

# Tramline Extension

Victoria Square to City West university campus

Urban Design Report



October 2006



**Government of South Australia**

Department for Transport,  
Energy and Infrastructure

# Urban Design Report

Prepared by:

Department for Transport, Energy and Infrastructure

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Thank you to:

**Jam Factory** Contemporary Craft and Design

**Arts SA**

**Adelaide City Council**



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The Department for Transport, Energy and Infrastructure (DTEI) has engaged GHD in association with Oxigen to prepare this Urban Design Study, which considers the proposed Glenelg Tramline Extension Project. This report has been prepared using a range of information gathered through extensive consultation, workshops and discussions with:

- major agency stakeholders, including DTEI, TransAdelaide and Adelaide City Council;
- the Development Assessment Commission;
- representatives with expertise in provisions of the Disability Discrimination Act (DDA); and
- the general public.

The existing Glenelg tramline service currently operates from Jetty Road, on the historic Glenelg beachfront, to Victoria Square at the southern edge of the Adelaide CBD. The existing terminus is located in the centre of the southern portion of the Square, close to Grote Street. The existing tramline is 10.8 kilometres in length and provides a valuable passenger and commuter service from the southwest suburbs of the metropolitan area to the city. It is also an important tourist attraction.

It is proposed to extend the tramline a further 1.62 km, realigning the Victoria Square track to the western edge of the Square before proceeding north up the centre of King William Street and turning west into North Terrace to its termination point opposite the University SA City West Campus.

This route is illustrated in the diagram opposite.

Five tram stops are proposed along the extended route as follows:

- The first new tram stop is to be located at the western side of Victoria Square - opposite the Hilton Hotel.
- The second new stop is proposed to be located along King William Street, immediately north of the intersection of King William Street with Pirie Street.
- The third tram stop is to be located further north along King William Street, on the northern side of the Rundle Mall intersection at Beehive corner.
- The fourth stop is proposed for North Terrace, at the Adelaide Railway Station.
- The fifth stop is proposed for North Terrace at the University SA City West campus main entrance, opposite the City Skate Park.

The proposed tramline extension is a particularly complex project given its likely prominence within the urban environment and the plethora of urban design elements requiring resolution with the existing streetscape along the route. This report discusses the critical urban design elements considered during the design phase of the project. Before proceeding, however, a discussion of the urban design context of the zones through which the proposed tramline will pass is provided.



## 2.0 Urban Design Context

### 2.1 Victoria Square Locality

The existing Glenelg tram corridor runs centrally north-south through the southern portion of Victoria Square and terminates at the platform located near Grote Street. The proposed extension will require a realignment of the tram corridor from the centre of Victoria Square to the western edge, enabling the existing track and terminus to be reinstated to parkland. The applicant proposes to either reinstate this area to grass, or make an equivalent contribution towards the Adelaide City Council's redevelopment of the Square.

The western edge of Victoria Square is currently lined with mature trees, light poles and a pedestrian footpath. The proposed realignment of the tramline to the western edge of Victoria Square will require the removal of some trees and the relocation of existing light poles.

A new dual use two (2) metre wide footpath will be located on the eastern side of the new tram track, which will provide pedestrian access to the new tram stop opposite the Hilton Hotel, as well as providing connections to other pedestrian paths running along and through Victoria Square. The new footpath will also define a 'safe' and 'legible' edge to the new tram track. Low shrub planting is proposed between the new pedestrian path and the raised tram track to discourage pedestrians from walking within the tram corridor.

The southern portion of Victoria Square will also house a small tram crossover to facilitate flexibility in tram operations. This allows the tram to change tracks at this location, and will be used in the event that King William Street is closed to trams for a major event such as the Christmas Pageant.



The existing statue of Kingston will need to be relocated to accommodate the proposed new tramline extension and stop at Victoria Square.

#### 2.1.1 Victoria Square Stop

As part of the new extension, the existing tramline will be realigned to run along the western edge of Victoria Square. Repositioning the Victoria Square platform and shelter to the western side of the Square brings the stop closer to some of the key pedestrian attractors within the locality, including the Central Markets, the Commonwealth Law Courts, the Hilton Hotel and the culturally active and vibrant shopping main streets: Grote Street and Gouger Street.



View looking north at the intersection of King William and Grote Streets (near Kingston's statue) in the southern portion of Victoria Square along the proposed track corridor.



View looking west towards the Hilton Hotel from the proposed new tram platform and shelter at Victoria Square.

## 2.0 Urban Design Context



Victoria Square - View looking north, showing existing tram corridor which will become redundant.



View looking west towards the Law Courts. The current east west pedestrian access across the southern portion of the Square will be terminated to prevent pedestrians entering the proposed tram corridor.



Victoria Square - View looking east towards Flinders street. The current east west pedestrian access across the northern portion of the Square will be maintained.



View looking southwest towards the Hilton Hotel and proposed new tram platform and shelter at Victoria Square.

## 2.0 Urban Design Context

### 2.2 King William Street Locality

Along with North Terrace, King William Street is one of Adelaide's two ceremonial streets where the cultural, political and civic life of the city is focused. The proposed concept design within these streets deserves special care, as it should reflect the aspirations of an increasingly diverse community.

King William Street contains attractive buildings, a well-designed and maintained public realm, and a level of commercial and cultural activity that reflects the street's status as one of the city's most prominent boulevards.

King William Street also functions as the most important north-south street in the city, linking the judicial and civic functions centred around Victoria Square with the government, civic, institutional and cultural functions focused on North Terrace. Not only does King William Street carry a large number of vehicles accessing and passing through the city centre, it also performs the role of the city's major public transport street interchange in accommodating buses, trams and high volumes of pedestrian traffic (second only to Rundle Mall). Accordingly, King William Street has been designated by the Adelaide City Council as a major north-south pedestrian link within the city.

#### 2.2.1 Pirie Street Stop

A platform and shelter are proposed for the stop at the northern side of the Pirie Street intersection with King William Street. The design proposal seeks to minimise the impact on the character of King William Street by providing a minimalist shelter design that incorporates materials and finishes that complement the existing streetscape and character of the locality.

#### 2.2.2 Rundle Mall Stop

In a similar fashion, the design proposal for the Rundle Mall stop seeks to minimise the impact of the tramline extension on the character of King William Street by minimising the number of poles and the overhead wire system on both sides of the kerb. Lighting infrastructure is to remain on existing light poles located on either side of the kerb, rather than incorporating lighting within the proposed overhead track structure.

As with the Pirie Street stop, a minimalist shelter design is proposed that incorporates materials and finishes that complement the existing streetscape and character of the locality.



Special attention has been given to the tram stops. A minimalist design approach has been taken with regard to the design of the platforms, materials and shelter, to respect the ceremonial nature of the locality. The flag poles will be removed to allow for the central pole and overhead wire infrastructure.



Proposed Rundle Mall tram stop.

## 2.0 Urban Design Context

### 2.3 North Terrace Locality

As noted, North Terrace is a major ceremonial street where the cultural, political and civic life of the City is focused. North Terrace accommodates attractive buildings, a well-designed and maintained public realm, and a level of commercial and cultural activity that reflects the street's status as a prominent city boulevard.

North Terrace is also an important east-west connector in the City, linking the government, civic, institutional and cultural functions spread along its street front, east and west of King William Street.

The concept proposal for this locality has been prepared in consultation with Adelaide City Council to facilitate a seamless and complementary design approach between the Glenelg Tramline Extension and the proposed North Terrace Master Plan that is currently being implemented on North Terrace, east of King William Street.

#### 2.3.1 Adelaide Railway Station Stop

The proposed tram stop and associated ramps have been designed to link in with the existing stair (to the west) and ramp (to the east) exit/entry points from the Adelaide Railway Station building to the northern side of the platform. In addition, the platform has been designed and located to minimise any disruption to the configuration of existing alfresco dining areas on the southern side of North Terrace.



The proposed tram stop and associated ramps have been designed to link in with the existing stairs and ramp exit/entry points from the Adelaide Railway Station building.



## 2.0 Urban Design Context

### 2.4 City West Locality

The Glenelg Tramline Extension to the University of South Australia City West Campus is one of the State Government's strategic initiatives to facilitate the regeneration of the City's west end.

As well as the City West university campus, the city's west end is home to other important educational institutions such as the Adelaide Institute of TAFE and Centre for Performing Arts in Light Square.

The west end has a lot to offer to city residents, visitors and tourists alike, with bars, restaurants, hotels and other entertainment facilities on Hindley Street; and significant cultural entertainment organisations, including the Jam Factory, Mercury Cinemas, SA Film Corporation and local galleries.

#### 2.4.1 City West Stop

The tram stop near Morphett Street Bridge is within the vicinity of the main entrance to the university on the southern side of North Terrace, and the skate park on the north side.

The tram also provides convenient public transport links to nearby businesses and offices in the locality.

It is envisaged that the tram will provide a simple and efficient method of travel around the city. Conveniently connected to transport links at the Adelaide Railway station, and into the centre of the city, the tram provides a viable alternative to private forms of transport. The convenience of the tram along with free travel will present the west end as a new or alternative destination in the city to study, work or recreate.

Although existing public transport currently services the area, the tram is likely to be quicker and more efficient, as well as being clear and easy to use. The tram will contribute to the revitalisation of City West by providing a simple and effective means of bringing people to the area, thereby providing refreshed vigour and interesting street life, resulting from the increased population using and recreating in this section of the city.



The proposed tram stop has been designed to link in with the existing stairs on the eastern side and pedestrian crossing points on the western side of Morphett Street Bridge.



The proposed Glenelg Tramline Extension travels through five zones that incorporate the Central Activities and Institutional Districts of the Adelaide City Council's Development Plan, and along two major civic and symbolic axes of the city. There are many elegant and dignified buildings along the proposed route, a significant proportion of which are listed as sites of local or state heritage significance.

King William Street and North Terrace also serve as two major transport axes connecting traffic moving to, from and within the Adelaide CBD in all directions. The challenge for the design of the proposed tramline extension is to balance the heritage and transport functions that these two corridors embody. This challenge is twofold.

First, it is imperative to maintain (or possibly enrich) the ceremonial and elegant character of the subject precincts through the appropriate design of shelters, platforms and other built form elements associated with the proposed tramline extension.

Second, it is equally important to maximise the transport advantages conferred by the proposed tram operation, most notably its capacity to carry large numbers of people to key sites within the city. To this end, a number of design proposals and techniques have been employed to sensitively enhance the existing character of the precincts, whilst maximising the operational efficiency of the proposed tram. These design proposals and techniques include:

**Shelter Design** – proposed shelters are minimalist, with design elements that are timeless and inconspicuous. This has been achieved through the use of materials, and through appropriate siting, scale and bulk of platform shelters. In addition, bronze powder coated finishes on the aluminium columns and stainless steel roof have been used to complement the Adelaide City Council's recommended suite of street furniture. The use of glass within the shelters is also recommended so that natural light is not hindered.

**Central Poles** – a system of central poles has been adopted which will support overhead wires and minimise the need for wires and other infrastructure to span the entire width of the roads. Lighting will not be incorporated into central poles, and existing lamp poles will be retained so as to reduce the amount of infrastructure the



central poles will need to carry. This will also assist in reducing any visual impact in the centre of the road. The design proposal will result in a significantly smaller number of poles running through King William Street than exist at present.

**Statue and flagpole relocation** - it is proposed to relocate the statue of Kingston from the western side of Victoria Square on Grote Street. This is necessary to route the tram in such a way that provides the most efficient service whilst minimising effects on existing sites. The statue will be relocated to a site determined by the Adelaide City Council. A second statue along the tramline route is the Boer War Memorial on the north-eastern corner of the North Terrace and King William Street intersection. The tram support poles and overhead wires have been designed and engineered to allow the statue to remain in its current location.

The 'official' flagpoles opposite the Town Hall on King William Street will also need to be removed.

The significance of these flags to the city has not been underestimated and they are to be reinstated in an alternative location to be agreed by the Adelaide City Council.



# 4.0 Urban Design Elements

## 4.1 Platform Furniture

### 4.1.1 Handrails

Handrails are required to assist pedestrians accessing the tram platform along its access ramp. There is currently no standard for pedestrian handrails in the city so these will be purposely designed. The design criteria adopted requires the handrails to exhibit the following features:

- robust and durable;
- integrated with other street furniture items; and
- lightweight and visually unobtrusive.

In general, the use of handrails will be minimised to reduce visual impact in the street and to achieve a barrier-free pedestrian realm. Handrails are only required on the platform access ramps to meet DDA requirements.

Also, barriers are required at the furthest ends of the platforms to discourage pedestrian entry along the tram tracks. Barriers are to be constructed as dual-use seating walls in the form of masonry plinths 400 mm high with steel framed and timber slated seating at the ends of the platforms.

### 4.1.2 Platform Furniture

Due to the limited width of platforms and the need to comply with DDA access widths and platform clearances from trams, only street furniture essential to the operation of the tram service will be installed. Street furniture items required are:

- seats located within the shelters; and
- barriers.

It has been determined that neither rubbish bins nor cigarette butt bins will be installed for security reasons.



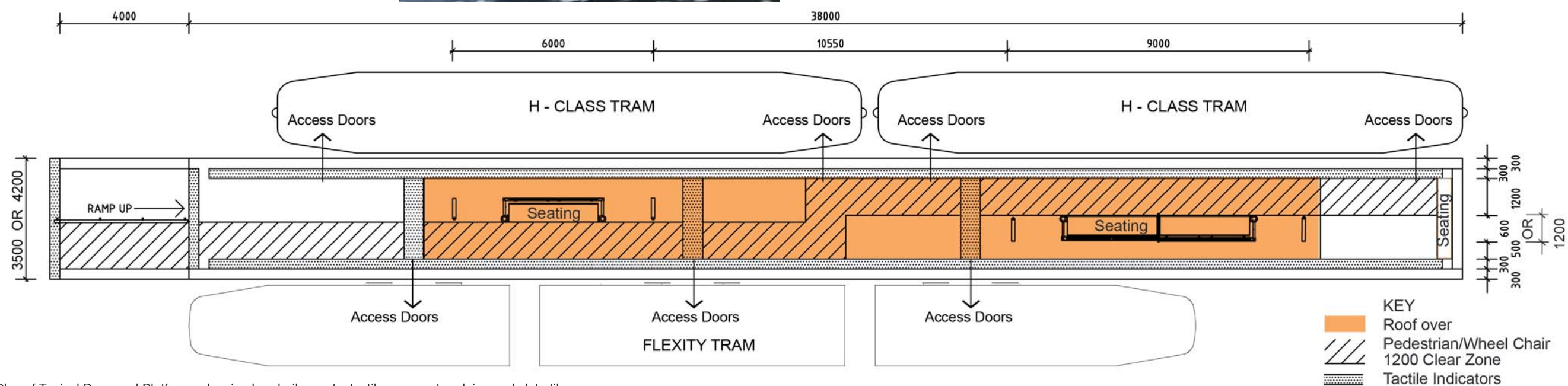
### 4.1.3 Lighting

The existing arrangement of lighting in King William Street and North Terrace is via street lights adjacent to the King William Street and North Terrace footpath kerbs, utilising the standard Adelaide City Council Adepole. There will be no other additional lighting along the proposed tram corridor, as the current lighting levels are deemed to be sufficient.

Additional lighting will be provided at the tram shelters to highlight their presence at night.

This will be an integral component of the design of the shelters and fulfills a number of functions including:

- targetting areas of hazard;
- discouraging disorderly behaviour;
- encouraging feelings of safety;
- creating environmental awareness; and
- providing an inviting night-time atmosphere.



Plan of Typical Proposed Platforms showing handrails, seats, tactiles, concrete edging and slate tiles.

# 4.0 Urban Design Elements

## 4.2 Shelters

### 4.2.1 Design Statement

The shelters have been designed with a strong linear quality which responds to the narrow nature of the tram corridor.

The central beam acts as a visual anchor for the cantilevered roof struts as well as housing recessed lighting and signage, all of which serve to provide a comfortable environment for users. The size of the beam allows for two widely spaced posts thus minimising impact on the platform surface.

The linear quality of the beam is further reinforced by the placement of seating and glass screens adjacent the support posts. Each element extends beyond the line of the other resulting in a carefully configured composition which suggests movement along a single line.

This arrangement is further supported by LED lighting strips in the pavement which extend beyond the shelter at each end.

#### Beam

The main structural element.  
Reinforces the linearity of the street and tramline.

#### Roof

Slender steel fins with glass panels cantilevered from the beam.

#### Posts

Steel posts support the beam.

#### Seats & Screens

Stone plinths and timber and stainless steel about laminated glass panels adjacent the posts, with an additional plinth bench provided at the end of the platform acting as both seat and barrier.

#### Furniture & Lighting

LED pavement lights highlight the seats.  
Downlights are integrated into the underside of the beam.



# 4.0 Urban Design Elements

## 4.2 Shelters

### 4.2.2 Design Principles

#### Central Vistas

The long vistas down North Terrace and King William St are an important part of the character and integrity of Adelaide's two ceremonial streets.

The shelter is made as slender as possible, reinforcing the linearity of the street and presenting the minimum number of vertical obstacles to the view.

#### Transparency

The buildings of both King William Street and North Terrace fundamentally define these boulevards.

The shelter is made as transparent as possible, receding into the streetscape rather than dominating the view.

#### A Common Language

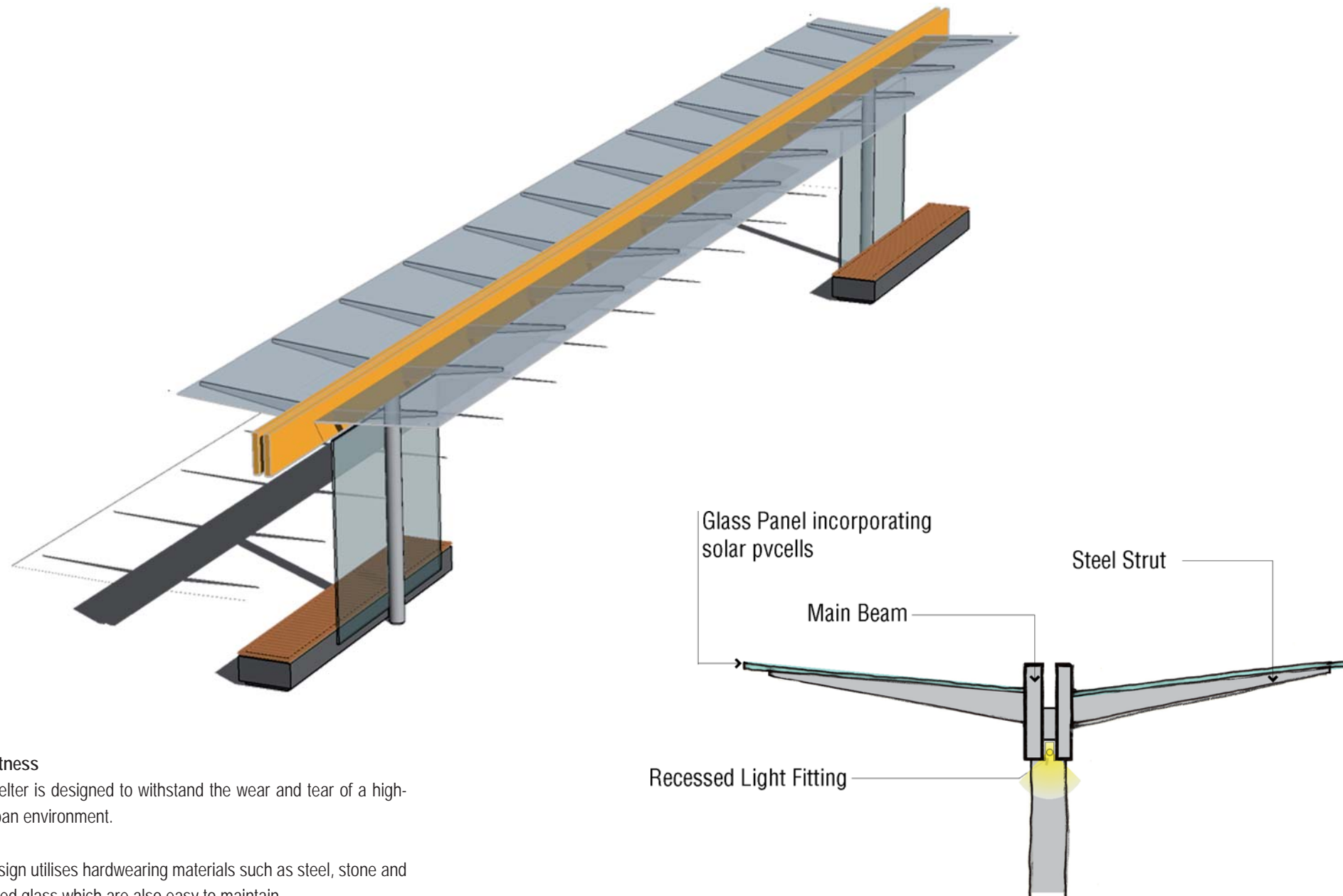
The design of the shelter refers to the contemporary design language of the city as well as contributing to its ongoing definition.

Flagstones of Mintaro slate are proposed for the platform paving to match the King William Street and North Terrace southern footpaths. The seating is designed as solid masonry plinths with timber and stainless steel framed tops referring to the new North Terrace seating.

#### Modularity

The design of the shelter is able to allow for expansion and contraction in length according to location, and if necessary in narrow streets take on a single sided form.

The design adapts to both the 3.5m and 4.2m wide platforms proposed in the current project by extending the roof overhang where the wider platforms are proposed. The shelter is modular in construction and able to be adapted to meet the needs of possible future platform configurations elsewhere in the city including the possibility to be adapted to function as a single sided shelter if needed in narrow streets.



#### Robustness

The shelter is designed to withstand the wear and tear of a high-use urban environment.

The design utilises hardwearing materials such as steel, stone and laminated glass which are also easy to maintain.

#### Quality Detailing

The shelters are detailed to provide a clean and crafted product which is easy to maintain.

The construction detailing of the shelter is such that all the members and joints can be crafted to achieve a well-honed completely integrated end product. Timber seat tops are proposed to provide the welcoming comfortable feel achieved by this material. Similarly, the Mintaro slate paving provides a solid, quality pavement under foot.

#### Sustainability

The shelters should reflect Adelaide's commitment to environmental sustainability and its recent designation as a 'Solar City'.

The roof structure of the shelter is designed to support modular solar cell panels. These panels would be of the type where the cells are integral with the glass panel. The number of panels can be determined as appropriate for each shelter given site specific shade patterns. It is envisaged electricity generated would go directly into the grid.

# 4.0 Urban Design Elements

## 4.2 Shelters

### 4.2.2 Design Principles

#### Comfort

The shelter is located conveniently at each platform, providing a range of seating and standing options to users.

With the shelter in the centre of the platform length, ease of access is provided to users traveling in both directions. Seats face directly onto each side for convenient use, while the central portion of the shelters allows a generous space for standing and circulation. By incorporating a raised plinth seat-wall at the end of the platform, further seating opportunities are provided, and at the same time acting as a barrier to pedestrians and a signal to the correct exit location from the platform.

#### Weather Protection

The shelter design provides protection from summer sun and cold winter rain and wind.

The glass roof panels will provide shading through the use of integral glass treatments, either as part of, or additional to, solar PV cell systems.

Vertical glass panels placed adjacent the seats provide wind protection.

#### Ease of Movement

The shelter is designed to take up minimum platform ground space thus allowing maximum flexibility of movement.

The proposed shelter is supported by two posts located centrally within the width of the platform. Two bench seats and glass wall panels are located adjacent the posts. The remaining platform space is open allowing ease of movement for users.

#### Artistic Expression

The shelter should be a unique element which expresses the culture of Adelaide.

The design seeks to provide a distinctive urban form which is unique to Adelaide, yet grows out of the character of the city's streets and building fabric. The choice of materials, lighting, detailing and crafting of the shelter will raise it to the level of having integral artistic merit.

Further though, the built fabric of the platform and shelter provide a special opportunity for a distinctive patterning and colouring developed as a response to the Adelaide environs and its community. Through the incorporation of commissioned public



## 4.0 Urban Design Elements

### 4.3 Shelters and Public Art

The project team gratefully acknowledges the assistance of Arts SA and Adelaide City Council in commissioning The Metal Design Studio JamFactory Contemporary Craft and Design to develop concept designs for the proposed five tram stops that will form part of the Glenelg Tramline Extension Project. The concepts for the stops will be based on major 'landscape' themes. These themes will be interpreted through iconic graphic elements and applied to the stops in a similar palette of materials such as brass, glass and stainless steel.

The design language aims to both unify and clearly identify each of the five stops. The five tram stops will be unified by:

- a theme of site-specific landmarks;
- a consistent palette of materials and techniques;
- a consistent positioning of design elements;
- maintaining a standard colour palette, and
- using similar proportions.

The five tram stops will be distinguished by:

- a site-specific icon or landmark;
- the graphic treatment i.e. lines, dots, or contours; and
- a subtle shift in the orientation of the design work.

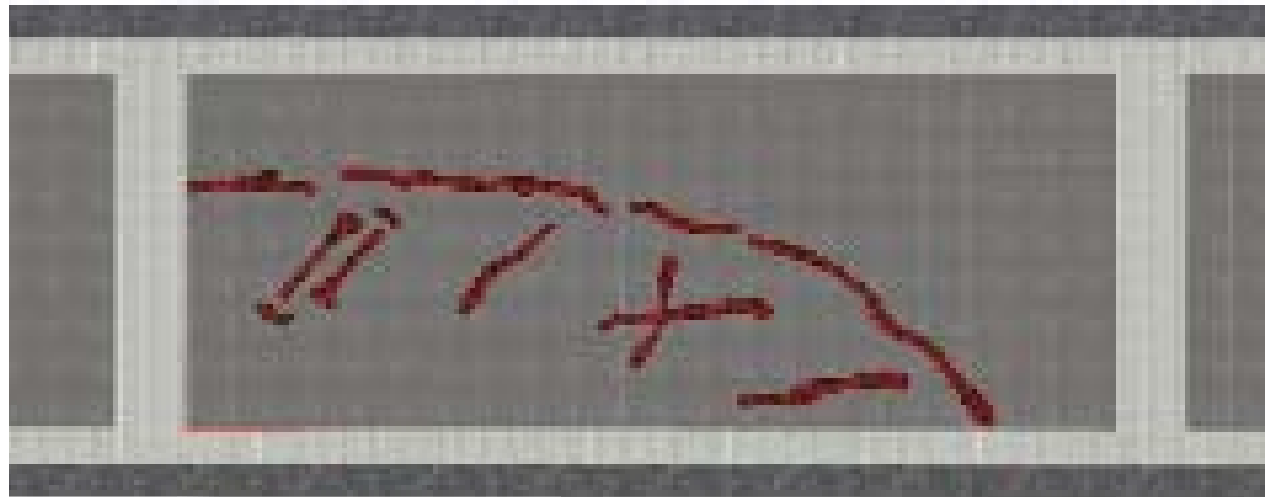
#### 4.3.1 Example of Stop Public Art

The design at the Pirie Street stop, for example, is based on a symbol that flanks each side of King William Street, the clock face. The design draws on the association with time and travel and the clock face is a universally recognised icon. The clock face is described in a soft graphic style, whilst the roman numerals are used, in reference to the actual clocks on the Town Hall and Post Office.

A quarter of the clock face is inlaid in the paving. The hour hand runs up a section of the glass screen panel and some escaped numbers float on the shelter roof.



Example of Public Art on elevation of shelter.



Example of Public Art on plan of platform.

# 4.0 Urban Design Elements

## 4.4 Platforms

The design of the platforms at the five stops is largely controlled by the physical dimensions and requirements of the trams themselves, road widths and required traffic lane widths.

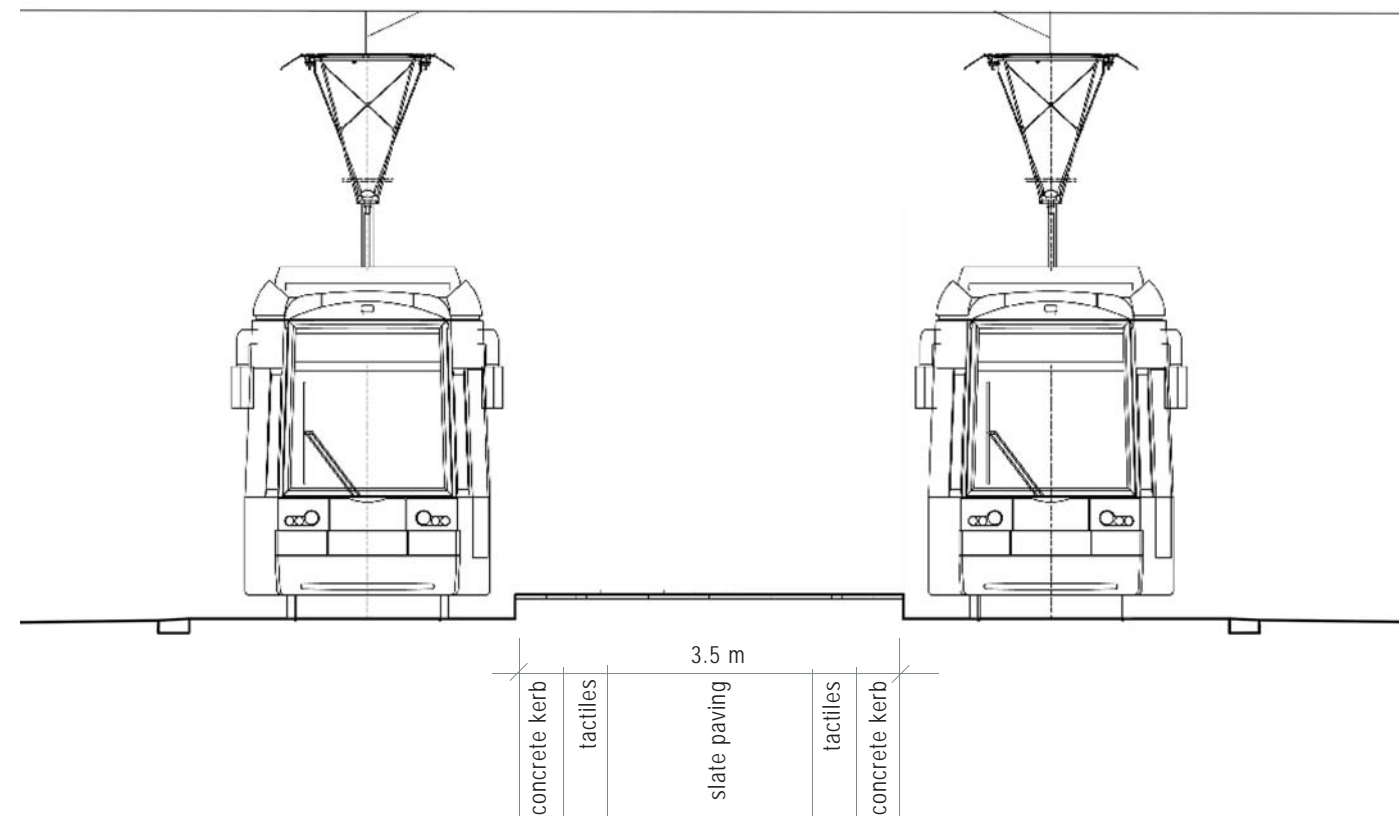
Platforms are generally 38 metres long.

They are 3.5 metres at the Pirie Street stop and Rundle Mall stop. At the Victoria Square stop, Railway Station stop and the City West Stop they are 4.2 metres wide. All stops are 235 mm high, accessed by a pedestrian ramp at one end (at both ends in the case of the Railway Station stop) aligned with pedestrian crossings at signalised intersections. Mid block crossings are discouraged.

Platforms comply with disability access standards for gradients and cross falls, tactile indicators and handrails. The detailed design of the platforms have been workshoped with disability group representatives.

Materials proposed are:







Paving	300 x 300 mm slate paving laid on concrete slab
Kerbs	900 x 300 mm precast 'Brighton Lite' concrete to match existing King William St kerb and watertable, and black oxide concrete to match kerbs on North Terrace
Tactile Indicators	300 x 300 mm Boral Style-stone Tactile Paver in 'Ivory' colour



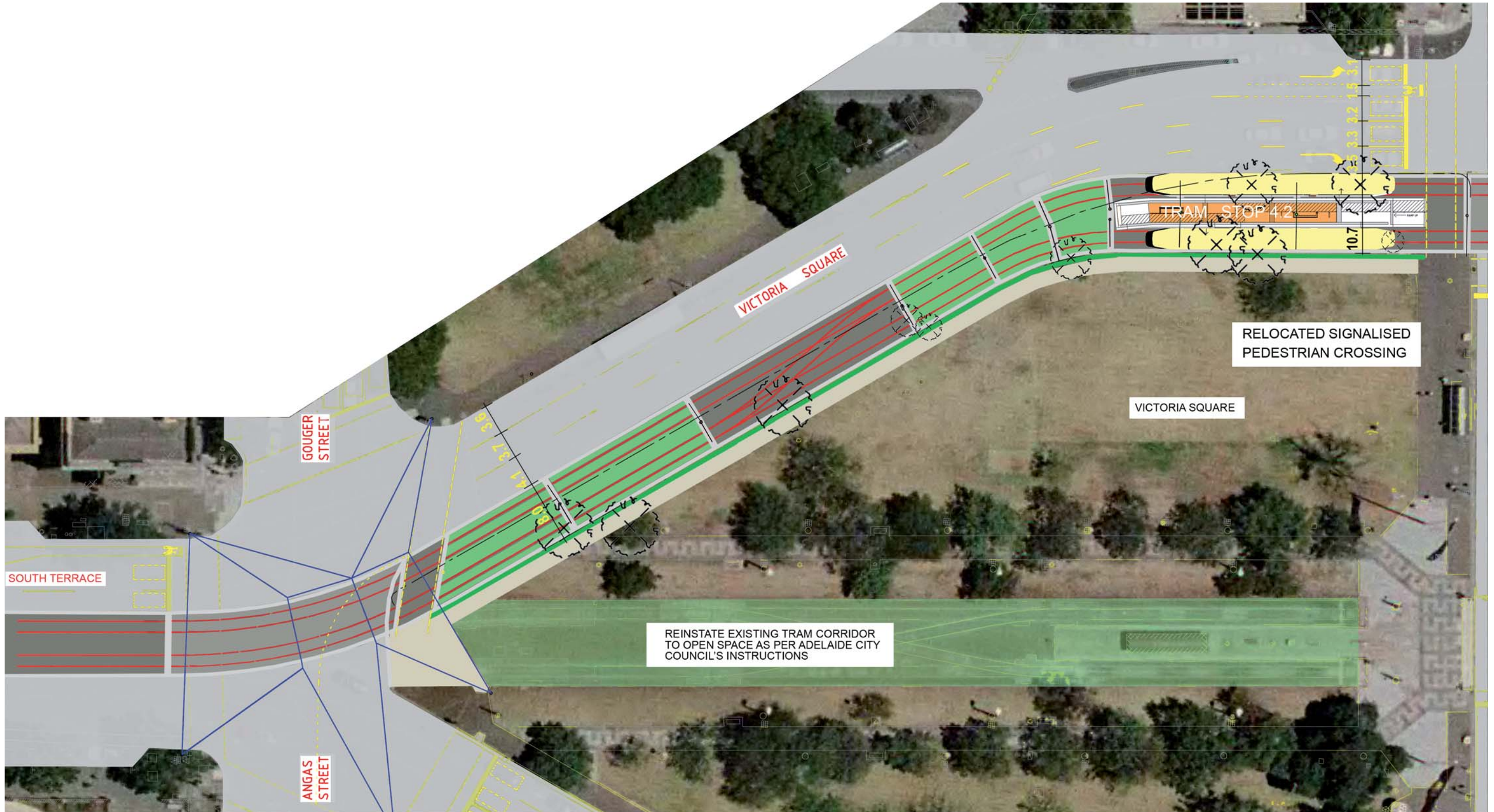
# 4.0 Urban Design Elements

## 4.4.1 Platforms - Victoria Square Stop

**KEY**

	CONCRETE EDGING		TRACK IN CONCRETE		TRACK IN GRASS		TREE TO BE REMOVED
	TRACK IN PAVING		TRACK IN CONCRETE		POST AND WIRE		KERB TO BE REMOVED
	LANDSCAPING		TRACK IN CONCRETE		PLANTING ASPHALT PAVING		CATENARY POST AND OVERHEAD WIRE
	TRACK IN PAVING						

0 2.5 5 7.5 10 12.5m  
SCALE 1:250 AT ORIGINAL SIZE



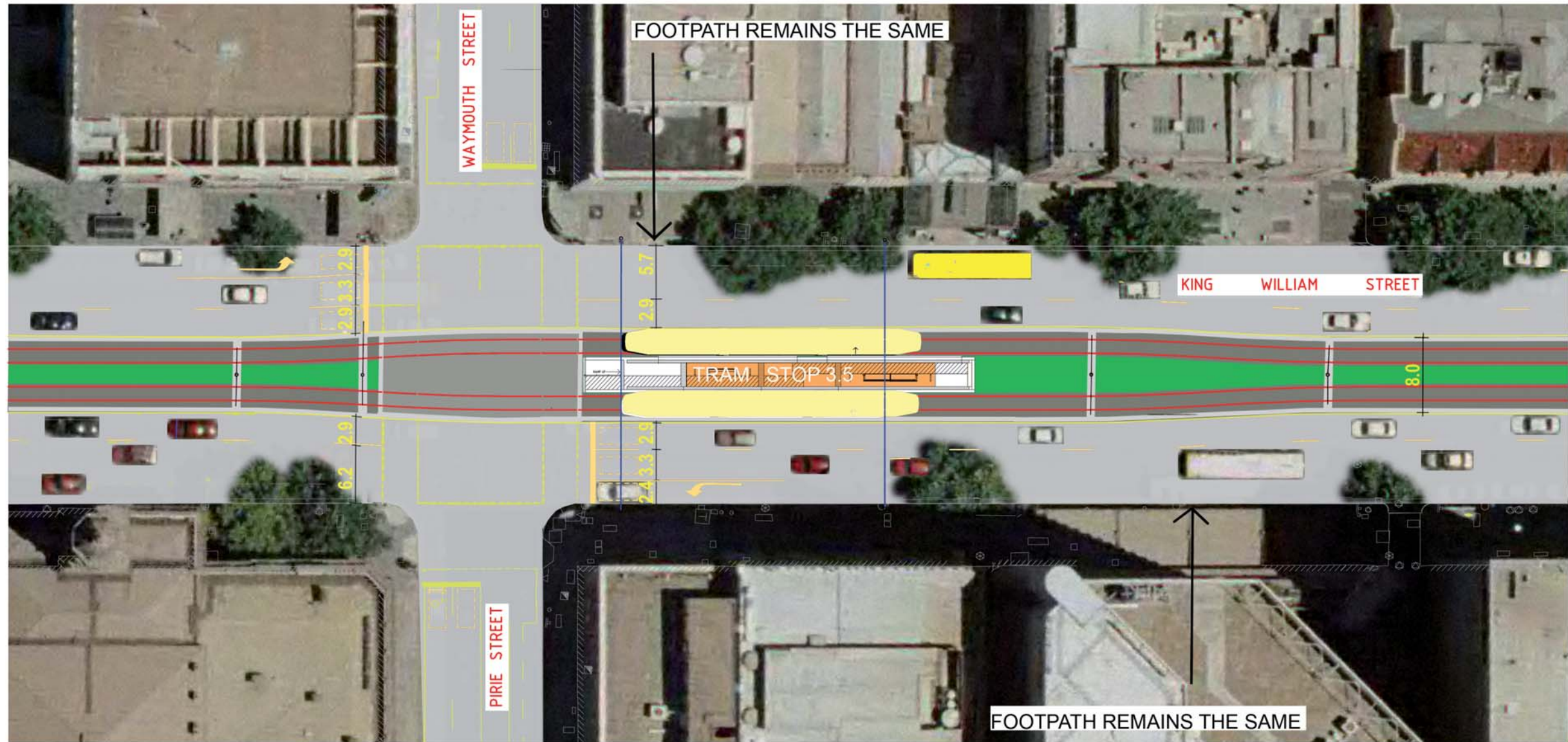
## 4.0 Urban Design Elements

### 4.4.1 Platforms - North of Victoria Square Stop



# 4.0 Urban Design Elements

## 4.4.2 Platforms - Pirie Street Stop



**KEY**

- |  |                 |  |                   |  |                                 |  |
|--|-----------------|--|-------------------|--|---------------------------------|--|
|  | CONCRETE EDGING |  | TRACK IN GRASS    |  | TREE TO BE REMOVED              |  |
|  | TRACK IN PAVING |  | TRACK IN CONCRETE |  | KERB TO BE REMOVED              |  |
|  | LANDSCAPING     |  | POST AND WIRE     |  | CATENARY POST AND OVERHEAD WIRE |  |
|  | TRACK IN PAVING |  | PLANTING          |  |                                 |  |
|  |                 |  | ASPHALT PAVING    |  |                                 |  |

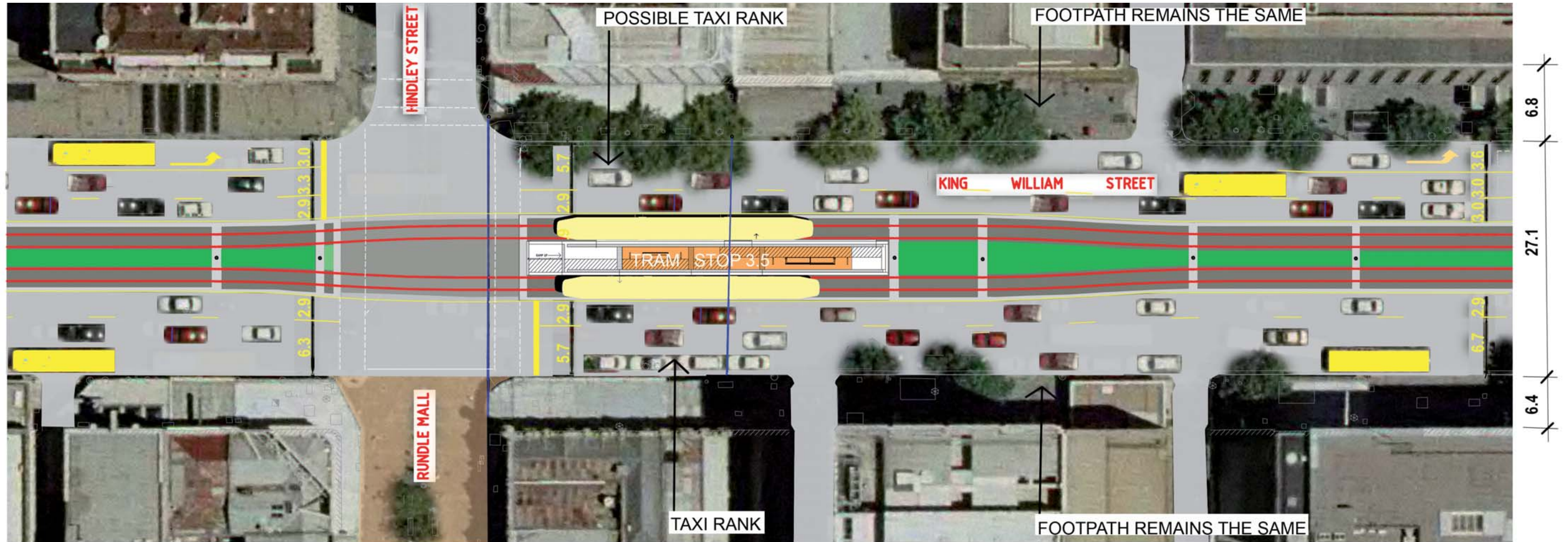
# 4.0 Urban Design Elements

## 4.4.2 Platforms - Pirie Street Stop






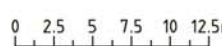












# 4.0 Urban Design Elements

## 4.4.3 Platforms - Rundle Mall Stop

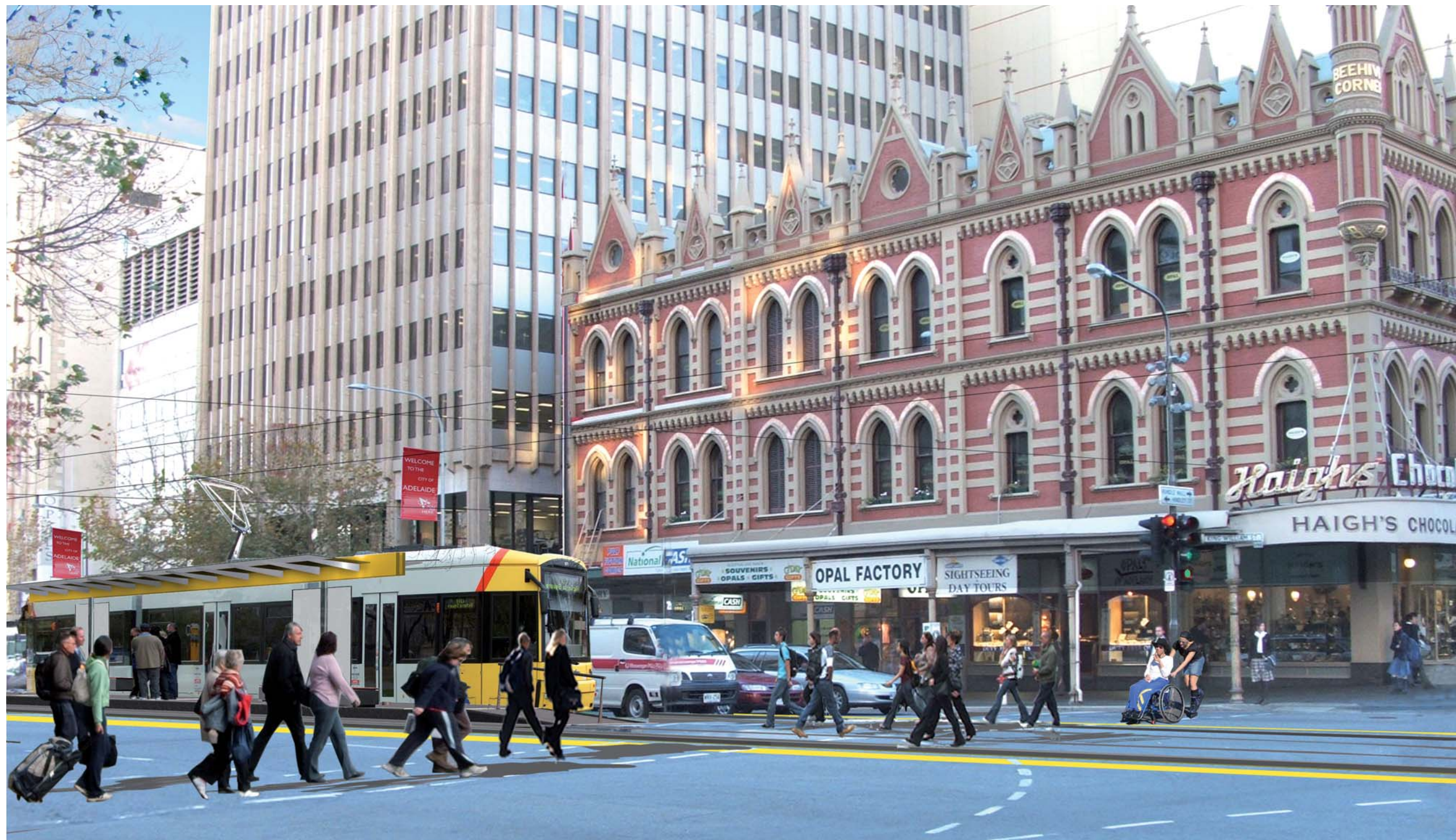


**KEY**

	CONCRETE EDGING		TRACK IN CONCRETE		TRACK IN GRASS		TREE TO BE REMOVED	  SCALE 1:250 AT ORIGINAL SIZE
	TRACK IN PAVING		TRACK IN CONCRETE		POST AND WIRE		KERB TO BE REMOVED	
	LANDSCAPING		TRACK IN PAVING		PLANTING		CATENARY POST AND OVERHEAD WIRE	
	TRACK IN PAVING				ASPHALT PAVING			

# 4.0 Urban Design Elements

## 4.4.3 Platforms - Rundle Mall Stop



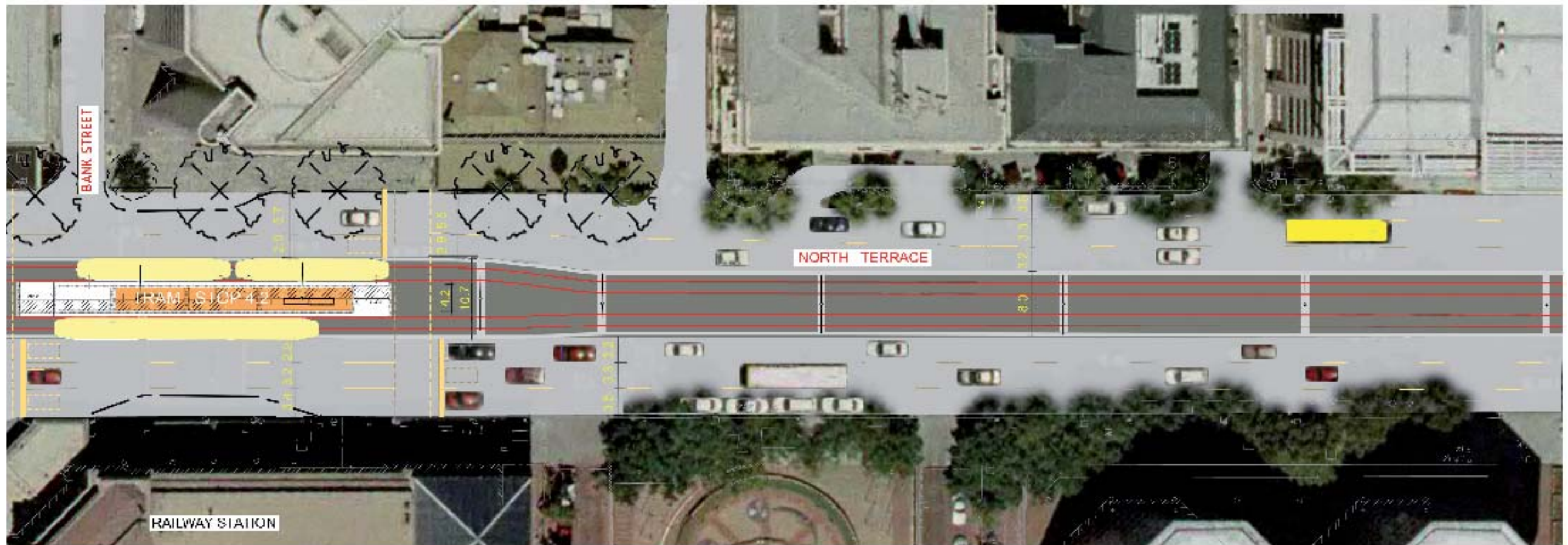
## 4.0 Urban Design Elements

### 4.4.3 Platforms - Rundle Mall Stop Looking North















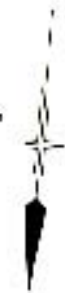
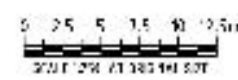
# 4.0 Urban Design Elements

## 4.4.4 Platforms - Railway Station Stop



**KEY**

-  CONCRETE EDGING
-  TRACK IN PAVING
-  LANDSCAPING
-  TRACK IN PAVING
-  TRACK IN CONCRETE
-  TRACK IN GRASS
-  POST AND WIRE
-  PLANTING
-  ASPHALT PAVING
-  TREE TO BE REMOVED
-  KERB TO BE REMOVED
-  CATHARY POST AND OVERHEAD WIRE



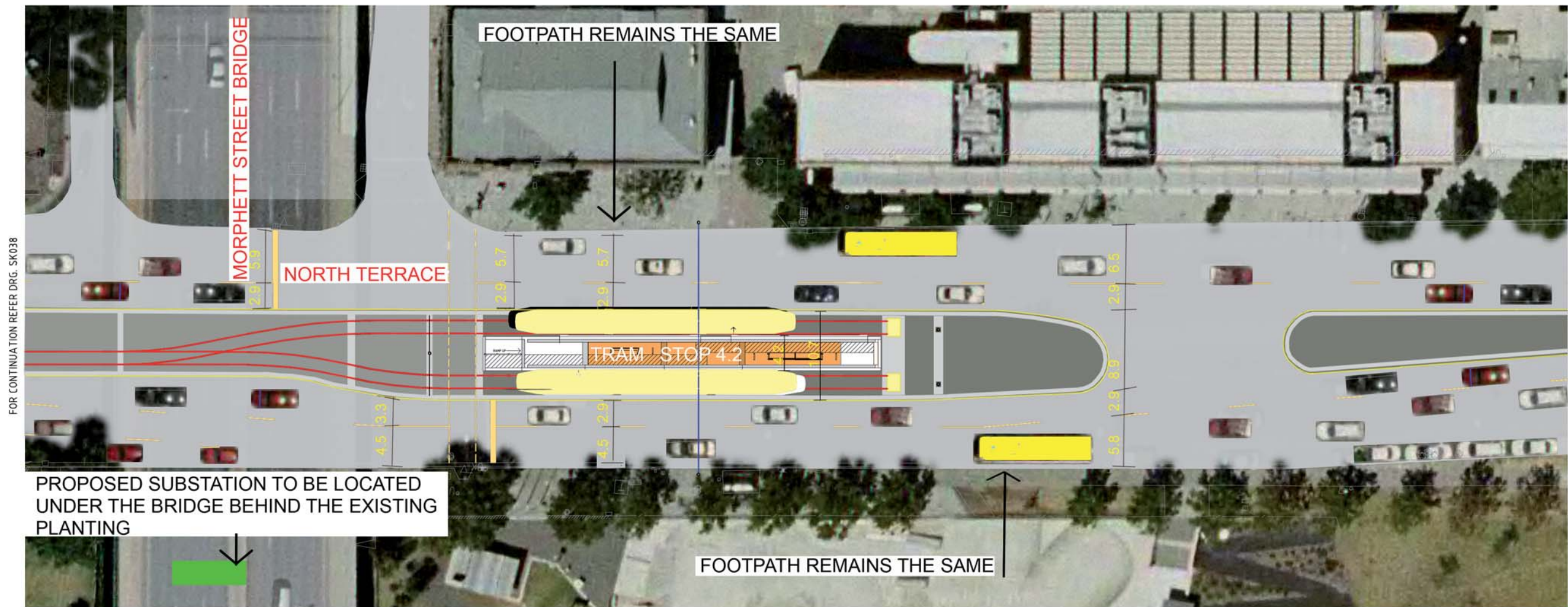
# 4.0 Urban Design Elements

## 4.4.4 Platforms - Railway Station Stop














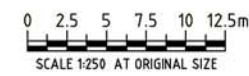
# 4.0 Urban Design Elements

## 4.4.5 Platforms - City West Stop



**KEY**

-  CONCRETE EDGING
-  TRACK IN PAVING
-  LANDSCAPING
-  TRACK IN PAVING
-  TRACK IN CONCRETE
-  TRACK IN GRASS
-  POST AND WIRE
-  PLANTING ASPHALT PAVING
-  TREE TO BE REMOVED
-  KERB TO BE REMOVED
-  CATENARY POST AND OVERHEAD WIRE



## 4.0 Urban Design Elements

### 4.4.5 Platforms - City West Stop



## 4.0 Urban Design Elements

### 4.5 Poles

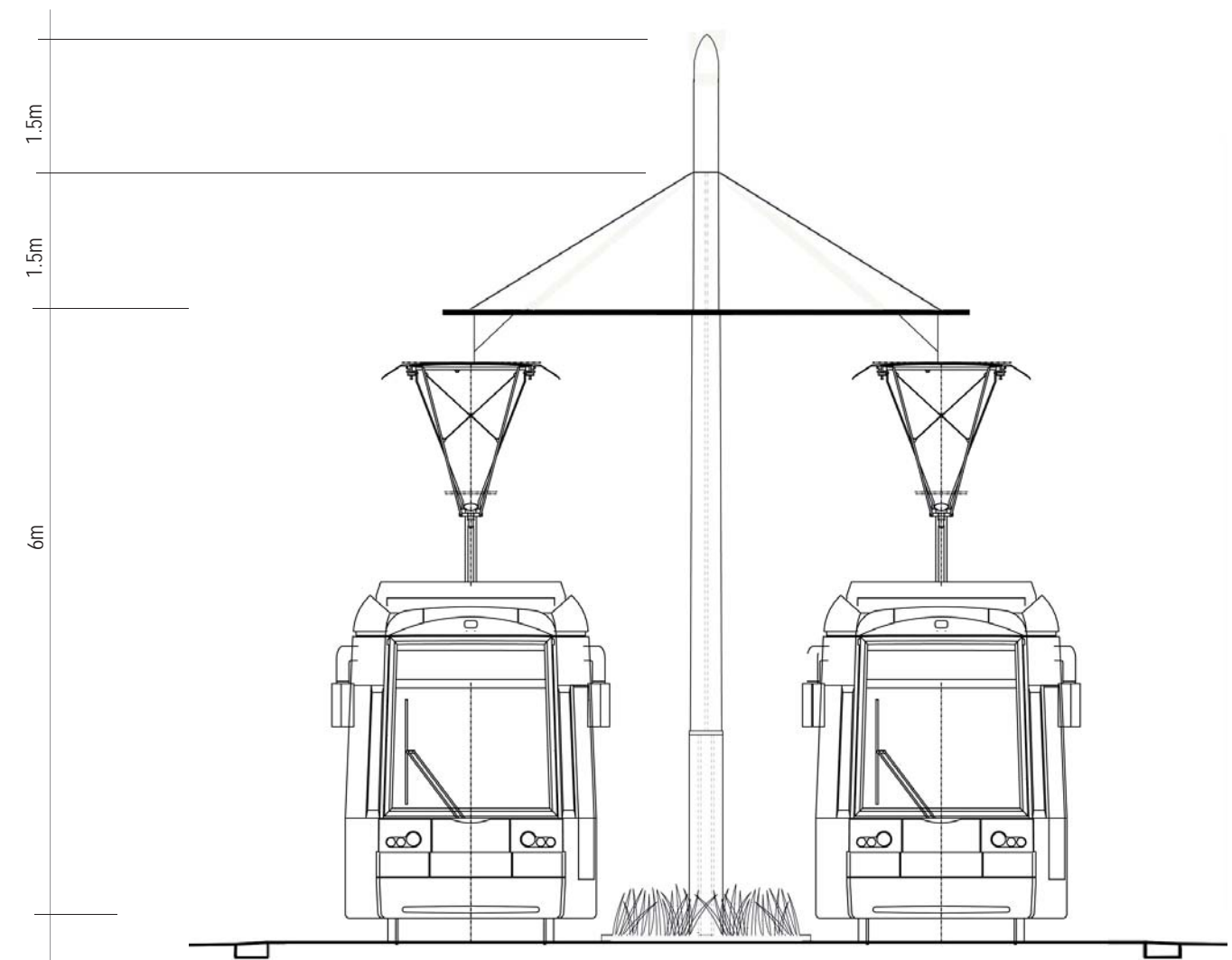
Centre median poles are a preferred design solution along King William Street and North Terrace to support overhead wires since centrally located poles have less of a visual impact on the streetscape than side poles which require additional overhead wiring.

To accommodate directional changes of overhead wires, however, the design of the track corridor seeks to minimise the number of side poles located at the corners of intersections along King William Street that is; at the Angas Street intersection, at the Franklin Street intersection and at the North Terrace intersection.

Utilisation of the tram poles for new street lights along King William Street has been considered but is not recommended for the following reasons:

- the outreach poles and luminaires will increase the visual clutter in the centre of King William Street;
- centre median lighting is out of character with the remainder of King William Street and other streets in the city centre (a section of Halifax Street being the exception);
- aesthetically, street lighting at the edges rather than in the centre is preferred, as this reinforces a visual corridor or "space";
- conduits and footings are already in place within the King William Street footpaths to accommodate a street lighting upgrade;
- centre median lighting poses an unacceptable risk for light maintenance crews, due to the overhead wiring; and
- technical regulations prohibit the use of more than one power supply to one pole.

Generally, the proposed poles will be located centrally within the tram corridor.



Median Pole 9.0 metres height with 6m Clearance shown through Tram Corridor.

## 4.0 Urban Design Elements

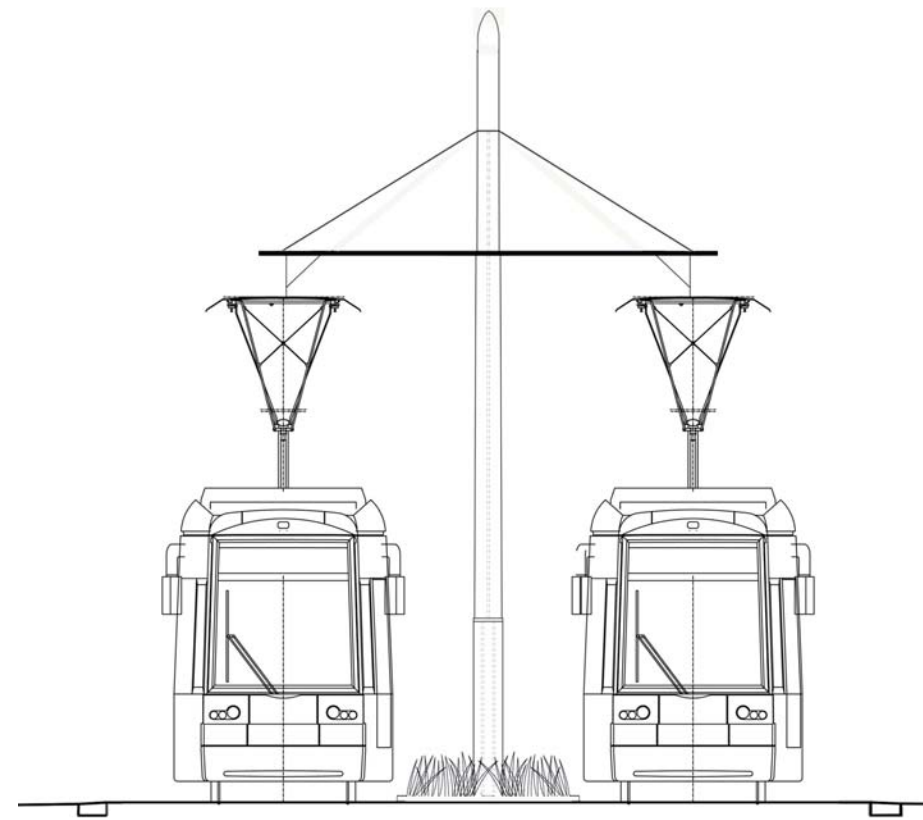
### 4.6 Separation

The existing arrangement of trams and vehicles in the section of King William Street between Victoria Square and South Terrace allows vehicles to share the tram carriageway as an additional running lane and right hand turn lane. The disadvantage of this arrangement is that it slows tram times considerably (eg. trams must wait for queued right hand turning vehicles) and exposes the trams to damage from collision with vehicles. The proposed tramline extension north of Victoria Square adopts a different arrangement by providing a dedicated route for the trams. Emergency vehicles will still be able to utilise the tram lanes, as will pedestrians and vehicles when the street is closed for parades or other special occasions.

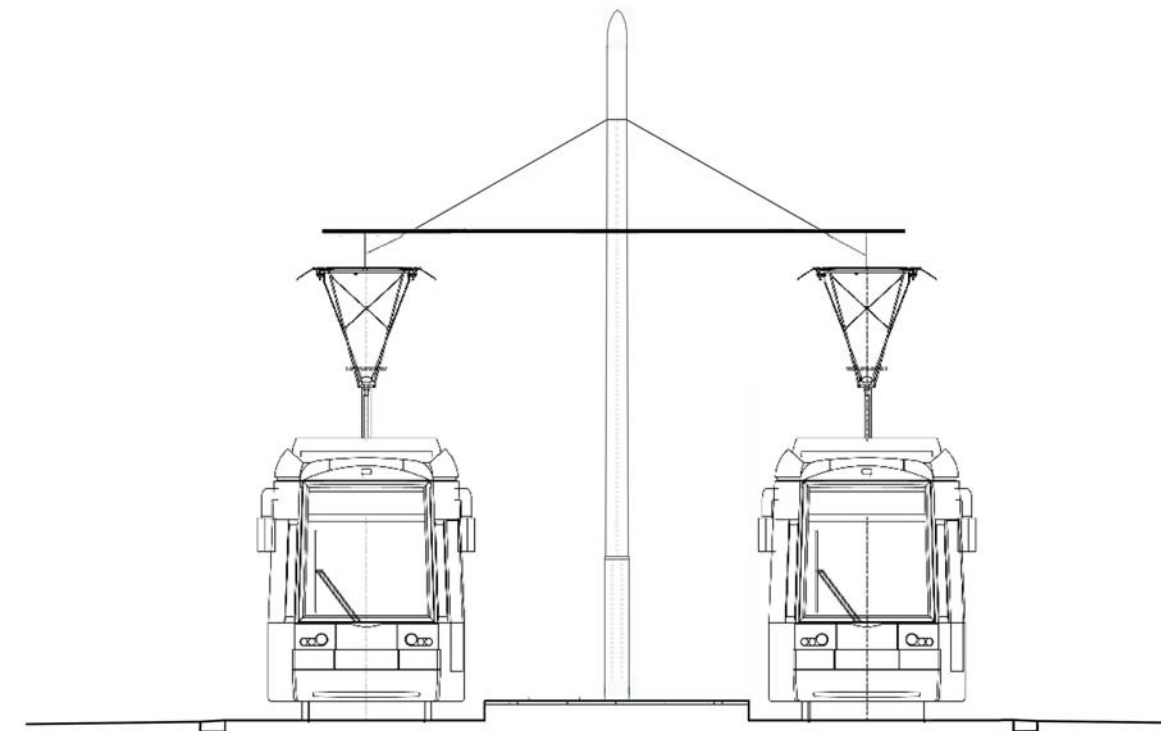
Many different methods of separating the tram corridor from vehicular traffic have been considered.

Options ranged from using retractable bollards, 300 mm wide by 120 mm high concrete upstands, and raising the track by 75 mm and 120 mm respectively.

The use of retractable bollards and concrete upstands was rejected on the basis that they would cause undue risk to motorcyclists and cyclists. Therefore road users will be separated from the tram corridor by both physical and visual deterrents. Yellow line marking and brick paving with concrete edging will provide a visual differentiation of the tram corridor. In addition, the brick paving will further deter motorists due to the vibrations should other road users cross into the tram corridor.



Section Through Median



Section Through Platform at North Terrace

# 4.0 Urban Design Elements

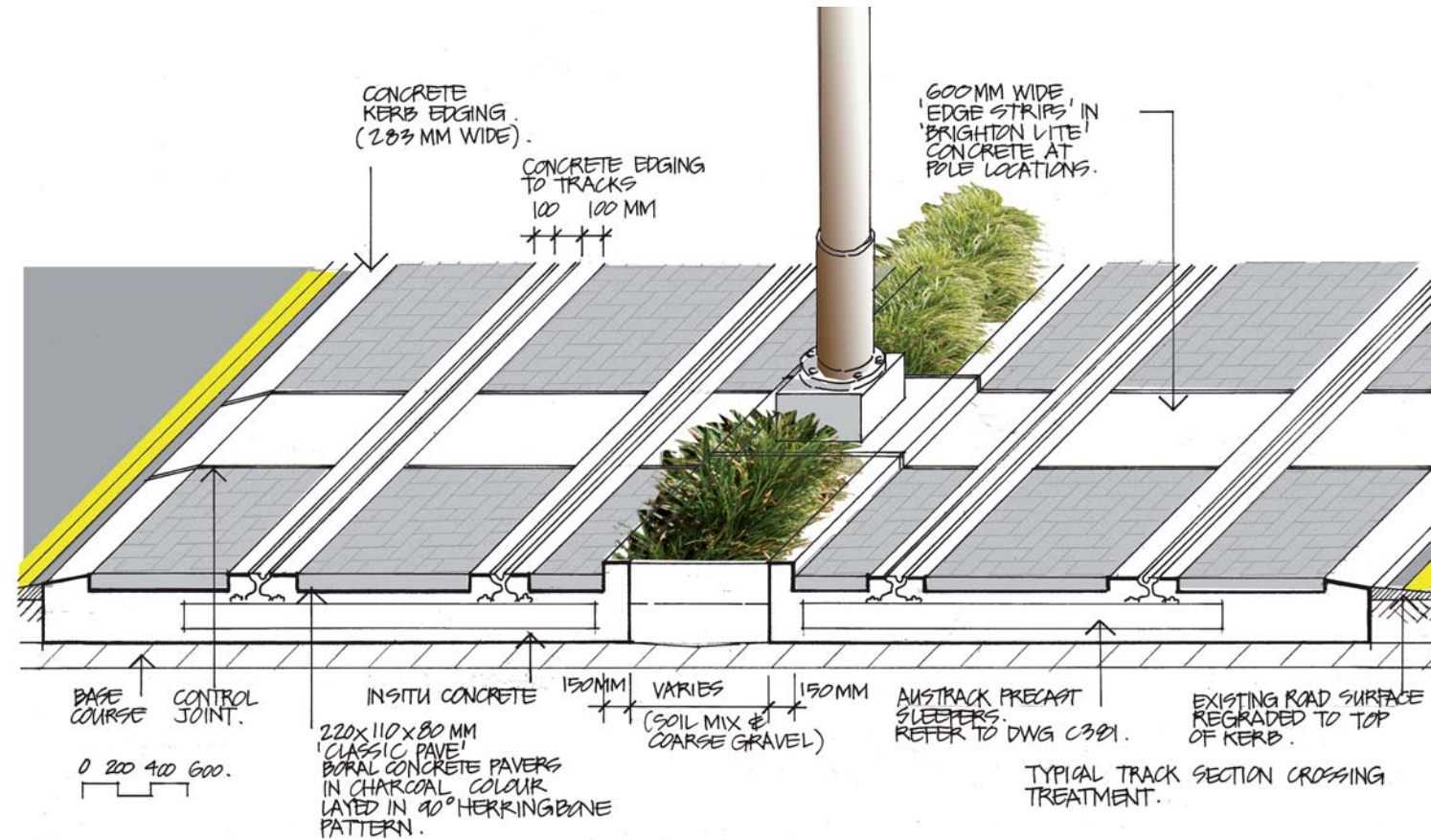
## 4.7 Surface Materials

Surface materials for the platforms and track corridor will be consistent with other materials in King William Street and North Terrace, as well as meeting all functional and safety requirements.

Safety depends on the physical properties of the paving materials and the method of laying. Paving will have resistance to wear, adequate structural strength, a non-slip surface, resistance to staining, be easily laid and replaced, and be easily cleaned.

In general, paving has been selected according to the function of the paved area, the type of traffic anticipated, local site conditions, availability of materials and cost. Paving materials will be able to withstand abrasive and frequent cleaning, and darker colours should be used to minimise the effects of staining.

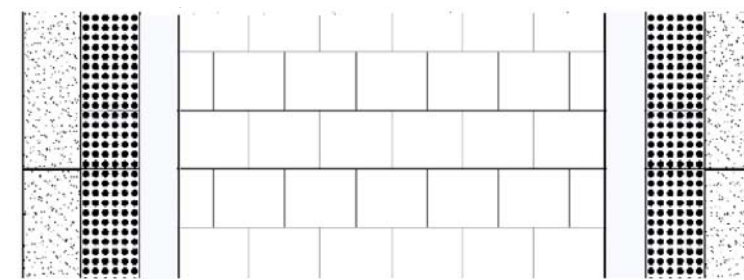
The design of paving complies with the requirements of AS 3661-1 Paving Surfaces in Public Areas.



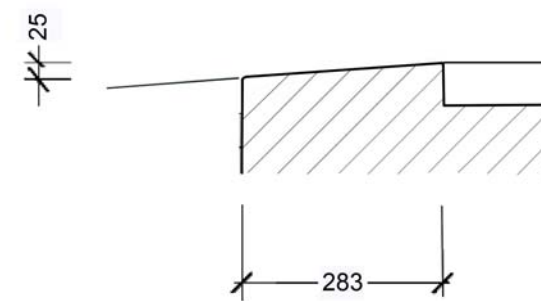
	Surface Materials	Base
Platforms	300 x 300 x 40 mm slate pavers	Mortar bed on reinforced concrete slab
Track Corridor Between Rails	220 x 110 mm 'Classic Pave' Boral Concrete Pavers in Charcoal colour, layed in a 90 degree Herringbone pattern	Mortar bed on reinforced concrete slab
Track Edges & Sectional treatment	283 x 120 mm precast 'Brighton Lite' concrete to match existing King William St kerb and watertable	Quarry rubble



Slate pavers are the proposed surface treatment for the platforms



Surface treatment to platforms



Kerb dimensions

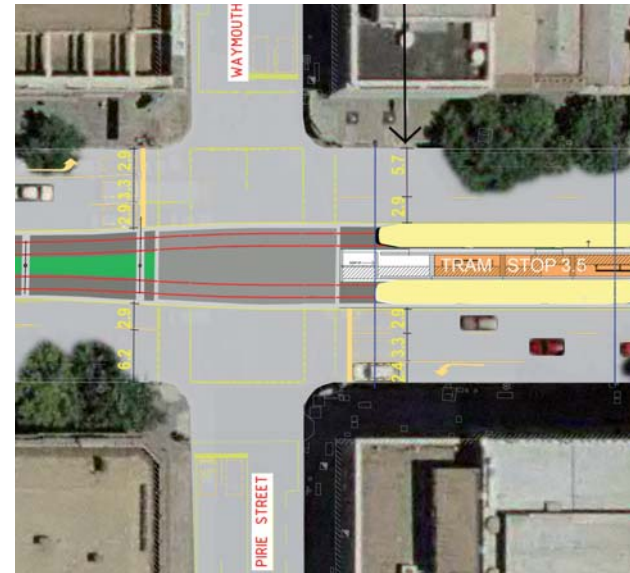
# 4.0 Urban Design Elements

## 4.8 Overhead Wires

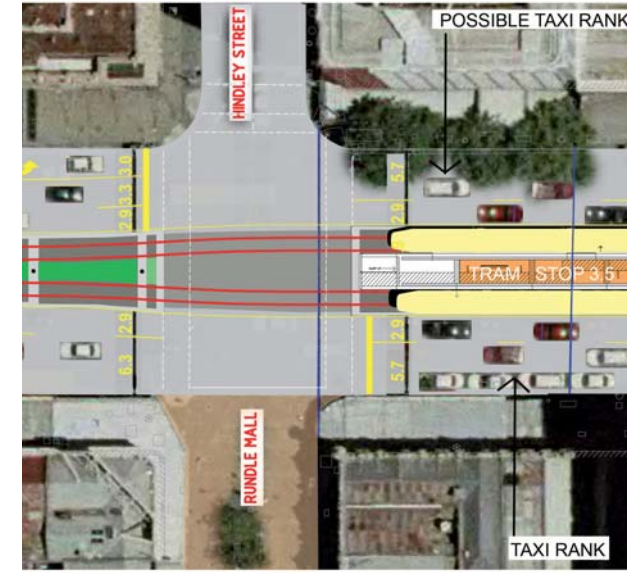
For the majority of the tram line extension, poles are located centrally between the two sets of rails to minimise the visual impact of overhead wires on the north - south vista along King William Street. Where this is not possible due to curvature of the track or the platform width, then the proposed design incorporates a minimal number of poles and overhead wires to minimise the impact of the tram corridor on the existing streetscapes.



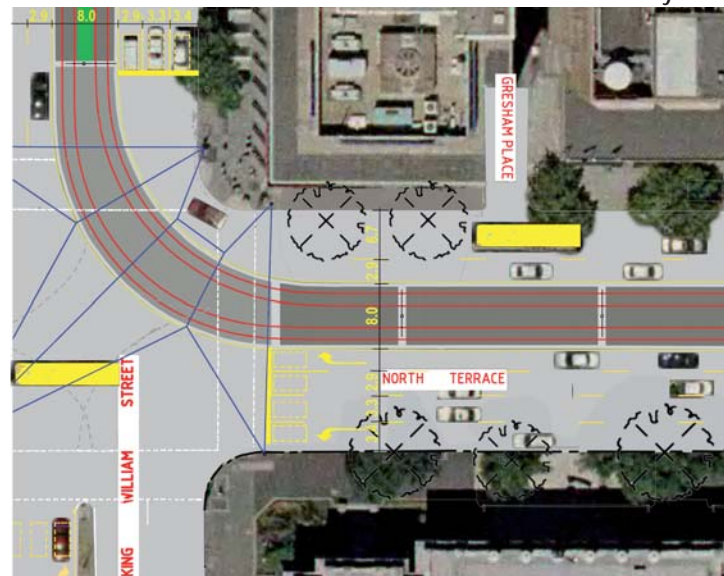
Existing Overhead Wires at the corner of King William and Hindley Street



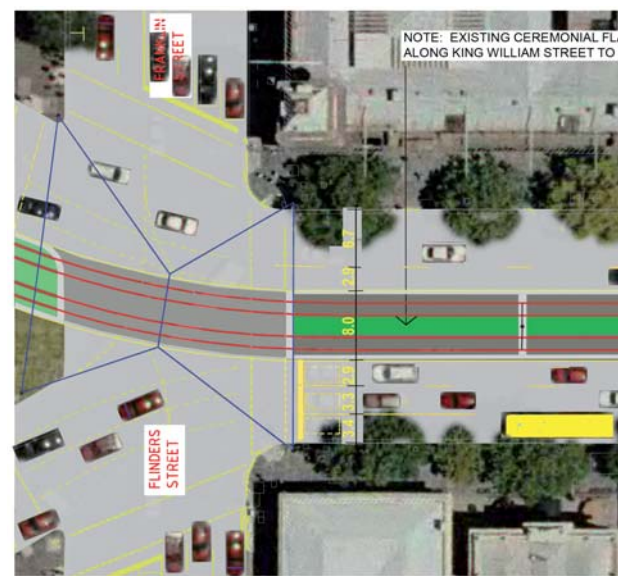
Pirie - King William Street Intersection



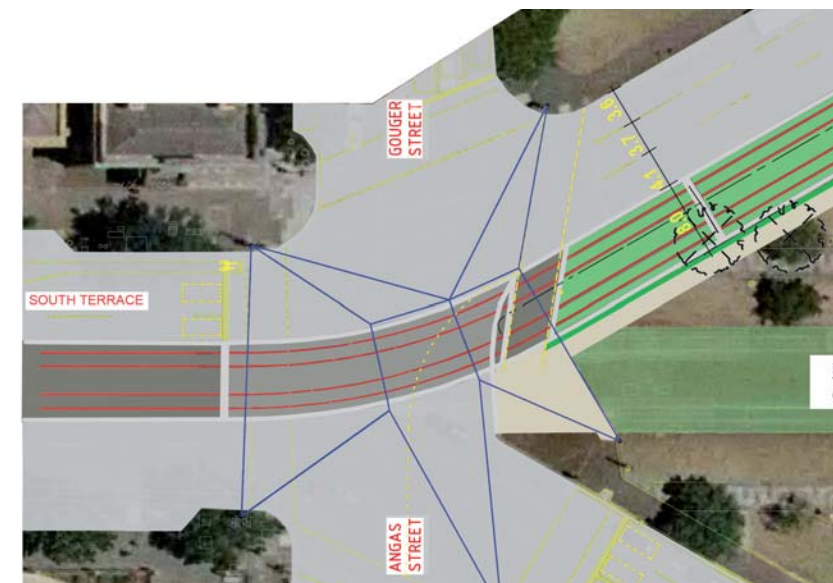
Rundle - King William Street Intersection



North Terrace - King William Street Intersection



Flinders Street - Franklin Street Intersection



Gouger Street - Angas Street Intersection

# 4.0 Urban Design Elements

## 4.9 Timetabling & Stop Identification Signage

Two forms of signage and public information are required:

1. Signage identifying each of the five tram stops. While the design of the shelters will generally reflect common themes and materials, some form of identification is required to mark individual stops. Identification can take the form of clearly legible signage and/or by the use of materials and markers that individualise each stop.
2. Signage providing route information.

Real-time signage informing passengers of the arrival and departure times for trams is not proposed at this stage.



# 4.0 Urban Design Elements

## 4.10 Advertising

Advertising is not proposed as part of the project. As a means of providing protection from the sun and inclement weather, glass dividers are proposed as a component of the shelter structures. If required, timetable advice and other advertising may be located on these dividers.



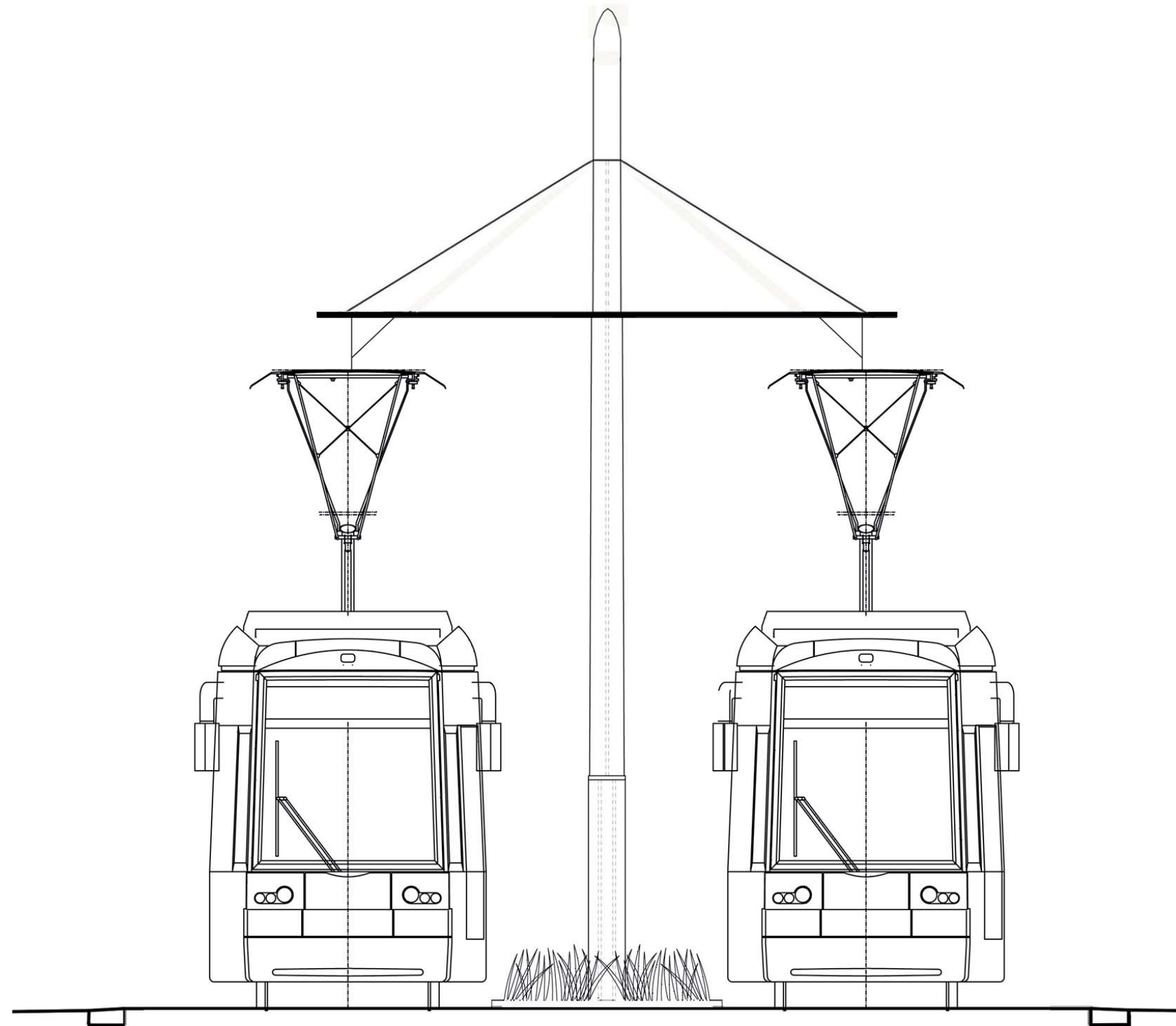
Samples of current advertising within the Victoria Square, King William Street and the North Terrace corridor.

# 4.0 Urban Design Elements

## 4.11 Planting

In general, it is the intention to provide landscaping along the proposed track alignment. In Victoria Square low shrubs will be planted between the new 2 m wide pedestrian path and the raised tram track to discourage pedestrians from walking within the tram corridor. Low planting will also be introduced to the central raised medians along King William Street.

Charcoal-coloured brick work in a ninety-degree herringbone pattern is proposed between the tracks.



Section Through Median

## 4.0 Urban Design Elements

### 4.12 Substation

The substation is to be located under the Morphet Street bridge on the northern side of North Terrace and adjacent to the existing pedestrian path. The substation will be integrated into and partially obscured by the existing landscaped area.

The design will be minimalist and fit for use, and will be finished in a neutral green colour that will integrate with the surrounding landscape.

This is also similar to other substations along the existing tram corridor running south towards Glenelg. The intention is also to provide for a low maintenance structure which can be easily relocated.



View looking at an existing shipping container located in the same position as the proposed substation.

# 4.0 Urban Design Elements

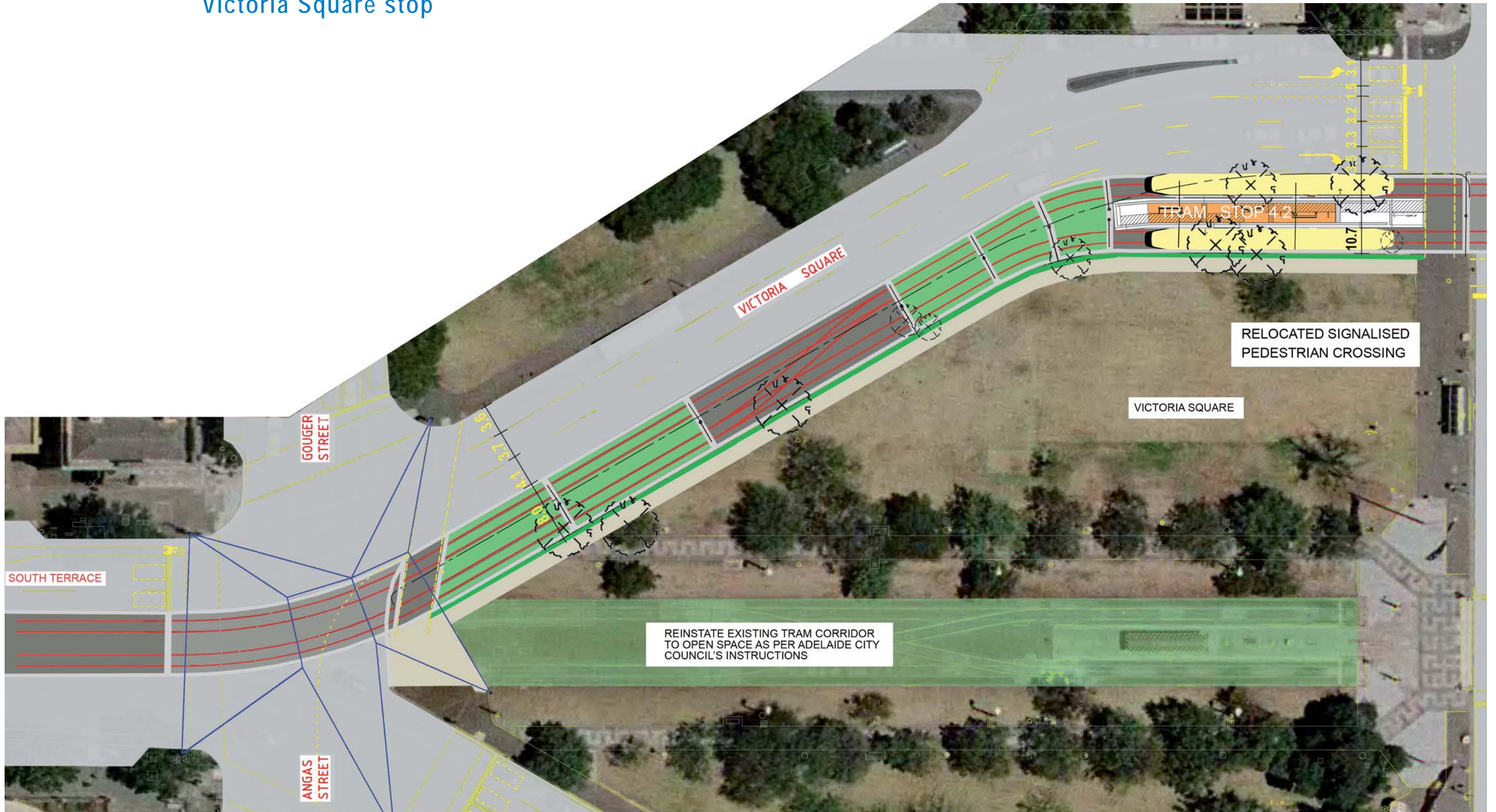
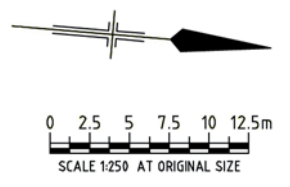
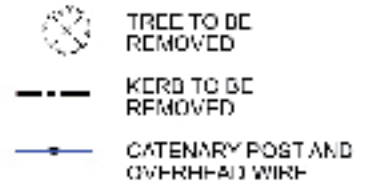
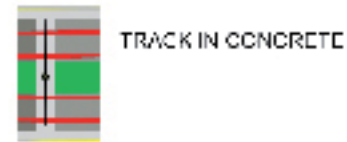
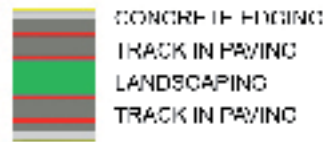
## 4.13 South Terrace Rail Corridor Siding

The rail siding is to be located on the western side of Peacock Road and adjacent to the existing tram line. The rail siding will not affect the existing landscaped area.



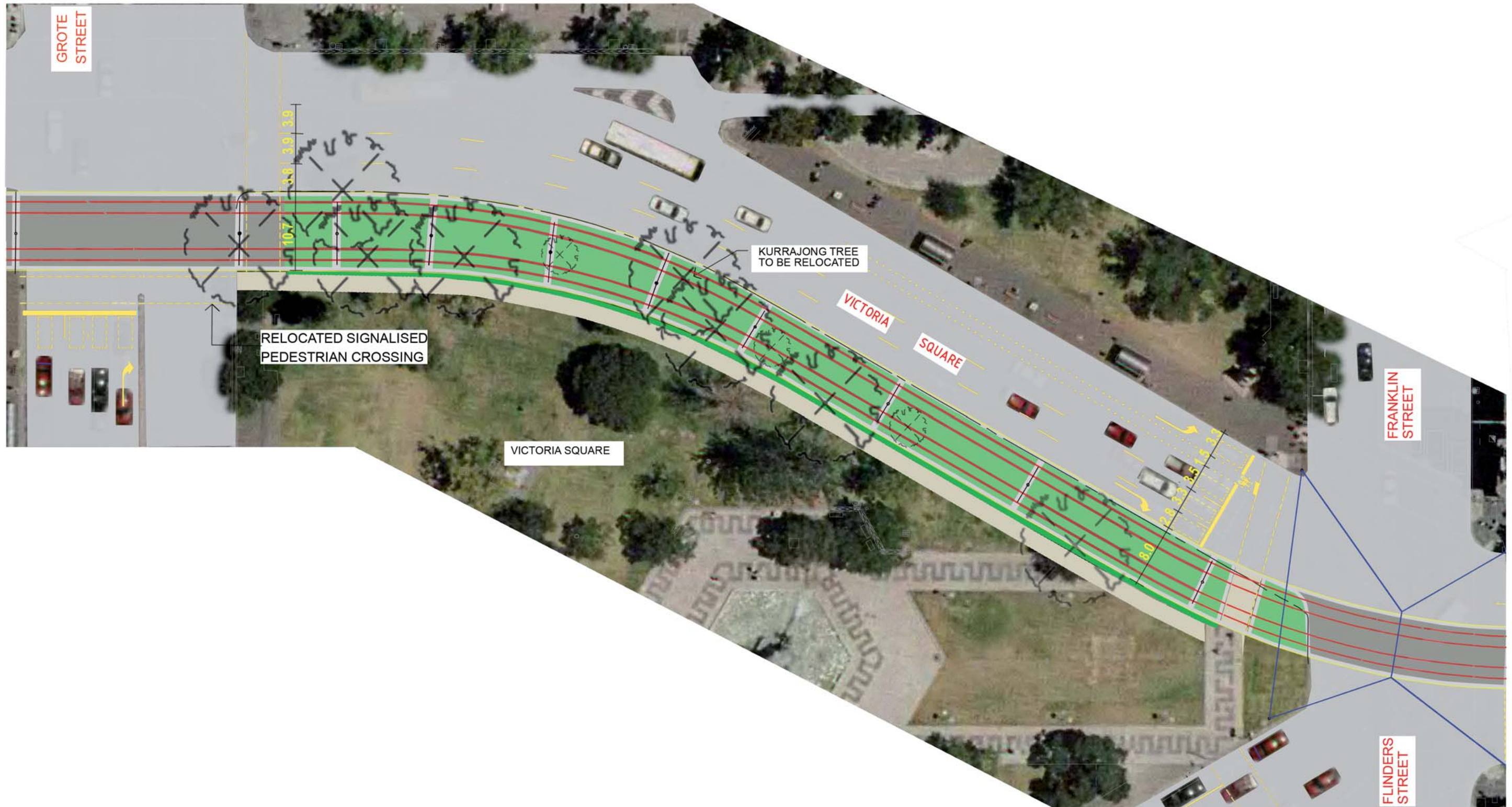
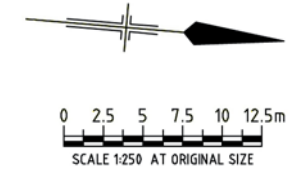
5.1 Victoria Square at Gouger Street  
Victoria Square stop

KEY

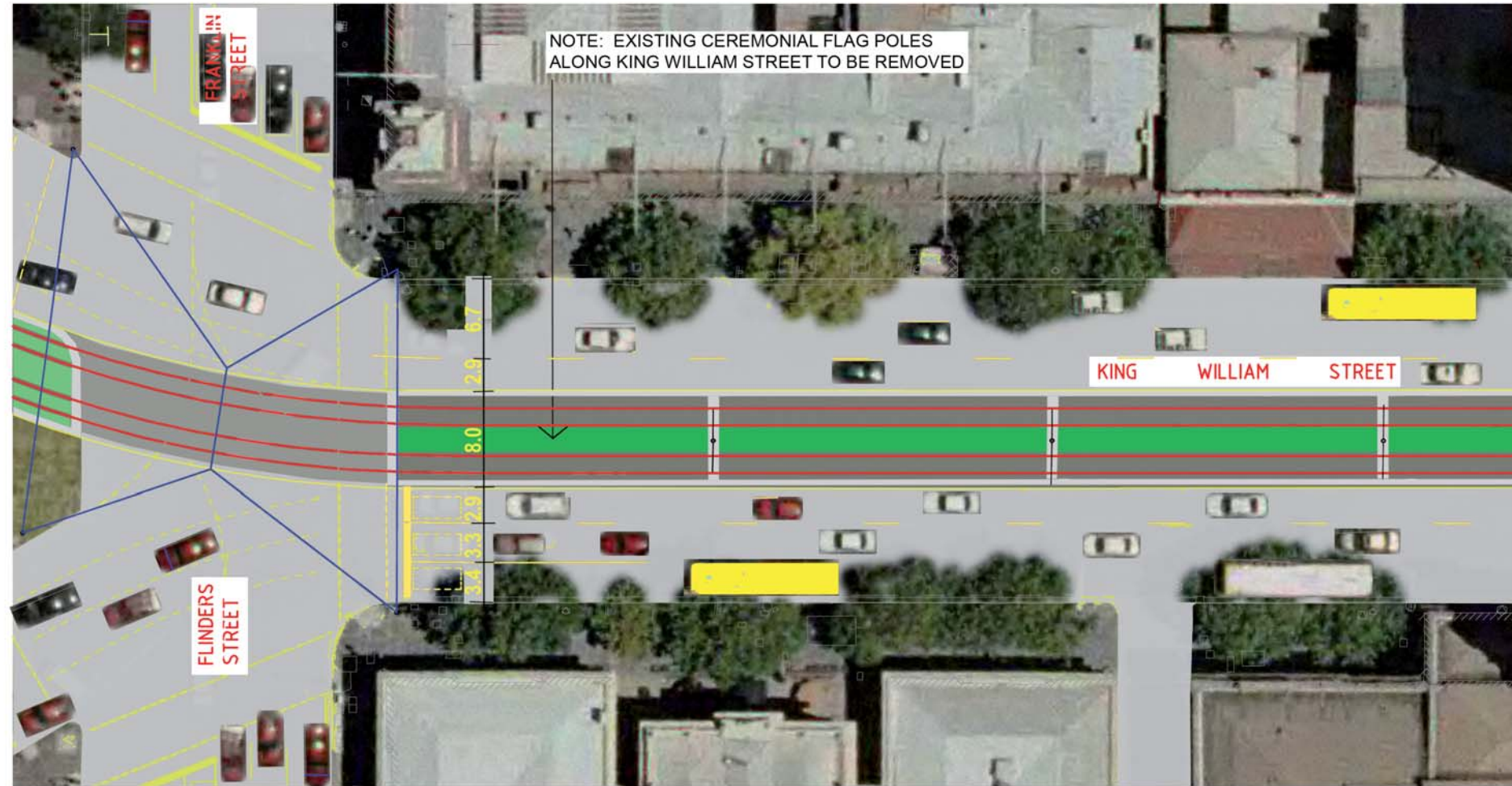


5.2 Victoria Square from Grote Street to Flinders Street Intersection












KEY



5.3 King William at Flinders Street & Franklin Street Intersection

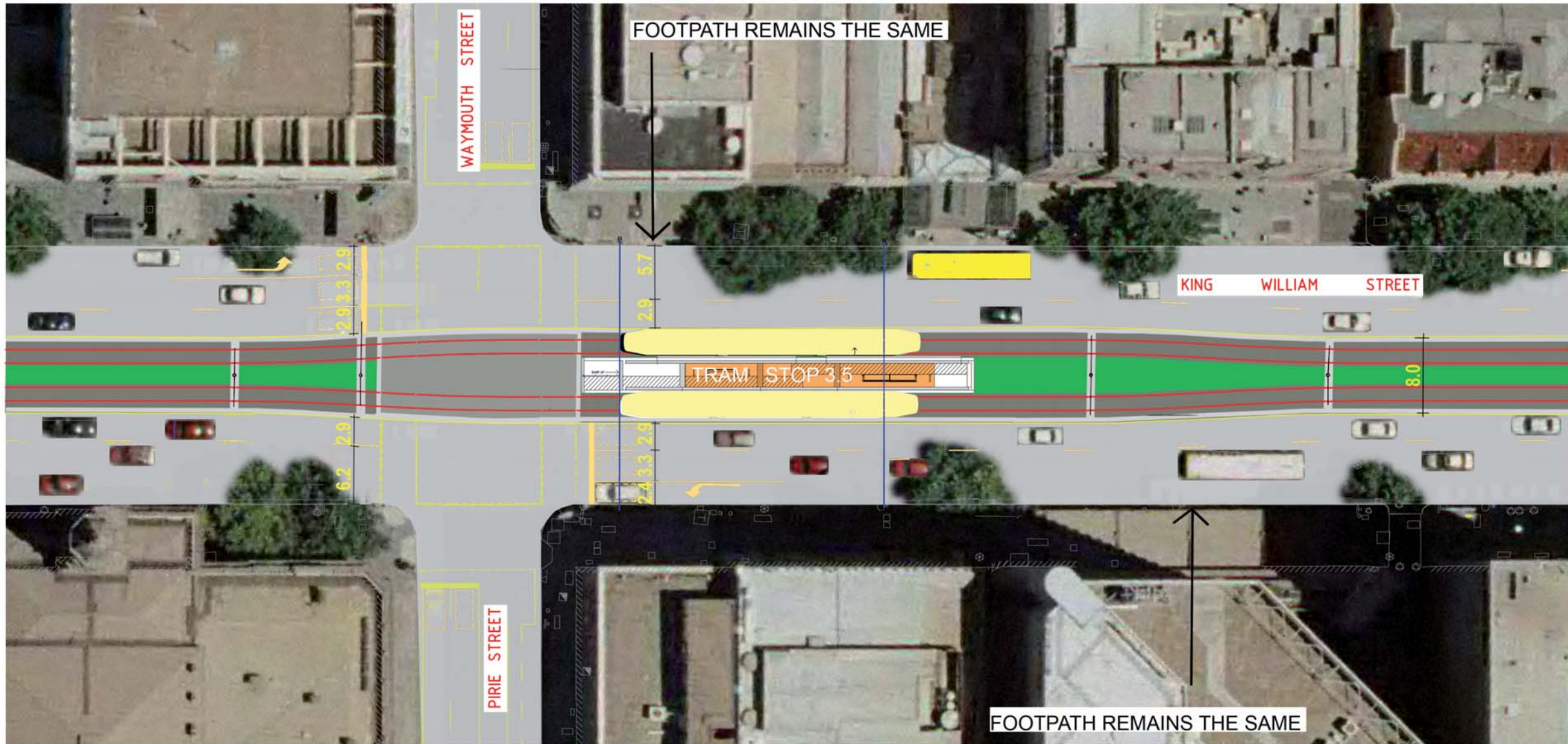


KEY

 CONCRETE EDGING	 TRACK IN CONCRETE	 TRACK IN GRASS	 TREE TO BE REMOVED	 SCALE 1:250 AT ORIGINAL SIZE
 TRACK IN PAVING LANDSCAPING	 POST AND WIRE	 PLANTING ASPHALT PAVING	 KERB TO BE REMOVED	
 TRACK IN PAVING			 CATENARY POST AND OVERHEAD WIRE	

# 5.0 Concept Plans

## 5.4 King William Street at Pirie Street Stop



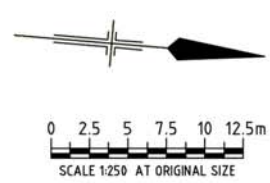
**KEY**

- CONCRETE EDGING
- TRACK IN PAVING
- LANDSCAPING
- TRACK IN PAVING

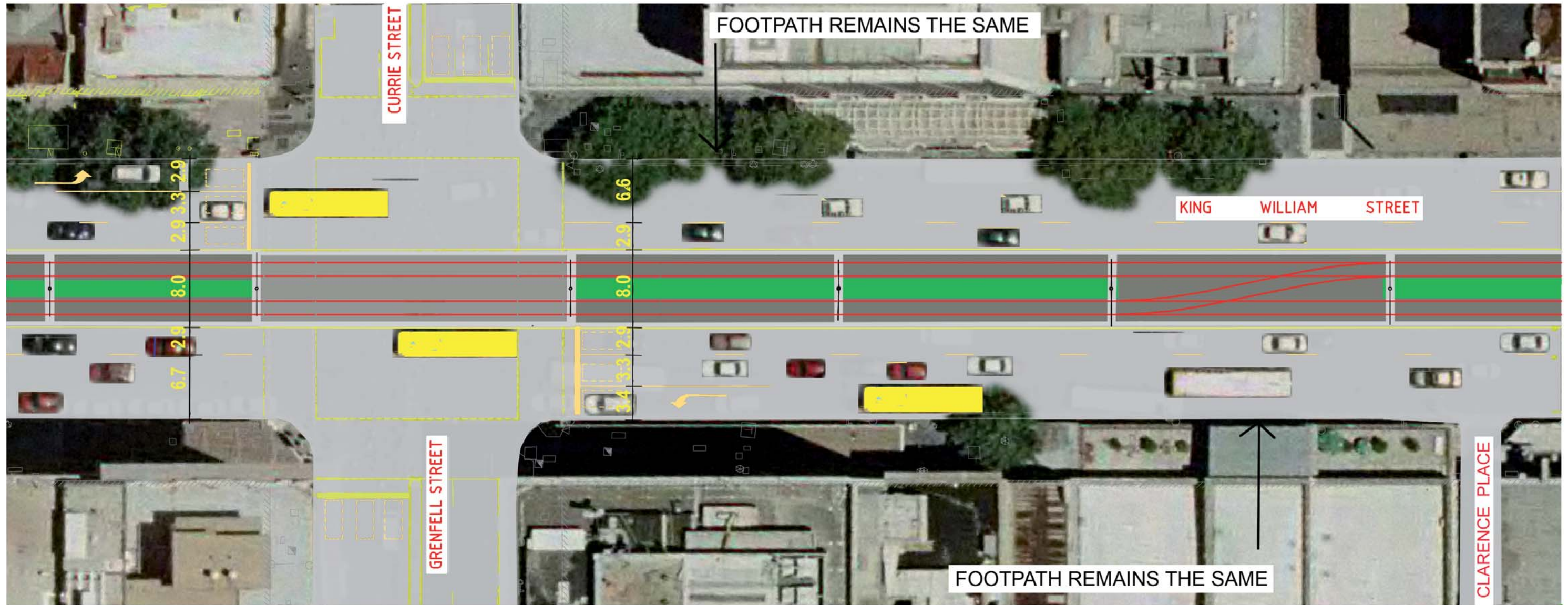
- TRACK IN CONCRETE

- TRACK IN GRASS
- POST AND WIRE
- PLANTING
- ASPHALT PAVING

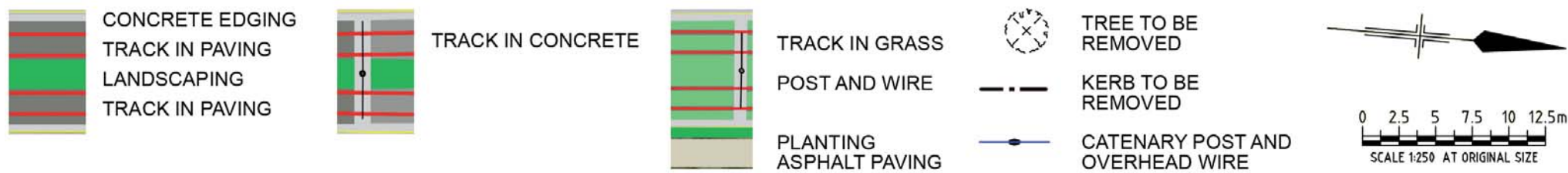
- TREE TO BE REMOVED
- KERB TO BE REMOVED
- CATENARY POST AND OVERHEAD WIRE



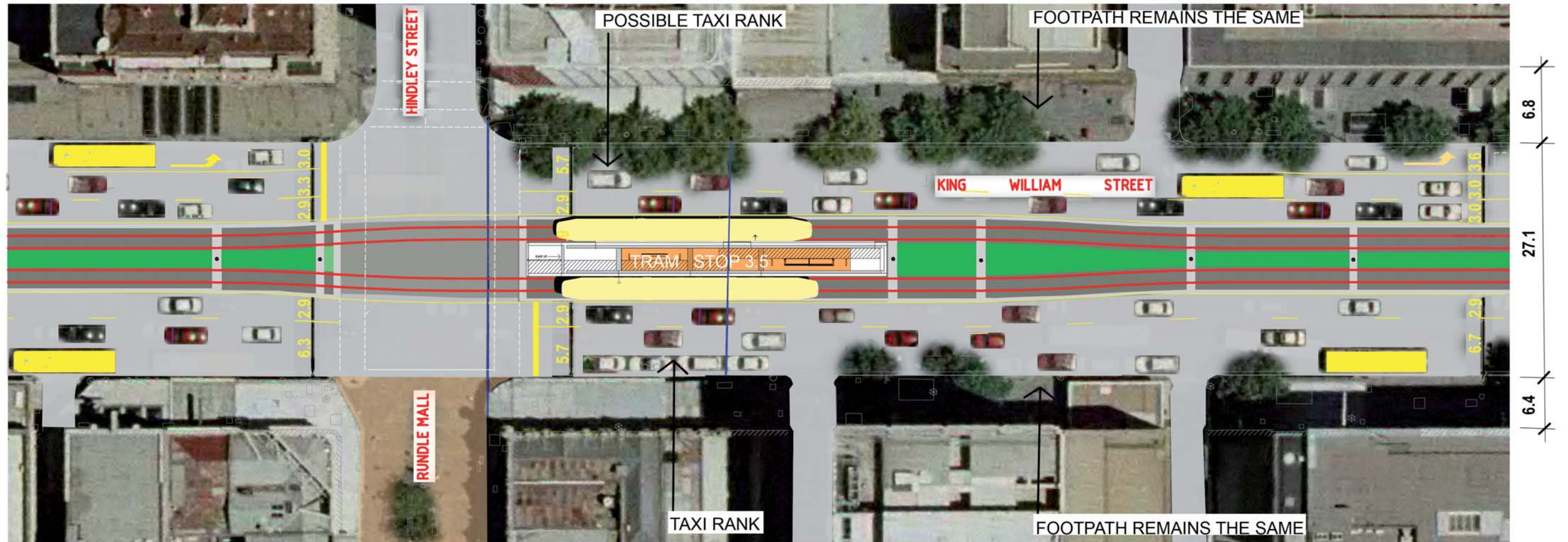
5.5 King William Street at Grenfell Street & Currie Street Intersection



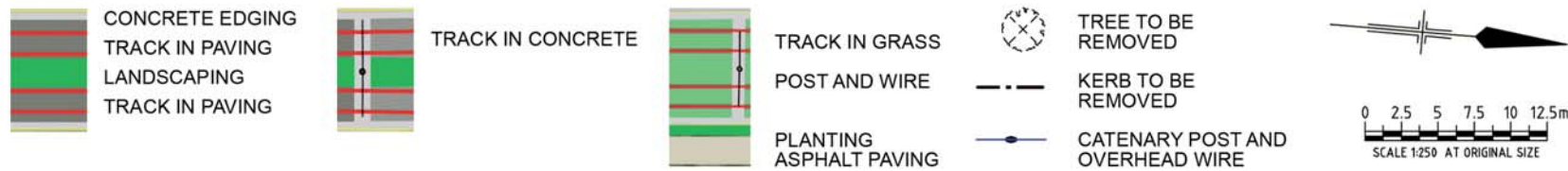
KEY



5.6 King William Street at Rundle Mall Stop



KEY



# 5.0 Concept Plans

## 5.7 King William Street and North Terrace Intersection



**KEY**

- CONCRETE EDGING
- TRACK IN PAVING
- LANDSCAPING
- TRACK IN PAVING

- TRACK IN CONCRETE

- TRACK IN GRASS
- POST AND WIRE
- PLANTING
- ASPHALT PAVING

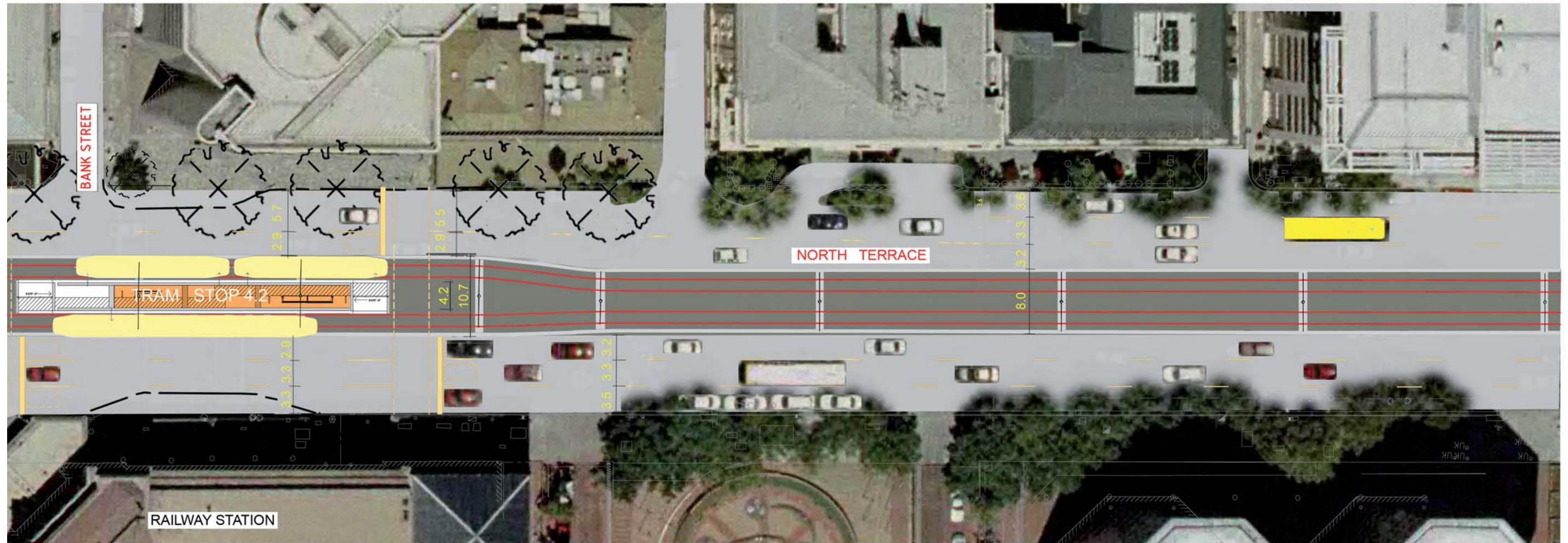
- TREE TO BE REMOVED
- KERB TO BE REMOVED
- CATENARY POST AND OVERHEAD WIRE















0 2.5 5 7.5 10 12.5  
SCALE 1:250 AT ORIGINAL SIZE

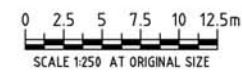
# 5.0 Concept Plans

## 5.8 North Terrace and Railway Station Stop



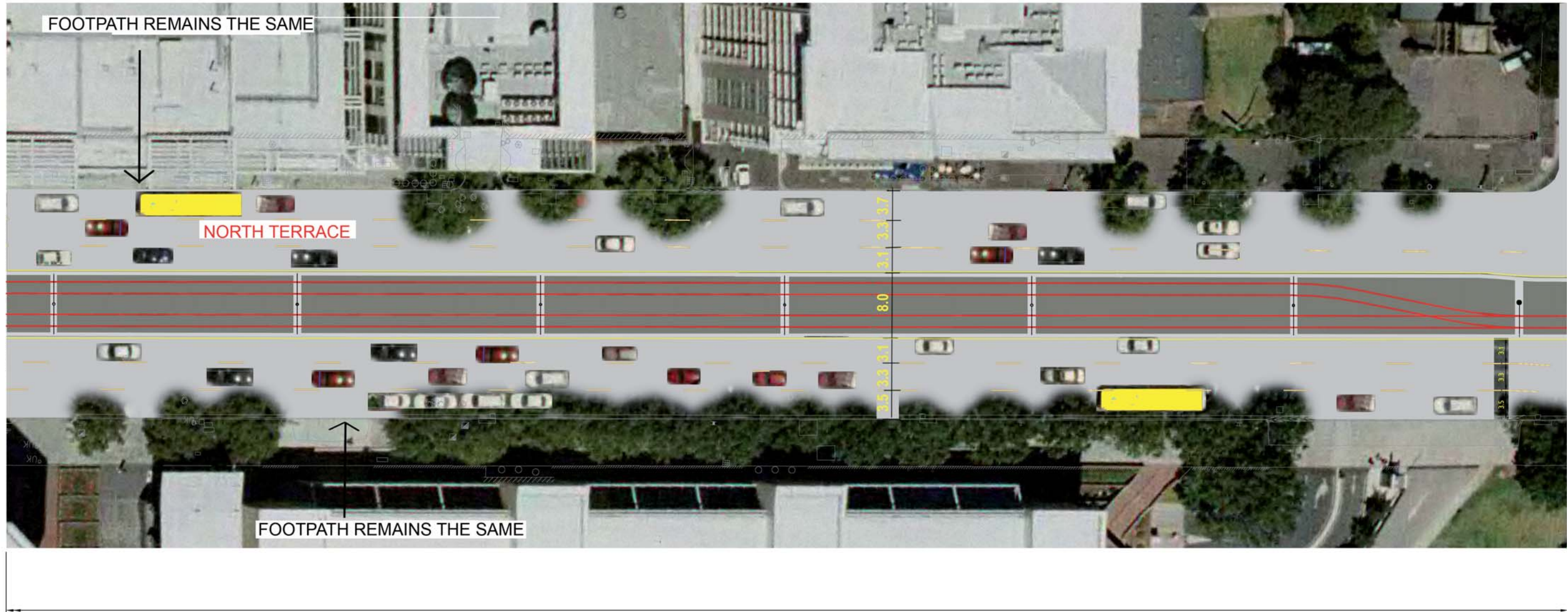
**KEY**

-  CONCRETE EDGING
-  TRACK IN PAVING
-  LANDSCAPING
-  TRACK IN PAVING
-  TRACK IN CONCRETE
-  TRACK IN GRASS
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-  PLANTING
-  ASPHALT PAVING
-  TREE TO BE REMOVED
-  KERB TO BE REMOVED
-  CATENARY POST AND OVERHEAD WIRE



# 5.0 Concept Plans

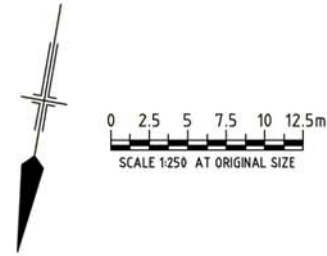
## 5.9 North Terrace and Morphett Street



ONE SIGNALISED RIGHT-TURN OR U-TURN MOVEMENT ACROSS NORTH TCE TO BE PROVIDED. NOT SHOWN - POSITION TO BE DETERMINED.

**KEY**

- CONCRETE EDGING
  - TRACK IN PAVING
  - LANDSCAPING
  - TRACK IN PAVING
- TRACK IN CONCRETE
  - TRACK IN GRASS
  - POST AND WIRE
  - PLANTING ASPHALT PAVING
- TREE TO BE REMOVED
  - KERB TO BE REMOVED
  - CATENARY POST AND OVERHEAD WIRE



# 5.0 Concept Plans

## 5.10 North Terrace and City West Stop



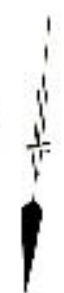
**KEY**

- CONCRETE EDGING
- TRACK IN PAVING
- LANDSCAPING
- TRACK IN PAVING

- TRACK IN CONCRETE

- TRACK IN GRASS
- POST AND WIRE
- PLANTING
- ASPHALT PAVING

- TREE TO BE REMOVED
- KERB TO BE REMOVED
- GATENARY POST AND OVERHEAD WIRE



6.1 Victoria Square - South

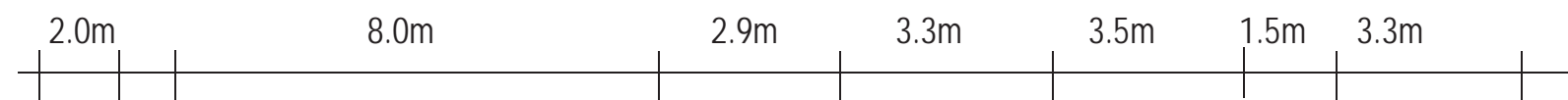


# 6.0 Sections

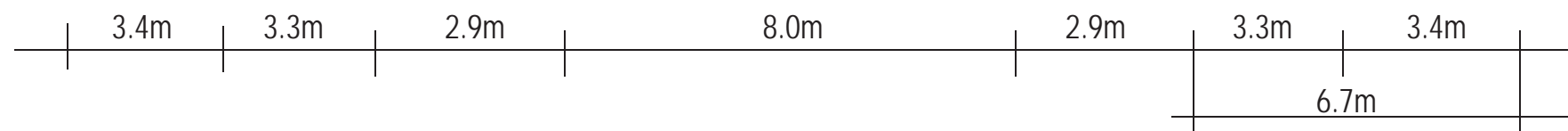
## 6.2 Victoria Square - Platform



6.3 Victoria Square - North



6.4 King William St - Typical Section



6.5 North Terrace - Railway Station

