



5. Proposal infrastructure and operations

This chapter provides a description of the CBD and South East Light Rail (CSELR) Project ('the CSELR proposal' or 'the CSELR') which is the subject of this environmental impact statement (EIS).

5.1 Overview of the CSELR proposal

The CSELR proposal comprises construction and operation of a light rail service from Circular Quay to Kingsford and Randwick via Surry Hills. The proposed route of the CSELR is shown in Figure 1.2.

The key features of the proposal include:

- approximately 12 kilometres of new light rail track from Circular Quay to Central and Kingsford and Randwick via Surry Hills and Moore Park (a total of 13 kilometres of track including track required for the maintenance and stabling facilities)
- high frequency, 'turn up and go' services every two to three minutes during peak periods within the CBD and out to Moore Park with services operating every five to six minutes between Moore Park and the Randwick and Kingsford branches
- a pedestrian zone in George Street from the Circular Quay stop to the Town Hall stop, with light rail vehicles (LRVs) operating overhead wire-free within this zone
- 20 light rail stops along the route, including interchange with heavy rail at CBD rail stations (Circular Quay, Wynyard, Town Hall and Central), ferry interchange at Circular Quay and bus interchanges at the Town Hall, Queen Victoria Building, Rawson Place, Central Station, Randwick and Kingsford stops
- platforms at all stops to accommodate 45 metre long LRVs, except at the Central Station and Moore Park stops, where platforms would be provided to accommodate both 45 metre and 90 metre long LRVs (double-length vehicles for special event services between Central Station and Moore Park)
- terminus facilities at the Circular Quay, Kingsford and Randwick stops
- facilities in Randwick and at Rozelle for LRV stabling and/or maintenance (including washdown) (The Randwick stabling facility would include facilities for the temporary storage of LRVs overnight, inspection and cleaning, and light maintenance or repair work. The Rozelle maintenance depot would consist of maintenance inspection tracks with a building, workshops and storage and would allow for more extensive maintenance and repair of LRVs.)
- integration with the existing light rail system including a new junction between the two lines at the intersection of Hay Street and George Street
- approximately 12 substations along the route (each approximately 80 square metres in area) to supply power for the LRVs, including underground substations at Martin Place and Ward Park
- a new bridge structure spanning the Eastern Distributor
- a tunnel under Moore Park and Anzac Parade
- a fleet of 30 electric-powered LRVs (including spare LRVs), approximately 45 metres long, featuring air conditioning and accessible low-floor design
- a highly reliable service with the capability to carry up to 9,000 passengers per hour in each direction
- capacity for approximately 80 seated and 220 standing passengers in each LRV
- public domain improvements including paving, street trees, lighting and furniture.

An overview of the key components of the proposal is shown in Figure 5.1a to Figure 5.1h.

Some elements of the proposal described in this chapter may be subject to further development during detailed design. Any design modifications which occur as a result of matters arising during the exhibition of this EIS would be identified in a submissions report, or if the changes are substantial, a preferred infrastructure report.

The works required to deliver the proposal include early works, main works and the George Street public domain works which are described in further detail in this Chapter. A description of how the proposal is likely to be constructed (including program, methodology and workforce) is provided in Chapter 6.

Figure 5.1a Key features of the CSELR proposal

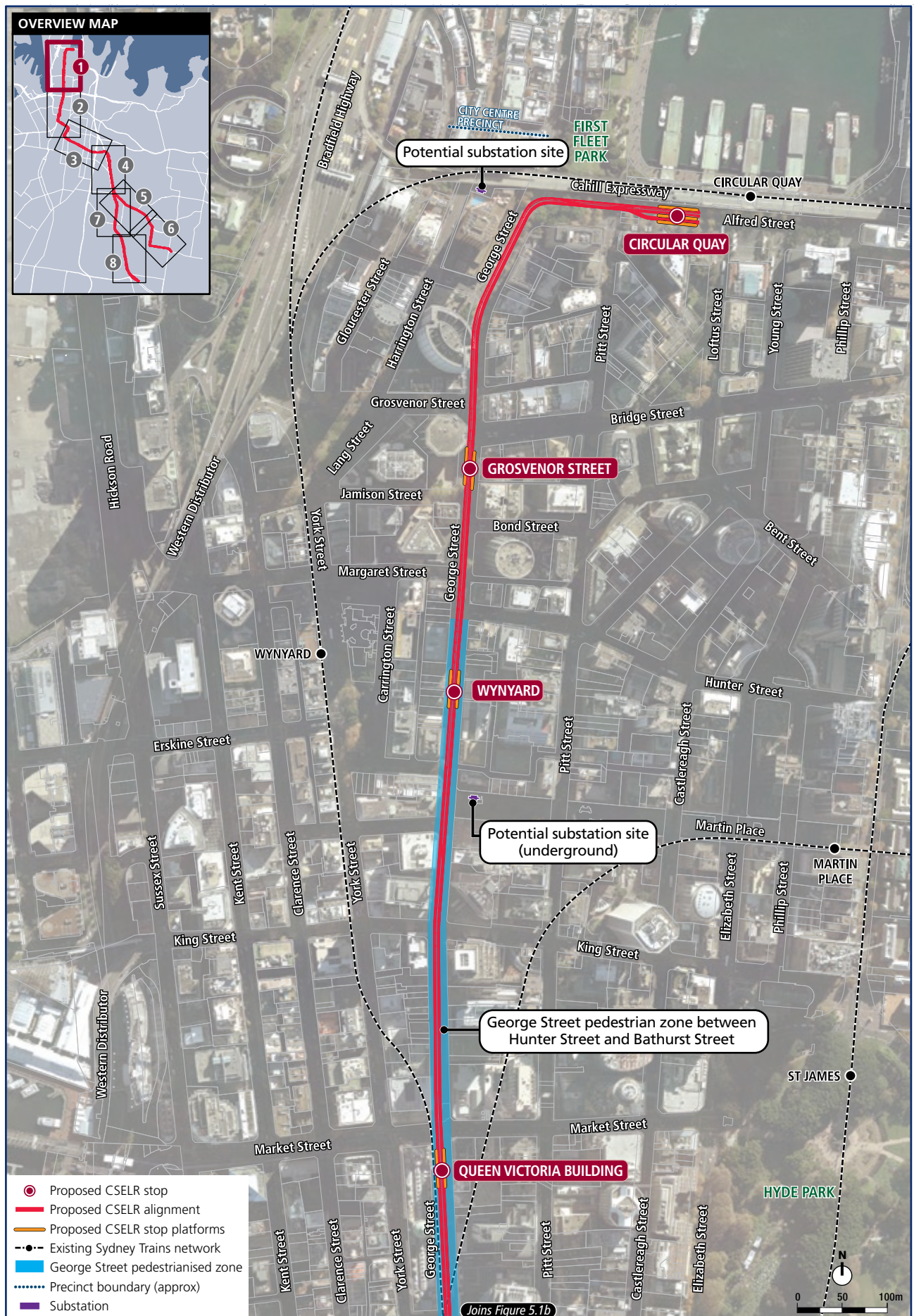




Figure 5.1b Key features of the CSELR proposal

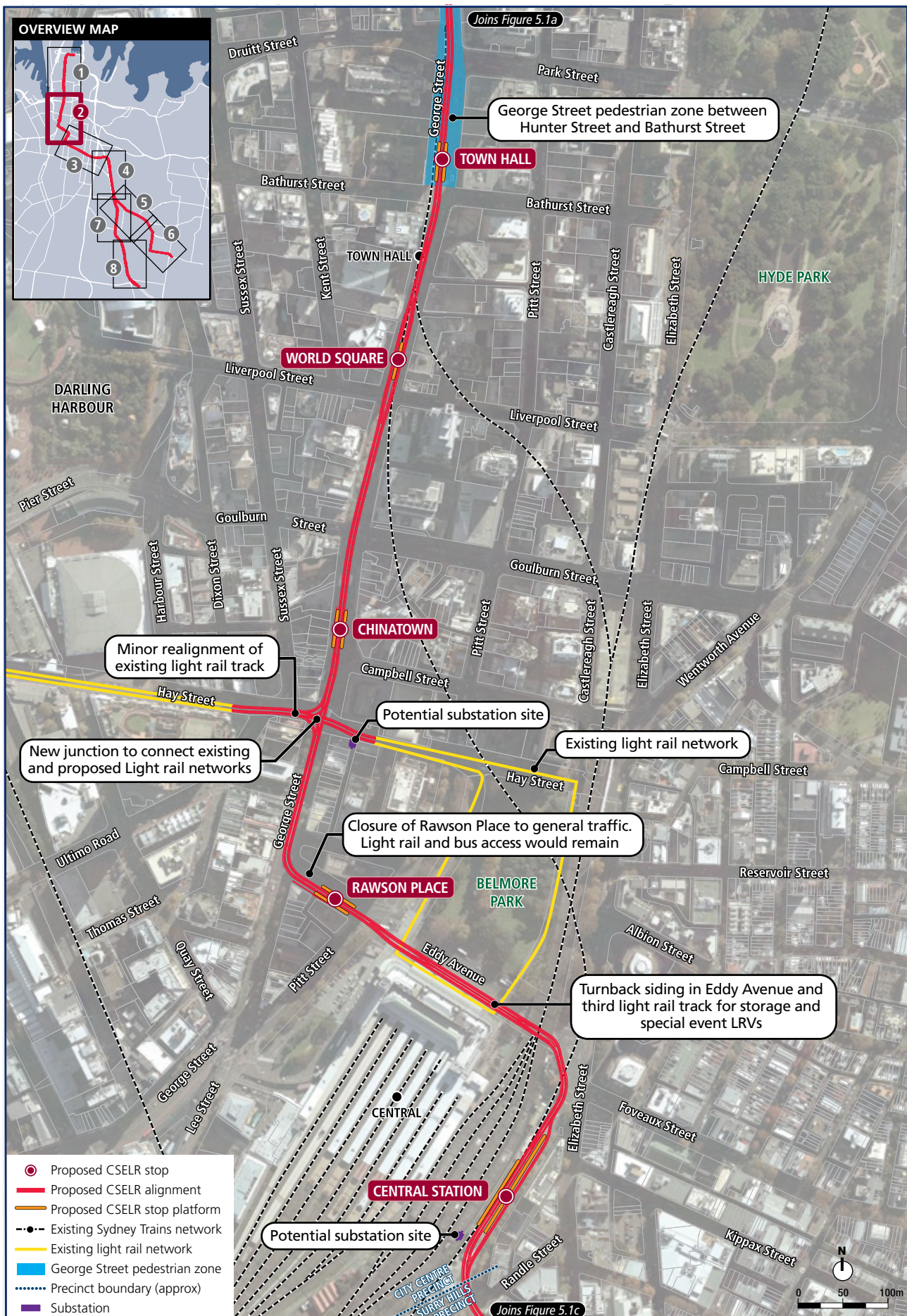


Figure 5.1c Key features of the CSELR proposal

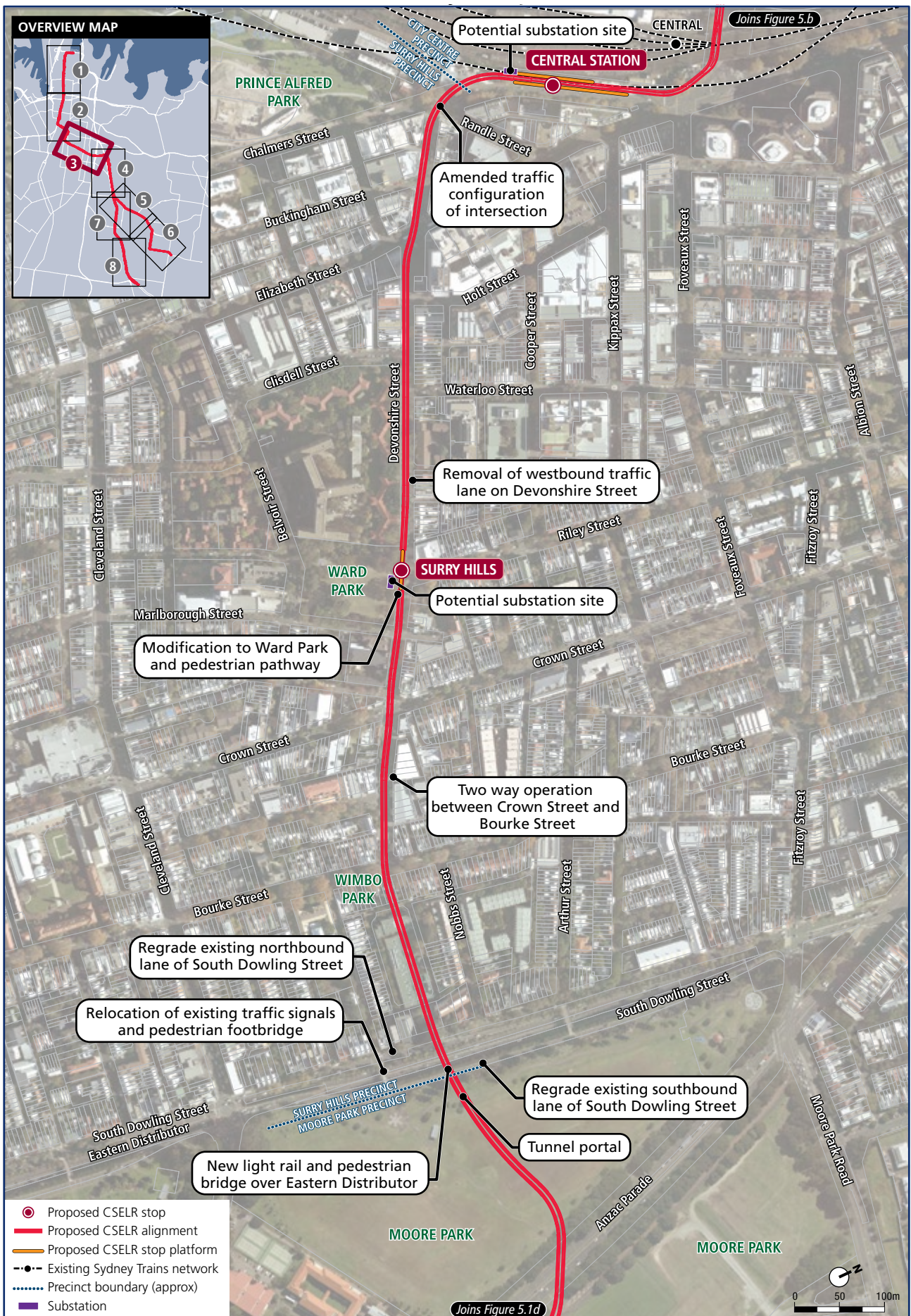




Figure 5.1d Key features of the CSELR proposal

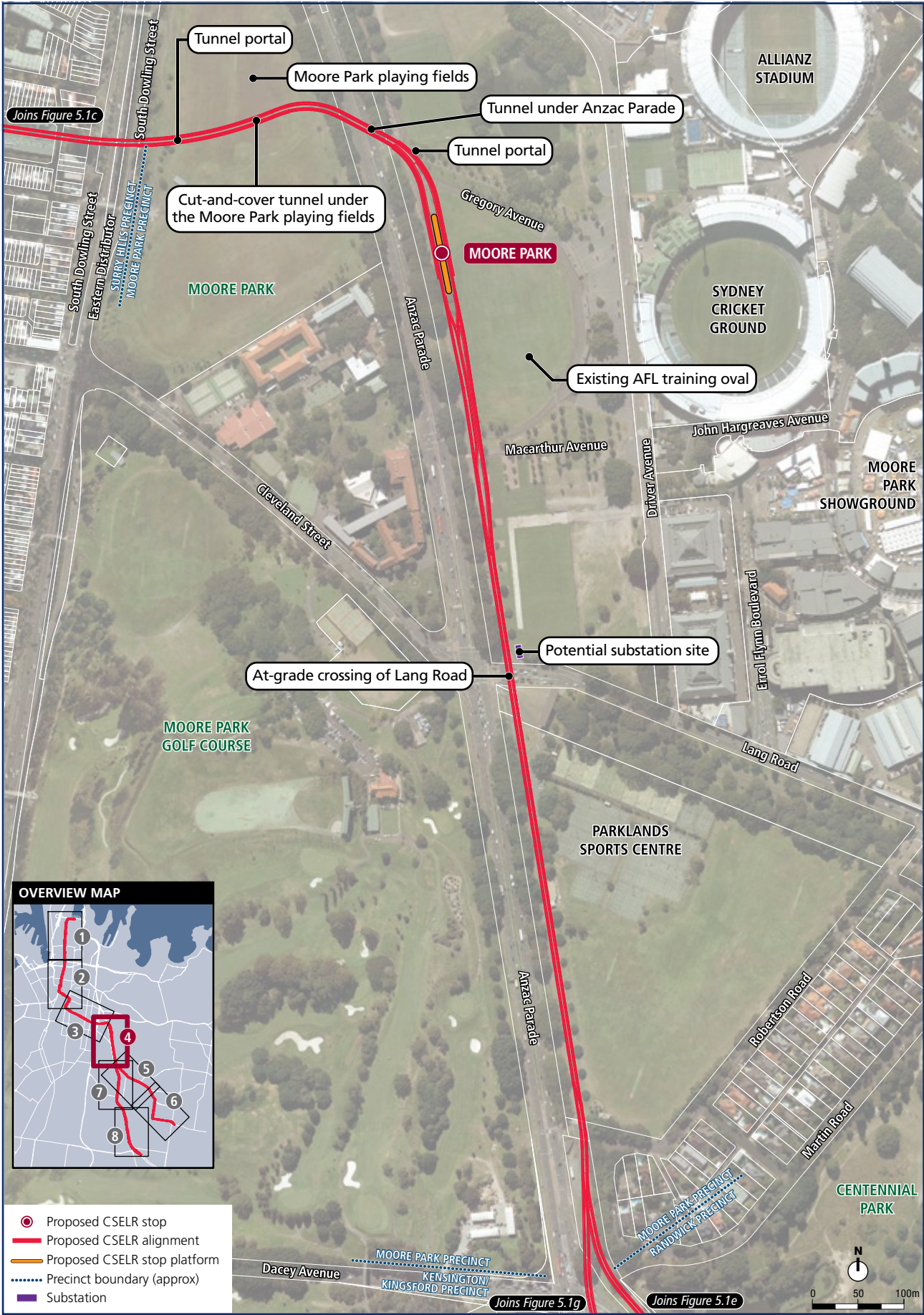


Figure 5.1e Key features of the CSELR proposal

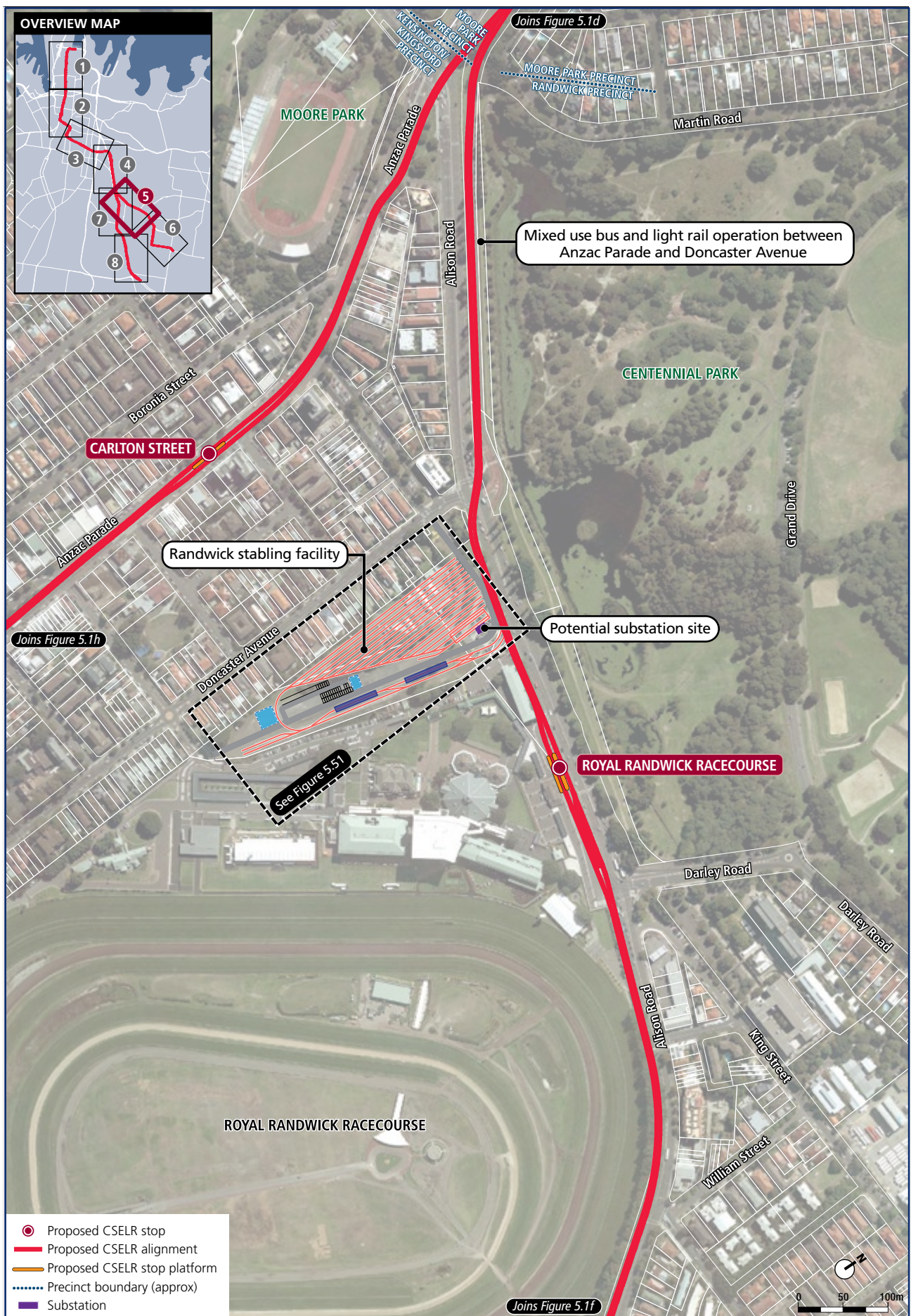




Figure 5.1f Key features of the CSELR proposal



Figure 5.1g Key features of the CSELR proposal

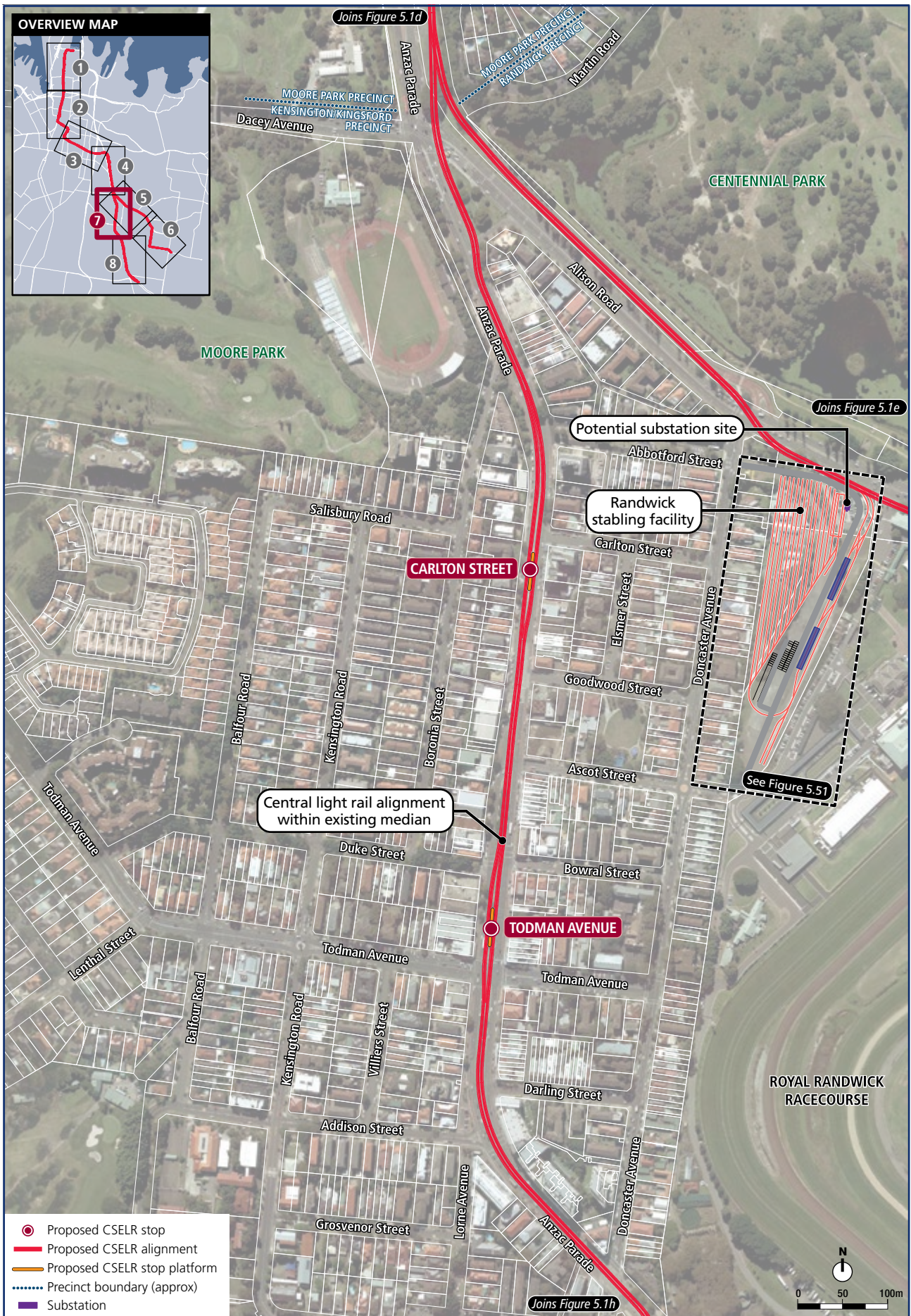
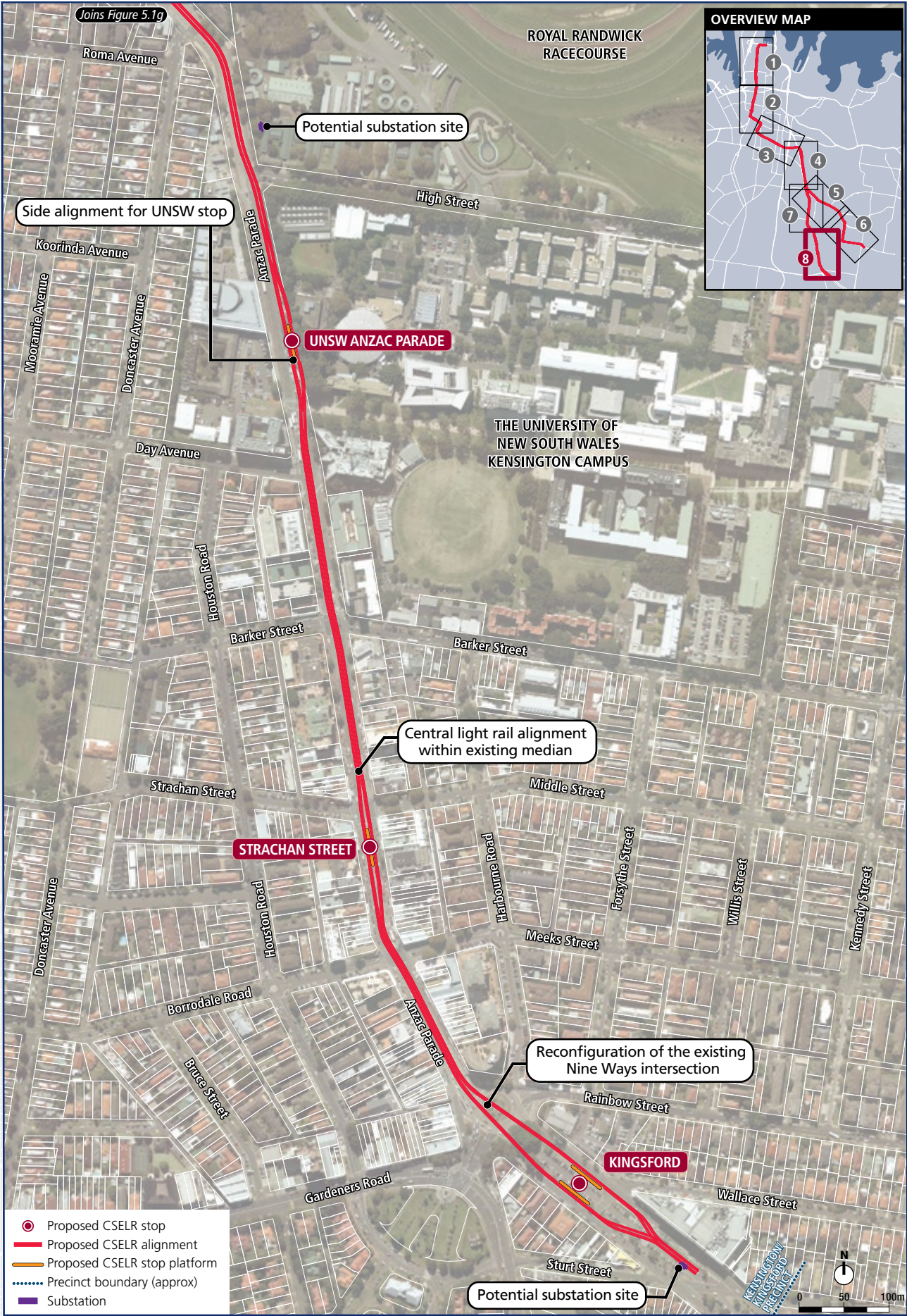




Figure 5.1h Key features of the CSELR proposal



5.2 Proposal infrastructure and design elements

The proposal scope outlined in this section is indicative and based on the current construction planning and level of design available as at August 2013. This design is continuing to develop as more engineering and assessment work is completed and would be subject to further input from stakeholders and the community. Some scope may change as the design progresses and more detail becomes available.

5.2.1 Proposed light rail alignment and track layout

The CSELR proposal would comprise a 12 kilometre route from Circular Quay to Randwick and Kingsford (13 kilometres of track including stabling and maintenance facilities). The CSELR proposal would generally be located along existing streets within the Sydney CBD and suburbs to the South East between the main Sydney CBD and Randwick and Kingsford. The route would therefore respond to the existing topography of these streets.

The proposal would typically be located at-grade utilising the existing vertical alignment of these streets and has been optimised to suit the levels of the existing road surface or to a raised level where applicable (such as within the George Street pedestrian zone). The proposal would also include construction of a new bridge over the Eastern Distributor and a tunnel under Moore Park between the southbound carriageway of South Dowling Street and the eastern side of Anzac Parade.

The CSELR proposal would include an 'inbound' track (heading towards Circular Quay stop) and an 'outbound' track (heading away from Circular Quay stop) for LRVs and a series of cross-overs and turnouts throughout the corridor. The track separation between the inbound track and the outbound track centrelines (i.e. centre of each track) would be nominally 3.2 metres. This distance would increase slightly on curves to allow for vehicle operation at these locations. The proposal corridor would generally be between approximately 6.5 metres and 13 metres in width depending on the track and stop configuration and the location of ancillary infrastructure.

An overview of the proposed light rail corridor is shown in Figures 5.1a to Figure 5.1h. The alignment within this corridor would be subject to further refinement during the detailed design phase (prior to construction). The proposed light rail alignment within each of the five key precincts is described below. The indicative vertical alignment of the proposal is shown in Figure 5.2.

City Centre Precinct

The CSELR proposal would commence at Circular Quay along Alfred Street, which would become a pedestrianised zone between George Street and Loftus Street. The alignment would travel along Alfred Street and turn south into George Street. This would include the closure of the northern end of Pitt Street and Loftus Street.

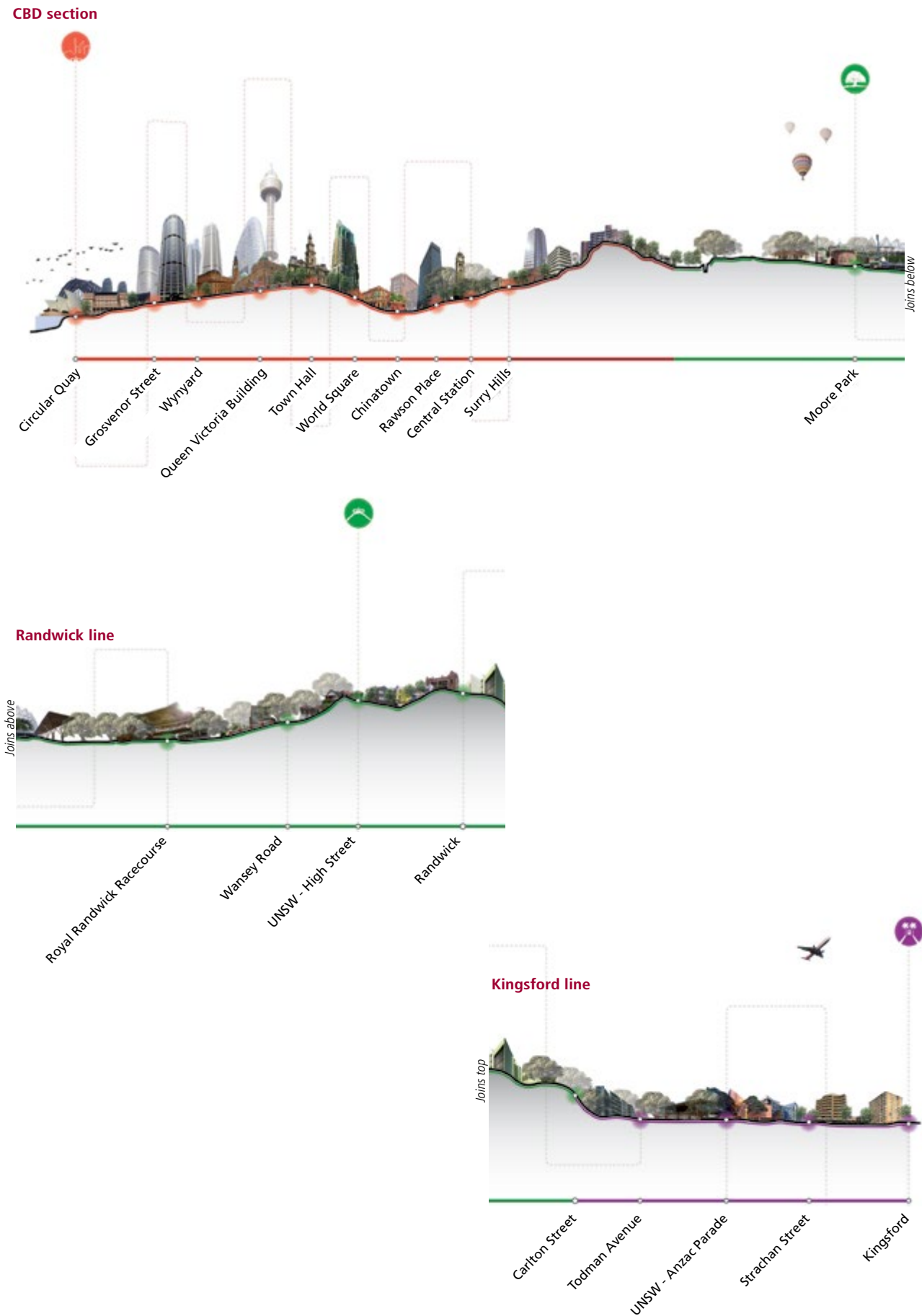
Between Alfred Street and Hunter Street there would be one traffic lane in each direction in addition to the light rail alignment in the centre of George Street (i.e. no southbound lane would be provided between Bridge Street and Hunter Street). A stop at Grosvenor Street would also be provided within this section to the south of Bridge Street.

From Hunter Street to Bathurst Street, George Street would be closed to normal traffic and would be converted to a pedestrian zone, integrating the CSELR in the centre and light rail stops at Wynyard, Queen Victoria Building and Town Hall (refer to section 5.2.3). East-west traffic movements within the pedestrianised zone would still take place under revised traffic signalling arrangements (refer to section 5.2.3). Local access to properties would be maintained as well as access for emergency vehicles. A strategy would also be developed (through further detailed design by Transport for NSW and key stakeholders) to determine levels of access required by delivery vehicles, private vehicles accessing residences and taxis at night.

From Bathurst Street, the proposal would continue south typically providing one traffic lane in each direction in addition to the light rail alignment in the centre of George Street. At Rawson Place, the proposal alignment would turn west and travel along Rawson Place and Eddy Avenue before turning south onto Chalmers Street. Two interchange stops would be provided along this section including the Rawson Place stop and Central Station stop in Chalmers Street. Rawson Place would be closed to general traffic providing only bus and light rail access along this street.



Figure 5.2 Vertical alignment of the proposal



Note: Diagram is schematic and vertical scale is exaggerated for illustrative purposes

Surry Hills Precinct

From Central Railway Station to Moore Park, the alignment would turn east from Chalmers Street and follow Devonshire Street, uphill towards a stop at Ward Park (Surry Hills stop). The route would continue east along Devonshire Street, crossing the intersection of Crown Street, travelling towards Bourke Street. After crossing Bourke Street, the alignment would continue east through the Olivia Gardens apartment complex and cross South Dowling Street (at-grade) and the Eastern Distributor via a new bridge structure (refer to section 5.2.4).

Between Chalmers Street and Crown Street, the alignment would be located on the southern side of Devonshire Street, maintaining the existing footpath. This configuration would, however, require the removal of the existing westbound traffic lane (towards Central Railway Station) and adjacent car parking on the southern side of Devonshire Street. A one-way, eastbound traffic lane would be maintained along Devonshire Street. Between Crown Street and Bourke Street, Devonshire Street would remain as a two-way street with a dedicated central light rail corridor.

The proposal would pass through the existing open space area at the eastern end of Devonshire Street and require the removal of the existing residential building known as 'Olivia Gardens' and the current Langton Centre car park.

New traffic signals for pedestrian and vehicle crossings would be provided at Marlborough Street and Bourke Street. The northern footpath along Devonshire Street would also be improved to cater for pedestrians between the Moore Park Precinct and Central Station.

Moore Park Precinct

East of Olivia Gardens and the current Langton Centre car park, the proposal alignment would cross South Dowling Street (northbound and southbound) at-grade and the Eastern Distributor via a new bridge.

Following the crossing of South Dowling Street (southbound), the route would cross the existing Moore Park playing fields in a tunnel continuing under Anzac Parade (refer to section 5.2.4), before turning south, and surfacing to the east of the existing busway. A stop at Moore Park would be provided at this location to the south of the tunnel allowing for access to the Moore Park sports stadiums and Entertainment Quarter complex.

At the intersection of Anzac Parade and Alison Road, the alignment would branch into two separate routes to Randwick and Kingsford respectively.

Randwick Precinct

At the intersection of Anzac Parade and Alison Road, the Randwick branch would travel south-east along the existing busway (to be shared between buses and LRVs) on the northern side of Alison Road between Anzac Parade and Doncaster Avenue. At Doncaster Avenue, the alignment would cross Alison Road and continue south-east along the southern side of Alison Road adjacent to the Royal Randwick racecourse before turning right into Wansey Road. Within Wansey Road, the alignment would be located on the western side climbing towards High Street. At High Street, the alignment would turn west and would be located in the centre of the street. The alignment would then turn south at the junction with Avoca Street to a stop with an interchange within High Cross Park.

Stops within the Randwick Precinct would be provided at Royal Randwick racecourse, Wansey Road, the upper campus of the UNSW in High Street, and in Belmore Road at High Cross Park.

Kensington and Kingsford Precinct

From the intersection of Anzac Parade and Alison Road, the Kingsford branch would follow Anzac Parade as a generally centre-running light rail corridor from Alison Road to the existing Nine Ways roundabout at Kingsford. This alignment would pass several major facilities, including the University of NSW (UNSW, main Kensington campus) and the adjacent National Institute of Dramatic Art (NIDA). The alignment would travel through the residential suburbs of Kensington and Kingsford, connecting these local town centres and providing stops at Carlton Street, Todman Avenue, the UNSW campus along Anzac Parade, Strachan Street, and at Kingsford.



Crossovers and turnouts

The CSELR proposal would provide a series of turnout points (a junction point where an LRV could change between two routes) and crossover points (a track crossing point that would enable an LRV to cross between two parallel tracks) along the length of the route. The layout of the proposed crossovers and turnouts would be finalised during the detailed design to provide sufficient light rail operations.

5.2.2 The CSELR stops

The CSELR proposal would include the construction of 20 stops. Each stop has been individually designed, taking into account topographical and other environmental site constraints, whilst retaining consistency with the light rail typologies identified in Chapter 4. The proposed stop names aim to be geographically accurate, recognise any historic or iconic value of place, maximise community ownership, and be consistent with Transport for NSW's naming policy. The locations of the proposed stops are shown in Figure 1.2.

Within the City Centre Precinct, the stops would be between approximately 180 metres and 450 metres apart. Within the other precincts, the distances between stops would be increased to better meet the transport requirements of these areas. Distances between stops south-east of the Central Station stop would increase to between approximately 400 metres and 1500 metres. Some stops would be provided at shorter intervals where there is currently sufficient demand to support this requirement (such as between Carlton Street stop and Todman Avenue stop).

Design of the CSELR stops

This section provides a general overview of design of the light rail stops. While individual stops would have distinctive horizontal and vertical configurations, the stop layout and integration with adjoining areas would generally provide similar features and stop facilities. Stops for the CSELR proposal would be highly visible with branding incorporated into signage and way finding. Stops in the George Street pedestrian zone would be designed to integrate with the broader urban context.

The majority of the platforms would be 45 metres long with a range of widths between 2.8 metres and 6.0 metres depending on the platform arrangement type (refer below). The Central Station stop and the Moore Park stop would have 90 metre platforms to allow for special event services between these locations. The final placement of the platforms would be confirmed during the detailed design phase of the proposal. To allow for access by passengers with limited mobility or in wheelchairs, the platforms would be constructed to be a level that is flush with the LRV floor level.

One or more pedestrian crossings would be provided across the light rail tracks at each stop. Each crossing would have a width that would allow for less mobile passengers (including wheelchairs) and other pedestrians to cross simultaneously. Paving for the platforms and paths would be non-slip. Warning tactile indicators would also be installed along the stops.

Platform arrangements

Five types of platform arrangements have been developed for various locations along the CSELR alignment. These platform types are identified and summarised below:

- *Side platform – traffic zone* — Each of the stops within the traffic zone would provide a safe barrier between the back face of the platform and the traffic lane, whilst maintaining some degree of visual transparency and permeability. These elements would be further refined during detailed design. An example of this platform type – traffic zone is provided for the Grosvenor Street stop in Figure 5.7.
- *Side platform – pedestrian zone* — The intent of all stops within the pedestrian zone is to maximise the pedestrian flow from all angles. Where possible, the stop platforms would be integrated into the surrounding footpath levels to create a seamless transition, allowing easy access and extending the available space within the street for pedestrians. An example of this platform type is provided for the Wynyard stop in Figure 5.9. As the pedestrian zone along George Street is proposed to be overhead 'wire-free', each stop in this zone may have an additional rigid overhead conductor bar for part of the platform length, allowing for the recharging of LRVs at each stop within this zone.

- *Side platform – raised traffic zone* — The raised traffic zone would provide an alternative to stops within the traffic zone, where the traffic lane adjacent to the platform is raised to be flush with the footpath and the platform. The raised traffic lane would act as a traffic calming device, and create a step free transition from the back of each platform to the traffic lane, preventing the need for a fence along the entire platform. Bollards or low walls would protect and define the traffic lane from the surrounding pavement and platform zone. An example of this platform type is provided for the Grosvenor stop in Figure 5.7.
- *Central island platform* — Central island platforms would be provided at each interchange and special event stop and at the World Square stop, the Surry Hills stop, and the three stops along Anzac Parade. These stops are proposed to be used where the street is limited in width, and a central island would allow for retention of an adjacent traffic lane(s), where possible. Islands would have a central spine that supports a wider canopy covering both sides of the central platform. An example of this platform type is provided for the World Square stop in Figure 5.15.
- *Interchange* — Each of the seven interchange stops would differ in their particular requirements such as the extent of shelter required, the need to respond to surrounding site conditions and the dimensions of the canopy required to cover the platforms. However, the design of each of the interchange stops would provide a consistent style and arrangement across all seven interchange stops. The Rawson Place stop would, however, include a larger canopy than the other stops. Each interchange canopy design would be adapted to suit each location during detailed design.

The final type of platform arrangements would be determined during detailed design.

Access to the stops

Access to each stop has been an important consideration in the development of the stop design, to ensure a customer-focused service. Particular attention has been paid to providing passengers with convenient access to the light rail network and to integrate the light rail network with the other transport modes including heavy rail, buses and ferries.

The *Disability Standards for Accessible Public Transport 2002* (DSAPT) is the main document that provides a set of minimum technical requirements and operational guidelines by which public transport infrastructure and vehicles can comply with the *Disability Discrimination Act 1992* (DDA). Access to all of the stops proposed would comply with the DDA, DSAPT, the DDA Access Code 2010, as well as the relevant provisions of the *Building Code of Australia*.

Each stop would be fully accessible to persons with a disability and other less mobile persons. The CSELR proposal would also allow customers to board with a seeing-eye dog, a dog for the hearing impaired or an authorised disabled person's companion animal at all times. Where possible, the levels along the outer edge of the platforms within the pedestrian zone along George Street would tie into the existing footpath levels, enabling people to access from both ends of the platform and along the outer edge.

For stops located within the road corridor, access ramps have been designed with a gradient of five per cent or less to enable a more gentle approach gradient to the stop. Where the stop is constrained, the ramps would be provided at a gradient of 1 in 14 (approximately seven per cent), with mid landings as required by AS1428.1 (*Design for access and mobility – General requirements for access – New building work*) and AS1428.2 (*Design for access and mobility – Enhanced and additional requirements – Buildings and facilities*).

At one stop along the route (Moore Park stop), lift access would also be provided to the central island platform to allow separated entry/exit from the stop in order to appropriately manage event passenger flows. The lifts would be required to comply with the relevant Australian Standards including accessibility and circulation requirements. At-grade access to this stop would also be available during normal operation outside of special event periods.

The exact location and detail of the access components at each stop (such as the final placement of ramps, lifts and stairs) would be subject to further detailed analysis during the detailed design phase of the proposal.



Stop facilities

Each stop would provide a number of typical facilities including signage, stop furniture, and bicycle parking. These are described in detail below. Similar facilities would be provided at key bus interchanges such as Rawson Place, Randwick and Kingsford.

Signage

The CSELR would incorporate signage that meets the standards for light rail operators in addition to applying consistent branding codes for bus, train, ferry and light rail in accordance with Transport for NSW requirements. The final branding, wayfinding and signage designs would be developed during the detailed design of the proposal and would integrate with the existing overall urban design and public domain of the CBD and South East Sydney region.

Signage would generally include the following items on poles or totems located on and around the stop platform or fixed to shelter structures:

- wayfinding to light rail stops in addition to interchanges with other transport modes (such as train stations or ferry wharfs)
- statutory warning signs
- customer information including:
 - stop name
 - real time service information
 - fare information
 - network map
 - locality map
 - local public transport information.

Stop furniture

Furniture at each stop would generally include seating within a shelter, OPAL ticket machine readers, six lean posts, and general waste rubbish bins.

The final design quantities and materials for the stop furniture at each precinct would be developed during detailed design. This would be undertaken in consultation with the requirements of the relevant local councils and would then be applied to elements such as the furniture elements, vertical screens and shelter canopies.

Each of the platform elements would be designed to be modular (including the canopy, vertical elements, central 'pod' seating and signage elements). This would allow for easy maintenance and replacement of individual elements, and would permit the module to respond uniquely to each location by adding and subtracting elements depending on the levels of visual transparency, connectivity, and shelter required. This approach would also allow for shelter expansion to respond to increased patronage in the future, if required.

Each stop would provide weather protection. The shelter at each stop would provide for both standing and seating space including space for wheelchairs and prams. Across each of the separate precincts, modular canopy and shelter forms would remain similar, assisting to provide consistency across the wider CSELR proposal.

The shelters would typically comprise a steel frame canopy structure with either a glazed or solid panel wall and roof to provide weather protection on each platform. Most stops would be designed to incorporate smaller scale canopies over the platform. The Rawson Place stop would be designed to provide a larger unified canopy across the multiple platforms at this location.

A typical example of a stop shelter design is provided in Figure 5.3. This design would be subject to detailed design refinement.

Figure 5.3 Typical artist's impression of a 'civic style' canopy design for stop shelter



Source: Hassell, 2013

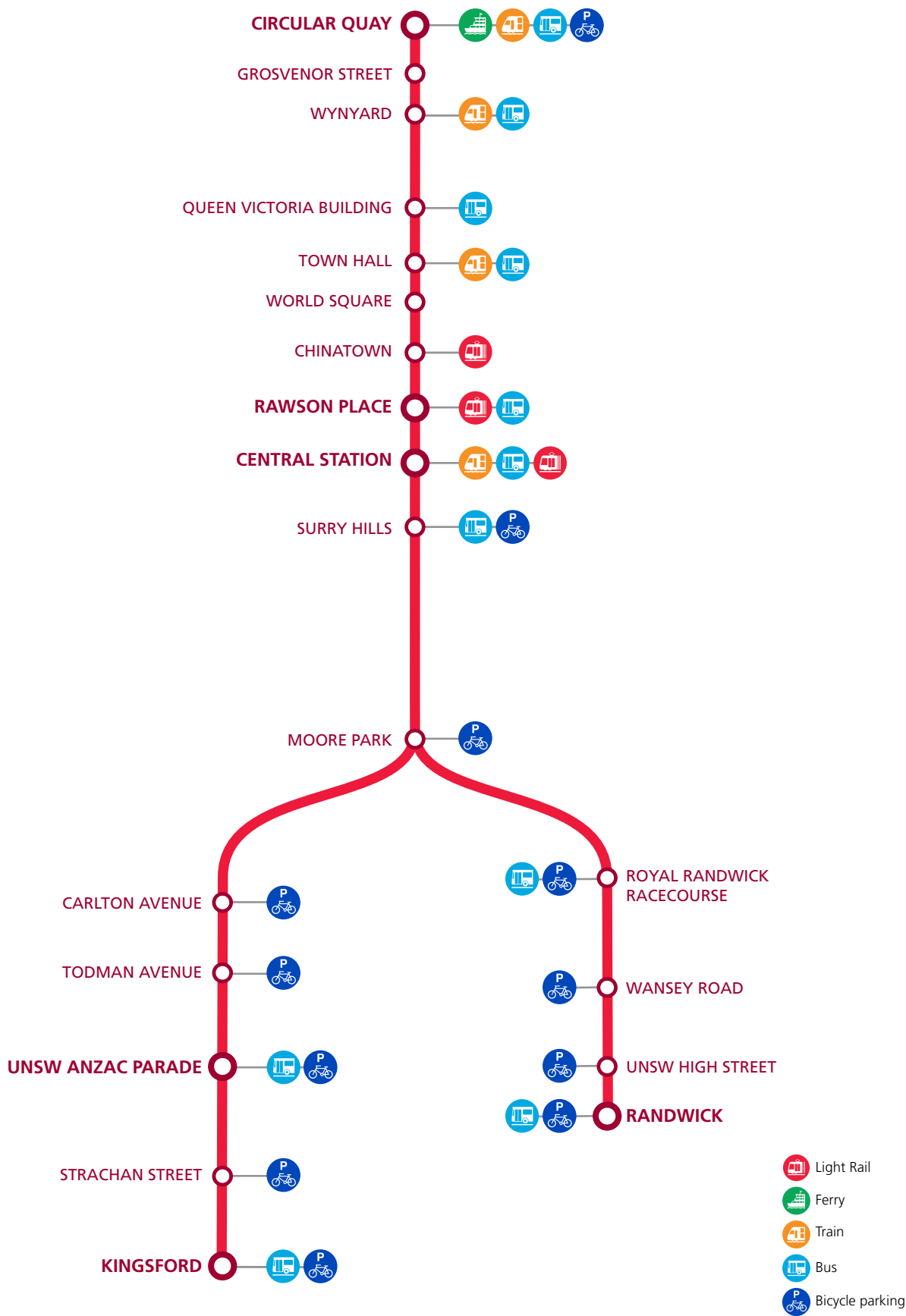
Note: This is an indicative CBD stop shelter

Bicycle parking facilities

Secure bicycle parking facilities would be provided at the proposed Randwick and Kingsford stops. Additionally, 'u-rail' type bike parking facilities are also proposed to be provided at each of the stops outside of the City Centre Precinct in addition to the Circular Quay stop. Convenient bicycle parking facilities would be provided near platforms. These locations would be determined during detailed design. Figure 5.4 summarises the proposed rail and bus interchange locations and bicycle parking facilities at each light rail stop.



Figure 5.4 Key CSELR interchange facilities



5.2.3 Overview of each stop

City Centre Precinct

Circular Quay stop

The Circular Quay stop would be the northernmost stop of the CSELR proposal and would be located in Alfred Street between Pitt Street and Loftus Street. This stop would serve as the main northern CBD interchange between a range of modes of transport including heavy rail, bus, ferry and taxi. It would also provide access for the area's tourist, leisure and employment zones.

The Circular Quay stop would include three terminating tracks located on Alfred Street between Pitt and Loftus streets, with one approximately 4.6-metre wide central island platform and one approximately 3.2 metre wide side platform. The design of the Alfred Street precinct would tie into the existing large pedestrianised zones around the Tank Stream Fountain, the area to the immediate south of the light rail stop and the forecourt of Customs House. This would provide access to a range of surrounding land uses and efficient interchange with buses and ferries at this location.

Alfred Street would be closed to traffic between George Street and Loftus Street, with a traffic turning circle provided at the northern end of Pitt Street and Loftus Street. Further traffic investigation would be undertaken during detail design to assess the traffic network around Circular Quay.

An indicative section of the stop is shown in Figure 5.5 and an indicative plan of the stop is shown in Figure 5.6.

Figure 5.5 Indicative section – Circular Quay stop

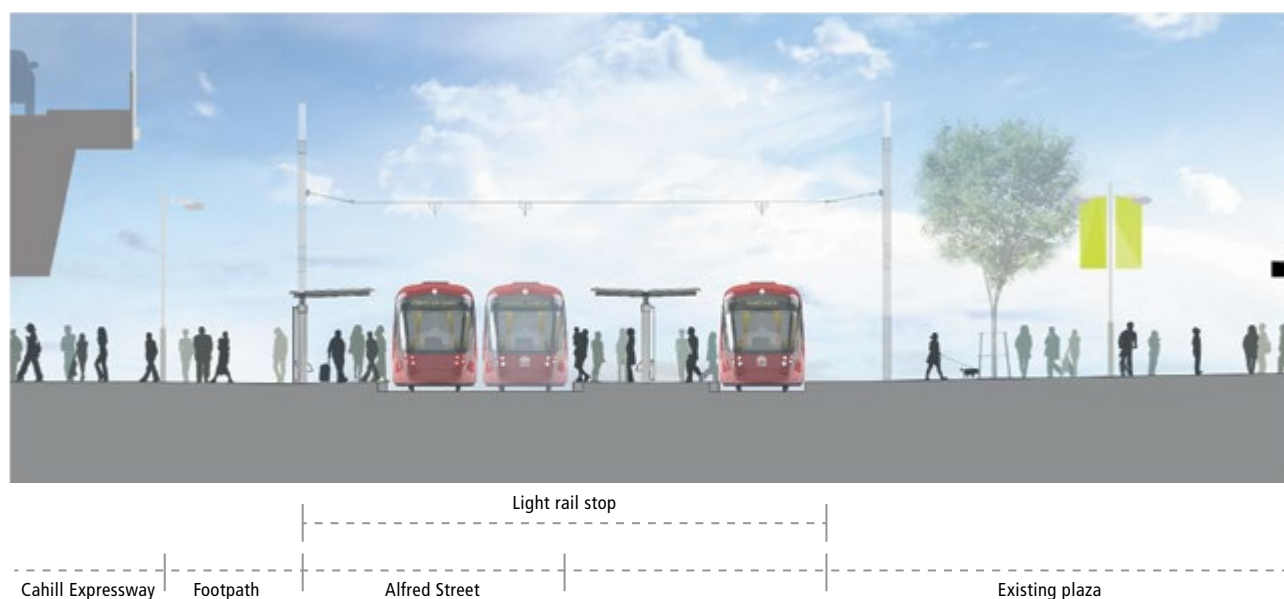
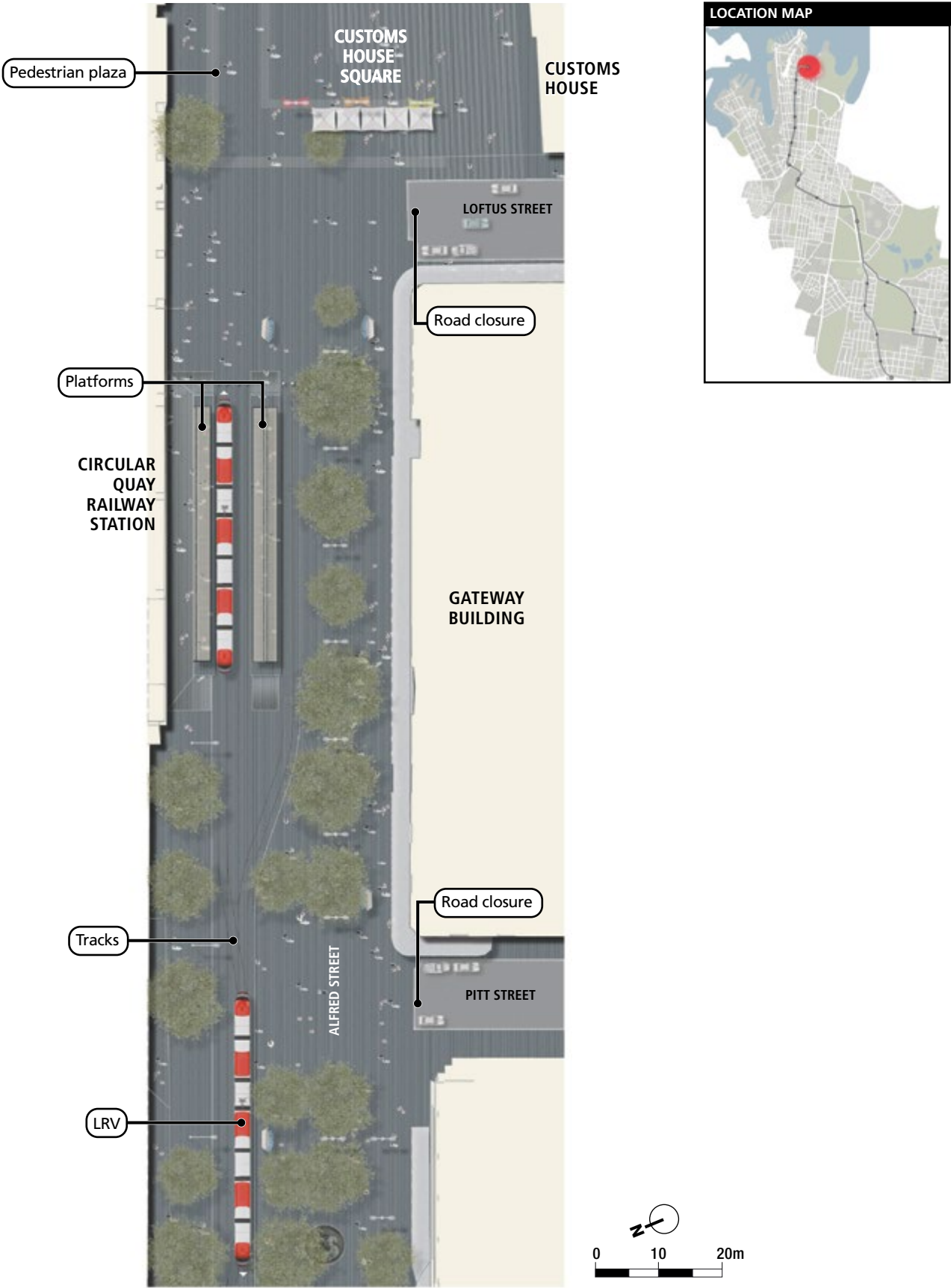




Figure 5.6 Indicative plan – Circular Quay stop



Grosvenor Street stop

The Grosvenor Street stop would be located between Bridge Street and Jamison Street and would primarily serve the northern CBD catchment including the financial district.

The Grosvenor Street stop would include two 3.2-metre wide, 45-metre long side platforms. The western side platform would provide a traffic-facing platform adjacent to a northbound traffic lane along George Street. The eastern side platform would provide an interface with the existing pedestrian footpath, which would be widened to improve pedestrian amenity around the Grosvenor Street stop.

The platforms would be staggered horizontally to accommodate new six metre wide pedestrian crossings at either end of the stop. Due to the street gradient of George Street in this area, and to accommodate a maximum cross fall of approximately 2.5 per cent on the southbound platform, a step along the outer edge of the western side platform would be provided for access to the adjoining footpath.

An indicative section of the stop is shown in Figure 5.7 and an indicative plan of the stop is shown in Figure 5.8.

Figure 5.7 Indicative section – Grosvenor Street stop

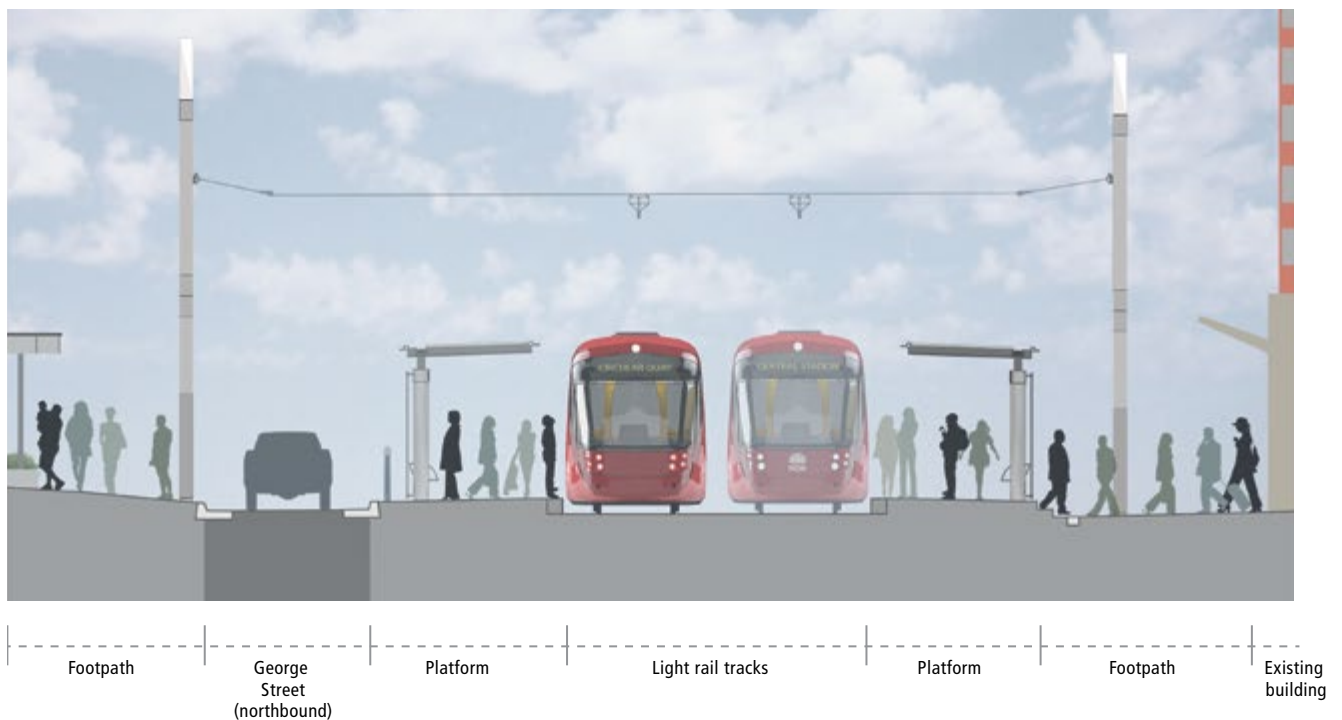
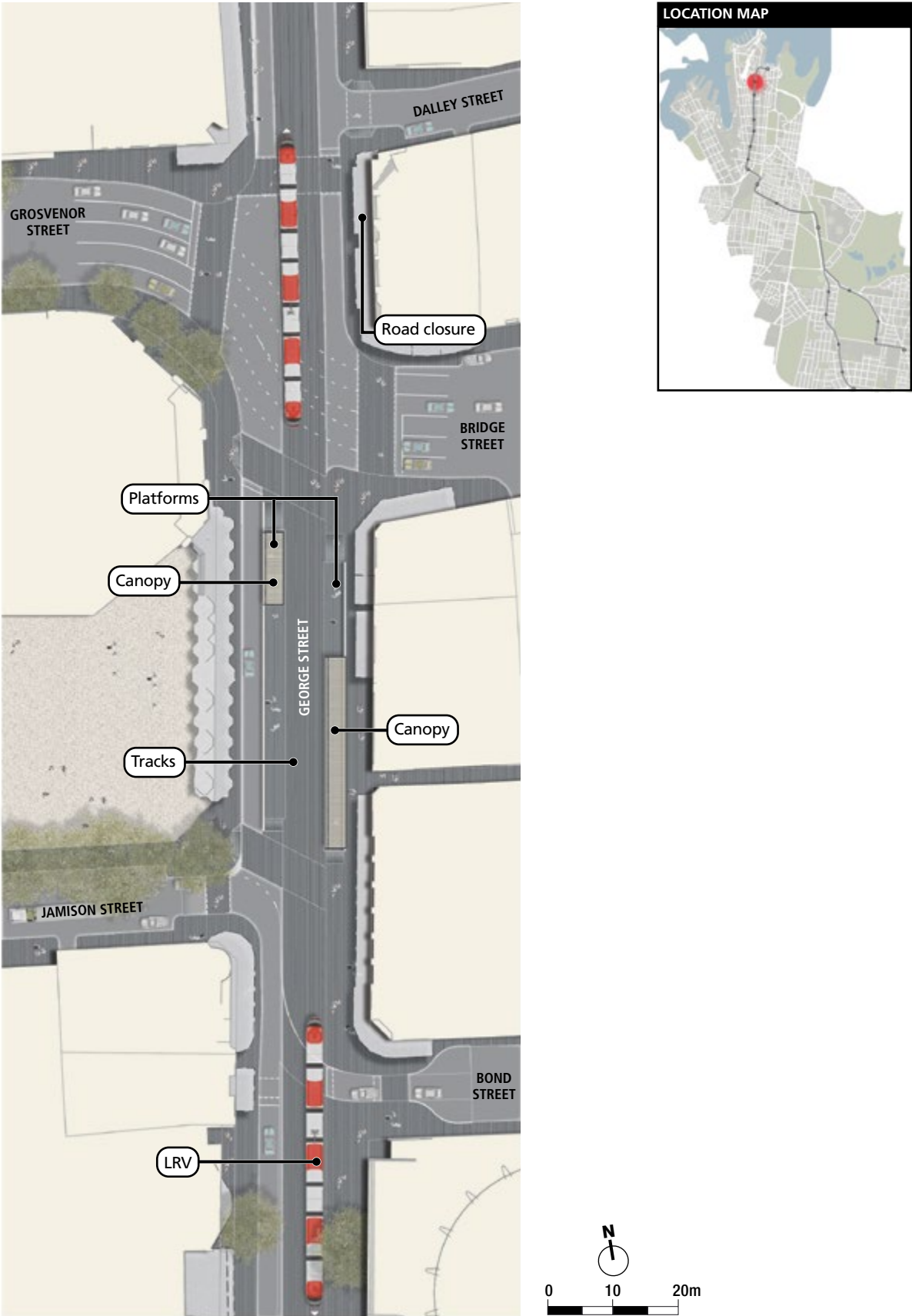




Figure 5.8 Indicative plan – Grosvenor Street stop



Wynyard stop

The Wynyard stop would be located within the George Street pedestrian zone (refer to section 5.2.3), adjacent to the main entrance to the Wynyard Railway Station on George Street. This stop would serve as an interchange with the northern bus interchange currently located on Carrington and York streets as well as Wynyard Railway Station.

Wynyard stop would be the northernmost stop within the proposed pedestrian zone, extending along George Street from Hunter Street through to Bathurst Street. The Wynyard stop would consist of two approximately 3.2-metre wide, 45-metre long side platforms that would each tie into the proposed George Street pedestrian zone.

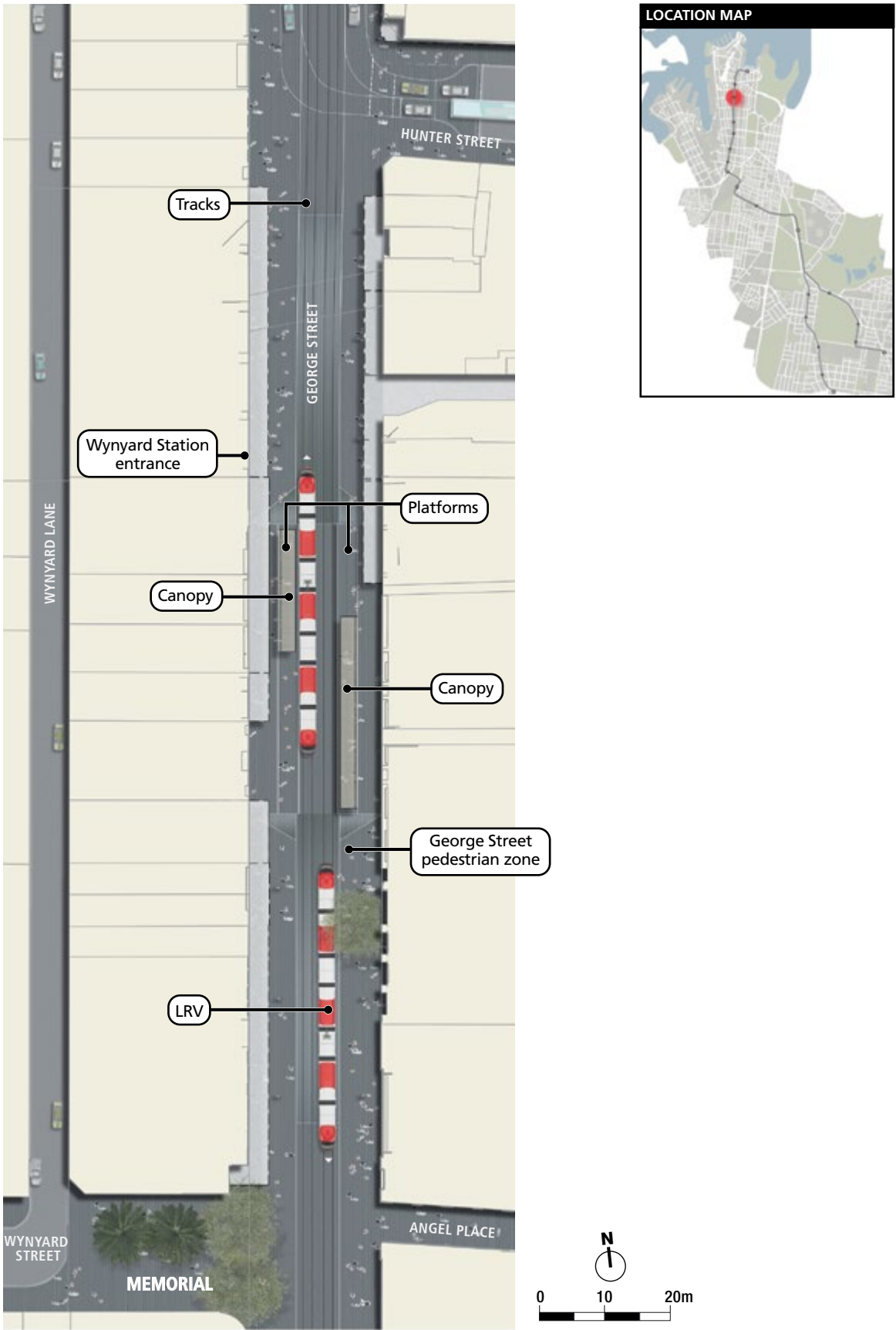
An indicative section of the stop is shown in Figure 5.9 and an indicative plan of the stop is shown in Figure 5.10.

Figure 5.9 Indicative section – Wynyard stop





Figure 5.10 Indicative plan – Wynyard stop



Queen Victoria Building stop

The Queen Victoria Building stop would be located within the George Street pedestrian zone adjacent to the northern entrance of the Queen Victoria Building (QVB) on Market Street. This stop would service the retail core of the city as well as employment, leisure and tourist zones.

The Queen Victoria Building stop would consist of two approximately 3.2-metre wide, 45-metre long side platforms that would each tie into the proposed George Street pedestrian zone. The existing pedestrian crossings between the northern and southern sides of Market Street would be maintained as part of the design of the stop.

This stop location is defined by the heritage-listed QVB. During detailed design, the impact of the new platform infrastructure on key view corridors would be further considered. The extent of shelter at this stop would also be considered in the context of the extent of surrounding shelters (from adjacent buildings).

An indicative section of the stop is shown in Figure 5.11 and an indicative plan of the stop is shown in Figure 5.12.

Figure 5.11 Indicative section – Queen Victoria Building stop

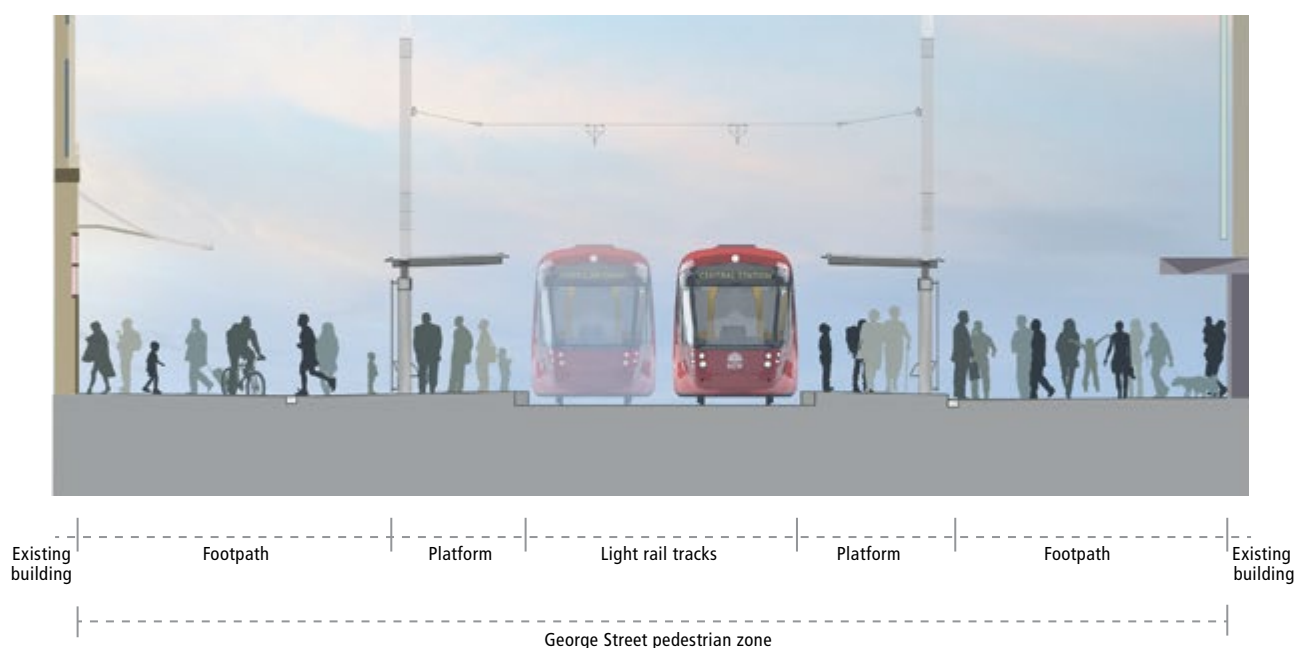
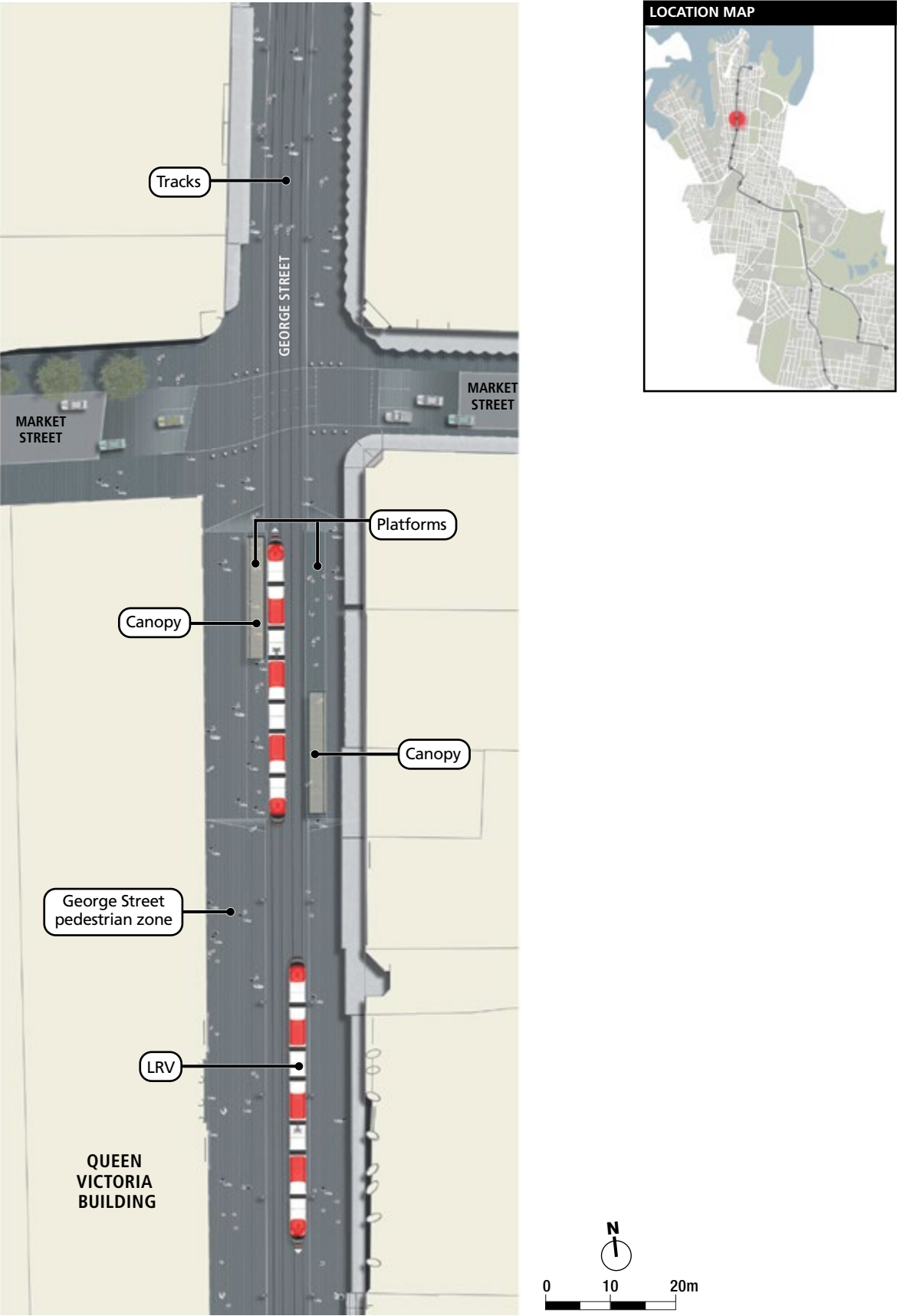




Figure 5.12 Indicative plan – Queen Victoria Building stop



Town Hall stop

The Town Hall stop would be located at the southernmost extent of the proposed George Street pedestrian zone between Park Street and Bathurst Street, in front of St Andrews Cathedral and Sydney Town Hall. The Town Hall stop would service the proposed bus interchange located on Park Street (to the north of the stop) as well as the surrounding retail centres, Town Hall Railway Station, other employment and leisure zones.

The Town Hall stop would consist of two approximately 3.2-metre wide, 45-metre long side platforms that would each tie into the proposed George Street pedestrian zone. The existing pedestrian crossings between the northern and southern sides of Bathurst Street would be maintained as part of the design of the stop. It is the design intent of this stop that built platform infrastructure is kept as transparent and minimal as possible to maintain views through the square to both St Andrews Cathedral and the Town Hall.

The Town Hall stop would signify the southern extent of the proposed George Street pedestrian zone extending from Hunter Street through to Bathurst Street. The stop location would provide accessible connections to Town Hall Railway Station and would avoid traffic impacts south of Bathurst Street outside the proposed George Street pedestrian zone. The existing north-south pedestrian crossings at Bathurst Street would be maintained to allow pedestrians to access the Town Hall stop and the George Street pedestrian zone.

An indicative section of the stop is shown in Figure 5.13 and an indicative plan of the stop is shown in Figure 5.14.

Figure 5.13 Indicative section – Town Hall stop

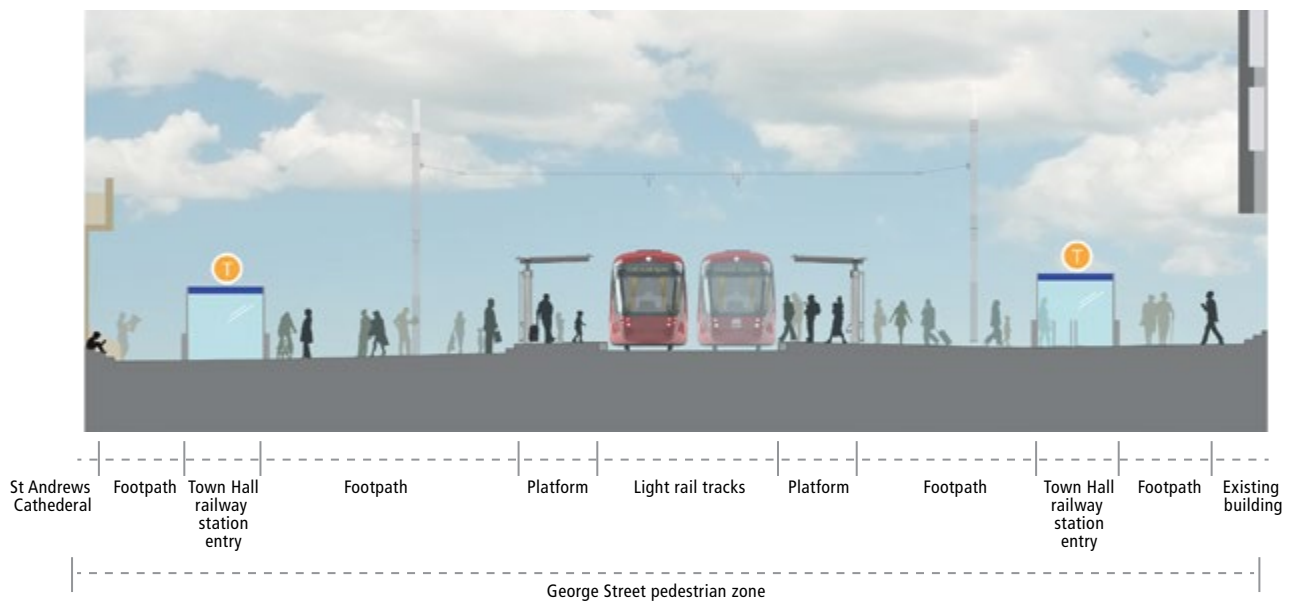
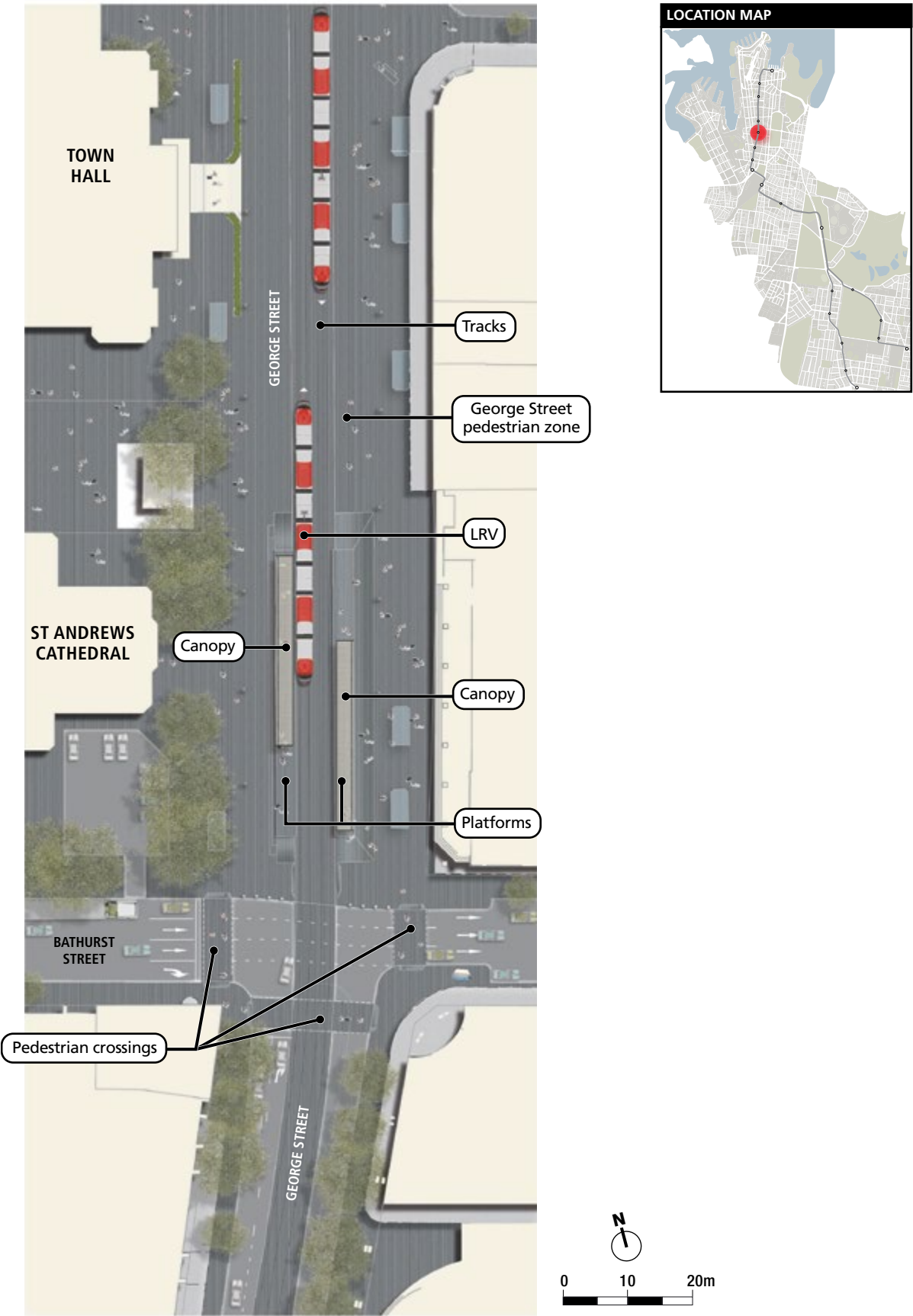




Figure 5.14 Indicative plan – Town Hall stop

Figure 5.14 Indicative plan - town Hall stop



World Square stop

The World Square stop would be located to the north of Liverpool Street servicing the cinema entertainment and retail precinct, the northern section of Chinatown, and the World Square complex of restaurants, commercial towers and residential apartments.

The World Square stop would consist of a single, approximately 4.4-metre wide, 45-metre long central island platform within the centre of George Street, approximately 20 metres to the north of the intersection of George Street and Liverpool Street. The existing pedestrian crossings of George Street at Liverpool Street and Central Street (to the north of the proposed stop) would be maintained as part of the design of the stop, to allow pedestrians to access the island platform.

The existing street gradient means that street regrading would be necessary to accommodate a fully DDA compliant stop. The light rail tracks would be raised at the Liverpool Street and George Street intersection, to minimise the extent of cut into the existing road level. The island platform and tracks would be at an approximately 2.5 per cent gradient, would be cut into the existing road level up to approximately 330 millimetres, then tie back into existing street levels.

Northbound and southbound traffic lanes adjacent the stop would remain at their existing levels, and traffic barriers would be provided to maintain safe conditions for vehicles and pedestrians.

An indicative section of the stop is shown in Figure 5.15 and an indicative plan of the stop is shown in Figure 5.16.

Figure 5.15 Indicative section – World Square stop

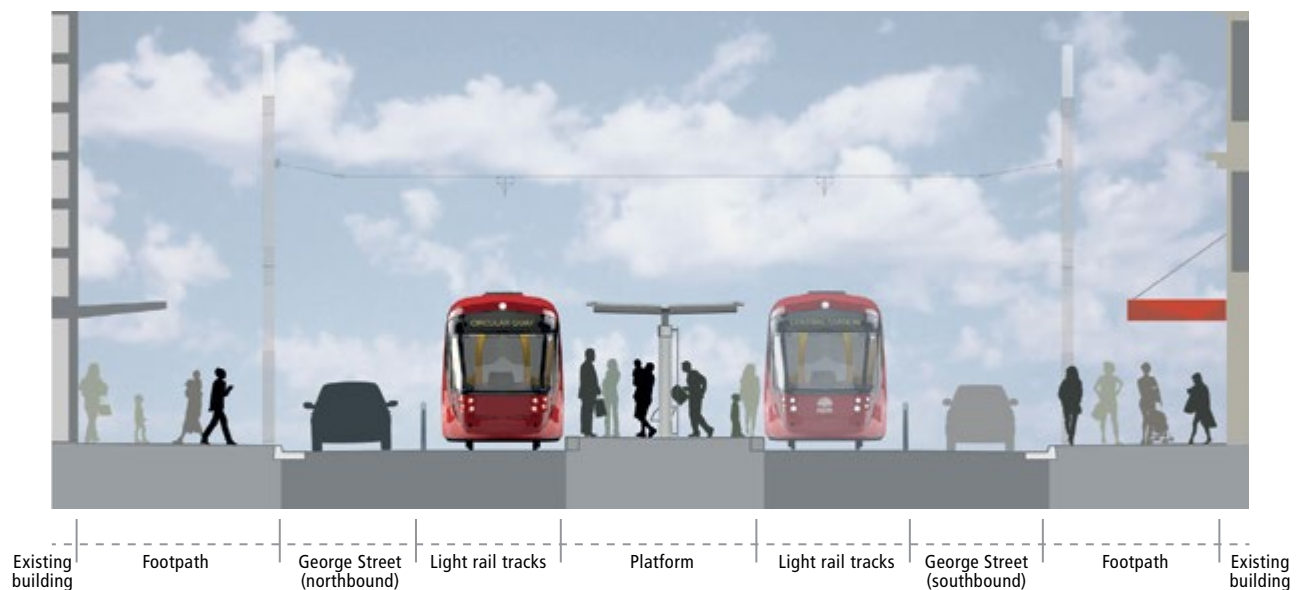
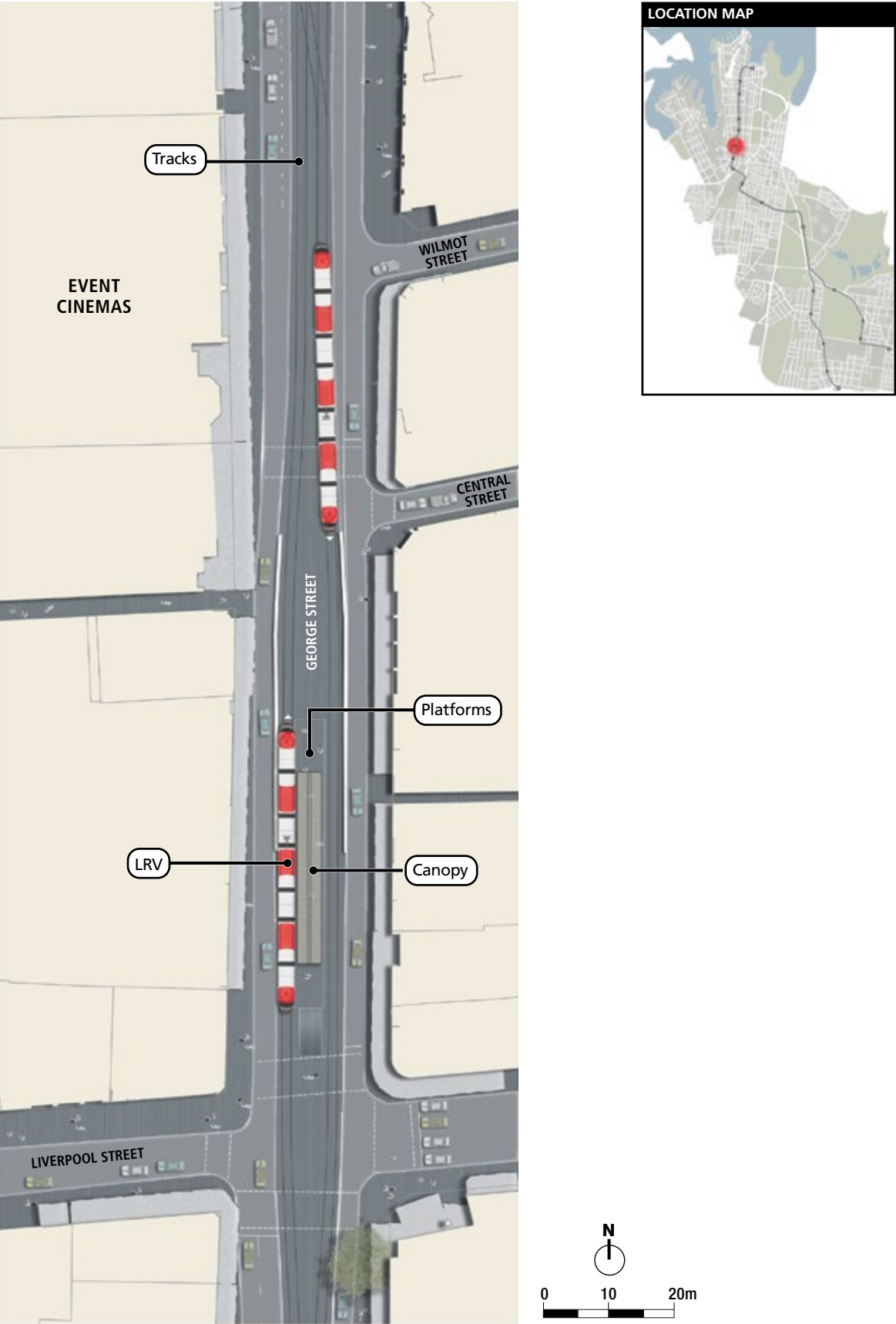




Figure 5.16 Indicative plan – World Square stop



Chinatown stop

The Chinatown stop would be located on George Street to the north of Campbell Street. This stop would provide an opportunity to interchange between the CSELR proposal and the existing Inner West Light Rail stop at Capitol Square. The stop would also service the southern CBD, Chinatown and Darling Harbour.

The Chinatown stop would include two approximately 2.8-metre wide, 45-metre long side platforms. Both the eastern and western side platforms would provide traffic-facing platforms adjacent to separated northbound and southbound traffic lanes along George Street. Pedestrian crossings would be provided at both the northern and southern ends of the platform to allow pedestrians and passengers to access each side of George Street.

An indicative section of the stop is shown in Figure 5.17 and an indicative plan of the stop is shown in Figure 5.18.

Figure 5.17 Indicative section – Chinatown stop

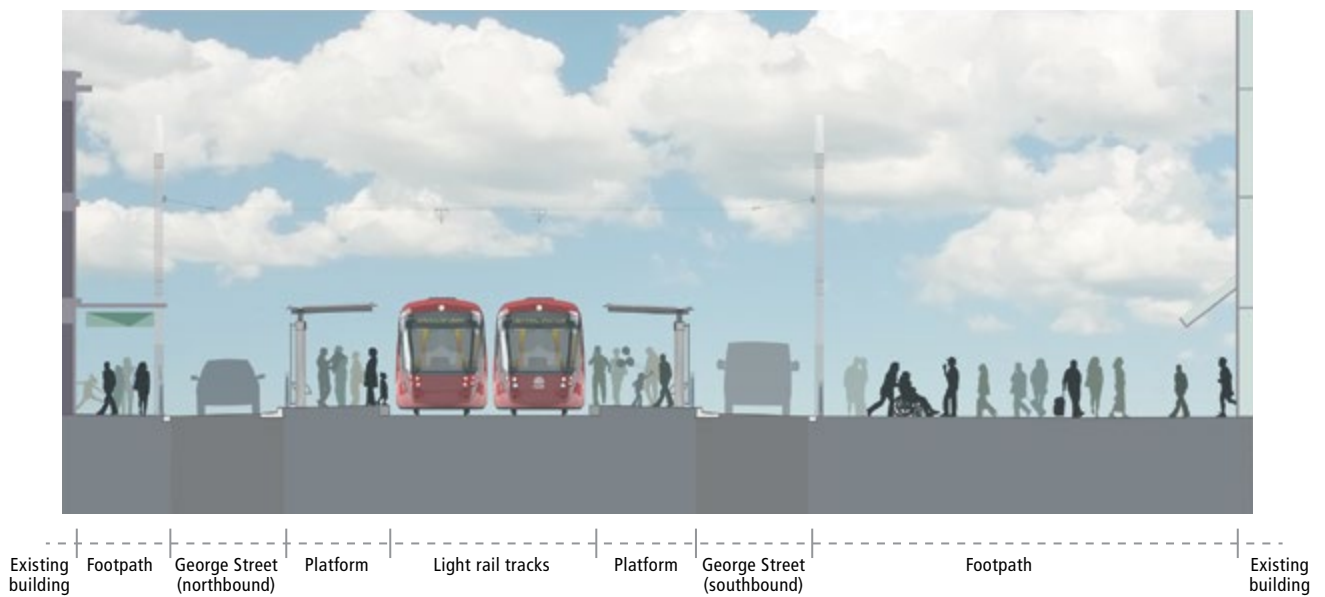




Figure 5.18 Indicative plan – Chinatown stop

