vegetation complexes, where possible.</p>
Built form and scale	
<i>Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.</i>	<p>The scale, massing and height of each station building responds to the form of the viaduct and the need to provide appropriate weather protection to stations whilst also responding to the adjacent planned built fabric and desirable future higher density development. Whilst the train station buildings are prominent, they are designed to be urban markers without forming new physical and visual barriers. The built form is broken up into compartments to maximise visual porosity whilst also providing sufficient weather protection.</p> <p>The orientation, proportion, composition, and articulation of the built form elements responds to the context of the local setting whilst providing functional train stations. This includes:</p> <p>Queens Park</p> <ul style="list-style-type: none"> • The use of the angled lattice façade at the Cannington Station which responds to the island platform at this station and the larger setbacks to its neighbours. It also facilitates the potential integration of artwork into the lattice design and lighting to create a distinctive landmark which responds to the city centre location of this station in Cannington. • The proposed lattice facade to Cannington is taller and more prominent than the structures provided to the other stations given its city centre location. • The roof form of Queens Park Station diffuses into a lattice structure over the upper part of the stairwell to reference the design approach used elsewhere in the VPCLXR project (at Carlisle and Oats Street Stations). This references the verandah structures found on many inter-war homes in the area and also provides transparency at the stairwells for passive surveillance. <p>Cannington</p> <ul style="list-style-type: none"> • The use of the angled lattice façade at the Cannington Station which responds to the island platform at this station and the larger setbacks to its neighbours. It also facilitates the potential integration of artwork into the lattice design and lighting to create a distinctive landmark which responds to the city centre location of this station in Cannington. • Use of dual entries to Queens Park Station to ensure it services the areas both north and south of the station, with the main entrance orientated to the south to integrate with and activate the large forecourt / community activation space and play space beyond. • Using a stretched form of a typical pitched residential roof to the Queens Park Station to cover the station areas, to reflect the common roof design with the Carlisle and Oats Street Station roofs. The proposed stretched pitched roof creates a dramatic form that references the residential vernacular of the area. • The proposed lattice facade to Cannington is taller and more prominent than the structures provided to the other stations given its city centre location.

Principle	Response
	<p>General</p> <ul style="list-style-type: none"> • The extent of solid roof is minimised as needed to provide weather protection to platforms and privacy to adjoining properties without unnecessarily adding to the bulk and scale of each station building. • Upper canopies on both train stations are detached from the station building plinth as much as possible to provide a dynamic design that expresses the buildings' function as a train station that is in harmony with, yet distinct from, the surrounding residential vernacular. • Defining the public domain of the station precincts to respond to local character will ensure these areas contribute positively to the character of the adjacent streetscape and open spaces. The station precincts are also designed to provide good amenity for people at ground level with connections to important views, vistas, and landmarks.
<p>Functionality and build quality</p>	
<p><i>Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full lifecycle.</i></p>	<p>The train stations have been designed to be functionally simple and efficient with a clear arrangement of un-paid, paid and service spaces to facilitate good relationships between spaces and ease of use.</p> <p>The designs have been planned to provide flexibility and adaptability for future PTA requirements without the need for major modifications.</p> <p>The new rail infrastructure will become a long-term asset for each neighbourhood that is designed in a robust way to get 'better with age'.</p> <p>Good build quality in the train stations will be achieved by using durable materials, finishes, elements and systems that are easy to maintain and weather well over time. Good build quality is also being applied in the public realm, this has been informed by consultation with the City on the materiality and finishes proposed in areas of the public realm that will be managed by the City in the future.</p> <p>Architectural product selections and details have focussed on resilience to wear and tear expected from intended use, upgrade ease and maintenance minimisation.</p> <p>An integrated systems approach has been implemented to achieve a functional and serviceable final outcome, without detriment to aesthetic appearance.</p> <p>Consideration has been given to the full life-cycle of systems and mitigation of potential climate change impact.</p>
<p>Sustainability</p>	
<p><i>Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.</i></p>	<p>The Queens Park and Cannington Train Stations are being designed to achieve a four star Green Star equivalency target rating, both in their design and 'as built'. Initiatives include:</p> <ul style="list-style-type: none"> • The designs apply a sustainability approach using passive environmental design measures, responding to local climate and site conditions having regard to orientation, shading, thermal performance and natural ventilation. • WSUD and landscape principles have been applied to minimise negative impacts on existing natural features and ecological processes. • The reduction of reliance on technology for heating and cooling will minimise energy use, resource consumption and operating costs over the life-cycle of the project. • The use of sustainable construction materials, recycling, good waste management practices, re-use of materials and existing structures, harnessing of renewable energy sources, and total water cycle management will also be incorporated, where applicable. <p>In addition, the project more holistically will deliver high quality new train stations with increased catchments and improved integration with bus services. This will result in high quality low-emission transport options for thousands of locals, consistent with the principles of sustainability.</p>

Principle	Response
Amenity	
<i>Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.</i>	<p>The corridor’s landscape and activity spaces offer universally accessible places and opportunities for people to meet and socialise, providing optimal levels of external amenity and functionality while encouraging social inclusion, equitable access and respect for the public and neighbours. The usability of these spaces is enhanced through the shade and weather protection that is offered by the viaduct. Careful regard has been given as to how to maximise the weather protection offered by the structure and how this relates to the spaces underneath.</p> <p>Paid zones, service rooms and other internal spaces will be adequately sized, comfortable and easy to use and furnish, with good levels of daylight, natural ventilation and outlook.</p> <p>Where applicable, appropriate levels of acoustic protection and visual privacy, adequate storage space, and ease of access for all will be provided.</p>
Legibility	
<i>Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.</i>	<p>A movement and access strategy has informed the design of both the train stations and the station precincts and public realm improvements to create a legible network of spaces and places. PTA’s station access hierarchy prioritises pedestrian access as the most important, followed by cycling, bus access, Kiss ‘n’ Ride and finally Park ‘n’ Ride access. The design implements this access hierarchy, which assists in ensuring easy and legible station access for pedestrians and minimisation of conflict points. The hierarchy is used to resolve conflict points between transport modes. Station and public realm legibility will be enhanced with a wayfinding and signage strategy that is to be developed in due course. Design initiatives to aid legibility include:</p> <ul style="list-style-type: none"> • Retaining most of the existing PSP adjacent to Railway Parade as a primary cyclist route. Utilising pavement, materiality, colour and signage to define the PSP and control speeds. Where the PSP intersects with the train station plazas the PSP merges into plaza paving to denote that this is a shared zone with pedestrian priority. • Providing entries to commuter car parking areas and bus interchanges from the western side of the corridor to minimize conflict / crossing points with the PSP. • Providing a three (3) metre wide recreational shared path within the landscaped corridor for pedestrian and cyclist connectivity which is separated from the higher volume / faster commuter cyclists on the PSP. • The 2.5 metre wide secondary paths weave through the corridor, connecting back at all points to the main three (3) metre wide recreational shared path for legibility. • Utilising different colours and materiality to distinguish between the path network to aid legibility. • The three (3) metre wide recreational shared path within the landscaped corridor connects to the station plazas of both train stations, contributing to wayfinding and legibility. • Train station plaza entry points have been located having regard to the surrounding local context to provide connectors and entry points that are orientated and located to direct people into the train stations. Permeability is maximized with these fine grain connections. • Train station plazas are designed with a simple open form that provides clearly identifiable entrances that are orientated to be legible opening points to the train station buildings for intuitive wayfinding. • Lifts and stair (and/or escalator) access within each station building is located to be readily identifiable and accessible for passenger legibility to the platforms.

Principle	Response
	<ul style="list-style-type: none"> • Kiss ‘n’ Ride facilities are located in highly visible and readily accessible locations where they are also proximate to the train station entrances for ready and legible station access. • At Cannington Train Station the bus interchange has been located to be visible and legible from the northern side of the train station. Safe, legible access into the bus interchange area from the train station and wider public realm is critical to the success of modal transfers and use of the bus interchange more generally. • Bike storage is located to be visible from the PSP. At both Queens Park and Cannington Stations the bike storage is proposed to be located in the ground level station building, accessible from the outside.

Safety	
<p><i>Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.</i></p>	<p>Throughout the corridor, safety is a key consideration and the design has been informed by DPLH’s proposed draft Safer Places by Design Guidelines. The design team have focussed on providing clear, open sightlines in and around the pillars throughout the public realm and to / from train station main entrances. Design measures for safety include:</p> <ul style="list-style-type: none"> • New spaces beside and under the viaduct are designed to encourage activity through the incorporation of a broad range of activity spaces (playgrounds, youth plazas, event spaces, recreational equipment, seating areas etc) which will aid passive surveillance and safety. • A lighting strategy will ensure that all accessible areas are well lit. • The design of vehicular transport routes such as busways and vehicle drop-offs have been configured to aid connectivity to the train stations in a safe and legible manner. • Within the station buildings, opportunities for passive surveillance will be maximised through the provision of clearly defined paid and un-paid spaces with well-lit secure access points. • CCTV infrastructure managed by the PTA will be provided within the train stations, bus interchange and passenger car parking areas. • Landscaping has been carefully curated to ensure appropriate species are used to not impact on sightlines or create areas concealed by landscaping. • Security fencing is used to restrict access to maintenance areas or at grade areas of the rail line where the public is not permitted.

Community	
<p><i>Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction.</i></p>	<p>The train station built form, plaza and public realm designs have all been informed by the existing and planned future retail, commercial and residential development in the immediately surrounding context. This ensures that the design encourages social engagement and physical activity in an inclusive, equitable manner and contributes to the activation of public spaces both within and adjacent to the rail corridor.</p> <p>Significant public realm investment is focussed on the community use and benefit in the train station plazas and public realm, delivering flexible spaces that can be activated for community events.</p> <p>The new public spaces being delivered within the public realm (playgrounds, youth plazas, skate ramps, event spaces, recreational equipment, seating areas etc.) have all been informed through the community engagement process undertaken by METRONET and ALUA to ensure that the design is responding to community needs and the social context of the site. As evident from the broad range of different facilities and spaces that are proposed within the public realm, there is a diversity in spaces to facilitate use by a diverse and varied mix of people from the community, facilitating broader social interactions across different community segments.</p> <p>Careful consideration has also been given to integration with local movement networks to improve general access from these highly walkable neighbourhoods to the rail corridor more broadly.</p>

Principle	Response
Aesthetics	
<i>Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.</i>	<p>The look and feel of stations and plazas have been designed with a simple aesthetic that has an emphasis on functionality. The design responds to PTAs requirements in terms of station capacity and functional requirements and has been informed by a careful design process that is the culmination of many months of design work for the VPCLXR project.</p> <p>As set out in the Design Report prepared by ALUA (refer to Appendix F), the design process commenced with the METRONET Preliminary Place Plans, which were derived from engagement with the local community as undertaken by METRONET. ALUA built on this early METRONET work with the preparation of high level concept designs which were then refined and developed with more detailed community engagement undertaken through: the MySay Transport website; Community Reference Groups (CRGs); pop up information booths; and through targeted consultation with business groups and key stakeholders. The Final Place Plans, architectural plans and landscape plans have also been subject to design review and refinement through the SDRP process and the Design Working Group which was formed to continue the consultative design review process in between SDRP reviews and has continued following the final SDRP review. The Design Working Group includes representatives from the Office of the Government Architect (OGA) and METRONET. This represents a comprehensive and judicious design process consistent with the principles of SPP 7.0.</p> <p>Notably in relation to aesthetics, the identity of each train station building and the surrounding precinct has also been carefully curated to reflect the history of the particular area with a themed colour identity that will run through the metalwork, floor finishes, station plaza paving and brickwork for each precinct/building.</p>

4.2 State Design Review Panel Engagement

The State Design Review Panel (SDRP) provides independent, expert advice to Government agencies, decision makers and proponents regarding the design quality of a range of project types.

The VPCLXR project is a significant public works project and is eligible for SDRP review. In this regard ALUA met with the Office of the Government Architect (OGA) to develop and implement a design review framework that has regard to the overall project objectives, costings and critical timings.

The proposed design review framework agreed with the OGA broadly comprises three (3) separate design reviews with each of these focusing on specific project elements as outlined below:

1. Initial SDRP No. 1 – Previously completed in METRONET Project Definition Plan phase of the project.
2. Interim SDRP No. 2 – Completed in June 2022. This SDRP meeting covered the whole of the project area and scope, including critical infrastructure components (such as the viaduct structures), elements that are exempt from requiring planning approval and initial conceptual ground level public realm elements, built form and character analysis of stations and station precincts.
3. SDRP No. 3 – Completed in August 2022. This SDRP focussed on the built form of all new train stations and associated station precincts.

Feedback received during SDRP No. 3 has been considered by ALUA in consultation with key stakeholders through the Design Working Group, which was formed to continue the consultative design review process in between SDRP reviews and has continued following the final SDRP No. 3 review. The Design Working Group includes representatives from the OGA and METRONET.

The SDRP indicated their support for the overall project, however noted that the design approach was not yet supported and required further development. Notably, the SDRP stated that resolution of key design issues could proceed with the assistance of the Design Working Group. The SDRP provided the following summary comments:

This is a significant project, with complex and competing demands. The ambitions and vision for this landscape-driven elevated rail project are strongly supported by the Panel, and it has transformative potential for transport design, precinct development, and as a Western Australian landmark. There is great responsibility to deliver a sophisticated and enduring rail corridor with a high-quality public realm. User experience will determine the success of this project, both as transport and public realm, and these are complex and varied environments in terms of amenity and functionality.

The design ambition to balance the cohesion of a line wide solution with a legible response to local context and character in the design of stations and public realm is commended, however not yet fully realised.

The SDRP requested further information including more detailed plans at a smaller scale, communication on the design in its context to assess connectivity and integration and detailed sections on the public realm to assist with resolution of safety and amenity matters.

Key recommendations from the SDRP that have been pursued by the design team since the August 2022 SDRP No. 3 meeting have included:

- *continued development of a cohesive line wide design solution with differentiation of the design and identity of stations*
- *confirmation of the landscape design approach and detail*
- *minimise / mitigate modal conflicts in landscape and car park design, and in the movement of buses through pedestrian access ways*
- *capitalise on the mass and materiality of the viaduct and its piers, as a design strategy appropriate to the project scale and engineering nature, with consideration to exposing connections between the viaduct and other elements*
- *pursue the folded plane roof canopies as singular, landmark forms, uninterrupted by service elements*
- *progress sustainability strategies*
- *minimise hardscaped surfaces, optimise permeable materials, water attenuation, landscaping, and tree planting*
- *optimise infrastructure for alternative modes of transports such as bike storage and e-charging*
- *maximise reused and recycled materials*
- *maximise rainwater harvesting and reuse*
- *pursue provision of escalators from day one*
- *optimise shelter from wind, glare, sun, and rain through the design of the public realm, station platform and ‘folded roof’ design*
- *optimise the legibility of stations by heightening visual and physical permeability and develop a strong wayfinding strategy*
- *prepare a CPTED assessment that considers opportunities for activation, passive surveillance, and clear points of egress*
- *develop a lighting strategy*
- *consider how an integrated public art approach could contribute to a line-wide identity, while offering a legible, local response to place.*

A summary of the comments from the SDRP as they relate to the scope of this development application and the manner in which these have since been addressed by the proposal is outlined in Table 3 below.

Table 3 - Summary of SDRP Comments and Design Responses

Principle	SDRP Comment	Design Response
Principle 1 Context and character	<p>The SDRP identified the need for further work to develop and differentiate local identities at each station.</p> <p>The SDRP also requested that ALUA build on existing Aboriginal consultation to connect to local stories and develop strategies, that go beyond public art, to inform context specific architecture and public realm responses.</p>	<p>Since the SDRP meeting in August 2022 there has been ongoing refinement to the design concept, including colour, materiality and planting species to develop the station and precinct identities. These are set out in the Design Report prepared by ALUA (refer to Appendix F).</p> <p>The design integration strategy has also progressed since the last SDRP meeting and specific stories have been identified within the Noongar Cultural Context Document which will be used to inform the public art brief for specific works. This is set out in the Design Report prepared by ALUA (refer to Appendix F).</p>
Principle 2 Landscape Quality	<p>The SDRP noted the significant opportunity for a continuous linear park and the strong vision held by the ALUA team for this.</p> <p>The SDRP supported the richness, diversity and intensity of landscape proposed, and requested further details on species types, locations, and ongoing maintenance.</p> <p>The SDRP supported planting being taken as close to the viaduct as possible.</p> <p>The SDRP suggest there was a need for further investigation into tree species having regard to disease resistance, water requirements and shading from the viaduct.</p> <p>The SDRP suggested that ALUA should seek to optimise tree planting within car parking and other areas of hardscaping.</p> <p>The SDRP supported landscape buffers at the transitions of at-grade intersections.</p>	<p>The detailed planting selection is an ongoing iterative process that is being coordinated between ALUA and the LGAs. This will continue to be resolved as the detailed design work occurs following the development application process.</p> <p>ALUA is also engaging with PTA to ensure that tree planting can be as close to the viaduct as possible. Tree selection is important to ensure the canopy height doesn't impact on the viaduct.</p> <p>It is noted that most of the hardscaped areas (car parking etc) are located under the viaduct where planting is not supported. Trees are being maximised wherever possible in the corridor.</p>

Principle	SDRP Comment	Design Response
<p>Principle 3 Built Form and Scale</p>	<p>The SDRP encouraged further development and refinement of scale, details, and junctions to enhance the differing identities of each station.</p> <p>The SDRP noted that the scale of the viaduct and its piers present an opportunity to work with this mass and materiality and allow it to be an expressed and celebrated form, and to hit the ground strongly. The SDRP encouraged the expression of the viaduct, where it intersects the stations, as a piece of significant infrastructure rather than concealing it in additional built form. The SDRP encouraged ALUA to explore the exposing of junctions, such as where the viaduct meets screens and balustrades, as intentional form rather than attempting to conceal them. Concealment risks overly complex junctions, additional costs, and complex maintenance.</p> <p>The SDRP noted that the folded plane roof canopies are important focal points and present an opportunity to strengthen identity as landmark forms. Ensure that when later intersected with service elements, such as lift overruns, they will not lose their singular language and scale, thus reducing their impact.</p> <p>The SDRP noted that Cannington Station presents with a different architectural form and is the only station with an island configuration to the platform. The SDRP suggested that developing these differences into a distinct form could be explored. Consider whether this typology could accommodate a larger roof form to strengthen this identity.</p> <p>The SDRP welcomed the improved responsiveness to local context as expressed in the brick colour at stations and suggested that this extends to paving variations and fixed furniture at each location. The SDRP also requested that ALUA consider the form of smaller canopies in the landscaped areas, and how these may contribute to the contextual response.</p>	<p>Since the SDRP meeting in August 2022 there has been ongoing refinement to the design concept, including colour, materiality and planting species to develop the station and precinct identities. These are set out in the Design Report prepared by ALUA (refer to Appendix F). Notably in response to the SDRP comments:</p> <ul style="list-style-type: none"> • the expression of the folded roof plane at the Queens Park Station is an important design strategy. The proximity of the lift to the external face and the height of the lift overruns are constraints that are being handled carefully to ensure the design response is not compromised and that the roof plane elements maintain their strong form and landmark qualities; • the strong form of the viaduct is expressed in the architecture of the stations; • the canopies within the landscaped areas are proposed to be colour themed to correspond to the station and station precinct identities; • The design response to the Cannington Station is unique whilst respecting and reflecting the design principles employed elsewhere along the line. The size and design of the lattice façade, with opportunities for art and lighting provides an appropriate signifying landmark in this city centre location; and • individual identity at each train station is being further reinforced through the paving treatment, seating, plant species and other ancillary structures. Further detail on the manner in which the design responds to the SDRP’s comments are set out in the Design Report prepared by ALUA at Appendix F

Principle	SDRP Comment	Design Response
<p>Principle 4 Functionality and Build Quality</p>	<p>The SDRP requested comprehensive transport and movement plans be developed for each station to enable an evaluation of how the stations manage modal conflict, safety, flows of traffic and legibility of movement.</p> <p>In refining the design, the SDRP requested ALUA review:</p> <ul style="list-style-type: none"> - pathways to manage conflict points; - the manner in which pedestrians pass through/around the bus interchanges; - location/configuration of the Kiss and Ride to manage conflict points; and - The SDRP suggested consideration be given to phased signalling to manage the potential user conflict between buses, cars and pedestrians at Cannington Station next to the station building. As there is the potential for safety issues and hinderance to movement flow. 	<p>A comprehensive and cohesive movement strategy is one of the keys to the success of the development. Movement plans have been reviewed and refined through ongoing engagement with MRWA, the City and Department of Transport (DoT) since the last SDRP meeting in August 2022. Specific access plans have been developed for each train station and station precinct to demonstrate the considered approach to the PSP, pedestrian paths and plaza connectors. These are included in the Design Report prepared by ALUA (refer to Appendix F). The approach to the PSP has also been carefully considered in consultation with MRWA and DoT in relation to it being an at grade PSP that crosses roads and intersects with plaza connectors. The PSP strategy has been carefully tailored to control speeds and maximise safety for all users.</p> <p>Other key aspects of the design include:</p> <ul style="list-style-type: none"> • The oscillating recreational path and secondary shared path are key components of the overall strategy of 'loops and trails', focused on how the community can use the public realm in different ways. The path network has a hierarchy of widths and treatments to manage how people use each path. • The design response allows pedestrians to walk through the Cannington bus interchange in a deliberate manner to enhance activity and passive surveillance within this area. The alternative is to utilise the PSP. • A dedicated path is provided to both the Queens Park and the Cannington parking areas to carefully separate pedestrians from vehicles and minimise opportunities for conflict.

Principle	SDRP Comment	Design Response
Principle 5 Sustainability	<p>The SDRP noted that hardscapes should be minimised where possible in terms of minimising heat and run-off, suggesting that ALUA investigate permeable materials and infiltration strategies.</p> <p>SDRP requested investigation of e-charging opportunities.</p> <p>SDRP requested investigation of rainwater re-use.</p>	<p>The sustainability initiatives for the project include:</p> <ul style="list-style-type: none"> • Achievement of a four star rating against the Green Star Railway Stations rating framework. • Achieving tree canopy and urban forest targets for the project. • Utilising low maintenance design opportunities where possible. • Minimising hardscapes near train stations whilst maintaining functionality. • Investigating permeable materials for car parks and plazas with PTA (noting that these do not currently meet PTA standards). This is being further resolved with the Design Working Group. • The combination of landscape WSUD, subsoil drainage and grading are designed to avoid the requirement for underground tanks and gross pollutant traps etc. • Refinement of the drainage design is ongoing and will inform the landscape response. The infrequent flood event areas are all created as usable spaces with integrated play and interpretive elements. • The bike storage proposed reflects the PTA requirements.
Principle 6 Amenity	<p>The SDRP requested:</p> <ul style="list-style-type: none"> • the use of escalators be investigated in all stations; • diagrams be prepared showing how wind, sun, glare and rain impacts are being mitigated on platforms; and • acoustic performance of stations. • The SDRP supported the generosity of plazas set away from roads and the intent to include diverse public realm spaces. • SDRP requested that platform walkway widths be generous in width for safety and amenity. 	<p>Escalators are only proposed at Cannington Station. They are not proposed at Queens Park Station due to patronage levels which are estimated to remain low through to the forecasts for 2051. On this basis demand is expected to be readily accommodated with the proposed lifts (two per platform). Nevertheless, the designs have been prepared to be able to accommodate escalators at Queens Park Train Station in the future if required.</p> <p>Acoustic modelling and testing has informed the design of the new stations and associated infrastructure (e.g. car parks, plant rooms etc) to comply with the requirements of the Environmental Protection (Noise) Regulations 1997.</p> <p>Wind and rain modelling has been undertaken to inform the location and design of station canopies and bus shelters etc to ensure patron/passenger comfort.</p> <p>The proposed platform widths are designed to meet the PTA's requirements. These widths have been assessed by the ALUA pedestrian modelling team to ensure that the platforms comply with passenger flow and level of service requirements.</p>

Principle	SDRP Comment	Design Response
Principle 7 Legibility	The SDRP encourages a strong wayfinding strategy for the project and noted that the visual and physical permeability of stations and legibility of entries are critical for continuity of the pedestrian urban realm and connectivity of the precinct.	<p>A wayfinding consultant has been engaged to prepare a wayfinding signage strategy for the train stations and public realm. This will be enhanced by the architectural approach which seeks to enable intuitive wayfinding with legible entrances to train stations as well as through the thematic approach to the train stations and station precincts, utilising colour, materiality and planting species to develop different train station and precinct identities.</p> <p>Both the Queens Park and Cannington Train Stations incorporate legible entrances and visually permeable concourse spaces.</p>
Principle 8 Safety	<p>The SDRP recommended:</p> <ul style="list-style-type: none"> • a comprehensive Crime Prevention Through Environmental Design (CPTED) assessment; • a lighting strategy to ensure stations and public spaces are appropriately lit and activated; • prioritising the visual and physical porosity of stations for perceived and actual safety; • ensuring platform safety with conspicuous and easily located points of access and central lifts; • resolution of the PSP and forecourt areas and how cyclists are managed; and • the SDRP noted a concern about the southern arrival not being sufficiently activated, with the bike storage located in this area. 	<p>A security working group has been created for the project which includes members from the PTA security team, WA Police and the City's security and crime prevention representatives. This group has reviewed the design and CPTED considerations throughout the duration of the project.</p> <p>The CPTED approach is documented in the Design Report prepared by ALUA (refer to Appendix F).</p> <p>A lighting strategy is also included in the Design Report prepared by ALUA (refer to Appendix F).</p> <p>As noted earlier, the visual and physical porosity of the train station designs is an important security element. Cannington is a fully staffed station with an island platform, which means that there is only one entrance to this station from the northern side. Despite this, the location of the bike locker and climbing zone play space on the southern side of the station will activate this space.</p> <p>The upper building façade and platform screening approach maximises the extent of visually permeable area. Due to community feedback and concern for overlooking at the main platform waiting area, the façade is solid.</p> <p>The approach to the PSP has been carefully considered in consultation with MRWA and DoT in relation to how this adjoins and passes the train station forecourts. The PSP strategy has been carefully tailored to control speeds and maximise safety for all users. The detail on the PSP approach is included in the Design Report prepared by ALUA (refer to Appendix F).</p>

Principle	SDRP Comment	Design Response
Principle 9 Community	<p>The SDRP supported continued discussions with the LGAs regarding opportunities for revenue generating activities in the public realm and semi-permanent activation of these spaces.</p> <p>The SDRP also requested that consideration be given as to how the stations function at night.</p>	<p>The landscaped spaces on the southern side of the Queens Park Train Station have been designed to create opportunities for coffee or food trucks, with associated seating opportunities and connection points for water and power to provide for the activation of these spaces.</p> <p>A kiosk tenancy is provided at the Cannington Train Station.</p> <p>The lighting and CPTED strategy have all been considered having regard to night time operations.</p>
Principle 10 Aesthetics	<p>The SDRP requested a rigorous approach to public art to ensure that it is integrated into the design of the place and not just a decorative addition. The SDRP suggested that public art could contribute to an overall cohesive line-wide design whilst offering a legible, local response to place.</p> <p>The SDRP supported the ceiling pattern proposed at the Cannington Train Station as a small but impactful detail.</p> <p>The SDRP also requested that the design team explore the exposure of junctions.</p>	<p>The Place Plan for each train station requires an integrated art response and strategy to be located across the elevated rail structure, activity nodes and paths, with a focus on the train stations. As set out in the Design Report at Appendix F, there will be multiple public art opportunities line-wide, including on screening, embankment walls / retaining walls / noise walls, abutments, piers, ceilings/ soffits, shelters, precinct hardscapes, transformers, and play elements.</p>



Queens Park

5. Description of Proposed Development

5.1 Development Overview

This development application relates to the following components of the VPCLXR project that are located within the City:

Queens Park Train Station Works:

- Construction of an elevated train station at Queens Park, including ground level station entry and concourse;
- Redevelopment of the Queens Park passenger parking to provide new Park 'n' Ride and Kiss 'n' Ride facilities; and
- Service and emergency parking facilities at Queens Park.

Cannington Train Station Works:

- Construction of an elevated train station at Cannington, including ground level station entry and concourse;
- Construction of a new bus interchange;
- Redevelopment of the Cannington passenger parking to provide new Park 'n' Ride and Kiss 'n' Ride facilities; and
- PTA staff parking, loading bay facilities and service and emergency parking facilities at Cannington.

Other Project Works:

- Modifications to the existing at grade Principal Shared Path (PSP) to augment the existing PSP adjacent to Railway Parade;
- Public realm initiatives and improvements between the north abutment adjacent to Mills Street and the southern abutment adjacent to Grosse Avenue, incorporating construction of new civic spaces, community nodes, a playground, youth plaza, dog park, pathways and landscaping; and
- Local road works and intersection modifications.

Further details of each of these aspects of the project are described in greater detail below under each of the following sub-headings:

- Queens Park Train Station Building – Concourse / Entry Building / Platform;
- Cannington Train Station Building – Concourse / Entry Building / Platform;
- Public Realm;
- Landscaping;
- Road Network;
- Principal Shared Path;
- Car Parking;
- Bicycle Parking;
- Bus Interchange and Bus Facilities;
- Architectural Treatments, Materials and Finishes;
- Sustainability and Green Star Rating;
- Signage and Wayfinding;
- Public Art;
- Lighting;
- Land Management and Allocation Arrangements;
- Tree Removal;
- Tree Planting;
- Services;
- Precinct Access Arrangements; and
- Project Delivery.

One of the overarching principles that has guided all aspects of the design is the PTA's station access hierarchy, which prioritises pedestrian access as the most important and highest order of priority followed by cyclist access, bus access, Kiss 'n' Ride and finally, Park 'n' Ride. The design essentially seeks to reward pedestrian, cycle and bus users with shorter travel distances, higher convenience and higher comfort levels than private car users.

5.2 Queens Park Train Station Building–Concourse / Entry Building / Platform

The proposed new Queens Park Train Station has been relocated approximately 40 metres to the north of its current location to sit opposite St Joseph's School. This facilitates improved pedestrian connectivity to both St Joseph's School as well as St Norbert's School, which is located to the immediate east of St Joseph's. It also results in improved separation between the Queens Park Train Station parking and the Supa IGA parking, both of which are accessible from Sevenoaks Street, whilst enabling the new public plaza and play space, which are located to the south of the station entry building, to be located with visual and physical connectivity to the Supa IGA and retail premises located in this part of Sevenoaks Street.

The proposed new station incorporates a south facing main entrance to connect to the new public plaza and play space, with a secondary entrance in the northern facade to provide access for those utilising the new Kiss and Ride and Park and Ride facilities. The combination of entrances from both the northern and southern sides of the building ensures the building is permeable, with legible entrances from within all areas of the adjacent public realm.

Refer to Figure 12 – Queens Park Train Station, Forecourt and Plaza General Arrangement Plan

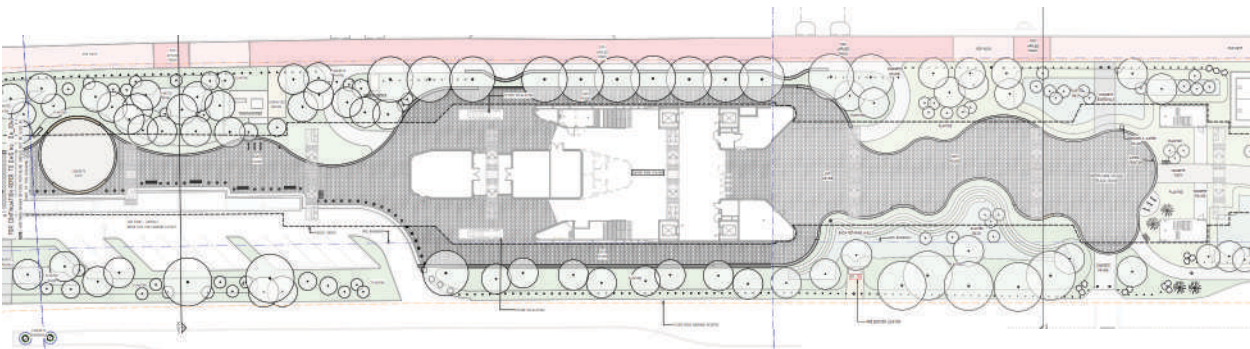


Figure 12. Queens Park Train Station, Forecourt and Plaza General Arrangement Plan

The placement of the Queens Park Train Station and associated forecourt is designed to allow for connectivity with active edges in the urban realm beyond the new train station. This provides for linking plazas and permeable edges that interface between the railway reserve and the surrounding built form on Sevenoaks Street and Railway Parade.

The southern curtilage to the new train station provides a generous plaza which is designed as a flexible community activation space which is free of fixed furniture to provide for flexible use. Seating opportunities and connection points for water and power are provided in this space.

The new Queens Park Train Station car parking area (Park 'n' Ride and Kiss 'n' Ride facilities) is located under the viaduct on the northern side of the new train station, away from active community edges. The car park has been carefully located with access from the eastern side of the railway reserve so as to avoid additional conflict points with the PSP.

The following provisions have been incorporated into the design of the Queens Park Train Station entry building:

- Bike store, with provision for 30 bikes, which has a glazed façade and which faces the station forecourt / main entry;
- A concourse;
- Four lifts (two to each platform);
- Stairwell to each platform; and
- A number of electrical, services, communications and store rooms including:
 - Lobby Communications Room (LCR);
 - Track Side Equipment Room (TSER); and
 - Station Main Communications Room (SMCR).

The eastern and western facades of the new train station incorporate glazed curtain wall facades adjacent to the lift entrances and mesh to the stairwells to provide for passive surveillance from within the station to the nearby public realm and vice versa.

The VPCLXR project uses two side platforms at the Queens Park Train Station, with the rail line located centrally. The platforms at the station are designed to facilitate access to six (6) rail carriages. The platform canopies are designed to cover just over 80% of the length of the platforms to ensure that there is sufficient weather protection for passengers.

The Queens Park Train Station will be an unstaffed station and access will be controlled by roller shutter doors which close the main and secondary entrances after hours, securing the building and platforms.

5.3 Cannington Train Station Building–Concourse / Entry Building / Platform

The proposed new Cannington Train Station is located in generally the same location as the existing train station, opposite the intersection of Cecil Avenue and Sevenoaks Street. Cannington Train Station is unique in the VPCLXR project, in that it is the only new station which is proposed to use a central island platform. This is an arrangement where there is a single platform located between two tracks which run on the outside of the central platform. An island platform arrangement is a requirement of the PTA for high patronage locations as it provides for a wider platform to cater for larger volumes of patrons, as opposed to two separate, narrower side platforms.

The Cannington Station provides only one entrance from the northern side of the station, which opens towards the intersection with Cecil Avenue as well as Railway Parade to the east.

Refer to Figure 13 – Cannington Train Station, Forecourt and Plaza General Arrangement Plan

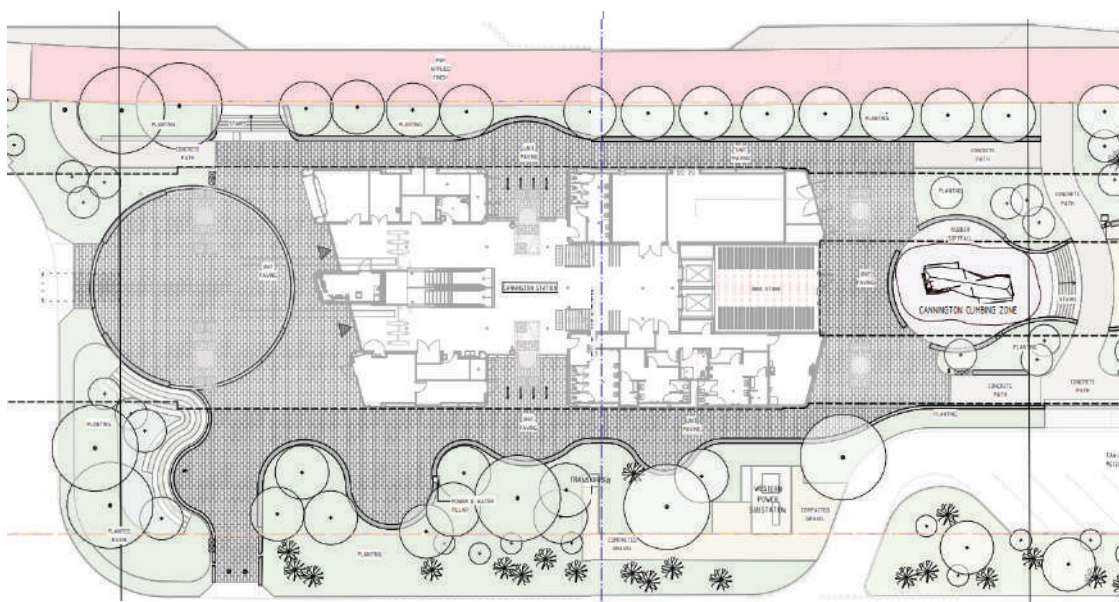


Figure 13. Cannington Train Station, Forecourt and Plaza General Arrangement Plan

The following provisions have been incorporated into the design of the Cannington Train Station entry building:

- A concourse;
- Two lifts (one to each platform);
- Two stairwells;
- Two escalators;
- A number of electrical, services, communications and store rooms including:
 - Lobby Communications Room (LCR);
 - Track Side Equipment Room (TSER);
 - Escalator Control Room; and
 - Station Main Communications Room (SMCR).
- A kiosk is located within the northern façade of the building, facing into the public realm and towards the bus interchange, providing activation and passive surveillance;
- Staff crib room and staff toilets;
- Universally accessible toilet for the public, accessible from within the station building;
- Public toilets, accessible from within the station building;
- Cleaner's Store; and
- Other miscellaneous store rooms.

The bicycle storage for the Cannington Train Station includes 50 bicycle parking spaces within a dedicated bicycle store that is integrated into the southern part of the station entry building. This is accessible from dedicated entry points in the southern façade of the building.

The angled lattice façade treatment for Cannington Train Station is visually permeable and responds to the nature of the station as a central island platform station. The lattice façade will enable passive surveillance from within the station to the public realm and vice versa. The façade is also designed to act as a prominent visual marker for the station.

The façade treatment also differs at Cannington due to all stairwell and escalators being centrally located within the Cannington Train Station building, rather than being located on the perimeter with views outwards as occurs in the other stations.

Due to high patronage levels, Cannington Train Station will be a staffed station. Access will be controlled by roller shutter doors which close the entrances after hours, securing the building and platforms.

5.4 Public Realm

The proposed development seeks to deliver a significant new public realm between the northern and southern abutments within the City, which is generally the area between Mills Street to the north and Gibbs Street to the south. This includes recreational and shared paths which traverse the corridor, and landscaped swales and shallow basins as part of the WSUD response and significant new planting. The paths also connecting a number of activity nodes and amenities that are being delivered as part of the VPCLXR project.

The proposed new public realm includes:

- The Railway Dog Park, which has been designed in direct response to a City request. This area provides two fenced areas with 1,500m² for high and low energy dogs, both with double airlock gates. Within the enclosures there will be agility equipment, water fountains, picnic tables and bench seats. Street parking and access will be from Railway Parade.
- Youran Place Space is to be located on the southern side of the new Queens Park station forecourt. This is a nature play space for younger children. It has been designed in response to community need which was identified through community consultation on the VPCLXR project. Small scale sculptural elements will provide exploration opportunities for younger children, interpreting the totem animal of the Beeliiar people, a bobtail lizard climbing sculpture, as requested by the MNRG. The area is located under the viaduct, providing weather protection from both the sun and rain. The design integrates with the surrounding plating, basins and creek line play trail for an immersive nature play experience. It is proposed to include seating, habitat logs, steppers, boulders and informal play opportunities.
- Creekline Discovery Trail, which meanders through shallow planted basins that collect water from the viaduct. The creekline is to be filled with rocks, boulder and logs to provide habitat and create an immersive exploration opportunity for children to interact with the natural environment. The proposal includes interpretative signage on flora and fauna and will include stories shared by the MNRG about historical significance and uses by indigenous people. The area will include seating nodes.
- Water HQ Educational WSUD Reflection Space is proposed to celebrate WSUD principles by bringing these features to visitors' attention. The space includes a central seating area, located in the centre of several large shallow basins and is designed to be flexible and used by small or large groups, accommodating the quiet lunch break crowd or nearby school groups to use as an informal outdoor learning space. Interpretive overlays of sandblasted reeds will be included in the concrete used in the seating and the pavement is proposed to include a sandblasted map of regional water courses. Interpretive signage will communicate the many water sensitive urban design strategies built in to the VPCLXR project - capturing rainfall from the viaduct and structures and discharging throughout the extensive basin network for maximised natural infiltration and recharging the landscaped parkland with passive irrigation. Exposed and visible direct outlets from piers and culverts under paths will bring visitors' attention to the hybrid engineering and ecological drainage system. The WSUD space is flanked by events/ activity lawns and groves of paper bark trees to provide an immersive natural experience.
- The Queens Park Community Hub is designed to provide an inviting, flexible events space nestled in the parklands. It is located between the Queens Park Train Station and the Adventure Playground and includes a series of wide open lawns, seating, BBQs and picnic tables, providing the opportunity for everyday use and a wide variety of events. The central gathering space utilises the shade of the viaduct, existing trees and shade shelters with tables, seating walls, benches and bike racks. Clustered seating allows small or large groups to utilise the space. This space is provided partly in response to community feedback received in relation to the cultural practices of several local community groups. The large event lawns also allow space for food trucks and/or temporary structures or a stage for City events. Equally, the small seating nodes and nooks accommodate individual park users every day use like lunch, exercise, football or reading. The whole space is flanked by groves of existing mature trees and new groves of paperbarks within planted drainage basins.

- The Rail Yard Adventure Play Space draws on the rich history of the Armadale Train Line - interpreting the old class ADB776 carriages into a modular climbing frame. Located between the Queens Park Community Hub and the Cannington Youth Plaza, the playground interprets stories of the train line acting as cultural connector for families and as an economic enabler, transporting people from Armadale to Perth and everywhere in between. An old circular turntable with a mini-bridge, hand car and train carriage are proposed to be transformed into a space to explore, climb and learn. The design integrates recycled materials such as concrete sleepers, boom gates and signals into climbing elements. An old hand car acting as a water pump will feed a series of channels and weirs and will discharge into a gravel planted swale, integrating the WSUD features with water play elements.
- The Cannington Youth Plaza incorporates a skate park and seating node. It is located opposite the Cannington Leisureplex to create a node with this existing use. The skate park will be designed with a specialist skate park design consultant and hence the layout shown in the plans is indicative only and subject to change.
- The Cannington Climbing Node is proposed to include multiple stand-alone bouldering walls to activate the space. It has been designed in response to community feedback. The bouldering elements will sit on rubber soft fall which will be colourful and fully customisable, allowing interpretation of the station identity provided by the MNRG, which is the black cockatoo.
- Cannington Station Basin is a drainage basin with a circular boardwalk and includes natural play elements such as boulders and logs to provide informal play opportunities for children waiting nearby. Visual and pedestrian connection across the corridor is provided with legible interfaces to the adjacent car parking area, Sevenoaks Street and Railway Parade.
- Seating Nodes are located throughout the railway reserve corridor that is being delivered as part of the VPCLXR project space, generally 60-100 metres apart. These provide pedestrians and cyclists the opportunity for resting spots and social interaction. They include seating walls, a bike rack and shade from planting.

Importantly, the design concepts for the above spaces have been directly influenced by the outcomes of the community consultation undertaken for the project (as outlined at Section 3.1.1) and have been designed to respond to both community needs and vision, balanced with the limitations associated with the VPCLXR project/project area.

Further, as detailed in section 10.4 of the Design Report at Appendix F, the design of the public realm (fencing, pathways, landscaping, plant selection, lighting, access etc.) are all designed having regard to security and safety to minimise the potential antisocial behaviour. Further the placement of different activities has also had regard for noise and safety, for example the Cannington Climbing Node will provide safe clearances to rail infrastructure and the noise from the youth plaza will be assessed to ensure that the noise impacts and attenuation measures are considered as necessary for the public realm to minimise impacts on residential amenity.

Refer to Figure 14 – Youran Play Space

Refer to Figure 15 – Creepline Discovery Trail and Water HQ Educational WSUD Reflection Space

Refer to Figure 16 – Queens Park Community Hub and Rail Yard Adventure Play Space

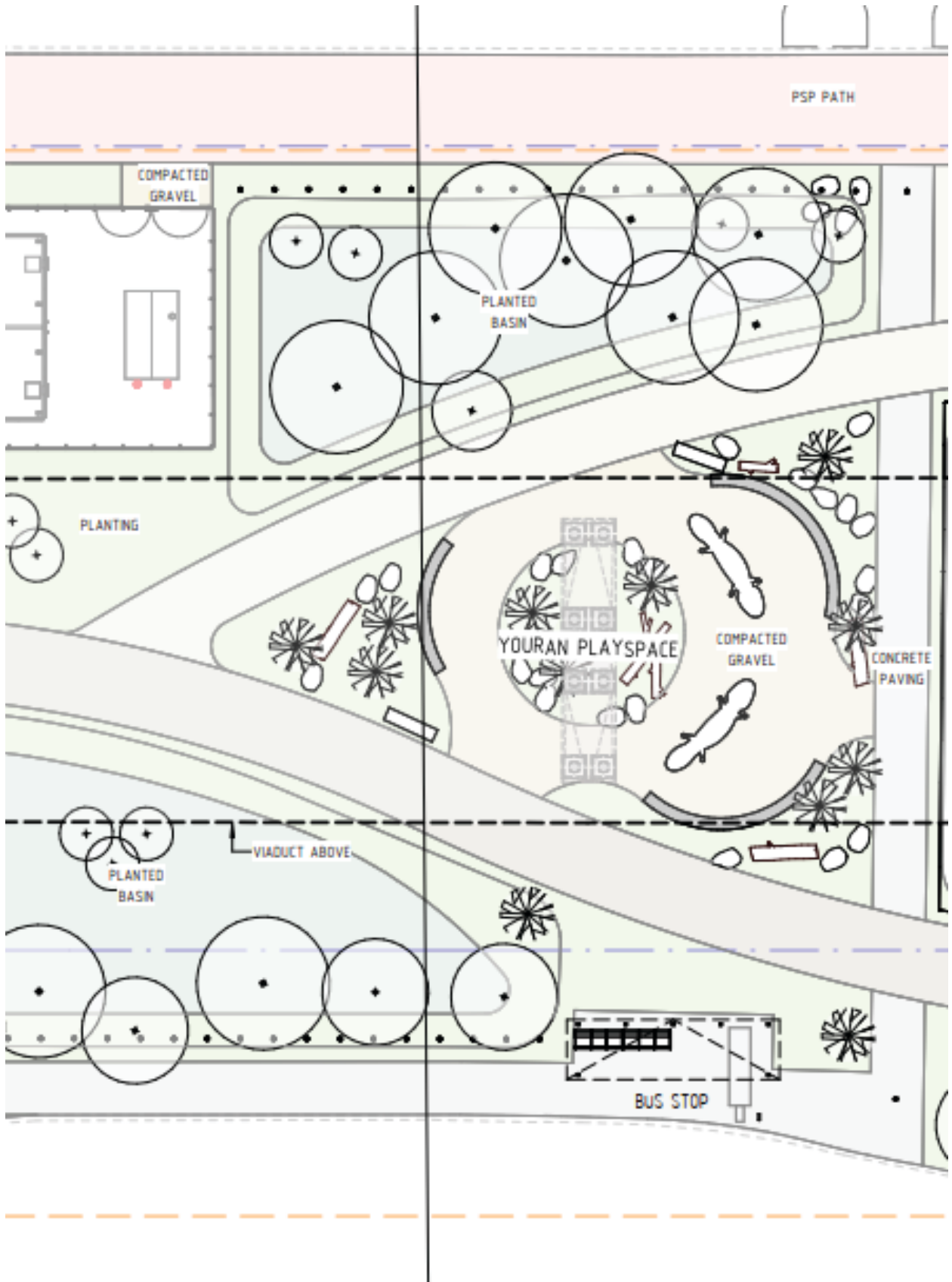


Figure 14. Youran Play Space

5.5 Landscaping

The design principles that have been applied in preparing the landscape design response for the VPCLXR project have included:

- Enhancing sustainability with rehabilitation planting, opportunities for re-wilding insects, reptiles and birds and providing opportunities to connect with nature and greenspace.
- Integrating stormwater natural systems to retain and treat water on site in a thoughtful and explicit way utilising best practice WSUD principles.
- Retaining as many existing trees as possible and reusing all felled timber on site (for mulch, habitat logs and nature play opportunities etc).
- Utilising waterwise planting and focussing irrigation to primary and high use areas such as stations and activity nodes.
- Considering whole of life costs throughout the project process and utilising robust materials that are sourced responsibly.
- Developing a detailed site wide design narrative that responds to the Preliminary Place Plan framework of Collective, Connected and Specific, the METRONET Noongar Cultural Context Document and the METRONET "Gnarla Bidji - Our Pathways" Strategy.
- Implementing an engagement strategy with the community, traditional owners and stakeholders to ensure stories and narrative are developed appropriately.
- Encouraging connections across the rail corridor through generous user friendly station plazas with high levels of pedestrian and user permeability, pathway connections across the corridor at intersections with adjacent streets and clear direct movement paths to link adjacent community facilities, parks and services.
- Providing clear and direct movement paths between stations and associated transport modes.
- Creating visual and physical permeability across the rail corridor allowing intuitive wayfinding.
- Facilitating and retaining natural water crossings and swales where possible.
- Connecting communities through connecting pathways linking key roads, destinations and future developments and through community activation nodes adjacent to associated community uses. This includes youth plazas adjacent to the Cannington Leisureplex and play spaces near community focal points etc.
- Facilitating flexible community spaces and facilities for programming and activation.
- Providing a range of spaces that accommodate different users and numbers from small intimate spaces to larger social gathering areas.
- Creating safe and comfortable spaces where people will wish to dwell and enjoy by reducing heat load by retaining vegetation (where possible), providing new increased canopy and understorey planting, by retaining water via WSUD best practice and by creating new permanent shade structures.
- Encouraging activity with walking loops, seating and rest points and ensuring universal access to encourage activity for all ages and ability.
- Providing two shared paths to separate user speeds and mitigate potential conflict.
- Providing natural surveillance to minimise antisocial behaviour.
- Ensuring adequate lighting within nodes, plazas and pathways.
- Creating defined spaces and clear ownership boundaries.
- Providing clear pathways and access points reinforced through wayfinding and signage.
- Promoting activation and development with a high quality public realm and landscape spaces that complement adjacent community uses and neighbourhood centres.
- Providing links to or flexibility for, future connections to potential development sites and anticipated adjacent uses.
- Ensuring future proposed road crossing points are facilitated within the landscape design.

Refer to Appendix I - Civil Corridor Landscape and Urban Design Package

5.6 Road Network

The removal of the level crossings at Hamilton and Wharf Streets provides the opportunity to make intersection modifications to improve the utility of the intersections and increase safety for pedestrians and cyclists crossing these intersections. It also has significant advantages for vehicle traffic in that the removal of the level crossings will:

- reduce traffic congestion and delays caused by having to give way to trains;
- will increase vehicular safety, eliminating the temptation for drivers to cross the tracks as trains are approaching and before the boom gates are lowered;
- reduce the complexity of the intersections more generally, increasing their safety for all road users.

As shown in the TIA, these level crossing intersections currently experience relatively high levels of collisions and so it is expected that the intersection improvements arising from this project will reduce the number of collisions thus improving safety for all road users.

Copies of the proposed road and intersection modifications are included at Appendix N.

Refer to Appendix N – Civil Road Drawings

The key changes to the road intersection layouts are described in the Traffic Impact Assessment (TIA) included at Appendix J.

Refer to Appendix J – Traffic Impact Assessment Report

As shown on the civil plans and explained in the TIA the key changes to the Hamilton Street intersection with Sevenoaks Street and Railway Parade are as follows:

- Increased size of median traffic island with pedestrian cut throughs on Hamilton Street on approach to intersection with Sevenoaks Street;
- Increased size of median traffic island with pedestrian cut throughs on Hamilton Street on approach to intersection with Railway Parade; and
- New median islands with cut throughs on Sevenoaks Street north and south of the intersection with Hamilton Street.

As shown on the civil plans and explained in the TIA the key changes to the Wharf Street intersection with Sevenoaks Street and Railway Parade are as follows:

- Increased size of median traffic island with pedestrian cut throughs on Wharf Street on approach to intersection with Sevenoaks Street; and
- Increased size of median traffic island with pedestrian cut throughs on Wharf Street on approach to intersection with Railway Parade.

The proposed intersection modifications will enhance pedestrian and cyclist safety. SIDRA analysis of the performance of the modified intersections also demonstrates that the intersections will perform within capacity during both AM and PM peaks both at opening and five (5) years after opening. Further detail on the expected traffic flows are included in the TIA included at Appendix J.

5.7 Principal Shared Path

The PTA requires ALUA to provide a continuous PSP along the length of the project other than at the intersections which are not grade separated. The PTA scope also requires that the existing PSP be maintained wherever possible on the eastern side of the rail corridor.

The existing PSP is aligned outside the railway reserve on its eastern side (on the western side of Railway Parade). For the most part this existing PSP is being maintained with the location unchanged other than at the Hamilton Street and Wharf Street crossings. In these locations the PSP is being reconfigured to slow cyclist traffic down to cross these streets. Incremental speed reduction for this purpose is achieved with a combination of path geometry, utilising 30, 20 and 10km/hr curves which brings cyclist speeds down to 10km/hr before all crossings and plaza entries. The path geometry is reinforced via the materiality of the path, using colour change and tactile cues and line marking and signage to denote the zones of change.

Refer to Figure 17 – PSP Geometry/Speed Reduction Zones and Crossing Points at Hamilton Street and Queens Park Station

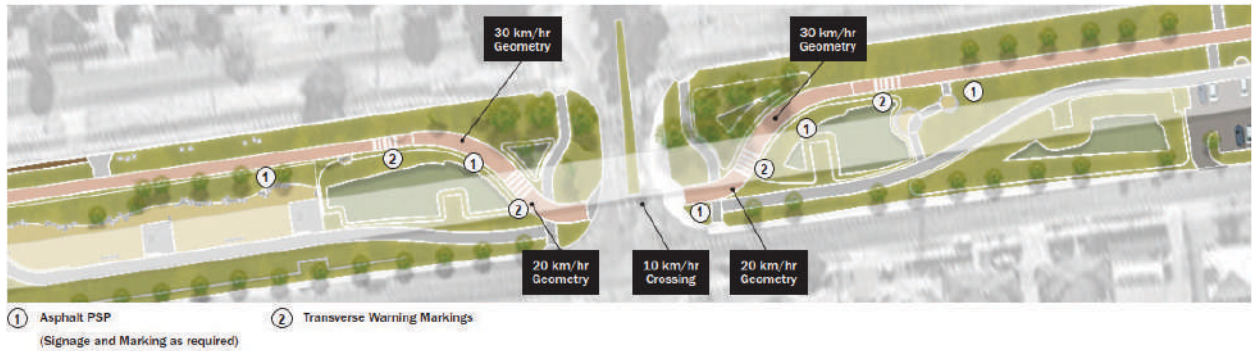
Refer to Figure 18 – PSP Geometry/Speed Reduction Zones and Crossing Points at Wharf Street and Cannington Station

Maintaining the PSP in its existing alignment on the eastern side of the railway reserve ensures that conflict points with cars and buses is minimised, as the bus interchange and car park access are all situated on the western side of the railway reserve. This arrangement is supported by the pedestrian access report, traffic assessment, universal access report and community engagement feedback.

Relevantly, because Railway Parade carries lower volumes of traffic than Sevenoaks Street, maintaining the PSP on the eastern side of the railway reserve adjacent to Railway Parade means that it can be more accessible for cyclists or pedestrians joining the PSP intermittently along the path. If the PSP were aligned adjacent to Sevenoaks Street it would be necessary to incorporate a road safety barrier into the design of the PSP which would significantly inhibit its accessibility from the adjoining urban realm and the ability for pedestrians and cyclists to join the PSP at intermittent points along the path.

The proposed PSP configuration satisfies security and CPTED requirements with clear sightlines and intuitive wayfinding. Vegetated buffers and alignment on the eastern edge of the corridor serves to minimize conflict points and maximise its attractiveness and usability for locals wishing to rely on the PSP network.

HAMILTON STREET CROSSING



QUEENS PARK STATION

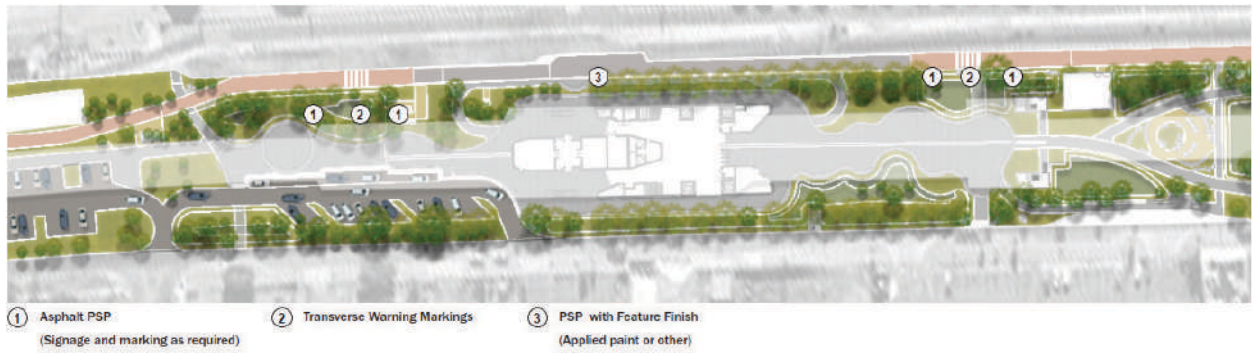
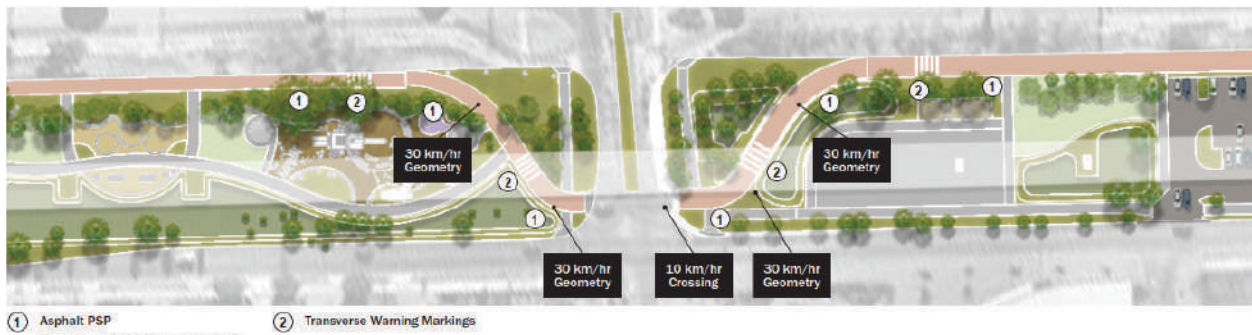


Figure 17. PSP Geometry/Speed Reduction Zones and Crossing Points at Hamilton Street and Queens Park Station

WHARF STREET CROSSING



CANNINGTON STATION

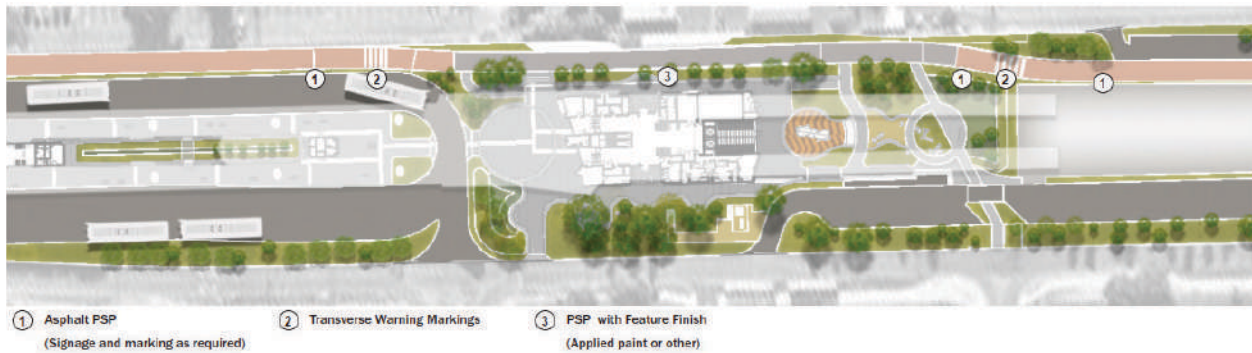


Figure 18. PSP Geometry/Speed Reduction Zones and Crossing Points at Wharf Street and Cannington Station

5.8 Car Parking

New car parking facilities are proposed to support each of the proposed new train stations. These new parking facilities have been designed to enhance the user experience of the parking facilities with increased shade from new tree planting and legible paths and crossing points. Whilst parking is being removed at Welshpool Train Station associated with the removal of this station from the network, the project is delivering equivalent or greater parking across the whole of the VPCLXR project (i.e. there is no net loss of parking notwithstanding the removal of parking spaces at Welshpool).

5.8.1 Queens Park Car Parking Facilities

This includes new Kiss 'n' Ride and Park 'n' Ride facilities for the Queens Park Station, which are located to the north of the station entry building with direct access via a paved forecourt area. The long-term Park 'n' Ride parking area utilises an all movements ingress point from Sevenoaks Street at the southern end of the car park opposite Stockman Way, which also provides access to the short term parking area further south closer to the northern station entry point. Egress from the long term car park is at the northern end of the car parking with a left in/left out access point.

The existing and proposed quantum of parking for the Queens Park Station is as follows:

- Two (2) formalised Kiss 'n' Ride car parking bays are proposed, maintaining the same provision as currently exists at the existing Queens Park Train Station;
- Two (2) ACROD bays, maintaining the current provision of two (2) ACROD bays;
- 91 car parking bays including the ACROD bays, increasing from the current provision of 71 bays;
- Additional emergency vehicle bays, service bays and motorcycle bays.

5.8.2 Cannington Car Parking Facilities

The parking at Cannington Station is split. On the northern side of the new bus interchange (which is located immediately north of the station entry building) there is a new long term Park 'n' Ride area. This is accessed via a left in-left out access point at the northern end of the car parking area.

To the south of the station entry building, adjacent to the climbing zone, there is a new Kiss 'n' Ride and staff parking area. This parking includes:

- Four (4) PTA staff parking bays;
- One (1) taxi drop off bay;
- One (1) loading bay;
- One (1) tenant parking bay for the kiosk operator;
- One (1) accessible short term and passenger set down bay;
- Two (2) emergency vehicle bays;
- Two (2) service bays;
- Three (3) Track Side Equipment Room (TSER) bays;
- Six (6) motorcycle bays;
- Six (6) ACROD bays, increasing from the current provision of five (5) ACROD bays; and
- Three (3) formalised Kiss 'n' Ride bays, an increase from no formalised Kiss 'n' Ride bays at the existing Cannington Train Station.

In total there will be 295 car parking bays provided for at Cannington Train Station, which is a decrease from the 297 bays currently provided. This total includes the existing parking area which is being retained on Railway Parade, south of Cannington Train Station and north of Gerard Street.

Refer to the TIA for further details.

Refer to Appendix J – Traffic Impact Assessment Report

Refer to Figure 19 – Proposed Queens Park Train Station Park 'n' Ride Parking Facilities

Refer to Figure 20 - Proposed Queens Park Station Kiss 'n' Ride Parking Facilities

Refer to Figure 21 – Proposed New Cannington Park 'n' Ride Train Station Parking Facilities

Refer to Figure 22 – Proposed new Cannington Kiss 'n' Ride Parking Facilities

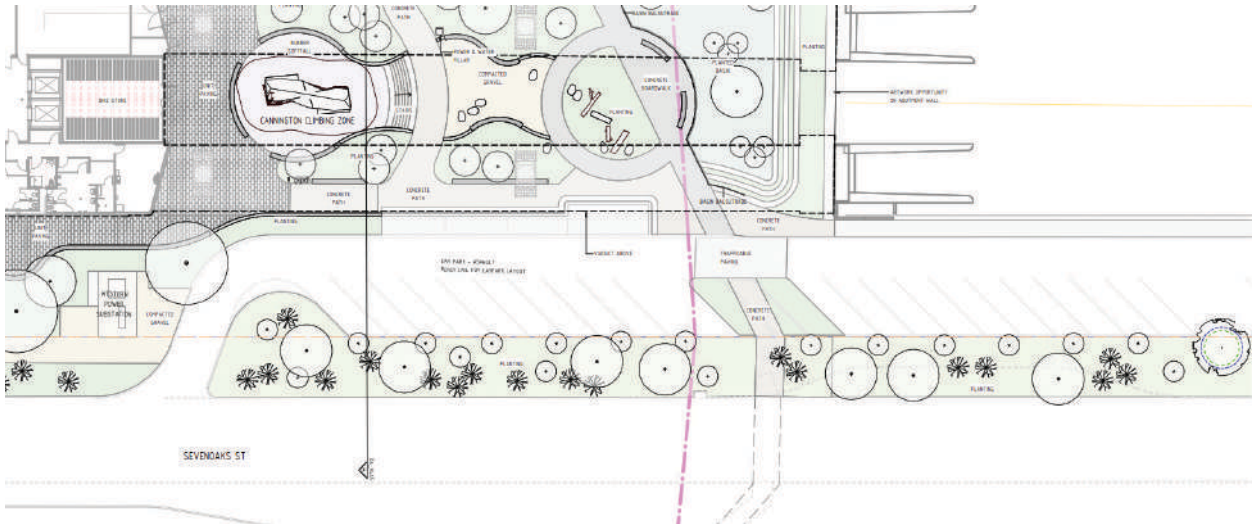


Figure 22. Proposed new Cannington Kiss 'n' Ride Parking Facilities

5.9 Bicycle Parking

New dedicated bicycle parking facilities are proposed as part of the VPCLXR project. This is part of an integrated transport offering that promotes multi modal and sustainable transport options. The proposed bicycle parking facilities include:

- 30 bicycle parking spaces in a dedicated bicycle storage room that is located within the southern façade of the Queens Park Train Station entry building. The bicycle storage room is directly accessible from the exterior of the building. In addition, eight (8) bicycle U-rails are proposed within the public realm at the southern end of the station plaza. This represents an increase from the 24 spaces (accommodated in one shelter) and 12 u-rails that are currently provided at the Queens Park Train Station.
- 50 bicycle parking spaces in a dedicated bicycle storage room that is located within the southern façade of the Cannington Train Station entry building. The bicycle storage room is directly accessible from the exterior of the building. This represents an increase from bicycle parking facilities that are currently provided at the Cannington Train Station.

Refer to the TIA for further details.

Refer to Appendix J – Traffic Impact Assessment Report

5.10 Bus Interchange and Bus Facilities

A new bus interchange is proposed at Cannington Train Station located immediately to the north of the station entry building. The proposed new bus interchange will provide for 16 active bus stands and eight (8) layover bays. The layover bays are provided for buses to park between services or whilst drivers are having meal breaks etc.

The bus interchange will operate as a one way road with an anti-clockwise loop. The active bus stands are provided around the central island under the viaduct. The proposed bus interchange design has been subject to a rigorous design analysis and assessment process involving MRWA, the City and Transperth / PTA to ensure that it safe and functional.

The central island within the bus interchange facilitates efficient and easy boarding and alighting of buses from under the viaduct, which offers weather protection, whilst also being able to accommodate commuters who may be moving through the space to access Cannington Train Station. Given the weather protection that is provided by the viaduct, it is proposed that smaller, individual, bus shelters be used to provide weather protection for passengers alighting or exiting buses. The use of smaller individual canopies is considered to provide a more articulated architectural response when compared with a larger, more continuous canopy given the adjacent mass of the viaduct.

A new bus stop is proposed at the Queens Park Station on Sevenoaks Street. This is directly accessible from the southern station forecourt/main entry. A bus shelter is proposed to provide weather protection to waiting passengers.

The VPCLXR project is proposing to utilise a bespoke bus shelter design that responds to the architectural design of the stations. The final design of these shelters is yet to be resolved, however are indicatively shown in the Design Report at Appendix F.

5.11 Architectural Treatments, Materials and Finishes

The stations materiality and colouration has been designed to be distinct and responsive to the local contexts, whilst maintaining a consistent line-wide character. Queens Park Station utilises a face brick plinth and aluminium roof in colours that reflect and respond to the local vernacular, which is consistent with the architectural approach proposed at the Carlisle and Oats Street Train Stations further north. In terms of more detailed materiality, Queens Park Station utilises a black face brick colour and monument coloured metallic roofing to respond to the urban character of the surrounding area.

The Cannington Train Station utilises a different architectural approach to signify its city centre location. An angled lattice façade that sits up above the canopy roof levels highlights the station location and identity within the surrounding urban area, which is expected to undergo significant change and redevelopment in the coming years. It is a less solid treatment than at the other stations, which are located in lower density areas and which use side platforms rather than the island platform which is proposed at Cannington.

A materials schedule for each station, including swatches, is included in the Design Report at Appendix F.

Also in the Design Report is a full schedule of brickwork, platform tiles, mesh lattice and concourse tiles for each station in the VPCLXR project demonstrating how these have been selected to respond to the colour identity that is being proposed for each station and station precinct.

Refer to Appendix F – Design Report

5.12 Sustainability and Green Star Rating

The development has been designed having regard to the sustainability framework outlined in the METRONET Sustainability Strategy. In this respect the proposed design has been developed with the intention of achieving a four (4) star rating against the Green Star Railway Stations rating framework (or equivalency rating).

Notably, station and precinct design has considered the use of passive design measures, such as natural ventilation, shading, weather protection and thermal performance. Where applicable, the station precincts and buildings will also incorporate sustainable construction materials that are sourced locally, will include recycling facilities, good waste management strategies and WSUD outcomes.

Energy use and operational costs across station life cycles have also been considered as an integral design feature, specifically in the selection of materials and finishes that will meet the requirements of the PTA.

5.13 Signage and Wayfinding

Efficient wayfinding ensures smooth passenger flow to and from the train station platforms from the public realm, from the bus interchange facilities and from car parking facilities. It determines how easily people can navigate the stations, bus stops and bus interchanges and the surrounds, particularly during peak times.

Poor wayfinding can create barriers to the use of train stations, and can create confusion, congestion and poor user experiences. Given the importance of signage and wayfinding to the design of the VPCLXR project, wayfinding has been a central pillar in the design approach to the development. Key design cues to assist with wayfinding include:

- Providing clear lines of sight to station entrances;
- Providing permeable station buildings with multiple connection points and legible entrances that connect to the railway reserve corridor and adjacent public realm;
- Providing expansive open concourses around the station entries;

- Providing recreation paths which lead to station plazas and forecourts and a PSP which diverts past the station entrances;
- Designating pedestrian crossings; and
- Use of landscape markers and a thematic station, station precinct and public realm design to provide wayfinding cues in the public realm.

At this stage of the design process a detailed signage and wayfinding plan has not yet been developed. The intention is that this will be prepared prior to the operation of the new train stations. It is anticipated that this requirement will be conditioned as part of the approval of the development.

5.14 Public Art

An indicative plan for integrating art and cultural content into the VPCLXR project has been prepared by Artify in alignment with Gnarla Bidji, METRONET'S Aboriginal Engagement Strategy. The plan has a particular focus on two applications; integrated design concepts and public art.

Integrated design concepts are embedded into the urban realm, landscape and station architecture. A number of integrated design concepts are big, symbolic opportunities that are often deeply abstracted in their form and presence, which visually and thematically connect the corridor as a whole.

Themes and narratives will inform the project at a more granular, detailed scale through layered opportunities that are connected to specific sites. These narratives and stories will be expressed through physical and digital interpretation, public artwork opportunities and community participation projects.

Whilst integrated design concepts will explore and celebrate cultural narratives in a high-level, abstracted way, public art themes will allow for specific and detailed narratives of place, people and events to be explored and shared.

The project sits within a richly diverse historical, social, economic, and environmental context. There are four (4) broad themes to ensure a balanced and nuanced narrative is explored, detailed as follows:

- Places of Significance;
- People of Significance;
- Rail History; and
- Abundant Country.

The following methodology has been adopted by Artify, Barry McGuire and Carol Innes in the preparation of the Plan for Integrating Art + Cultural Content:

- Review the Gnarla Bidji Aboriginal Engagement Strategy and the VPCLXR Cultural Context document, sharing insights and key findings with the project team to ensure a deep understanding and appreciation for the work undertaken by METRONET, Nyungar Birdiyia and the METRONET Noongar Reference Group.
- Develop the Art + Culture Vision for the project which aligns with METRONET and ALUA's aspirations and intent for the VPCLXR project, including the Gnarla Bidji Aboriginal Engagement Strategy and relevant Place Plans.
- Develop a series of objectives which define the tangible goals the project sets out to achieve, providing a framework for assessing the project over time.
- Develop a series of values as a filter through which decision making and intangible benefits are evaluated for the lifespan of the project.
- Undertake additional research and investigation into local historic, cultural, environmental and social contexts and stories outlined into the Cultural Context document.
- Building on the ideas and narratives outlined in the VPCLXR Cultural Context Document, develop a Cultural Framework which outlines two streams of interpretation.
- How generative concepts and themes will conceptually and aesthetically inspire integrated design concepts within the architectural and landscape design.
- How layered opportunities, including digital interpretation, physical interpretation, public art, education programs and place activation, will provide an opportunity for deep and site specific storytelling.

The public art plan preparation has followed the following methodology:

- Review METRONET Public Art Strategy, METRONET Armadale Line Public Art Guide and Place Plans for each of the stations.
- Define high-level public art opportunities across the station precincts detailing the following information.
 - Approximate location within the station precinct;
 - Relevant themes and narratives;
 - Artwork typology and scale; and
- Prepare a cost analysis, based on benchmark projects, to inform the overall public art budget.

The Place Plans require an integrated art response and strategy to be located across the elevated rail structure and activity nodes and paths, with a focus on stations. There will be multiple public art opportunities line-wide, including screening, embankment walls / retaining walls / noise walls, abutments, piers, ceilings/ soffits, bus shelters, precinct hardscapes, transformers, and play elements. Further detail on the specific public art opportunities identified for the VPCLXR project can be found in the Public Art Opportunities document prepared by ALUA and included at Appendix M.

Ownership of public art is defined through the commissioning process, the contract and the land on which it is located. Through the contract with the artist, the artwork usually becomes the property of the commissioning body once the art is supplied and paid for. However, the contract may enable the commissioner and the artist to own joint copyright of the artwork. Artwork located on public land is the responsibility of the managing authority of the land on which the art is located.

Refer to Appendix M - Public Art Opportunities

5.15 Lighting

Lighting plays an important role in enhancing the sense of safety within the public realm in and around the new train stations. Good lighting design can assist in reducing antisocial behaviour, improve visibility and therefore more frequent use of the public realm by the community.

The lighting objectives for the VPCLXR project include:

- Enhance the perception that the spaces are a safe, welcoming environment;
- Be integrated into and accentuate the design;
- Provide a destination experience for pedestrians;
- Activate the space both day and night at station precincts;
- Increase visibility at night;
- Assist wayfinding;
- Enrich the user experience; and
- Meet the required specifications.

Three types of lighting categories have been identified for use within the VPCLXR project. These include:

- Train Stations: Within station buildings, plazas and associated car park and bus interchange areas lighting will be required at different levels both inside and outside operational hours for differing levels of security. During operational hours these will be lit from dark until the last train/bus of the evening. After operational hours they will be lit for security, which will be from the last operational train or bus services until dawn.
- Parkland: Within parkland spaces the recreational shared path and activity nodes will be lit to LGA requirements. These will typically be lit from dusk until 9.00pm.
- Urban Connectors: Pathways that form part of the urban grid such as the PSP, cross connectors where perpendicular streets intersect, and verge footpaths will require lighting throughout the night to ensure safe travel of users across the corridor. These will be lit from dusk throughout the night.

A Lighting Strategy is included in the Design Report at Appendix F, which contains further information regarding the approach to lighting.

Refer to Appendix F – Design Report

5.16 Land Management and Allocation Arrangements

The PTA has been involved in ongoing discussions with the City to resolve the final agreements for the management of land following the completion of the development and the commencement of operation of the rail infrastructure. Management arrangements are proposed to be as follows:

- City:
 - Roads and verges generally (including where roads go under the rail infrastructure);
 - PSP where it is located within the road reserve adjacent to Railway Parade; and
 - Public realm between station concourses/plazas.
- PTA
 - Concourses and plazas around the station entry buildings;
 - Bus interchange facility adjacent to the Cannington Train Station;
 - Commuter car parks at Queens Park and Cannington Train Stations;
 - Viaduct and station platforms; and
 - PSP where it introduces path geometry to bring the PSP to crossing points.

Refer to Appendix Q – Proposed Asset Ownership and Management Plan

5.17 Tree Retention and Removal

A Tree Management Plan (TMP) was prepared and lodged as part of CDA1 in October 2022. The TMP identifies the trees to be retained as part of the project, trees to be relocated and trees to be removed. It also showed the tree protection zones which will be fenced. The conditions of approval on CDA1 control the management of trees to be retained and protected during the construction of the early works and viaduct. Importantly all trees were assessed by an arborist to determine which should and could be retained having regard to the proposed construction methodology and to ensure that significant trees could be retained wherever practically possible.

The trees that are to be retained are reflected in the Civil Corridor Landscape and Urban Design plans included at Appendix I. Within the PCA, where located within the City, it is proposed that:

- 60 trees be retained; and
- 80 trees be removed.

No further tree removal is contemplated as part of this current development application.

Refer to Appendix I – Civil Corridor Landscape and Urban Design Package

5.18 Tree Planting

The VPCLXR project recognises that trees are a core aesthetic and environmental component of the urban landscape. Trees influence air quality, reduce urban heat, provide health benefits, manage storm water and offer many other advantages.

The approach to tree planting across the precincts is based on the following principles:

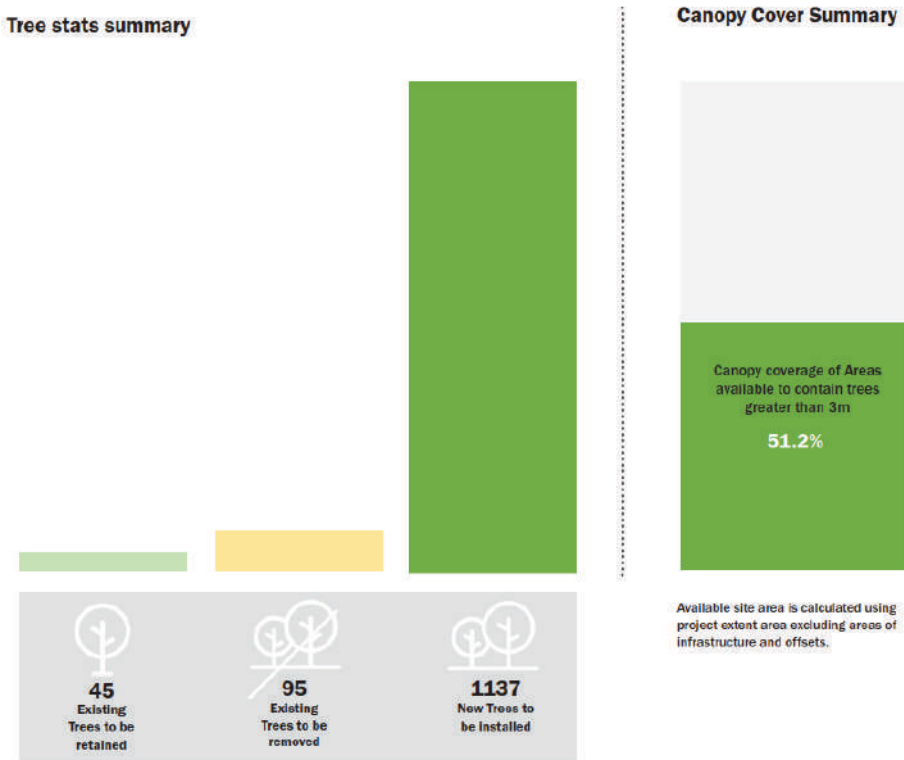
- Develop a planting palette that responds to and reinforces the design narrative and framework - Collective, Connected and Specific.
- Retain existing mature trees where possible.
- Reinforce the existing adjacent streetscape planting in consultation with the individual LGAs.
- Use robust Australian native trees for shade to parkland and station forecourt areas.
- Add an overlay of local tree and understorey species endemic to the site vegetation complexes.
- Utilise trees where possible to create green volume and screening to minimise the scale and visual impact of the viaduct from surrounding residents.

The proposal incorporates 808 new trees within the PCA within the City. The existing canopy cover in this area, based on the net site areas calculated using the project extent but excluding areas of road, viaduct, station and at grade rail is 9.2%. The future canopy cover of the proposal, with trees at maturity will be 21.8%, which is more than double the existing canopy.

Refer to Figure 23 – Diagrammatic representation of tree and canopy proposal (source: ALUA)

Refer to Appendix F - Design Report

Refer to Appendix I - Civil Corridor Landscape and Urban Design Package



Calculation based on complete site area (not just planning control area)

Figure 23. Diagrammatic representation of tree and canopy proposal (source: ALUA)

5.19 Services

There are a number of critical urban services that are being managed as part of the construction process either by avoiding, protecting or relocating major existing infrastructure. The work associated with removing or relocating services or providing new services to the viaduct was included in CDA2 lodged in October 2022 and approved by the WAPC in February 2023.

New and upgraded utility connections required for the train stations, car parking areas, bus interchange and PSP will be coordinated directly with the service providers and/or the City as relevant.

5.20 Precinct Access Arrangements

The public will be able to access the train stations and bus interchange facilities as part of their public transport journey during station opening hours (currently 5:15am to 1am Sunday to Thursday and 5:15am to 2:30am on Friday and Saturday).

The areas around the exterior of the station entry buildings will remain open and publicly accessible 24 hours a day, 7 days a week. These have been designed to be part of an integrated public realm arrangement.

PTA operations and maintenance staff will have access to the precinct for parking and any operational requirements (e.g. structural inspections, services maintenance, etc.).

5.21 Project Delivery

The VPCLXR project is to be constructed predominantly during the 18-month shut down period which is anticipated to commence in late 2023. The 18-month shutdown was carefully considered by the PTA along with several alternative options, including multiple temporary and shorter shutdowns over a longer period of time.

It was determined shorter shutdowns could have unnecessarily prolonged the project and cause more disruption than necessary to passengers and the community.

The shutdown will effectively create a 'greenfield site' which will allow for a more efficient construction of the elevated rail, which delivers the project in a shorter timeframe and provides a safer environment for construction workers.

Transperth has invested considerable time and resources into analysing the travel patterns of existing patrons to plan a network of train replacement bus services. These new services will utilise more than 100 additional buses, which are designed to continue to provide an effective public transport network for patrons during the shutdown period.



6. Key Planning and Design Considerations

6.1 Relationship with Surrounding Urban Context

The VPCLXR project traverses through the suburbs of Queens Park and Cannington within the City's local government area. The VPCLXR project will elevate the Armadale Rail Line within the City from the abutment adjacent to Mills Street and the southern abutment adjacent to Grosse Avenue.

The area surrounding this section of elevated rail infrastructure is generally characterised by single storey residential development of a low to medium density on both the western and eastern sides of the Armadale Rail Line corridor. The Cannington Leisureplex, Sevenoaks Senior College and a number of existing commercial developments are situated in close proximity to the Cannington Train Station. There is also some low scale commercial development either side of the rail corridor in close proximity to the Queens Park Station.

The surrounding area has a mixed character and includes a number of underdeveloped sites and vacant land parcels. The area is one in which significant population growth and new development is anticipated over the next two decades as set out in the Queens Park Local Structure Plan and the Canning City Centre Activity Centre Structure Plan. There are therefore opportunities for new development in the area to leverage from the proposed significant investment in public infrastructure. In this respect, the VPCLXR project is anticipated to act as a catalyst for future growth and development investment within the City in close proximity to the rail corridor and beyond. This application will specifically support this through allowing for the following outcomes:

- Provision of high quality new train stations that are readily accessible and legible from the surrounding urban realm;
- Provision of a permeable network of paths to facilitate greater connectivity within and across the railway reserve;
- Carefully integrated bus and train services to better facilitate sustainable transport choices;
- Flexible open spaces to promote community activation; and
- High quality community nodes that respond to the communities expressed desires for new dog parks, nature play areas, passive recreational spaces, fitness nodes, playgrounds, skate plazas and gathering places which will facilitate greater social connectivity and cohesion.

Refer to Figure 24 Existing Queens Park Train Station Context

Refer to Figure 25 Existing Cannington Train Station Context



Figure 24. Existing Queens Park Train Station Context



Figure 25. Existing Cannington Train Station Context

6.2 Applicable Planning Framework

6.2.1 The Purpose and Intent of Applicable Planning Schemes

The following planning schemes are relevant to this development application:

- **Metropolitan Region Scheme:**

- The MRS defines the future use of land and provides the legal basis for planning in the Perth Metropolitan Region. It also provides the regulatory planning framework that typically exempts all METRONET work² inside railways reservations from the need for planning approval. Notwithstanding the exemptions provided by the MRS a PCA has been placed over parts of the project area, which requires all works in the PCA to be approved by the WAPC, as mentioned in Section 5.2.
- The VPCLXR project aligns with the reserve description for 'Railways' as the project is providing upgraded public transport facilities that promote connectivity and accessibility.
- Parts of the VPCLXR project are located in Other Regional Road (ORR) reserves under the MRS. Importantly, all significant infrastructure including station buildings, fire boosters, substations and transformers etc, are being located outside of areas in the ORR that may be needed for road widening in the future. This is discussed further at Appendix C.

Refer to Appendix C – Planning Assessment

- **City of Canning Local Planning Scheme No. 42:**

- The purpose of the City's LPS 42 is to set out the local government's zones and reserves, planning aims and intentions for the scheme area.
- As the zoning of the subject site is established by the MRS, LPS 42 does not provide specific requirements or objectives for the railways reservation. LPS 42 does however establish the zonings for the surrounding land parcels which are in close proximity to the subject site.
- One of the aims of LPS 42 includes "to secure the amenity, health and convenience of the local government and the inhabitants thereof". In this respect, it is noted that the proposed VPCLXR project is for a new elevated rail line, new train stations, a new bus interchange and public parking (Kiss 'n' Ride and Park 'n' Ride) facilities within the MRS Railways Reservation. The development will deliver high quality public transport services and public realm arrangements which will improve the amenity and convenience of those residents living in proximity to the project.
- As this development application is being made within a PCA, development approval is not required under the normally applicable local planning scheme. Nonetheless, the success of the project rests in part, on the manner in which the development responds to and interacts with adjoining land uses, both existing and future. Accordingly, the objectives of the local reservations and/or land use zones of LPS 42 have been considered in terms of the manner in which the public realm and station realm connects to and interacts with adjoining land. The development is considered to be consistent with the objectives of LPS 42 in this respect. Some of these design responses include (but are not limited to):
 - Responding to the different context of Cannington as a Strategic Metropolitan Centre and providing an appropriate bespoke design response.
 - Providing an architectural response to the Queens Park Station which responds to the local architectural vernacular.
 - Providing activity nodes which respond to the adjoining land uses, such as the Cannington Leisureplex, Queens Park Supa IGA and St Joseph's and St Norbert's Schools.
 - Focussing the activity nodes closest to the train stations, which are adjacent to the areas of most intensive existing and future development.
 - Carefully resolving the design of the Queens Park Station and surrounding public realm having regard for the potential future widening of Sevenoaks Street in the ORR reserve.

² METRONET work and 'Permitted development' under the MRS are defined to cover the same extent of works. 'Permitted development' for the purposes of land reserved for Railways under the MRS is defined as works "for the purpose of or in connection with a railway, but this does not include the construction or alteration of a railway station or any related car parks, public transport interchange facilities, or associated means of pedestrian or vehicular access".

- Maintaining the PSP adjacent to Railway Parade to provide a more accessible PSP as a PSP adjoining Sevenoaks Street would necessitate a traffic barrier (due to traffic volumes on Sevenoaks Street), which would result in a less accessible PSP for residents of the area.

6.2.2 Relevant State and Local Planning Policies

The following State and local planning policies and other identified planning instruments are relevant to this development application:

- State Planning Policy 5.1 - Land use planning in the vicinity of Perth Airport
- State Planning Policy 7.0 - Design of the Built Environment
- Development Control Policy 5.1 – Regional roads (vehicle access)
- Canning Good Design Guide
- Local Planning Policy 02 – Public Consultation of Planning Proposals
- Local Planning Policy 03 – Developer Funded Public Art
- Local Planning Policy 06 - Design Review Panel and Assessment of Significant Developments
- Local Planning Policy 07 – Advertising Signs
- Local Planning Policy 09 – Tree Retention and Planting - Development

The proposed development has been assessed against the planning framework documents listed above in Appendix C.

Refer to Appendix C – Planning Assessment

6.2.3 Orderly and Proper Planning and Preservation of Amenity

The principles of orderly and proper planning require that new development is a logical and efficient extension of existing development, and consistent with the planning vision and strategic direction for the locality. This project represents a significant investment by the WA Government in enhancing the capacity of the train network to support long term future population growth and urban consolidation, improving safety and congestion issues associated with existing level crossings and improving the amenity of the VPCLXR project area to support urban renewal and consolidation.

Within the City, the VPCLXR project will deliver two new train stations and associated station entry buildings, new station plazas, new Kiss 'n' Ride and Park 'n' Ride parking facilities, new bus facilities (interchange and stops) that integrate with the new train stations and significant new ground plane public realm revitalisation and improvement, inclusive of new bespoke public spaces and facilities all within the existing railway reserve. In addition, the proposal seeks to ensure that the existing PSP is augmented to provide a safe and functional route for cyclists and pedestrians that provides appropriate connectivity to the stations and safe crossing points across local roads.

Specific regard has been had to:

- The distribution of stations and uses within the railway reserve that responds to and is consistent with the existing approved use of adjacent land along the railway reserve.
- The design and scale of the proposed development has had careful regard to the context established by existing surrounding development.
- The location of the proposed development is generally contained within the established MRS Railways Reserve (other than local road network improvements) and some specific areas where the ORR reserve extends into the PTA's existing rail corridor (refer to Appendix C).
- The development will provide high quality facilities that will encourage the use of the rail infrastructure and new public spaces by local residents and workers, providing a significant new community asset that meets contemporary standards and requirements in terms of accessibility, safety and functionality.
- The proposal will enhance the functionality of train and bus services, the catchments of the train stations and the operation of the PSP as well as pedestrian movements across and within the railway reserve.
- The design of the development is high quality and responds to the context and characteristics of the site generally as well as within specific locations.

- The design direction of the proposed development has been generally supported by the SDRP and the Design Working Group.
- The proposal will maintain and supplement the availability of Park 'n' Ride and Kiss 'n' Ride parking for commuters.
- The proposed development has been designed with careful regard for weather protection and the application of CPTED principles and will ensure safe and protected use of the spaces being delivered as appropriate to the functionality of the space. Shade and amenity will be significantly increased as a result of the project.
- The proposal has been shaped by a detailed consultation process with the community and other stakeholders.

Given the above, the proposed development is considered to be consistent with the principles of orderly and proper planning.

6.3 Crime Prevention Through Environmental Design

The WAPC's Designing Out Crime Planning Guidelines (DOCP Guidelines) were established in 2006 and are intended to be a readily useable, illustrated reference document, which demonstrates 'good' and 'bad' examples of design in the urban environment from a crime prevention perspective. The DOCP Guidelines are currently under review, with a new document Safer Places by Design: CPTED Guidelines, having recently been subject to public consultation.

ALUA in consultation with key stakeholders has had regard to CPTED principles in relation to the proposed station and station curtilage designs, Kiss 'n' Ride and Park 'n' Ride designs, bus stop and bus interchange designs and public realm design.

The principles of CPTED that have been applied to the design of the development, consistent with the DOCP Guidelines, include:

- to maximise the use of public transport by a wide range of people over extended operational hours in a safe environment;
- to discourage anti-social behaviours;
- to encourage all users to feel safe by increasing safety provisions; and
- to promote surveillance.

There are a number of design and operational measures proposed to ensure that safe places and spaces are provided for all users consistent with the DOCP Guidelines. These include:

- Ensuring passive surveillance at station entrances and active surveillance with CCTV cameras positioned at the entry (with ancillary views of these spaces).
- Clear sightlines at main station entries.
- Public routes and station entries being generally well viewed from adjacent properties and roadways.
- Small areas that are confined on most sides by building elements such as pillars, walls or other non-opaque entrapment spots or places where intruders may be concealed being avoided in the design.
- Clear sightlines being provided to stairwell and lift entrances.
- Transparent materials being utilised in the station design, increasing natural surveillance and light.
- The toilets at Cannington Station being only accessible from within the station and designed to avoid loitering spots at the entrances.
- The location of the kiosk at Cannington Train Station to increase activity and passive surveillance on the northern side of this station entry building.
- Clear sight lines provided through the car parks and bus interchange.
- The PSP being separated from other pathways and routes, such as to the bus to station and car park to station routes, providing clarity in zones and improved safety.
- Shrubbery and vegetation being planned to allow direct sightlines and maximise security and wayfinding.
- CCTV being coordinated with tree placement and lighting location/coverage.
- Security lighting being provided.

- Furniture and finishes being selected to avoid misuse, dumping or tagging.
- Community uses and ownership of the spaces being encouraged to facilitate positive social interactions in the public realm and to avoid conflicting uses.

The following further processes are either underway or are proposed to inform the detailed design phases for the project:

- Security / Crime Risk Assessment Workshops – which are being held with relevant stakeholders such as the PTA (Transit Officers/N&I), LGAs and WA Police.
- Human Factor Workshop with CPTED principles incorporated in safety risk mitigation during construction.
- Lighting coverage modelling to demonstrate adequate lighting is provided to improve users' feeling of safety.
- CCTV modelling to demonstrate viewing objectives especially in high-risk areas as per PTA standards are met.

It is acknowledged that the overall construction period associated with the VPCLXR project is relatively long. Therefore, ALUA in consultation with key stakeholders are committed to ensuring that spaces surrounding the construction site are safe and fit for purpose to limit risks to pedestrians as far as practically possible. A Construction Management Plan (CMP) has been prepared by ALUA for CDA1 (as lodged in October 2022) which addresses the safety of construction workers, pedestrians and road users using the area and the ongoing use of the rail line during the temporary construction period.

6.4 Sustainability Approach

The METRONET Sustainability Strategy 2021 (Sustainability Strategy) aims to create a sustainable legacy for Perth through the planning, design, procurement, and construction of transport infrastructure, train stations and precincts.

The VPCLXR project has had regard to the social, environmental and economic themes of the Sustainability Strategy. Importantly, the Queens Park and Cannington Stations are being designed to achieve a four (4) star Green Star equivalency target rating, both in their design and 'as built'.

The sustainability initiatives incorporated into the works included in this development application include:

- The designs apply a sustainability approach through the use of passive environmental design measures, responding to local climate and site conditions having regard to orientation, shading, thermal performance and natural ventilation.
- The reduction of reliance on technology for heating and cooling will minimise energy use, resource consumption and operating costs over the life-cycle of the project.
- Utilising low maintenance design opportunities in both the station, public realm and landscape where possible.
- Achieving tree canopy and urban forest targets for the project.
- WSUD and landscape principles have been applied to minimise negative impacts on existing natural features and ecological processes. Furthermore, the combination of landscape WSUD, subsoil drainage and grading are designed to avoid the requirement for underground tanks and gross pollutant traps etc.
- The use of sustainable construction materials, recycling, good waste management practices, re-use of materials and existing structures, harnessing of renewable energy sources, and total water cycle management will also be incorporated, where applicable.
- Minimising hardscapes near train stations whilst maintaining functionality.
- Investigating permeable materials for car parks and plazas with the PTA (noting that these do not currently meet PTA standards).
- Incorporating bike storage to reflect PTA requirements with designs that enable increases in capacity in the future.

In addition, the project more holistically will deliver high quality new train stations with improved integration with bus services and improved walkability as a result of the improved network of paths, crossing points, shade and weather protection more generally. This will result in high quality low-emission transport options for thousands of locals, consistent with the principles of sustainability.

7. Key Technical Considerations

7.1 Acoustic Considerations

Acoustic assessment reports have been prepared for both the Queens Park and Cannington Stations. The purpose of these assessments is to assess and determine the level of compliance of the design (or stations, car parking areas and bus interchanges etc) having regard to surrounding noise-sensitive premises and to ensure that passenger station areas meet appropriate standards having regard to noise and vibration. These demonstrate that predicted noise levels are below the daytime and night-time environmental noise criteria for all receivers from both train stations, the car parking areas and bus interchange.

Refer to Appendix R – Noise and Vibration Report – Queens Park Station

Refer to Appendix S – Noise and Vibration Report – Cannington Station

7.2 Wind and Rain

ALUA is required by the PTA to undertake wind and rain assessments of passenger areas including station platforms, station entries and bus interchanges and stops. This is to ensure that the external environmental comfort for passengers is appropriate and that the design responds to any risk areas where passengers may feel uncomfortable as a result of wind and/or rain.

These climatic studies have informed the platform canopy designs and bus shelter location and designs. The studies are ongoing and will continue to inform the design as it progresses into the detailed design phase for construction.

Refer to Appendix T – Environmental Comfort Assessment – Queens Park Station

Refer to Appendix U - Environmental Comfort Assessment – Cannington Station

7.3 Construction and Traffic Management

The project is to be principally constructed during an 18 month shut down period during which the rail line will be closed and there will be replacement bus services in operation. METRONET has publicly acknowledged that this shutdown process will be disruptive to the community, however it was determined as the most appropriate option to deliver the new rail line quickly and safely. Temporary bus stops and bus interchanges will be established during this period to support the replacement bus services that are operational during this time and until the new permanent bus stops and interchanges come on line as part of the VPCLXR project.

The construction of the stations, car parks, bus interchanges, road works and public realm will be managed holistically with the construction of the viaduct during the 18 month shut down period. It is noted that construction and traffic management has been separately assessed as part of CDA1, as approved by the WAPC in February 2023. An updated CMP will be required to be provided to the City and DPLH as a condition of approval on CDA1. This updated CMP will address all relevant construction and traffic matters for the project holistically.

7.4 Geotechnical Considerations

Geotechnical considerations have been separately assessed as part of CDA1 lodged in October 2022 and approved by the WAPC in February 2023.

7.5 Water Management

Stormwater Management for the VPCLXR project comprises a number of elements as follows:

- To manage post development flows within the public realm, WSUD principles have been applied within the drainage design. This includes shallow basins/swales with landscaped plants/vegetation to treat (remove pollutants) the surface water runoff from the viaduct, roof catchments, hard and soft landscaped areas. The WSUD principles that have been applied in the public realm design are detailed in the Design Report included at Appendix F.
- Soak wells and high-level overflow catchpits will be positioned within some shallow basins / swales as the inlet and outlet respectively. The pipe outlet from the high-level overflow catchpit will then connect into adjacent basins or the existing local road drainage network, ensuring the flows remain at pre-development rates to not adversely impact the existing drainage network. High-level preliminary calculations show that the existing drainage network has sufficient capacity to retain 1% AEP storms.
- Basins are anticipated to have a depth of 300mm and up to 500mm where required (noting that fencing may be required where these are greater than 300mm in depth). Underground drainage storage tanks will be considered if the 500mm deep retained basin does not have sufficient capacity to meet the 300mm freeboard and pre-development flow requirements of the project.
- Drainage runoff from the viaduct will flow down the centre of the pier and will freely discharge at ground level onto rock pitching into swale treatments to provide natural irrigation. Where piers are located within a hard landscaped area (i.e. stations, forecourts, pavement, etc.), the design involves a PVC outlet below finished ground level into an atco drain for inspection/maintenance and then connected into a piped system for further conveyance.
- Where possible, surface runoff from car parks and bus interchanges will sheet flow into vegetated swales / rain gardens. The vegetated swales / rain gardens will help to manage the post development flows and treat the surface runoff prior to discharging into the existing local road drainage network. Where there are existing trees or limited space and hence swales / rain gardens cannot be proposed, then pit and pipe systems with gross pollutant traps are proposed to be used.
- Where the rail corridor has restricted access with a 1.8 metre high chain link fence (outside of the PCA), 1.5 metre deep basins can be proposed with 1V:3H side slopes to help manage the pre-development flows.
- Road drainage design replicates the existing drainage scenario as much as possible. It is proposed to design new drainage structures to suit the road design (widened lanes, amended kerbs, etc.), connecting to the existing City drainage structures, which outlet to existing basins. The drainage design is to have no adverse impacts to the City's existing drainage network.
- It is noted that the existing rail corridor and road stormwater drainage does not include any specific water treatment infrastructure to treat runoff from the roads. Through the proposed drainage design for the rail corridor, at-source treatment is proposed prior to any connections to the existing road network. However, if any further water treatment is required prior to discharging into the existing Water Corporation basins (such as GPT's on the existing pipe networks downstream of the project), it is assumed that there are existing measures in place, and it is not part of the corridor and drainage scope of work.
- Groundwater will be utilised to meet operational irrigation requirements, in line with METRONET's target of utilising 100% non-potable water for all landscaping beyond the establishment phase. An irrigation strategy outlining the approach to irrigation is under development and will need to be agreed with the City.
- Prior to use for irrigation purposes, bore water shall be treated to minimise risk of iron staining. A strategy for this approach is yet to be confirmed.

Refer to Appendix F – Design Report

Refer to Appendix L – Drainage General Arrangement Plans

7.6 Services and Infrastructure

Most of the new and relocated services required as part of the VPCLXR project formed part of the early works and viaduct development application (CDA1) which was lodged in October 2022 and approved by the WAPC in February 2023.

A number of new or upgraded utility service connections will be required for the new train stations, public precincts, car parks, and to supply lighting to the public realm. ALUA is engaging with service providers and the City as relevant to facilitate these connections.





8. Conclusion

This report has been prepared by **element**, on behalf of ALUA, in support of a development application for the following VPCLXR project components:

Queens Park Train Station Works:

- Construction of an elevated train station at Queens Park, including ground level station entry and concourse;
- Redevelopment of the Queens Park passenger parking to provide new Park 'n' Ride and Kiss 'n' Ride facilities; and
- PTA staff parking and loading bay facilities at Queens Park.

Cannington Train Station Works:

- Construction of an elevated train station at Cannington, including ground level station entry and concourse;
- Construction of a new bus interchange;
- Redevelopment of the Cannington passenger parking to provide new Park 'n' Ride and Kiss 'n' Ride facilities; and
- PTA staff parking and loading bay facilities at Cannington.

Other Project Works:

- Modifications to the existing at grade Principal Shared Path (PSP) to augment the existing PSP adjacent to Railway Parade;
- Public realm initiatives and improvements between the north abutment adjacent to Mills Street and the southern abutment adjacent to Grosse Avenue, incorporating construction of new civic spaces, community nodes, a playground, youth plaza, dog park, pathways and landscaping; and
- Local road works and intersection modifications.

The VPCLXR project represents a major upgrade to the Armadale Rail Line and a significant investment in new public realm facilities for the community. As part of the broader METRONET rail program, it represents the single largest investment in public transport that Perth has seen and will deliver a multitude of benefits to the local resident and worker community as a result of the new public transport infrastructure and new public realm that is being delivered as part of this project.

Based on the justification provided throughout this report, we respectfully request that the City support and recommend approval of this application to the WAPC and that the WAPC approve the application subject to appropriate and reasonable conditions.

