



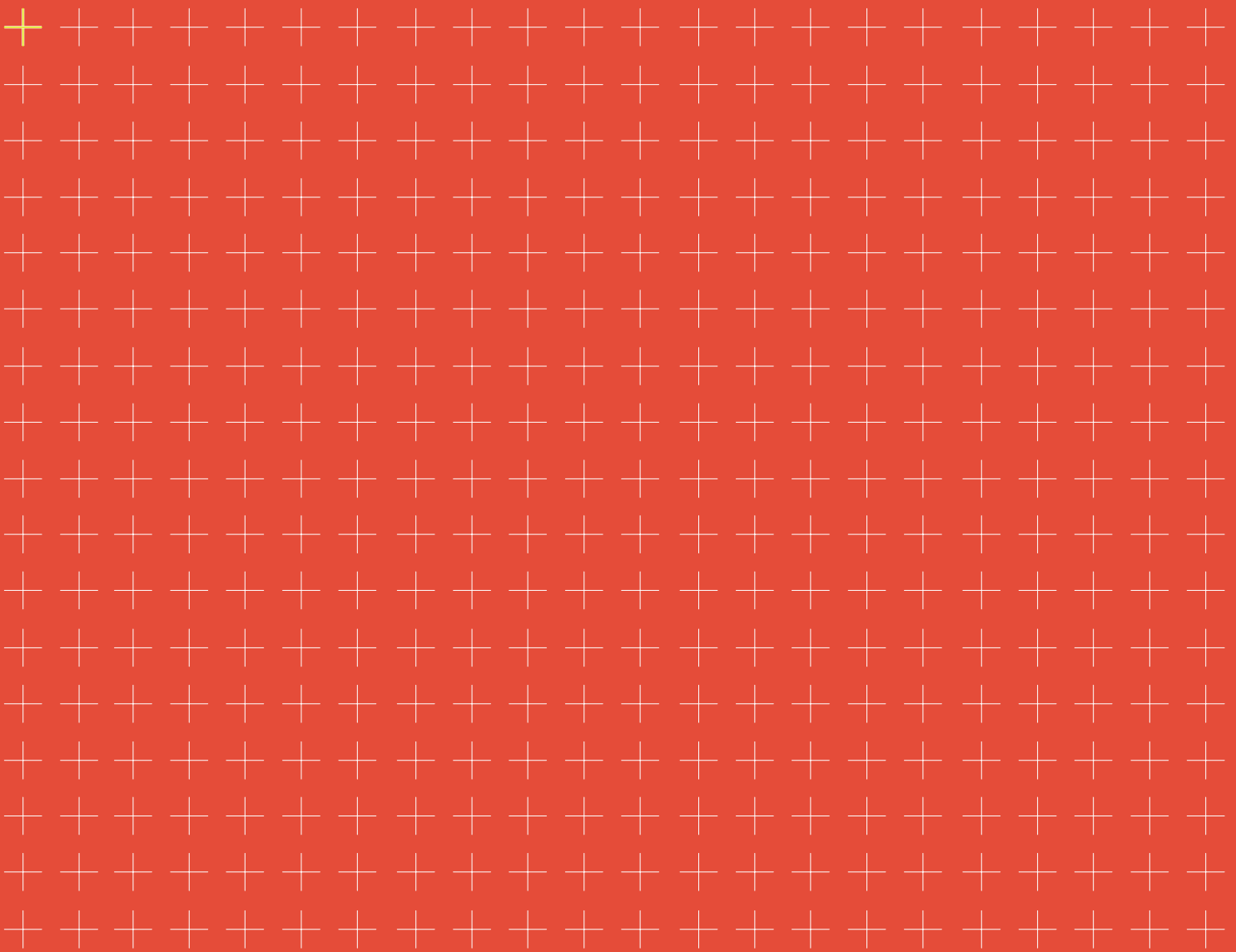
Lakelands Station

Development Application
Lot 800 & 3002 Ashwood Parkway, Lakelands

Prepared for ADCO Constructions
May 2021

HATCH | RobertsDay





Document Control

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1.0 Introduction

This application has been prepared by Hatch RobertsDay (Hatch Pty Ltd) on behalf of ADCO Constructions, the contractor appointed by the Public Transport Authority to design and build Lakelands Train Station as part of METRONET Stage One.

METRONET is a WA Government rail infrastructure investment program tasked with delivering approximately 72 kilometres of new passenger rail and up to 18 new stations, representing one of the largest single investments in Perth's public transport network.

Development approval is sought for the new Lakelands Station and associated infrastructure, including:

- Station entry building with pedestrian overpass connecting two marginal platforms set in an existing cutting with associated amenities including ticketing machine facilities, bicycle storage and toilets;
- A mode-separated bus interchange facility with provision for 8 bus bays;
- Car parking comprising 400 bay at-grade car bays and separate passenger drop off area; and
- Road works to provide car park access off Ashwood Parkway and bus access from Lake Valley Drive, including modification to the existing Lake Valley Drive roundabout and Ashwood Parkway/Lake Valley Drive intersection.

The station is to be constructed between the existing Warnbro and Mandurah stations on land which was set aside for a future station when the Mandurah Rail Line was originally constructed in 2004-07.

The Station is forecast to see approximately 2,300 daily boardings upon opening in 2023, rising to a forecast 3,500 boardings by 2031. It is anticipated that the station will mitigate congestion at existing stations, while providing local residents in Lakelands, Madora Bay and surrounds with enhanced transport options.

The proposed station design has been developed by the consultant team appointed by ADCO Constructions including DesignInc as lead Architect, Apparatus as public art consultants, Emerge Associates on landscape design, bushfire and sustainability, GTA now Stantec as transport and traffic consultants, Marshall Day as noise and vibration experts, Lucid Consulting, Bimfire and MHM Engineering to assist with servicing and Hatch RobertsDay as lead urban planners.

Western Australian Planning Commission (WAPC) approval via application to the Joint Development Assessment Panel is required for the works that are associated with the new station and associated car parks and bus interchange facilities and related modifications to the surrounding movement network.

This application is accompanied by a range of supporting reports which are appended to this report, including:

- Architectural Design Report
- Transport Impact Assessment
- Road Safety Audit
- Bushfire Management Plan
- Bushfire Emergency Evacuation Plan
- Noise and Vibration Design Report
- Water Management
- Water Management Plan
- Flood Study
- Construction Management Plan
- Landscape Masterplan

2.0 Project Background

2.1 Metronet Project Background

METRONET is one of the largest ever single investments in public transport in Perth and Western Australia.

It will deliver approximately 72km of new passenger rail line and 18 new stations, and through this investment seeks to be a catalyst for the development of over 5,000ha of land around the new stations. In relation to the Mandurah line, two new stations are identified as part of the long-term public transport planning for the south-west corridor. Karnup Station will be about 4.5km north of Lakelands, near the intersection of Paganoni Road and Mandurah Road.

With the Federal Government contributing 80 per cent of the funding for a station at Lakelands this was deemed the best value for money option.

The State Government remains committed to building a new station at Karnup. A full business case for the station and surrounding residential development is being progressed.

In the meantime, Karnup and Secret Harbour will benefit from improved bus services to the area from Warnbro Station and local road enhancements, to be delivered as part of the Lakelands Station project.

Development Approval for a new multi-level car park has been secured to improve regional access to the end-of-the-line station at Mandurah, about 6.0km to the south of Lakelands Station. A total of 1,800 car bays is now provisioned for Mandurah. The Lakelands Station will play a role in easing pressure away from the Mandurah Station, particularly given the opportunity to re-route and create new feeder bus lines to the new Station and bus interchange.

2.2 Lakelands Station History

The development of Lakelands station has been planned for several decades, with suitable land set aside as part of the design and delivery of the Mandurah railway line which opened in 2007. The extent of the station and associated parking is reserved for Railways under the Peel Region scheme on this basis. Planning and development of surrounding residential estates was progressed in the knowledge that a future train station was provisioned in this location, as identified in the early 2000s Southern Suburbs Rail Study and the Lakelands West ODP (2008).

Located on the Mandurah Line between Warnbro and Mandurah stations, which are 23 kilometres apart, the new station will provide another public transport option for local communities and ease pressure on existing stations.

In December 2020, ADCO Constructions was selected as the preferred contractor to design and construct Lakelands Station, with the contract awarded in January 2021. ADCO Constructions appointed a project team to assist with the design component, including lead Architect DesignInc.

2.3 Approval Requirements and Process

In order to secure planning approval for the project, engagement with the Department of Planning, Lands and Heritage confirms that the assessment will be an Application to the Joint Development Assessment Panel, taking the role of the decision-maker in place of the Western Australian Planning Commission given the land is wholly Reserved for Railways under the Peel Region Scheme.

Development Approval from the City of Mandurah is not required on this basis, with carrying out of works that are wholly located on an area identified as a regional reserve under a region planning scheme not requiring the approval of local government.



Figure 1: MERTRONET Context (DesignInc 2021)

3.0 Station Context

3.1 Site Location and Context

Lakelands station is planned as a new station along the Perth to Mandurah line, located 6.5km north of Mandurah Station and approximately 64.5km south of Perth Underground. The station is accessed via Lake Valley Drive to the north and Ashwood Parkway to the west.

There are two school sites (Oakwood Primary School and Mandurah Baptist College) within the station’s immediate catchment area. The station is also situated approximately 1.0 kilometre east of the Lakelands District Activity Centre. The Lakelands Station site is situated in a predominantly low-density residential setting, bounded by Lake Valley Drive to the north, Ashwood Parkway to the west, Arramall Trail to the south and Black Swan Lake to the east.

Refer section 1 of the Architectural Design Report (Appendix D, context and character).

3.2 Property Description

The site of the proposed station car park and bus interchange, having previously been set aside for this purpose, is described as Lot 800 (5) Ashwood Parkway, Lakelands. The station itself will be built on the Rail corridor, which is described as Lot 3002, with no street address.

The land is relatively flat ranging from 10-14m Australian Height Datum (AHD), before dropping away to the east to the existing rail infrastructure itself, which sits at 3-4m AHD.

Both lots are freehold and held in ownership by the Public Transport Authority. Property details for the site are as follows:

Lot No	Plan No	Vol/Folio	Proprietor	Size
3002	402024	2925-988	PTA	5.4 ha
800	077032	2842-696	PTA	1.9 ha



Figure 2: Local Context (DesignInc 2021)



Figure 3: Aerial Photograph (Emerge Associates 2021)

4.0 Stakeholder Consultation

The proposed development has been subject to significant consultation with relevant operational authorities including METRONET, PTA and impacted stakeholders including the City of Mandurah and the Department of Planning, Lands and Heritage.

The project team has also undertaken pre-lodgment consultation with the Office of the Government Architect (OGA) to ensure the proposed development meets design expectations. In addition, consultation with a Community Working Group has been undertaken independent of the design development process by the PTA.

Agency	Method	Outcome of Pre-Lodgement Engagement
Department of Planning, Lands and Heritage	Phone calls and emails (February and March 2021)	<p>Agreement that the WAPC is the determining Authority, not the City of Mandurah, given the development is wholly contained in Reserved land under the Peel Region Scheme.</p> <p>DPLH Officers to prepare the Responsible Authority Report on behalf of the WAPC.</p> <p>Advice that some form of consultation is to be considered, given the existing residential properties in proximity to the Station.</p>
City of Mandurah	Meeting on 29 March 2021, phone calls and emails	<p>Agreement to lodge Application with City of Mandurah, who then forward the Application on to the WAPC for assessment and determination.</p> <p>City focused on walkability access, including provision of footpaths wherever possible.</p> <p>Feedback on proposed road modifications. Specifically for Ashwood Avenue to have full functionality (left and right out, instead of just left out). Required changes have been incorporated into the design.</p> <p>Acknowledgment that no additional pre-lodgment presentation would be required.</p> <p>Acknowledgment that a fire service access route (FSAR) for the full length of western boundary of Black Swan Lake Park to connect through to Mandoogoordap Drive is not necessary, and that DFES should accept turn around areas to access the eastern interface of the station only.</p>
City of Mandurah	Site Meeting 21 April 2021	<p>Inspection of the eastern access track completed.</p> <p>Masterplan information for the PEET landscape treatment at Black Swan Reserve was provided to ADCO for information.</p> <p>Inspection of the trees within the development site was completed to ascertain whether timber will be applicable for milling.</p>
Community Reference Group	Presentation in early April 2021	<p>Overall, a general positive feedback of design and architecture received.</p> <p>Some comments on lighting – the response is to have systems in place that reduce to 25% after hours to avoid light-spill. Lights will also be screened to ensure lighting is directional and not spilling into adjacent properties.</p>

Agency	Method	Outcome of Pre-Lodgement Engagement
Community Reference Group	Meeting #1 3 November 2020	<p>Additional security measures (CCTV, CPTED principles) added to ensure concerns of unmanned facility addressed.</p> <p>Assurance that footpath connectivity along Ashwood Parkway will be provided as part of the project.</p> <p>Confirmation that all trains passing through the new Lakelands Station will stop at the Station.</p> <p>Technical briefing given to Community Members on range of other matters.</p>
Department of Fire and Emergency Services (DFES)	MS Teams meeting 31 March 2021	<p>Presentation of the design to the South Coastal DFES Officers.</p> <p>DFES made some minor comments regarding location for responding tenders which will be incorporated in the design.</p> <p>DFES queried the height of the roof structure within the bus interchange which will be incorporated in the design.</p> <p>DFES noted that the eastern hydrants would be best positioned on the platform level (as opposed eastern access track) and should be clearly labelled.</p> <p>Landscaping to be delivered in a low threat manner.</p> <p>Request to prepare a Bushfire Emergency Evacuation Plan.</p>
Department of Fire and Emergency Services	MS Teams meeting 14 April 2021	<p>Presentation of the design to the DFES Built Environment Branch Officers.</p> <p>DFES generally satisfied with the design development.</p> <p>DFES agreed a site inspection should be conducted to clarify any access provision requirements to the eastern access track.</p>
Department of Fire and Emergency Services	On-site meeting on 21 April 2021	<p>DFES South Coastal representative attended and noted that access provision to the eastern side of the platform for all emergency types would be required.</p> <p>All parties agreed that minor modification to two locations for provision of a turning point would be useful if possible.</p>
Office of Government Architect	Presentation on 24 March 2021, desktop review feed-back	<p>Refer following section for detailed response to all design comments raised by the Office of Government Architect.</p>

Agency	Method	Outcome of Pre-Lodgement Engagement
Water Corporation	Meeting at Water Corporation Leederville on 24 February 2021	<p>Fire and domestic water applications to progress via standard domestic services application – ADCO to progress in due course.</p> <p>Removal of redundant sewer pressure main requires Clearance to Works – ADCO to request quote for cut / cap or supervision.</p> <p>Connection to sewer – ADCO to make application for Clearance to Works and to connect directly to chamber (non-standard), noting pit adjustment required and no running trap required.</p> <p>DN375 – ADCO to provide quotation and capability statement for design documentation, noting review required at 85% and minor summary report to be provided with submission.</p> <p>DN375 – PTA / WC to liaise re commercial agreement to enable design to and construction of water main to progress under the PTA contract with ADCO.</p> <p>DN375 – ADCO to provide quote for construction following design approval.</p>
Water Corporation	Email on 24 March 2021	<p>Query relating the restrictions on PTA infrastructure that will be required to be constructed within the Water Corporation sewer easement (i.e. light poles, conduits, etc).</p> <p>Russell Nelson response noting the infrastructure can be dealt with via WC online working near assets portal application process.</p>
Western Power	Phone and email on 4 March 2021	<p>Request provision of a quotation to engage, prepare and submit application to Western Power for the scope identified in attached feasibility report.</p> <p>Quotation received 8 March 2021.</p> <p>ADCO acceptance provided 6 April 2021 and additional information provided 13 April 2021.</p> <p>Feedback regarding application timing received 21 April 2021.</p>
Winjan Aboriginal Corporation	Meeting scheduled 11 May 2021	Request to meet to progress local engagement.

Preliminary engagement with the Office of Government Architect (OGA) confirmed early on that a formal design review process was not required for this project, and the OGA would provide comment in a desktop review capacity. This was based on the OGA's criteria for assessing major projects.

A design package was presented to the Office of Government Architect (OGA) on 24 March 2021, with OGA comments then provided to the design team in mid-April in the form of a desktop assessment against the 10 principles of good design.

Principle	OGA Comment	Design Response
Principle 1: Context and Character	<ol style="list-style-type: none"> 1. Overall, the architectural design intent (e.g. 'groundscraper' approach) shows good consideration of the contextual qualities and conditions of the site including the highly significant Black Swan Lake and local dune environment. 2. The benchmark imagery appears useful in demonstrating the design team's interest in sculptural concrete forms and pursuing a coastal vernacular in the facility's architecture. 3. The station's configuration utilises the natural topographic conditions well, incorporating downslopes in level changes between the facility's support functions and the platforms. More information regarding the relationship of the precinct public realm to the site topography is recommended for DA lodgement. 4. More could be done to improve the generosity of landscaped and planted areas so that the precinct can make a better contribution to local identity and provide a more attractive and welcoming precinct within what is a well-established residential area. See further comments below in Landscape quality. 	<p>Points 1 and 2 noted.</p> <p>Additional detail has been included on the development plans and architectural renders to address item 3 and 4.</p>

Principle	OGA Comment	Design Response
Principle 2: Landscape quality	<ol style="list-style-type: none"> 1. Sectional drawings of the precinct’s hard stand and soft landscaping areas are required to demonstrate finished levels in relation to the natural topography of the site. 2. Cross sections indicating the proposed depth and composition of infiltration areas are required as it’s unclear whether these areas have the necessary volume to provide effective detention time for stormwater runoff and to enable plants/trees to flourish, mitigating the visual and urban heat island impacts of the carpark. 3. Further consideration regarding the design of the Bus Interchange is recommended to minimise the extent of road area and maximise the opportunities to integrate soft planting and WSUD initiatives. The reconfiguration of the Bus Interchange median and roundabouts is recommended to enable more substantial trees and planting and enhance the amenity of these areas. 4. The Pedestrian Axis has the opportunity to be a more substantial, legible and memorable pedestrian link through the precinct. Consider including more trees to shade and frame this journey as well as integrated lighting elements for night time use. The ground plane itself should integrate distinctive treatments to better demarcate the route. Proposals in response to the Gnarla Bididi Strategy to integrate textured ground treatments along this link are positive and further resolution regarding this initiative is encouraged. See further comments in Community below. 5. Provide trees and stormwater infiltration adjacent to the Short Term Parking area to enhance the amenity of this area. 	<ol style="list-style-type: none"> 1. Architectural drawings now include cross section. 2. Cross section from landscape drawings shows filter strips. 3. The medians currently have landscaping within them and the bus interchange drains into a basin on the southern end achieving WSUD objectives. To increase the median size to accommodate trees would require a change in the PTA operational requirements for the bus interchange such as reducing the amount of layover bays. Trees within the annulus of the turning circles is not recommend as these sit on the easement with existing services running within this easement. This easement is currently a limestone road with no trees within it. 4. With the current footprint available and the requirements set for 400 bays it is not feasible to increase pathway sizing or accommodate extra trees without impacting the operational requirement for spacing for Lux and clearance around lights for maintenance. To achieve the outcome noted we would need to reduce car bays to provision more space to allow trees and lighting, which are competing infrastructure, to be accommodated. However, this major East West car park access pedestrian pathway is to be emphasized via hardscape treatment with a strong visual connection and alignment to the station entry. We note that the Bididi Trail proposed will commence at the pedestrian entry points to help make a statement and lead pedestrians into the main station. 5. The design has catered for landscaping in this area with trees and low ground cover plants. To further increase this would require loss of car bays. Updated renders provide further detail on the landscaping to address this item.

Principle	OGA Comment	Design Response
Principle 2: Landscape quality	<ol style="list-style-type: none"> 6. The indicative species list is generally appropriate, drawing on typical coastal and wetland species from the locality. The intent for low-water and fire resistant plant species is noted and supported. 7. As many existing, mature Tuart trees (Eucalyptus gomphocephala) are being removed from the site, it is recommended that Eucalyptus gomphocephala be added to the species list for the landscape design and prioritised within the planting scheme. 8. The approach to vegetate the batter slopes adjacent to the Station platform is supported and will contribute to a more amenable and attractive experience for patrons. The 1:3 batter slope is an improvement over a 1:2 batter, however additional treatments to the batter slope may be required to mitigate the risk of scouring and enable ongoing maintenance. 9. Fencing throughout the precinct should help create a welcoming (rather than defensive) environment for Station users and the community. Fencing types should be carefully selected and configured to be attractive while balancing the need to perform security functions. Chain link fencing with barbed wire (as suggested by some renders showing fencing above the Station Platforms) is inconsistent with good landscape quality and amenity outcomes as well as incongruent with the Station's design concept. 10. While the proposal to utilise temporary irrigation is supported, planting in areas of high impact (e.g. batter slopes, Bus Interchange median and areas adjacent to the Pedestrian Axis) should be supported by permanent irrigation. 	<ol style="list-style-type: none"> 6. Noted. 7. Up to 3 Tuart trees along the Ashwood parkway can be provided. The areas within the carpark and adjacent to private homes is not feasible due to space and encroachment on neighbouring property due to the size that mature Tuarts get to. The development of the Lakelands Station site will result in approximately 20 existing breeding habitat trees will be removed due to the location of station infrastructure and associated ground level changes. It is proposed that the removed trees will be replaced with approximately 142 new tree plantings, including 70% of species to be endemic to Perth and the South West region. 8. A geomatting is proposed for treating the batters. This is a biodegradable product that will last for the first years of plant establishment to prevent scouring and then degrades naturally once these root systems have taken and the risk of scouring alleviate. 9. PTA specification chain link fence without the noted barbed wire is the proposed product. This has now been corrected on all drawings. 10. The design proposal to use natural occurring species that will allow for irrigation to be eventually turned off once established was to help meet PTA requirements as follows: The irrigation systems must be designed to be water wise, suitable for non-potable water and provide efficient irrigation for soft landscape works.

Principle	OGA Comment	Design Response
Principle 3: Built form and scale	<ol style="list-style-type: none"> 1. The overall approach to the built form, (e.g. two pods with expression of mass, separated by a transparent foyer, beneath an expansive canopy) is distinctive and positive. This provides a clear and legible architectural response which is well integrated with the site, while supporting the key functional requirements of the Station. 2. The extent of the Primary Roof of the station and the large format roof profile is generally positive and supports the overall built form approach (noting further comments below regarding the Bike Shelter). It also echoes typical/vernacular coastal structures which the project is seeking to reference. See further comments regarding the integration of the Primary Roof structure with the Bike Shelters below and in Functionality and build quality. 3. Consider integrating the Bike Shelters with the Station's built form by consolidating this facility under the Primary Roof. In addition, consider integrating the Down-Main Platform Building with the Down-Main Platform Roof as a way of strengthening the built form concept. 4. The proposed 'fluted' concrete forms will provide the facility with a distinctive character and texture. This construction approach will be effective in referencing a local tradition of concrete buildings in coastal locations. 5. The proposed 'coruline' soffit treatment is supported. Its consistent use throughout the facility, including the Concourse Bridge, Station Foyer and entry canopies provides continuity and clarity to the built form. 6. Further development of the soffit's design should ensure minimisation of exposed fixings and fixtures. Building services, lighting and access points should be appropriately detailed and integrated with the soffit to minimise the visual impact and clutter created by these elements. 7. Further consideration is encouraged regarding the materiality and resolution of fascia elements to the Primary Roof of the Station, particularly at the junction with the roof profile. 	<p>Noted – no further comments required, with the exception of:</p> <ol style="list-style-type: none"> 3. Combining bike shelter with built form is not consistent with PTA access requirements.

Principle	OGA Comment	Design Response
Principle 4: Functionality and build quality	<ol style="list-style-type: none"> 1. The hierarchy of modes of access across the site and to/from the station are clear and well communicated. The prioritisation of pedestrian access is noted in the design intent and supported. See further comments regarding the Pedestrian Axis in Landscape quality and Legibility. 2. Further consideration of the design and location of the Bike Shelters is encouraged including: locating the Bike Shelters in closer proximity to the Station building; combining them into a single Bike Shelter facility; and integrating them with the form and footprint of the Station (e.g. integrating the Bike Shelter under the Primary Roof). This would improve passive surveillance and safety of these facilities and provide more encouragement for cycling to/from the Station. It would also help to avoid conflicts between cyclists and pedestrians in and around the Station Foyer. 3. It is unclear what is driving the number of car bays currently proposed for the precinct. It appears that an appropriate balance between the provision of parking and a suitable landscape and sustainability response for the precinct is not being achieved. It is recommended that current parking requirements be reviewed so that more appropriate public realm design outcomes for the precinct can be delivered. Please refer to comments in Landscape quality. 4. The functional planning of the two 'pods' and Station Foyer appear efficient and well-considered. 5. Initiatives to ensure adaptability of the facility in a second, future stage appear well-considered and integrated in the current proposal. This includes consideration of the entry gates, staff spaces and providing redundancy in lift core structures for the provision of an additional lift to each platform in future. 6. The intent for cantilevered canopies over the Station platforms to minimise clutter and obstructions is positive and supported. 	<ol style="list-style-type: none"> 1. Noted 2. It is noted that these options of combining bike shelters and integrating with the station were explored with the PTA and noted as undesirable and not compliant with PTA access requirements. 3. It is noted that the car bays provision (400 bays) is a requirement to achieve the desired mode share mix. <p>No further comments for balance.</p>

Principle	OGA Comment	Design Response
Principle 5: Sustainability	<ol style="list-style-type: none"> 1. It is recommended that the project pursue a minimum 4 Star equivalency ‘Design and As Built’ (without a formal certification) consistent with the METRONET Sustainability Strategy, reporting against this requirement in deliverables at future design development milestones. It should be noted that 4 Star equivalency ‘Design and As Built’ (without certification) is a relatively unambitious target and should be well within the capability of the project to deliver. 2. The intent for underground stormwater storage suggests that WSUD principles are not being optimised within the public realm. The cost of underground storage and the ‘gray infrastructure’ required to connect to stormwater networks prompts consideration as to whether more effective stormwater solutions at the surface level are possible. and should be pursued. Review of the quantity of car bays is recommended to maximise surface infiltration areas within the precinct. This would enable more cost-effective stormwater solutions to be pursued as well as support more planting and shade, enhancing the amenity and sustainability of the precinct. 3. An indication of flow paths associated with the 1% Annual Exceedance Probability would have been valuable to demonstrate that no impacts on neighbouring residential properties are foreseen. The functional planning of the two ‘pods’ and Station Foyer appear efficient and well-considered. 4. Future provision for roof-mounted solar panels in the Station roof’s design and detailing is noted and supported. 	<ol style="list-style-type: none"> 1. The PTA is pursuing Environmental Sustainable Design objectives consistent with the METRONET Sustainability Strategy. The Strategy notes that 4 star certification is more appropriate for Town Centre Station Typologies, while no formal rating is required for transit nodes (which is more aligned with the Lakelands typology). 2. Provision for WSUD assets that utilise surface infiltration have been included with 5x filters strips one 1x downstream bio-retention area/flood storage area proposed. Surface assets beyond this were considered to hinder on the yield of car bays. The cost to benefit analysis done by the civils, along with spatial restrictions and safety requirements, limited space available for surface stormwater solutions. The provision of underground storage for additional runoff (up to the 1% AEP) is a suitable WSUD management measure given the site condition (i.e. sandy soil profile and clearance to groundwater). While additional surface stormwater assets could be provided, it would be at the expense of other elements of the design that are also considered critical. This design was considered an appropriate balance between drainage and other design requirements (i.e. car park yield, safety requirements etc). 3. As noted above issuing of the water management plan will cover this query. All runoff up to the 1% AEP event will be retained within the site (i.e. no impacts on neighbouring residential properties are foreseen). 4. Noted.

Principle	OGA Comment	Design Response
	<ol style="list-style-type: none"> 5. Approximately twenty mature, endemic trees are being removed from the site including numerous large and healthy Tuarts. A cluster of mature Tuarts greater than 0.5 hectares in area may be deemed a Threatened Ecological Community. The OGA trusts that PTA have appropriately managed relevant assessment and approvals processes regarding the site's Tuarts. 6. While strategies are noted to re-use felled trees in habitat creation initiatives (e.g. tree hollows for cockatoo nesting) in and around the precinct, we encourage PTA to establish formal guidance for replacement tree planting. This guidance might suggest methodologies for calculating replacement tree quantities, species and diversity/mix, as well as reference good practice and benchmarks from around Australia. 	<ol style="list-style-type: none"> 5. The project has Part IV EP Act approval in the form of Ministerial Statement 637 and Schedule 6 EPA Act exemption. A Flora and Fauna Survey was completed on behalf of the PTA by AECOM in May 2020. It assessed the Tuarts within and adjacent to the project site. The Tuarts within the carpark footprint were not considered representative of the Tuart Woodland TEC primarily due to the small area and absence of any understorey vegetation. Therefore an EPBC Act Approval was deemed not required. PTA confirm they have appropriately managed relevant assessment and approvals processes regarding the site's Tuarts. 6. It is noted that 20 breeding habitat trees will be removed and that approximately 142 trees will be planted of which 90% are naturally occurring. This results in an average of more than five trees planted for every one removed.
Principle 6: Amenity	<ol style="list-style-type: none"> 1. The incorporation of planting within batter slopes to the station platforms is positive and will enhance the amenity and experience of the platforms for patrons. 2. Improvements in planting and tree cover in and around the Bus Interchange and the Pedestrian Axis are recommended to improve amenity and comfort for pedestrians and patrons. See comments above in Landscape quality. 	<ol style="list-style-type: none"> 1. Noted. 2. Addressed in submitted Landscape Plan.
Principle 7: Legibility	<ol style="list-style-type: none"> 1. Further consideration regarding the legibility and attractiveness of pedestrian arrival points at the precinct's edge is encouraged, particularly at the entry to the Pedestrian Axis. 2. The legibility and directness of patron movement through the Station, along with clear visual links to Black Swan Lake from the Concourse Bridge, is positive and supported. 3. The intent of the Pedestrian Axis and its visual connection through to the Station is clear in diagramming provided and positive. At the level of the pedestrian experience, the legibility of the Pedestrian Axis route itself has the opportunity to be enhanced with improved landscape treatments. See comments above in Landscape quality 	<ol style="list-style-type: none"> 1. Noted. Landscaping will use colours from seasonal planting at the entrance point to create more of a statement. It is also worth noting that the biddi trail proposed will commence at the pedestrian entry points to help make a statement and lead pedestrians into the main station. 2. Noted. 3. Comments in Landscape section address this feedback.

Principle	OGA Comment	Design Response
Principle 8: Safety	<ol style="list-style-type: none"> Sightlines in and through the facility as well as the Carpark appear well considered to support good perceptions of safety. The proposal to provide a glazed envelope to the Station Foyer and enable lockdown of the station afterhours in the first stage is positive from a safety perspective. Glazed lifts to enhance the surveillance and comfort of users are also noted. The location of the Bike Shelters, particularly the one to the north of the station, present challenges from a passive surveillance and user comfort perspective. Consideration should be given to alternative locations and configurations of the Bike Shelters to encourage their use and improve their value. See comments above under Built Form and Scale. Passive surveillance opportunities and the safety of pedestrians and patrons accessing the carpark at night will be enhanced once there is permanent staffing of the Station. Until this time, strategies to promote safety in the carpark appear limited to the provision of lighting, appropriate planting to enable good sightlines and active measures such as security cameras. It is recommended that these, and any other strategies, are demonstrated within the DA package. 	<ol style="list-style-type: none"> Would PTA wish to consider further the options noted under built form for bike shelters to help address this item or are these options still deemed undesirable? PTA requires that bike shelters are separate to the main building structure. Refer to Lighting and CCTV drawings provided as part of the development plans.
Principle 9: Community	<ol style="list-style-type: none"> The proposal for interpretation of a 'biddi' within the ground plane of key routes through the site (e.g. the Pedestrian Axis) is supported and indicates consideration of the METRONET Gnarla Biddi Strategy. This would also assist in improving the legibility and experience of this journey for users. Further opportunities to explore integration of the Gnarla Biddi Strategy within the landscape design is encouraged through further engagement and co-design with the Bindjareb Noongar group. The coordination of precinct works with local WaterCorp upgrades to minimise and cross-project costs is an excellent initiative which the project team deserves credit for. 	<ol style="list-style-type: none"> Noted. Noted

Principle	OGA Comment	Design Response
Principle 10: Aesthetics	<ol style="list-style-type: none"> 1. There is general support for the clarity of the facility’s architectural and structural elements as well as the understated, neutral materials palette proposed which appears to reference the local natural conditions well. 2. It is recommended that further detail regarding the character and appearance of the public realm and its key elements is developed prior to DA lodgement with a focus on paving, bitumen surfaces and kerbing, urban furniture, fencing, softworks in infiltration areas and batter slopes, the Pedestrian Axis and key entry points to the precinct. 3. The proposal to integrate public art initiatives with key architectural elements such as screening to the Bus Interchange and surface treatments to pre-cast concrete retaining walls appears positive and well-coordinated with the architectural design intent. The public art opportunities for the pre-cast concrete Entry Portal are less clear and further consideration of this concept should be considered. 4. It is unclear whether the scope of public art initiatives (including the proposal for a stand-alone sculptural work as a marker to the main entry) can be successfully achieved for the modest budget available. The OGA recommends referring to the Lakelands Station Public Art Guide and engaging with the METRONET Public Art Strategy Coordinator for further guidance. 	<ol style="list-style-type: none"> 1. Noted 2. The submitted development plans and landscape masterplan addresses this. 3. Refer Apparatus Reference Design report LAKD-ADCO-AS-PLN-00001 proposal pg24. 4. The items noted at the moment are strategies and pricing will need to be gained from artists when engaged to understand the level of strategies that can be achieved. However, the project team is incorporating public art to convey narratives of the locality into the built form itself. The cost for the built element is part of the construction budget and not the public art budget. The public art budget will be for the artists work undertaken not the whole built element with the artwork thereon. This will support this work to be achieved.

5.0 Proposed Development

5.1 Station Project Works

Lakelands Station will be delivered as an integrated multi-modal station, with works for which development approval is sought consisting of 6 key elements:

- The proposed station building and platforms;
- Bus interchange facilities;
- Car and Bicycle Parking facilities including various outbuildings contained therein;
- Movement Network modifications including intersection realignments associated with the station development and associated pedestrian and cyclist path connections;
- Public Realm and landscaping works; and
- Integrated public art opportunities.

A description of the above elements being the extent of the proposed development is provided over the following section. Key elements are summarised in the figure below.

5.2 Station Building and Platforms

The station design provides for two marginal platforms situated below grade within the existing rail reserve cutting, accessed by stairwells and elevators via an elevated concourse. The concourse connects to the main station complex comprising a main entry building and associated outbuildings and structures, which are situated at grade. The station building is conceived as two discrete volumes containing core station amenities and service area, connected by a generous circulation area. A restrained and contextually sympathetic material palette is employed throughout the station's built form.

The design of the station has been informed by a series of site-specific technical challenges including considerable changes in topography the need to construct the station within an operational rail corridor. In response to these constraints, the station design employs prefabricated design elements within a narrow building footprint to minimize disruption to Mandurah line services and address level differences.



Figure 4: 3D Render, looking west toward existing Lakelands Residential Area (DesignInc 2021)

The proposed station has been designed to satisfy the relevant Public Transport Authority specifications while also facilitating good design outcomes consistent with the METRONET Station Precinct Design Guide and State Planning Policy 7.0 – Design of the Built Environment.

5.3 Bus Interchange

An off-street bus interchange will be provided immediately west of the main station buildings. The interchange provides for eight bus bays in addition to layover and circulation space. The interchange will be covered by a canopy connecting to the station buildings, providing weather protection and shade.

The interchange has been designed consistent with Transperth operational requirements and will play a significant role in overall function of the station by connecting local bus services directly with the train station to facilitate intermodal transfers.

The bus interchange will function as an integrated transport node providing ‘bus and ride’ connectivity to the station. To maximise the benefit of this approach, local bus routes will be reviewed and revised to establish a supportive feeder bus network servicing the station. These routes may potentially include additional services or modifications to current routes which presently connect to existing stations. However, these routes and services are yet to be confirmed and will be finalised through internal PTA processes in line with the station opening.



Figure 5: 3D Render, looking east toward Black Swan Lake Park (DesignInc 2021)

5.4 Car and Bicycle Parking

A total of 405 car parking bays are provided within the application area, consistent with prior planning for establishment of a station in this location. Given that the site is within an established urban area, parking facilities have been designed to be accommodated within the extent of the Rail reserve area with access provided from the existing movement network. 16 ‘kiss and ride’ bays are provided for passengers to be dropped off.

Car park design provides for clear and logical vehicle circulation while accommodating pedestrian movement along dedicated paths and walkways. Landscaping and trees are provided for throughout parking areas with a focus on screening at interfaces with existing properties.

Provision is separately made for two secure bicycle storage facilities (2 x 48 spaces) to the north and south of the main station entry for use by bike commuters.

Given limited land available for alternate forms of development within the station catchment, the low density character of the surrounding locality, and the separation of

the station from Lakelands Activity Centre, the proposed car parking is considered to be a practical necessity for station operations consistent with the Station’s status as a ‘Park and Ride’ station under the METRONET Station Precinct Design Guide. It is however noted that overall station planning provides for a diverse and sustainable modal split with park-and-ride accounting for only 22% of total forecast patronage.

Car parking will be made available for exclusive use of station patrons consistent with other Transperth-operated park-and-ride facilities within the network.

- | | | |
|------------------------|------------------------|--------------------------------------|
| 1. Station Forecourt | 12. Kiss & Ride/Taxi | 23. Existing Communication Hut |
| 2. Station pods | 13. Accessible Parking | 24. Existing Communication Equipment |
| 3. Concourse Bridge | 14. Carpark | 25. Existing Communication Pole |
| 4. Up-Main Platform | 15. Motorcycle Parking | 26. Existing Residential Houses |
| 5. Down-Main Platform | 16. Bike Shelter | 27. Electrical Substation |
| 6. Bus Interchange | 17. Pedestrian Entry | 28. Isolation Transformer |
| 7. Bus Layover | 18. Pedestrian Axis | 29. New Platform Building |
| 8. Bus Entry/Exit | 19. Walking Trail | |
| 9. Carpark Entry/Exit | 20. Water Tank/Pump Ho | |
| 10. Emergency Exit | 21. Irrigation | |
| 11. Short Term Parking | 22. Bin | |



Figure 6: Proposal Features (DesignInc 2021)

5.5 Movement Network Upgrades

The proposed development concept includes some improvements to the surrounding movement network to ensure that competing access demands from buses, private vehicles, cyclists and pedestrians and appropriately managed and ensure that a high degree of accessibility is realised. Key elements include:

- Provision of vehicular access to car parking areas via one crossover to Ashwood Parkway
- Modification to geometries of the existing roundabout at the intersection of Lake Valley Drive and Warburton Trail to provide access to the proposed bus interchange
- Provision of pedestrian and cyclist path connections to the station from Arramall Trail to the east, Ashwood Parkway to the north and Lake Valley Drive to the East including a full movement pedestrian crossing at the intersection with Warburton trail.

The proposed modifications ensure adequate access is provided for buses and private vehicles whilst maintaining pedestrian and cyclist access.

5.6 Universal Access

All organisations have a responsibility, under the federally legislated Disability Discrimination Act (1992) to provide equitable access to goods and services and to premises used by the public.

The DDA provides uniform protection against unfair and unfavourable treatment for people with a disability in Australia.

The proposed Lakelands Train Station complies with the National Construction Code (NCC) and Disability (Access to Premises – Buildings) Standards (including Part H2 for public transport buildings) and the Australian Standards, addressing the mandatory requirements for the provision of access for people with a disability to public transport buildings and infrastructure.

The Lakelands train station building and associated public transport infrastructure inclusive of the bus interchange, associated parking and elements is designed to enable universal access to and within the Lakelands Train Station precinct for all people without discrimination.

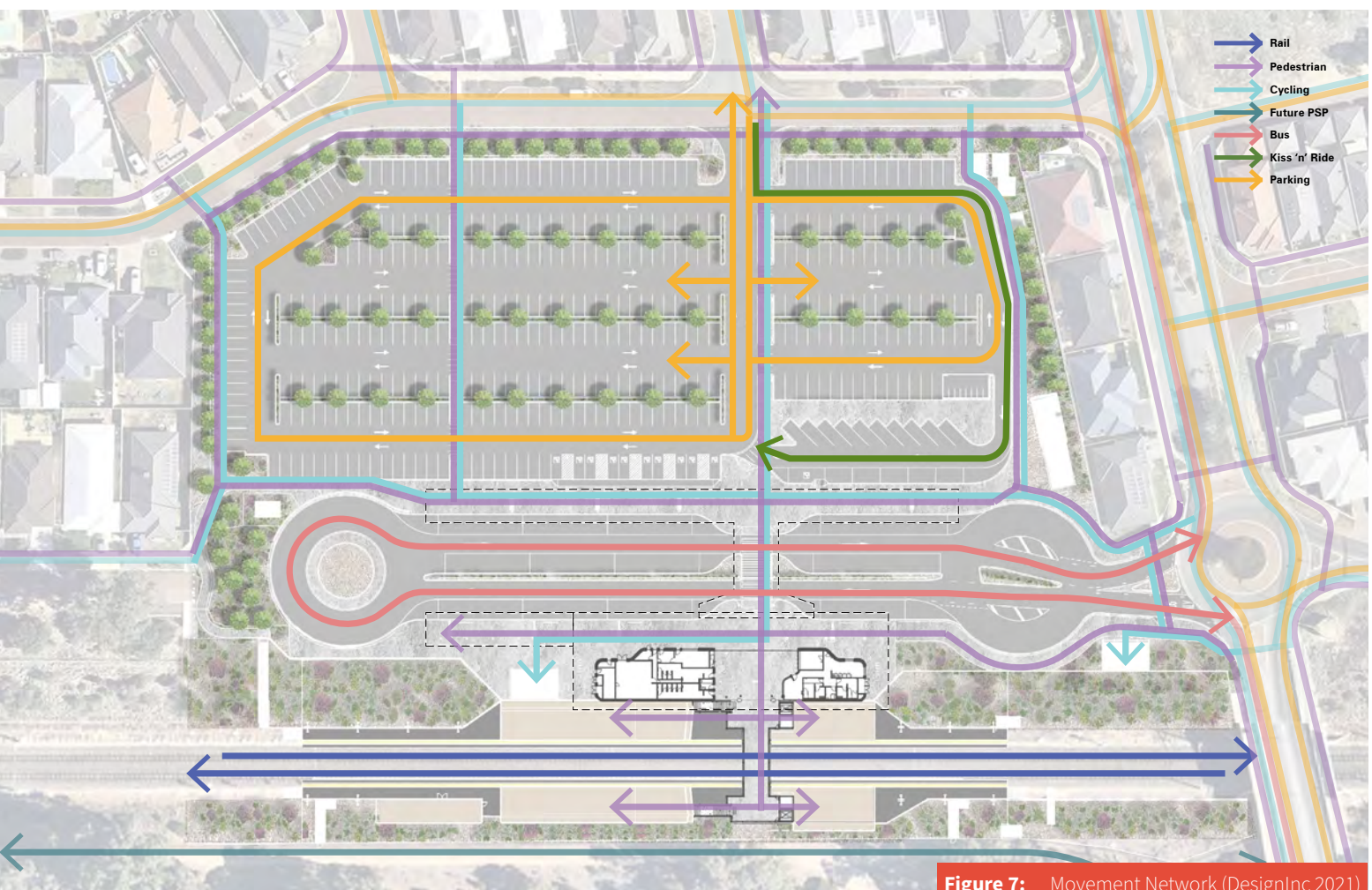


Figure 7: Movement Network (DesignInc 2021)

5.7 Public Realm, Landscaping and Public Art

The proposed development will deliver a significant new public realm and associated landscaping including:

- Landscaped curtilage between the rail corridor and abutting retaining walls associated with station buildings.
- A paved urban realm with opportunities for rest, feature seating and shade abutting the station buildings and extending through the bus interchange and car parking area to connect with the surrounding movement network.
- Tree planting and areas of landscaping punctuating car parking areas and providing visual screening to established residential areas.
- 20 existing trees will be removed due to the location of station infrastructure and associated ground level changes and will be replaced with approximately 142 new tree plantings, including 70% of species to be endemic of the Perth and South West region.

The landscape design employs hard and soft landscape and urban design elements which create an external environment that interacts in a considered manner with the station's built form. This results in a well-integrated, engaging place that positively contributes to the character of the local area.

Public realm planning also provides for incorporation of suitable native species to support biodiversity, low ongoing water use and maintenance costs and integration of lighting and wayfinding.

A key element of the project consistent with the METRONET policy framework is the provision of public art. A variety of public art opportunities have been identified for the project including art incorporated within the station building architecture and integrated with public realm landscaping. Public Art for the station will be delivered in accordance with the WA State Government Percent for Art Scheme subject to further development through the detailed design phase subject to standard approval conditions.

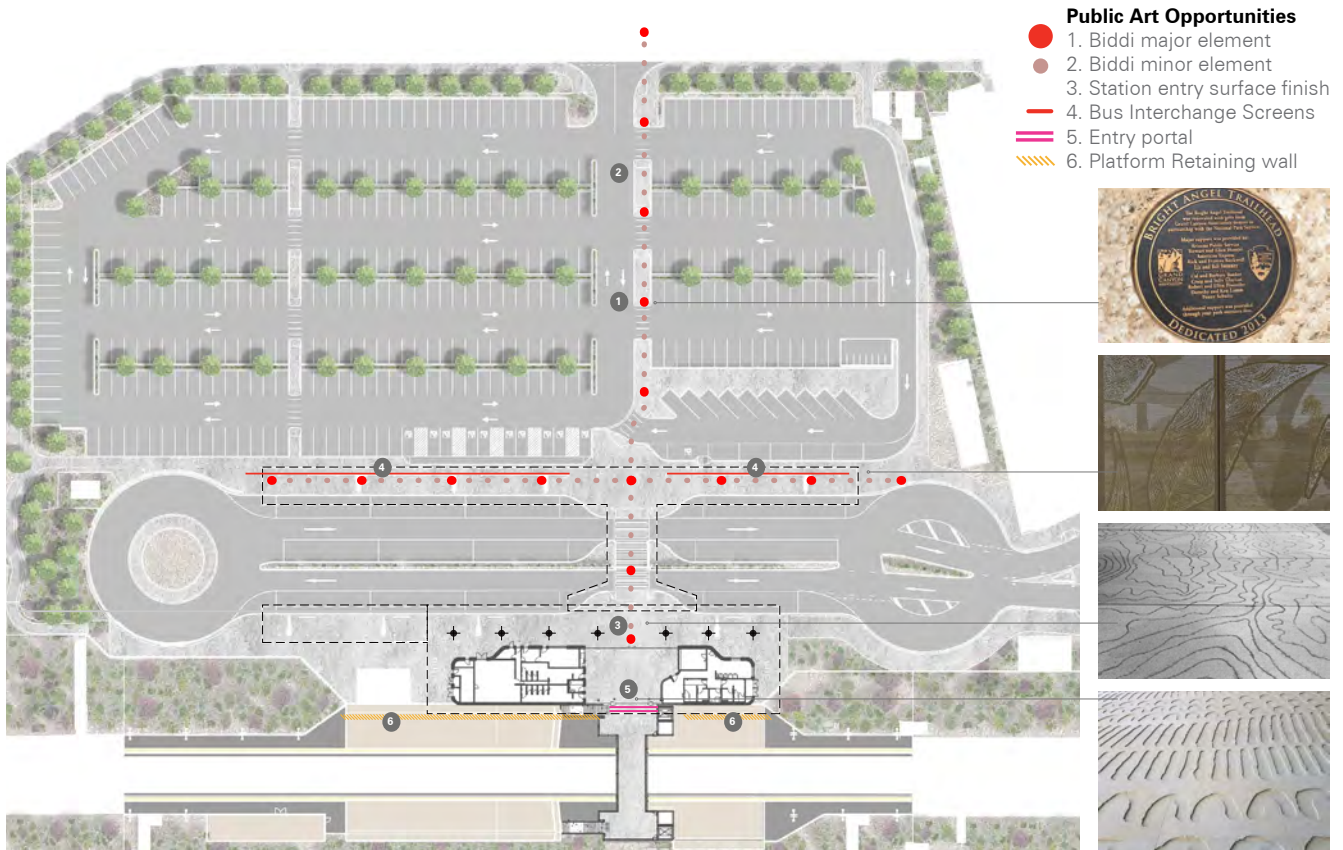


Figure 8: Public Art Opportunities (DesignInc 2021)



Figure 9: 3D Render, view from platform looking south (DesignInc 2021)



Figure 10: 3D Render, looking east toward Station Entrance from bus interchange crossing (DesignInc 2021)

5.8 Design Refinements

The Lakelands Station design has been subject to an intensive and iterative design process, that was first commenced as part of a competitive Early Contractor Involvement Process.

When ADCO Constructions were appointed by the PTA for the design and construct contract for the Station, Lead Architect DesignInc began further refining the winning design to respond to both Agency comments and PTA feedback.

One of the key improvements that was delivered includes a rationalisation of the proposed retaining wall between the bus terminal and the rail, to create better opportunities for landscaping.



Figure 11: 3D Render, view looking east inside Station Building toward eastern platform

Rationalised retaining wall and more opportunities for landscaping



Figure 12: Improved Design Aspects - Increased battering (DesignInc 2021)



Figure 13: Former Design, now superseded (DesignInc 2021)

6.0 Technical Considerations

The Lakelands Station design has been informed by a range of technical inputs from the projects consultant team in addition to PTA operational requirements and standards. Technical considerations relevant to station design, construction and operation are summarised below, as informed by supplementary reporting appended to this report.

6.1 Station Patronage and Operation

Forecasts estimate that approximately 2,300 passengers will board at Lakelands Station each day in 2023, growing to 3,500 in 2031.

Due to patronage numbers, the station will not be staffed upon opening. Consistent with forecast patronage growth to 2031, it is anticipated that the station may ultimately be staffed with a customer service office and commercial kiosk. These potential additions are proposed to be future-proofed within the initial station build, enabling their later installation once patronage growth and/or other organisational triggers permit.

Station operations will be subject to standard safety and security operations including CCTV monitoring, visitation by PTA security personnel, incorporation of CPTED design principles and inclusion of appropriate anti-climbing features and mesh fencing in appropriate locations.



Figure 14: 3D Render, view from platform looking south (DesignInc 2021)

6.2 Station Access and Mode Share

GTA Consultants (now Stantec) have been commissioned by ADCO Constructions to assist with transport inputs for the proposed Station. Based on a review of patronage estimates, GTA in consultation with the PTA has forecast a mode split to 2031 as shown in the table below.

Mode	Forecast (2031)
Bus/Bus feeder	875 (25%)
Walked, Ran, Jogged	413 (11.8%)
Drive (Park and Ride)	405 (11.6%)
Dropped Off	1,364 (39.0%)
Cycled	96 (2.7%)
Passenger (Park and Ride)	99 (2.8%)
Drive (not Park and Ride)	99 (2.8%)
On Demand	99 (2.8%)
Other	50 (1.4%)
Total	3,500 (100%)

It is apparent from this forecast that the majority of passengers will be served by the 'Kiss and Ride' drop off and pick up facility and the bus interchange. These modes account for the majority of patronage as the physical limitations of the site restrict the amount of parking spaces that can be accommodated, with a total of 405 car parking spaces are provided.

Based on advice from GTA, parking generation rates are generally between 94 and 178 parking spaces per 1,000 boardings. Given there will be 3,500 boardings by 2031, this gives a range between 329-623 parking spaces. Accordingly, 405 car parking bays is considered appropriate for the expected patronage.

96 lockable bicycle bays are provided.

Refer Figure 7 for movement network.

6.3 Transport Network Impact

A Transport Impact Assessment (TIA) has been prepared by GTA now Stantec to support the proposed Station, including an assessment of the station's impact on the established movement network. The TIA is provided at Appendix E of this report.

Based on the analysis and discussions presented, traffic impacts arising from station operation are expected to be within normal parameters. Over a full day, the station is expected to generate in the order of 5,600 vehicle movements per day with approximately 2,800 entering the car park and 2,800 exiting the car park by 2031. Peak traffic flows are expected to be between 6:45am and 7:45am in the AM peak with a total of 907 car trips. The PM peak is forecast to be between 4pm and 5pm with an expected 461 car trips.

Traffic flows to and from the station will typically lead to very good levels of service at intersections, while impacts of the proposed station traffic flows on the intersections on Mandurah Road in the vicinity of Lake Valley Drive are also expected to be acceptable. All streets near the proposed site are expected to have traffic volumes typically less than the theoretical maximum traffic flows of roads of their type.

Access to the proposed station is well served by the current cycle network. Cycle paths and proposed end-of-trip facilities have been found to be acceptable, providing access to and from the station from the generally residential development surrounding it.

A road safety assessment has identified the intersection of Lake Valley Drive and Yindana Boulevard as of potential concern, due to the number and types of crashes, and is recommended for further examination through a Road Safety Audit to examine why these crashes currently occur and if the increased traffic flows from the station will increase the rate of these crashes. Additionally, there are some observed deficiencies in the pedestrian network, namely Payanna Grange, a section of Lake Valley Drive and at the roundabout at Warburton Trail. The above are all considered manageable recommendations in the context of the approval of the station.

6.4 Bushfire Management

Both a Bushfire Management Plan (BMP) and a Bush Fire Emergency Evacuation Plan (BEEP) have been prepared by Emerge Associates in recognition of the proposed station being situated in a Bushfire Prone Area.

The proposed development will include non-habitable structures located within areas subject to BAL-40 and BAL-FZ.

A train station is considered community infrastructure, meeting the description for ‘unavoidable development’ and in turn the exception criteria to be located within an area exceeding BAL-29.

In order to for support to be garnered, the decision maker must be satisfied that:

- The proposal represents exceptional circumstances adequately justifying a deviation from acceptable policy measures.
- The proposal greatly improves the bushfire management of the site and surrounding area by providing a demonstrably significant reduction in the bushfire risk level to the community and property.
- The benefits outweigh the costs to adjacent landowners, government and the community.
- A BMP is prepared to accompany the proposal, jointly endorsed by the local government and DFES.

The facility is a ‘vulnerable’ land use defined under SPP 3.7. A standalone BEEP has been prepared to comply with development approval and meet the requirements of SPP 3.7 and the Guidelines while complementing the facility’s emergency plans.

The site will be cleared of standing vegetation with the exception of two pockets of Scrub within the rail corridor, north and south of the platforms. The vegetation to the east of the proposed platform will remain a permanent bushfire hazard being a federally protected Tuart Woodland Threatened Ecological Community.

A Bushfire Attack Level (BAL) assessment has been undertaken as part of the BMP and considers the extent of the post-development classified vegetation and the effective slope beneath the vegetation within 150m of the site. A BAL Contour Plan has been prepared based on the post-development scenario and is shown in Figure 15. The BAL Contour Plan shows that the site is subject to a maximum BAL-FZ rating.

The BMP establishes the roles and responsibilities of the proponent (PTA) and the City of Mandurah to ensure the bushfire risk to the site is appropriately managed. As per the Mandurah local government Fire compliance Notice, any property covered by an approved BMP is required to implement the mitigation measures or requirements outlined in the approved BMP.

Refer Appendix F and G for more detail on bushfire.

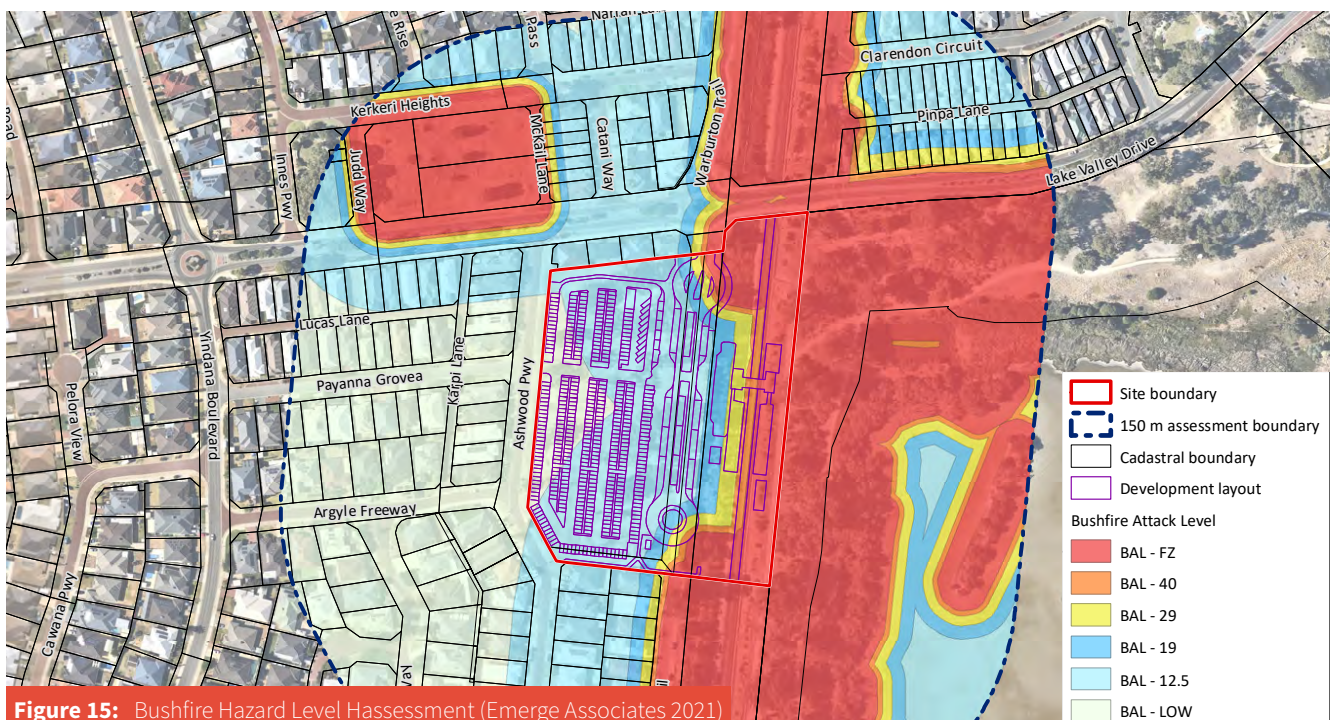


Figure 15: Bushfire Hazard Level Hassessment (Emerge Associates 2021)

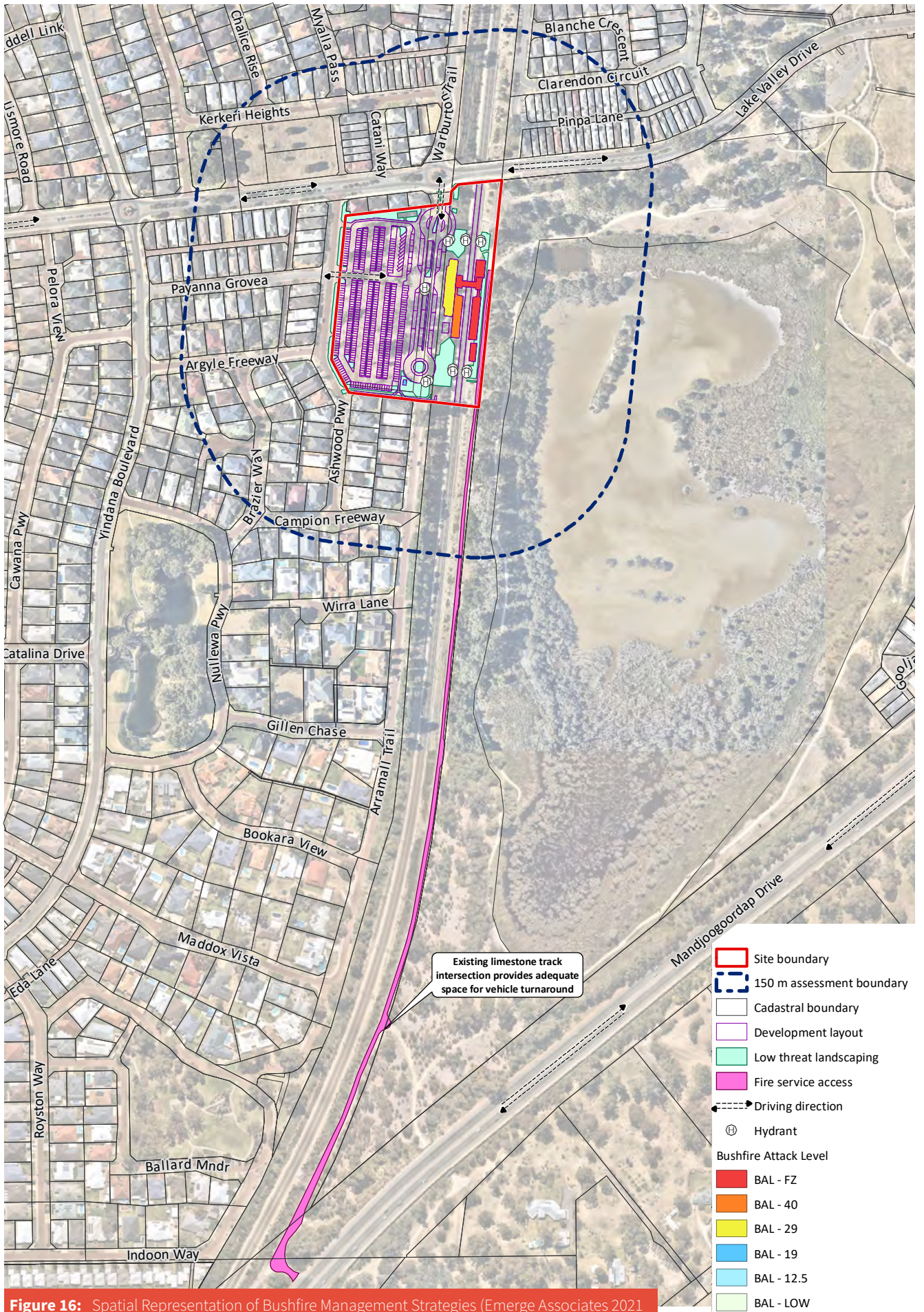


Figure 16: Spatial Representation of Bushfire Management Strategies (Emerge Associates 2021)

6.5 Noise and Vibration Management

A Noise and Vibration Management Plan has been prepared by Marshall Day to confirm that impacts to surrounding areas arising from rail operations are within acceptable parameters or can be effectively ameliorated (Refer Appendix H).

A noise model of the site and surrounds has been set up and used to predict noise to nearby receivers and inform the design team of any noise control treatments. Assessment has considered both rail noise and vibrations in addition to noise generated by activity within the bus interchange and car park.

Railway noise levels are forecast to comply with targets in the vicinity of the station, even after allowing for future traffic growth over 20 year planning horizon. 11 properties located more than 400 metres from the proposed station (Yanga Court, Arrowsmith Road) are forecast to be above the Maximum passby noise target level by up to 4 dB, which are levels similar to existing.

Preliminary recommendations and design for controlling noise to meet relevant noise and vibration criteria have been developed, including upgrades to acoustic fencing surrounding residential properties which abut the application area and sound insulation within station infrastructure.

Further studies will be undertaken to confirm compliance as design progresses.

Refer to section 7.0 Planning Assessment for commentary on the relevant State Planning Policy.

6.6 Environmental Considerations

The project has Part IV EP Act approval in the form of Ministerial Statement 637 relating to the construction of the Perth to Mandurah railway and hence a Schedule 6 EPA Act exemption from the need for a clearing permit.

The Perth to Mandurah railway project was referred to the Federal Government in accordance with the requirements of the EPBC Act and was determined not to be a controlled action; hence no assessment was required. A Flora and Fauna Survey completed on behalf of the PTA by AECOM in May 2020, identified that the Lakeland Station project has the potential to impact the Federally listed Tuart Woodland Threatened Ecological Community (TEC); however, as this TEC was listed after the previous referral determination, in accordance with section 158A of the EPBC Act - Approval process decisions not affected by listing events that happen after section 75 decision made (decision are made under section 75 as to whether an action is a controlled action), the determination that the Perth to Mandurah railway project, which includes the Lakelands Station project, does not require an EPBC Act assessment still stands.

6.7 Site Contamination

A review of the DWER Contaminated Sites Database indicates that the Lakelands station site is not registered as a contaminated site pursuant to the Contaminated Sites Act 2003.

Acid sulfate soils (ASS) is the name commonly given to naturally occurring soils and sediment containing iron sulphide (iron pyrite) materials. In their natural state, ASS are generally present in waterlogged anoxic conditions and do not present any risk to the environment. ASS can present issues when oxidised, producing sulphuric acid, which can impart a range of impacts on the surrounding environment, infrastructure and human health. Regional ASS risk mapping (DWER 2021) indicates that the Lakelands station site is not at risk of containing ASS. However, it is noted that the adjacent Black Swan Lake has been identified as having a 'high to moderate' risk of ASS occurring within 3 m of the natural soil surface of this waterbody under regional ASS risk mapping.

6.8 Aboriginal and European Heritage

There is no European heritage elements on the vacant site or within the existing railway corridor.

A Report on the Aboriginal Heritage Survey for the Lakelands Station Site was conducted by R. & E.O'Connor Pty Ltd (August 2020).

No Aboriginal sites were newly recorded as a result of a consultative process and field survey with representatives of Nyungar Gnaala Karla Booja. The representatives signed approvals for the construction of the Station, subject to monitors being present during geo-technical investigations and construction.

Two other requests regarding access to the timber removed from the site and preferential access for employment and contracting opportunities were also made by their representatives.

The ADCO Constructions Project Team is well aware of the recommendations and is incorporating the representatives suggestions into the project.

6.9 Water Management

An assessment of drainage considerations has been prepared by Emerge Associates to support station design and public realm works.

The water conservation strategy for the site focuses on reducing scheme water usage via water efficient fixtures and appliances (WEFA) and waterwise landscaping principles within stormwater management features and landscaped areas.

The stormwater management plan focuses on maintaining the existing hydrology by treating surface water runoff at source where possible and ensuring that the 1% annual exceedance probability (AEP) is retained within the site. The overall drainage strategy consists of surface-based conveyance, treatment and conveyance within filter strips, a bioretention area (BRA), localised sit traps within the pipe network, conveyance by the pit and pipe network and gross pollutant traps (GPTs) to treat runoff from the bus interchange pavement. All runoff up to the 1% AEP will be retained on site utilising a flood storage area (FSA) and three underground storage chambers (Stormtech cells).

The groundwater management plan for the site aims to maintain the existing hydrology across the site, and to provide appropriate treatment of water quality prior to entering subsoil cells.

Groundwater quality will be maintained or improved by treating surface runoff prior to infiltration via filter strips, the BRA, silt traps and within the subsurface storage cells, thereby reducing the total nutrient load into the groundwater that originates from the development.

Further detail as to how proposed designs achieve compliance with water management criteria is outlined at Appendix I.

6.10 Waste Management

To service the Lakelands Station, the PTA intends to engage a cleaning contractor which is responsible for collection, treatment and disposal of waste in accordance with site practice (on average once a week).

Waste Management includes the following:

- Segregating waste streams to encourage recycling or environmentally preferred disposal. These streams should be further segregated to prevent contamination of the waste and improve the economic return for the material sent for recycling
- Using licensed waste contractors
- Ensuring no waste escapes from bins (e.g. spills and leaks, emptying full bins)
- Preference is given to waste management services that offer segregation and recycling of wastes.

The PTA's Environmental Management System (EMS) manual is for all PTA personnel and contractors and has been developed to achieve legal compliance, control environmental risks for operations and capital works and, to encourage continuous improvement and environmental performance.

6.11 Servicing

Power

Western Power will be required to relocate a transformer (in a new location) with a higher rated transformer capable of supplying both the Station load (up to 600A/phase) and the existing street loads.

Other than this there is nothing unusual about the Station power supply, it is a typical low voltage supply provided for a Train Station of this nature.

Water

The site will be serviced via a standard 40mm Water Corporation water meter and connection off Lake Valley Drive with guaranteed maximum flowrate of 120 L/min. The site sewer will connect into the existing DN225 Water Corporation sewer main that traverses north-south of site via manhole connection or new cut in junction. There are currently no known issues for water and sewer network capacities.

The site will be serviced via a standard 150mm Water Corporation fire service connection off Lake Valley Drive. Previous street flow test results conducted for the site have been deemed appropriate and on-site fire services infrastructure have been sized accordingly.

Sewer

A sewer easement to the benefit of Water Corporation runs north-south adjacent the eastern boundary of Lot 800. This coincides with the bus interchange. The infrastructure will not be compromised or affected by the proposal.

6.12 Sustainability

A Sustainability Strategy has been prepared by Emerge in consultation with ADCO which will inform station delivery.

Key targets for the project are as follows:

- 5% reduction in energy impacts
- 5% reduction in material impacts
- 85% landfill diversion for clean/inert spoil
- 60% office waste diversion
- 80% landfill diversion for all other inert waste streams
- 5% reduction in water usage

Project design has focused on a range of sustainability opportunities identified including:

- Tree canopy cover and reduction in urban heat island effect
- Low fuel plant species
- Bushfire resilience and management
- Incorporate emergency response plans into design
- Careful selection of materials

While 20 breeding habitat trees will be removed, 142 trees will be planted of which 90% are naturally occurring. This results in an average of more than seven trees planted for every one removed.

The project assists in delivering the objectives and targets set out in METRONET's Sustainability Strategy, including the use of Environmentally Sustainable Design features appropriate for a Transit Node Station Typology.

6.13 Construction Management Plan

ADCO Constructions has prepared a Construction Management Plan for the build. The purpose of the Plan is to provide detail and guidance on construction staging and to identify likely construction personnel, plant, equipment and materials. The Plan will ensure the project's key milestones are adhered to, while prioritising safety and quality in all aspects of the build.

The Plan confirms that construction hours shall generally occur from 7am - 7pm, in accordance with the *Environmental Protection (Noise) Regulations 1997*. Any works that are required outside of these hours are subject to City of Mandurah Approval of a Noise Management Plan.

In order to minimise disruption to the existing Perth-Mandurah rail service, some night-works are necessary to relocate and bore services under the existing track.

The Plan contains a programme highlighting all shut down works required for the project and will ensure all detailed methodologies and plans will be submitted and approved 8 weeks out from any booked shut down. ADCO will also work closely with PTA to monitor their scheduled shuts and try to align works to minimise the disruption to the PTA services.

Refer Appendix K for further details.

6.14 Construction Environmental Management Plan

The Construction Environmental Management Plan deals with all aspects of potential construction nuisance, including light management, waste management, dust management, ground disturbance etc. The intent of the plan is to minimise adverse impacts to the environment and heritage.

The Construction Environmental Management Plan provides details on how the Aboriginal monitors of any disturbances made to ground through physical works will function.

Refer to Appendix L for further details.



Figure 17: Staging Plans (ADCO Constructions 2021)

7.0 Planning Assessment

The following section provides an assessment of the proposed station design against applicable state and local planning frameworks, in addition to the METRONET-specific Station Precinct Design Guide.

7.1 State Planning Policy 7 – Design of the Built Environment

SPP 7 provides the overarching urban design principles informing Perth’s urban form and has informed the design of the station and its surrounds. The proposed development has been assessed against the 10 guiding design principles of SPP 7 to demonstrate its compliance with the policy in delivering a station of high design quality.

In addition to the below planning response, the Architectural Design Report (Appendix D) has been formulated to respond to the 10 principles of good design. Refer to Appendix D for further detail, including explanatory diagrams.

Design Principle	Summary of Design Achievement
Context and Character	<p>The proposed station responds to the strategic context of its site, which has been identified for over a decade as a future station location.</p> <p>The station has been designed in response to its context, including the selection of materials and use of Public Art opportunities, which celebrate local environmental features such as the Serpentine river, Yalbanberup Pool, Paganoni Lake and Black Swan Lake, the latter being closely interconnected to the Aboriginal heritage of the Gnaala Karla Booja Noongar ILUA Region.</p> <p>A key aspect of the site’s character is the powerful contrast which exists on either side of the rail corridor – from suburban realm to the west to Conservation Category Wetland with Class A Forest to the east. Station design responds to this character through two distinct representations in elevation. The East of the station building provide a strong geometric backdrop to the Black Swan Lake and on the west, the elevation becomes the foreground to the natural landscape.</p> <p>The design of the station has also considered its wider contextual on the current movement network, by providing new bus routes along Lake Valley Drive and extending path connections where they adjoin the site.</p>
Landscape Quality	<p>The design of the station building and surrounding precinct integrates the building and landscape into a connected, sustainable system, within a broader ecological context.</p> <p>The landscape design takes inspiration from the existing environmental features and ecosystems of the site and has been designed to enhance the local environmental context to regenerate lost or damaged ecosystem function. The design of the station and surrounds also incorporates Water Sensitive Urban Design (WSUD) principals.</p> <p>The landscape design employs hard and soft landscape and urban design elements which creates an external environment that interacts in a considered manner with the station built form. This results in well-integrated, engaging places that contribute to the local identity and streetscape character.</p>

Built Form and Scale

The scale and form of the building responds to surrounding natural landforms, exemplified in the height of the structure which relates to the existing site topography and provides elevated views of Black Swan Lake, connecting the station to place.

Within the context and setting, the scale successfully negotiates between the existing surrounding context and the intended future of the local area. The large format roof profile reflects the built form and scale of the building in the landscape and echoes the context of ocean swells on the horizon. The roof casts a shadow which transitions in shape from a high pointed wavelength to a flat curve at varying times throughout the day.

The design intensity culminates with a sculptural three-dimensional portal form at the threshold between the station building gate line and the concourse bridge, framing the landscape beyond the precinct upon entry and creating a strong sense of arrival whilst satisfying operational requirements.

Functionality and Build Quality

The station has been designed in accordance with the Public Transport Authority operational requirements and METRONET policy objectives. Within these parameters the station has been designed in a logical and efficient fashion to achieve ease of use for patrons whilst minimizing maintenance liabilities.

Building materials have been selected for their durability, quality and robustness with a minimal palette utilized to ensure design clarity and optimize construction and maintenance.

Overall build quality has been carefully considered with respect to the crafting and detailing of elements and structures to work in conjunction with one another to form an elegant and coherent outcome which is capable of being constructed within in the rail corridor, without significant interruptions to existing services.

Prefabricated elements will be used within the rail environment to ensure ongoing rail functionality and minimize disruption associated with construction works. A general constructibility logic of not building over the corridor minimises prolonged closures to rail services and de-energisation of the Overhead wires.

Sustainability

The design of the station and station precinct optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes for Lakelands.

Sustainability is embedded into decision making through the establishment and implementation of the Sustainability Management Plan and associated leadership committee, reporting and auditing.

Reducing the urban heat island effect has been prioritised in the design through the integration of WSUD, a lighter coloured roof, material selection and the design of the station canopy.

The project has also identified the opportunity of integrating an upgrade solar and battery system to enable the station to service the majority of its electricity needs from a zero carbon energy source. Suitable location for a large solar panel system has been identified on the roof plan.

Water and energy use will be minimised through provision of energy and water efficient fixtures, energy efficient lighting, WSUD to minimise irrigation, energy and water sub-metering and incorporation of electric vehicle charging infrastructure.

Refer section 6.12 of this Report.

Amenity

The design of the station building and surrounds maximizes internal and external amenity and contributes to a station environment which is comfortable and productive for rail patrons and PTA employees, including features such as seating, shelter, toilets and cyclist facilities.

All internal rooms and spaces are sized in accordance with relevant PTA Specifications, with satisfactory levels of daylight, natural ventilation and outlook.

The new buildings are isolated from the surrounding residential structures by the landscaped car park. There is no overshadowing, overlooking from surrounding buildings that is applicable to this project.

An acoustic report has been produced by Marshall Day Acoustics, addressing the acoustic considerations for the Lakelands Station Project.

Legibility

Station design has given careful attention to pedestrian and cyclist connectivity and wayfinding. Movement within the station building is logical and intuitive, with a clear hierarchy of spaces established. There is a clear distinction between public and private space as well as paid and unpaid circulation areas.

Similarly, external movement within the precinct is highly legible with station orientation and layout reinforcing the predominant movement axis for patrons. The station entry aligns to key pedestrian corridors, allowing for direct and convenient access from bus interchange, car park and surrounding neighbourhood.

Public Art is deployed to assist with way-finding as part of the main east-west pedestrian axis.

Safety

Safe pedestrian and cycle movement is promoted through the inclusion of bicycle storage facilities, and through the designation and delineation of pedestrian access enabling connectivity.

Station design embodies the CPTED principles to enable sight lines and passive surveillance, eliminating areas of vulnerability.

Community

The design responds to local community needs providing spaces that support a diverse range of people, encouraging social engagement and physical activity in an inclusive manner, enabling stronger communities and improved public health outcomes.

Community values and history will be interpreted through public artwork delivered as part of station works, integrated into station architecture and the surrounding precinct to provide a compelling interpretation of site and place.

In providing community benefit through the delivery of public transport services, the station design has considered the diverse needs of community members in terms of universal accessibility and accommodation of varied modes of station access.

Aesthetics

The proposed station design provides a high level of aesthetic quality, realized through refined architectural expression of structural elements, restrained use of high-quality materials and a distinctive light tonal palette reflecting the surrounding context.

The design responds to a range of site-specific technical challenges including considerable topographical changes and constraints associated with existing rail and utility systems within the scope boundary. These challenges have led to smart spatial solutions and unique station building forms to achieve a design that is functional, compliant with PTA requirements, minimises maintenance and construction impacts and creates an inviting station environment for rail patrons.

7.2 Metronet Station Design Guide

The METRONET Station Design Guide provides principles, objectives and specific design advice to be considered in the design and planning for stations across Perth as part of the METRONET program. It establishes eight critical element objectives requiring a specific planning and design response to support successful long-term station development based on various station precinct typologies.

The proposed Lakelands Station is classified as ‘SP6 – Transit node’ park and ride station precinct, with planning and design therefore focused largely on immediate station infrastructure. Precinct-wide development outcomes as canvassed by the Station Design guide have already been set through prior structure planning and development of the surrounding housing estates. Additionally, the station is within one kilometre of Lakelands District Centre to the west and is constrained by its adjacency to Black Swan Lake immediately to the east.

The Station Design Guide defines transit nodes as “Transit hub station precincts are being located where there is limited opportunity for urban centre development due to engineering or locational constraints including proximity to other centres. They may incorporate a bus interchange and station parking and mostly car based land uses.”

Design Principle	Critical Elements	Summary of Design Achievement
Urban Structure	<i>‘Highway City’</i>	<p>The station context is within a ‘liveable neighbourhood’ recently developed residential area proximate to open space which offers higher amenity and greater transit accessibility than the ‘Highway City’ urban typology identified by the Design Guide.</p> <p>However, commercial development opportunities are limited by the proximity to Lakelands District Centre and the established nature of the surrounding area. Some undeveloped residential plots provide opportunity for higher density development subject to planning approval and landowner intent.</p>
Built Form	<i>Moderate to low density</i>	<p>The station context has already been developed for low to medium density single residential housing. Some undeveloped plots proximate to the station may potentially be developed at higher densities, subject to planning approval and landowner intentions.</p>
Street Design & Movement Priority	<i>bus & car priority, then bike & pedestrian</i>	<p>The station design provides for convenient and equitable access for all users, with pedestrian and cycle paths and bike storage facilities accommodating active transport and adequate park and ride facilities for drivers.</p> <p>Pedestrian access is prioritized with a dedicated pedestrian corridor through the car park. Surrounding residential streets have been designed consistent with Liveable Neighbourhoods standards.</p>

Intersection and Crossings	<i>Controlled four way intersection, no splitter lanes preferred</i>	Intersections and crossings have largely been developed as part of surrounding residential estates and will be retained unless modifications are required to accommodate bus movements.
Transit Integration – Rail	<i>Tunnel, capped or open cut preferred</i>	Site levels allow for partial open cut configuration, providing for some absorption of noise and vibration and convenient at-grade access from the parking area to the station platforms via a concourse.
Transit Integration – Bus	<i>Integrated/stacked interchange, multiple platform at grade preferred</i>	An integrated bus interchange facility is provided consistent with critical elements for the station precinct type.
Station Type	<i>Active pavilion preferred</i>	Consistent with the station type, an active pavilion is proposed containing PTA facilities, rider amenities and future provision for a commercial kiosk.
Station Dedicated Parking	<i>Moderate adjacent park 'n' ride preferred</i>	A moderate amount of at grade park and ride is provided, constrained by the limited size of the site originally set aside for this purpose as part of the Mandurah Line's construction.
Public Realm and Public Open Space	<i>Urban Park and playing fields preferred</i>	The station adjoins Black Swan Lake, a significant nature reserve. A pedestrian plaza/forecourt is also provided as part of the proposed station public realm, providing for user amenity and activation promoting CPTED outcomes.

7.3 State and Local Planning Framework

The proposed station accords with other applicable state and local planning requirements, as outlined in the table below.

Document	Planning Considerations
Perth and Peel @ 3.5M	<p>The Perth and Peel at 3.5 million suite of documents, including the South Metropolitan Peel Sub-Regional Framework, identifies Lakelands as an ‘emerging’ District Centre surrounded by ‘Urban Zoned – Undeveloped’ and ‘Urban Zoned – Developed’ suburban areas.</p> <p>The Sub-Regional Framework identifies passenger rail stations proposed as part of Stage 1 METRONET; including Karnup station to the north. Lakelands station has not been identified within the sub-regional Framework, however it forms part of the initial METRONET works package.</p> <p>A principle of the Framework is Station Precinct delivery, and promotion of these precincts as attractive places to live and work by optimizing their proximity to public transport. The proposed development is consistent with this objective and aligns with the broader outcomes sought by the framework.</p>
Peel Region Scheme	<p>The Peel Region Scheme (PRS) guides land use and provides the legal basis for planning in the Peel Region. The area includes the local government boundaries of the City of Mandurah and the shires of Murray and Waroona.</p> <p>The site of the proposed station including associated park and ride facilities is located within the ‘Railways’ reserve of the PRS. The purpose of the Railways reserve is to provide for the passage of trains, the marshalling, maintenance and storage of rolling stock, and the conveying of the public and freight by rail. The PRS exempts works on land reserved for Railways from WAPC planning approval, except for the construction of a railway station or related car parks, transport interchange facilities or associated pedestrian and vehicular access.</p> <p>The proposed development is consistent with the purpose of the reserve and works submitted for approval consistent with those specified as not being exempt from planning approval under the PRS.</p>
City of Mandurah Local Planning Scheme	<p>The proposed station is situated within the ‘Urban Development’ zone of the Mandurah Local Planning Scheme. The purpose and intent of the zone is to “provide for future residential and urban related development after comprehensive planning of the land has been carried out resulting in an approved Outline Development Plan.”</p>
Mandurah Draft Planning Strategy (2013)	<p>The City of Mandurah Does not have an endorsed planning strategy. Council adopted the draft strategy in September 2013 and it has now been forwarded to the Western Australian Planning Commission for its approval to advertise.</p> <p>The draft Strategy identifies the Lakelands station area as being within the ‘Northern Mandurah Strategy Area and District’, the vision for which is: “A self-contained residential district with its own schools, community spaces and shopping centre that is well connected to the rail system and freeway.” In delivering a new rail station within the Northern Mandurah locality, the proposed development is consistent with the vision and intent of the draft Strategy.</p>

SPP 4.2 Activity Centres for Perth and Peel

SPP 4.2 specifies broad planning requirements for the planning and development of new activity centres and the redevelopment and renewal of existing centres in Perth and Peel. It is mainly concerned with the distribution, function, broad land use and urban design criteria of activity centres, and with coordinating their land use and infrastructure planning.

Other purposes of the policy include the integration of activity centres with public transport; ensuring they contain a range of activities to promote community benefits through infrastructure efficiency and economic benefits of business clusters; and lower transport energy use and associated carbon emissions.

Given the new Lakelands Station is within 800m of the existing Lakelands District Centre to the west, the Station is expected to enhance the sustainable mode share of the nearby activity centre, allowing more people to access the centre from the new Station itself in addition to re-routed buses along Lake Valley Drive.

SPP 3.7 Planning in Bushfire Prone Areas

SPP 3.7 seeks to implement effective, risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. SPP 3.7 obliges proponents to prepare a Bushfire Management Plan for any development proposed in declared bushfire prone areas, as defined by the Office of Bushfire Risk Management.

Clause 6.7.2 of SPP 3.7 outlines the criteria that must be satisfied in order for development to be considered 'unavoidable'. This is addressed in the accompanying Bushfire Management Plan and complemented by the Bushfire Emergency Evacuation Plan.

SPP 5.4 Road and Rail noise

SPP 5.4 seeks to balance impacts to noise sensitive development with the need to provide for major road and rail routes, with its overall objective being to mitigate adverse impacts of transport noise on sensitive development.

Since there are no changes to the railway proposed, and there are no applicable roads in the vicinity, SPP 5.4 is not expected to apply to this project.

Notwithstanding, an Operational Noise and Vibration Study has been prepared (refer Appendix H).

SPP 7.2 Precinct Design

Since its adoption in December 2020, the intent is that Precinct Structure Plans are to be prepared for station precincts (land within and around a commuter train station or major bus interchange). Exemptions apply for land already covered by an existing structure plan.

The Lakelands Train Station has been subject to extensive forward planning, having been identified in the first versions of the Outline Development Plan for Lakelands West (now termed a structure plan).

Notwithstanding, the proposal has been formulated with careful consideration of the 10 principles of good design articulated within the DesignWA suite of policy documents, as demonstrated in the Architectural Design Report.

DCP 1.6 Planning for Transit Oriented Development

DCP 1.6 Seeks to facilitate integrated urban development and transport infrastructure to maximize transport patronage whilst deliver broad-based social, environmental and economic benefits through transit-oriented development.

As the proposed station is situated within an established suburban area, opportunities for further development are limited. Opportunities exist for long-term redevelopment of residential properties and development of vacant land, subject to planning approval and landowner intent.

7.4 District and Local Structure Plans

The proposed station accords with district and structure planning of the immediate locality as summarised below.

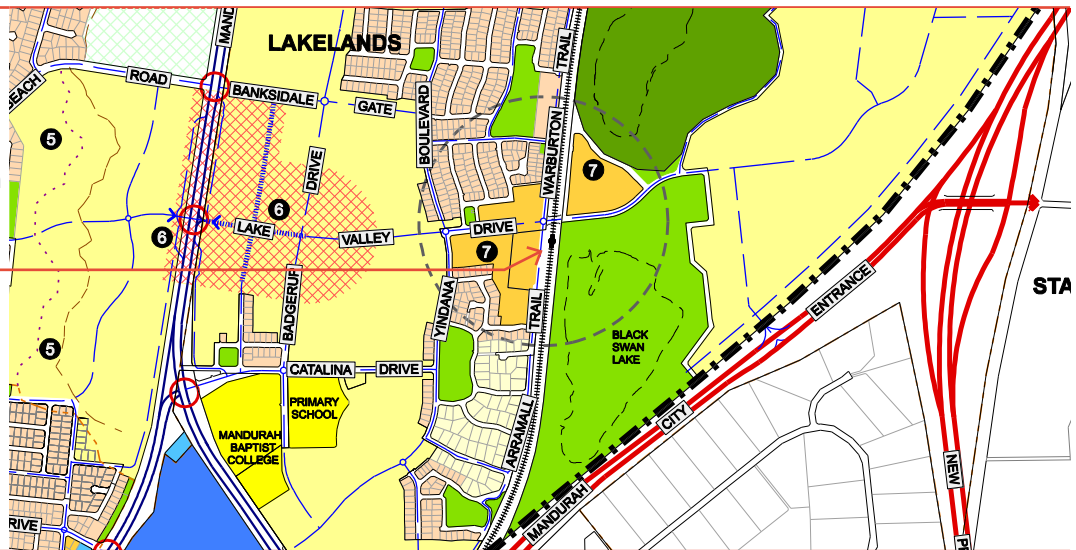
Structure Plan

Relevance

Mandurah North Structure Plan

The site falls within the Mandurah North Structure Plan (2008) which provides district level planning guidance for the region between Meadow Springs and Lakelands. The Plan identifies a future station at Lakelands and medium density residential development within the 400m residential catchment. The proposed development accords with this plan in terms of station location and development interface.

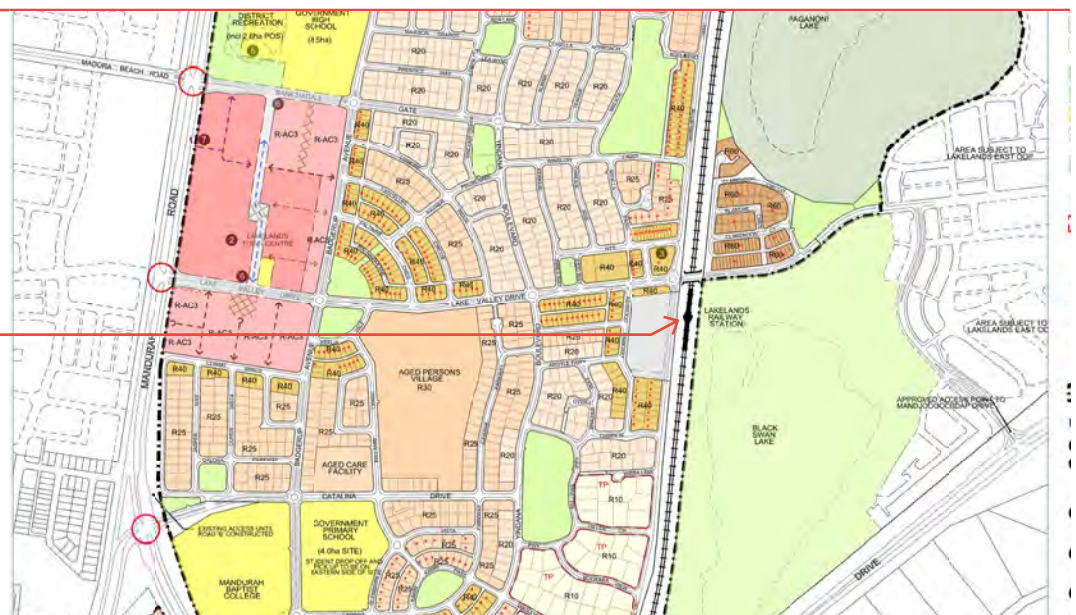
Lakelands Station Identified in 2008 Plan



Lakelands West Outline Development Plan

The site falls within the Lakelands West Outline Development Plan (2016) which, similarly to the MNSP, identifies the location of Lakelands Railway Station generally in the same location as now proposed. Additionally the ODP identifies balance of the PRS railways reserve as future Railway Station Parking consistent with the proposed development. The ODP identifies medium density residential development in the areas immediately surrounding the station and park and ride area, establishing that previous planning has contemplated the provision of station infrastructure in close proximity to this development.

Lakelands Station Identified in 2016 Plan



8.0 Conclusion

The proposed Lakelands Train Station warrants support and Approval by the Joint Development Assessment Panel, on behalf of the Western Australian Planning Commission for the following reasons:

1. The proposal is delivering on a long-held commitment made by Government during original planning of the broader Lakelands area, fulfilling its promise to existing residents of the catchment to have access to high quality public transport.
2. The design, access and construction strategies have been carefully considered to ensure the most sympathetic response to landform and the prevailing context, without proposing any departures from long-held expectations established for the site.
3. The proposal is entirely consistent with the underlying reserve that applies to the entire site, being a Railways Reserve under the Peel Region Scheme.
4. The proposed car parking and bus activity will not cause any notable traffic concerns that would significantly impact or exceed traffic volume thresholds for any of the streets in the surrounding network.
5. While 20 breeding habitat trees will be removed, 142 trees will be planted of which 90% are naturally occurring. This results in an average of more than seven trees planted for every one removed.
6. The proposal is entirely consistent with the applicable state and local planning framework.

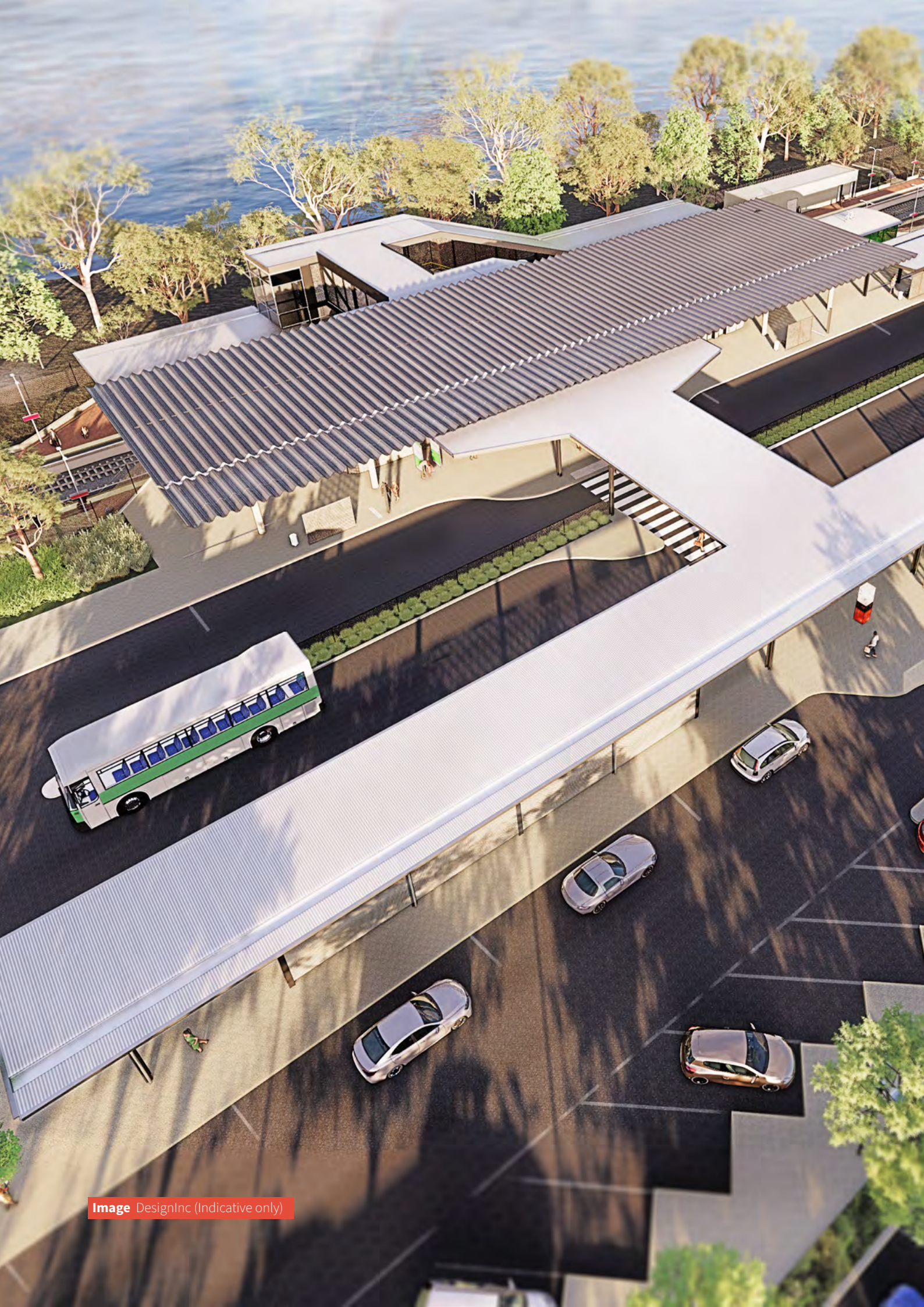


Image DesignInc (Indicative only)

