construction activities would not alter the on-street parking demands. Construction vehicles would be contained within the Ward Park worksite and staff would be utilising potential parking facilities within Moore Park and Royal Randwick Racecourse worksites.

To facilitate the retail and commercial businesses on Devonshire Street, time-restricted loading zones could be provided on Holt Street, Waterloo Street, Riley Street. These would effectively replace the displaced loading zones from Devonshire Street and would facilitate the requirement of the businesses located on the northern side of Devonshire Street between Holt Street and Riley Street.

4.3.5. Public Transport Access

Due to the right turn ban at the intersection at Baptist Street and Cleveland Street, the inbound bus route 355 currently utilises Crown Street, Devonshire Street and Bourke Street to enter the eastbound lanes of Cleveland Street. During construction works, although an eastbound lane would be open between Crown Street and Bourke Street, the swept paths requirements of large vehicles, such as buses, cannot be maintained for right-turn movements from Crown Street south to Devonshire Street.

Two alternate route options could be considered for bus route 355 by TfNSW during construction works along Devonshire Street, as shown in Option A (Figure 4-30) and Option B (Figure 4-31).

Figure 4-30: Bus Route 355 Diversion Option A

Figure 4-31: Bus Route 355 Diversion Option B

Option A shown in Figure 4-30 proposes to divert the bus route via Lansdowne Street and Marlborough Street to enter Cleveland Street, west of Crown Street. The roads along this route are generally local streets with residential developments and captures portions of the existing catchment area without deflecting too far the existing route.

Option B shown in Figure 4-31 shows both diversions for inbound and outbound routes. The inbound route is proposed to be diverted via Redfern Street and Chalmers Street whereas the outbound route would travel directly between Cleveland Street and

Elizabeth Street. Option B is major departure from the existing bus route as it would not service the developments adjacent to Phillip Street and Bourke Street.

Both Options A and B are viable temporary options which would need further consultation with Council and State Transit Authority to discuss potential operational and community impacts.

4.3.6. Pedestrian and Cycle Access

Existing pedestrian footpaths along Devonshire Street would be retained at all times and protected from the worksite with barrier protection. The only sections where this is not possible would occur when construction works are undertaken adjacent to Ward Park, at which point pedestrians could be diverted to the northern footpath.

During intersection staging works, pedestrian crossing facilities would be maintained either by providing an alternate crossing opportunity adjacent to the workzone or maintaining the existing pedestrian facilities.

Marked crossings are located adjacent to Steel Street, Riley Street and High Holburn Street along Devonshire Street. Given the proximity of these locations and the low traffic environment during construction, these crossings would be consolidated to a single location. The new pedestrian crossing would be located adjacent to Riley Street, to the west of Ward Park.

Devonshire Street is currently recognised as an on-road cycle route with intermittent signposting of cycles. During construction, as per the private vehicles, cyclists would be prohibited from accessing the road pavements. Cyclists could be directed to the alternative parallel east-west routes of Cooper Street and Arthur Street.

Arthur Street is currently recognised as an on-road cycle route by the City of Sydney, and Cooper Street a former on-road cycle route. The segregated Bourke Street off-road cycleway provides a suitable alternative route for access to the southern CBD via Campbell Street.

To facilitate the cycle route along Arthur Street and Cooper Street, improvements to the connection at Riley Street would need to be implemented as part of the early works to ensure a clear through path. Line marking, kerb ramps and directional signage along the route would need to be installed where required to further reinforce the cycle route.

During construction, the reconfiguration of Randle Street will allow for two-way cycle movements, providing a connection from Cooper Street through to Prince Alfred Park (inner south) and Belmore Park (southern CBD).

4.3.7. Emergency Vehicle Access

It is intended that emergency vehicles would utilise the construction vehicle paths within the worksites when attending to emergencies within Devonshire Street. Access to the block would be facilitated by traffic controllers to the location of the emergency. However during certain loading/unloading and construction activities a clear path through the length of the block to permit through travel cannot be provided. At these times emergency services would be advised in advance of the required alternate routes.

4.3.8. Taxis

As present, Taxi zones exist along Devonshire Street, between Chalmers Street and Elizabeth Street, as well as on Chalmers Street, adjacent to the Foveaux Street and Elizabeth Street intersection. With the closure of Chalmers Street and Devonshire Street, these zones could be consolidated into one location adjacent to Central Station in Chalmers Street, south of Devonshire Street, as per the end state.

4.4. Moore Park (Anzac Parade, North of Alison Road)

4.4.1. Construction Worksites and Access

The construction worksites within the Moore Park precinct consist of the following:

- Anzac Parade tunnel;
- Moore Park stop;
- Moore Park cut and cover; and
- Work compound within Moore Park

The construction of the Moore Park and Anzac Parade tunnels will require a facility with an estimated area of 5,625 square metres for waste water, laydown and storage, plant and equipment and a bentonite plant for the construction tunnels. The facility will be required to be located close to the tunnel construction works and will be initially located on the western side of Anzac Parade and then relocated to the eastern side of Anzac Parade as construction progresses.

A site compound of approximately 1,500 square metres include car parking for 60 cars is also proposed to be located in the Moore Park East precinct or at or at Royal Randwick Racecourse.

A laydown area of approximately 12,000 square metres is also identified within Moore Park, south of the Parklands Sports Centre and on the eastern side of the existing busway.

The proposed worksite areas are shown in Figure 4-32.

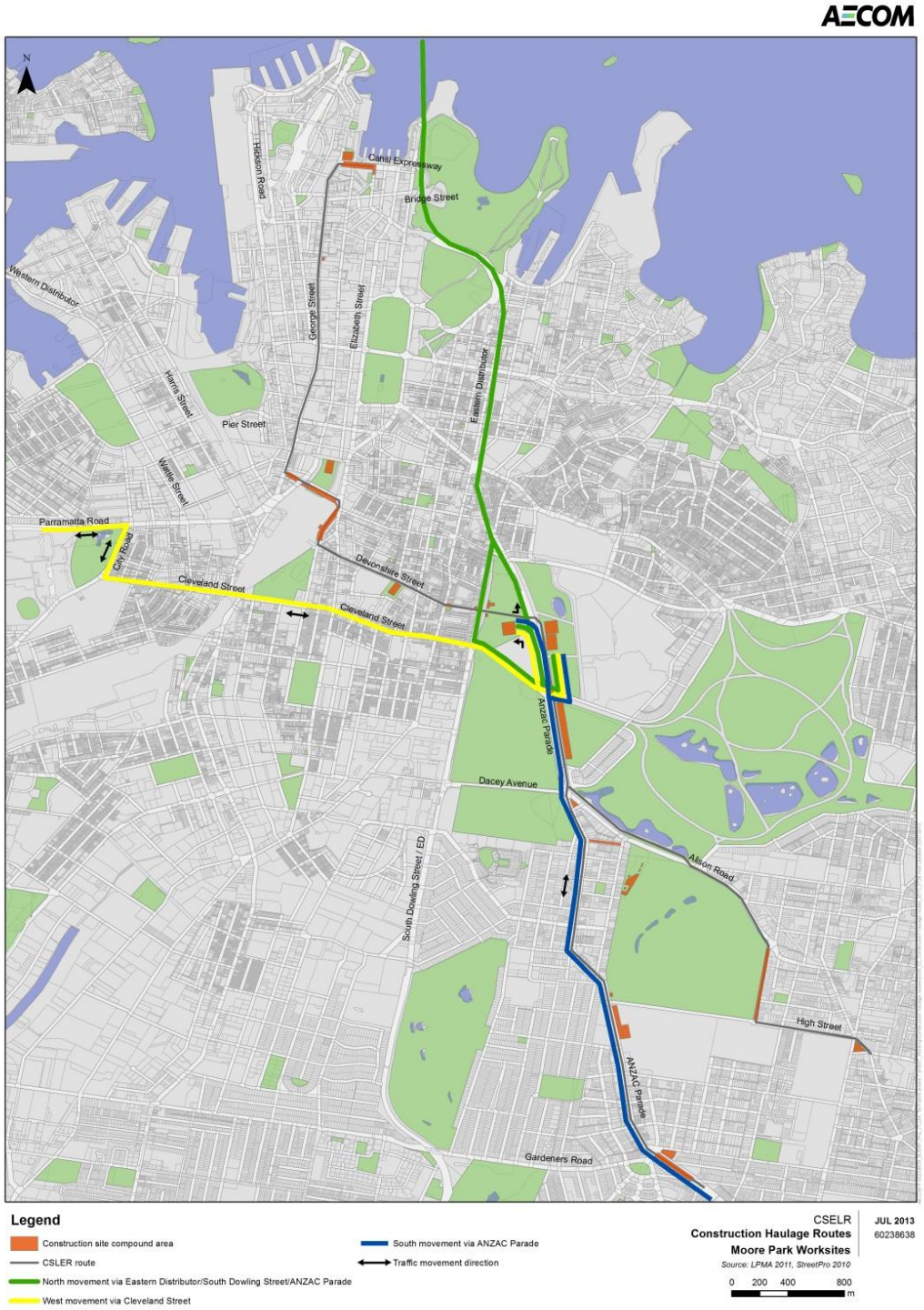
Throughout the construction phase, the existing capacity of Anzac Parade, north of Alison Road, would be maintained to accommodate three lanes in each direction of travel. However, the bus lanes within Moore Park, located to the east of Anzac Parade would be affected during the construction phase, as barriers would need to be positioned within the bus lane to separate the light rail construction and movement of buses on the adjoining lane.

Figure 4-32: Locations of Proposed Work Compounds

4.4.1.1. Haulage Route

The haulage route for construction vehicles accessing Moore Park is shown in Figure 4-33.

Figure 4-33: Moore Park Construction Haulage Route



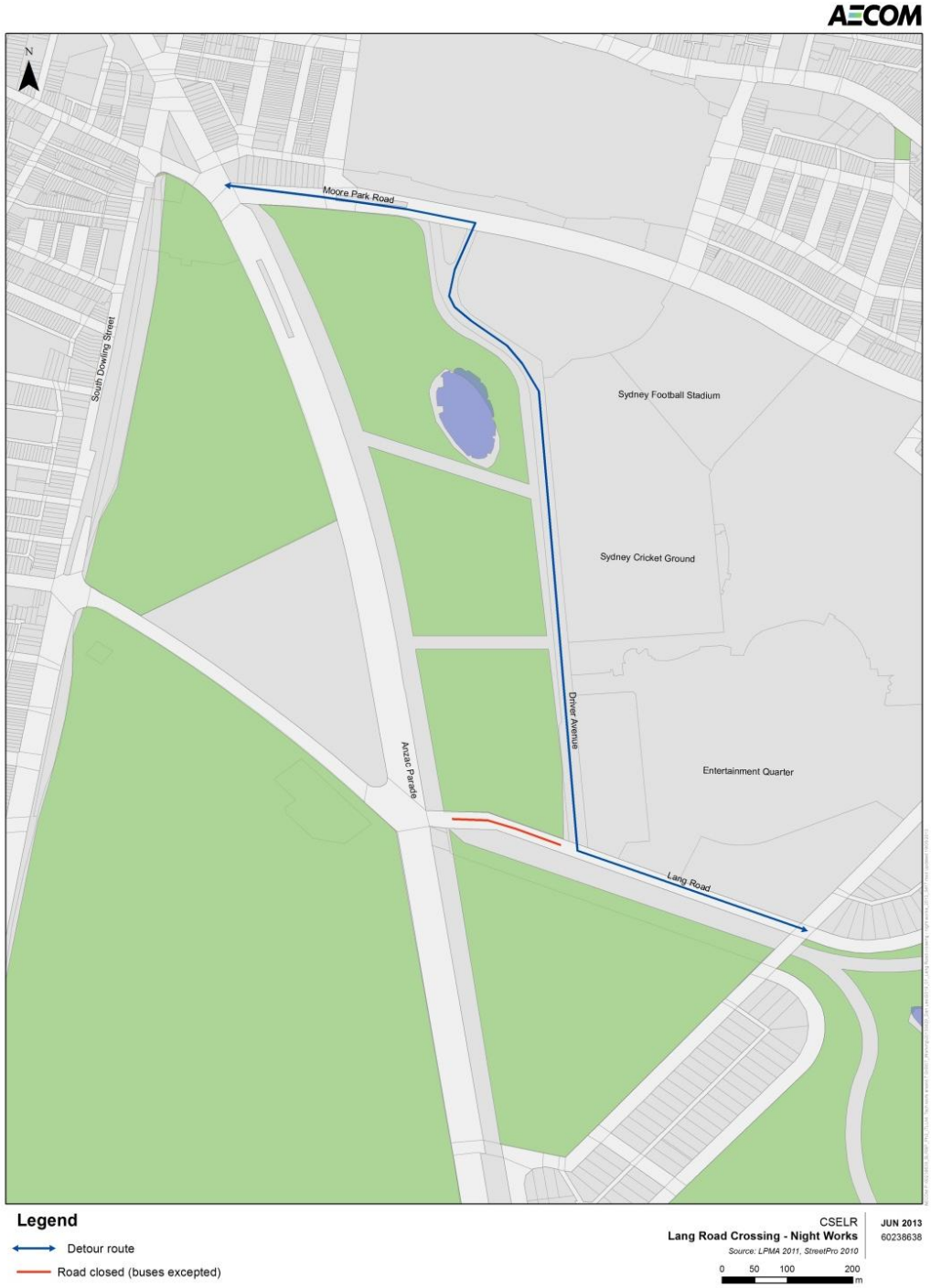
4.4.2. Traffic Management

Construction works along the Moore Park alignment would be primarily off road, except for the Lang Road crossover, which would be undertaken over two weeks of night time works. These construction activities would avoid periods when major events are scheduled within Moore Park.

Furthermore, to minimise the disruption, construction of the light rail works across Lang Road would be undertaken during complete closure of the Lang Road arm of the Anzac

Parade intersection. As shown in Figure 4-34, this requires traffic diversions to alternate access points of Driver Avenue and Moore Park Road for access to the Moore Park entertainment precinct as well the residential developments within Centennial Park that usually access Lang Road.

Figure 4-34: Lang Road Closure



Westbound traffic along Lang Road will be diverted towards Moore Park Road, where traffic can turn to Anzac Parade for southern destinations or proceed towards South Dowling Street to access Cleveland Street. Eastbound traffic from Cleveland Street will need to access Anzac Parade northbound and turn into Moore Park Road to access Driver Avenue and Lang Road.

During the Lang Road closure, advisory signs will need to be active within the Eastern Distributor to notify motorists to use the Moore Park Road to access Lang Road and the Moore Park entertainment precinct.

These diversions will not affect vehicle access to developments within Moore Park. In particular, if events are scheduled within the Parklands Sports Centre, located to the south of Lang Road, traffic controllers will manage the interaction between visitors and construction vehicles.

4.4.3. Property Access

The major developments along the Moore Park corridor are located in the entertainment precinct consisting of the Sydney Football Stadium, Sydney Cricket Ground and Playbill Venues (Hordern Pavilion and Royal Hall of Industries) located to the east of Anzac Parade and accessed via Driver Avenue at Moore Park Road and Lang Road at Anzac Parade. Along the western side of Anzac Parade lie the Sydney Boys and Girls High schools, with their access points located on Cleveland Street.

During special events, the intersection of Lang Road and Anzac Parade experiences increased traffic activity, as a result of vehicles accessing the car parks within Moore Park, resulting in delays along Anzac Parade and Driver Avenue. Aside from the traffic accessing the entertainment precinct, Lang Road also provides access to the residential developments within Centennial Park located to the east of Moore Park.

As Figure 4-34 shows, access to the entertainment precinct and the residential developments can still be maintained during the closure of the Lang Road intersection. However, as identified earlier, construction works would not occur during sporting and special events at Moore Park as both access points at Driver Avenue and Lang Road are required to manage the park.

4.4.4. Parking

Parking within Moore Park, during normal operations, is provided along the on-street angle parking at the southern section of Driver Avenue, outside the Sydney Football Stadium, and the multi-story car parks within the precinct. These parking provisions would be unaffected during the construction phase.

4.4.4.1. Special Events Parking

During sporting and major events at the stadiums, pre-booked on-grass parking is accommodated adjacent to Kippax Lake, opposite the Sydney Football Stadium, as well as the Showground Field, opposite the Hordern Pavilion, with access to these parking areas provided along Driver Avenue. Combined, these areas can hold approximately 2,300 vehicles.

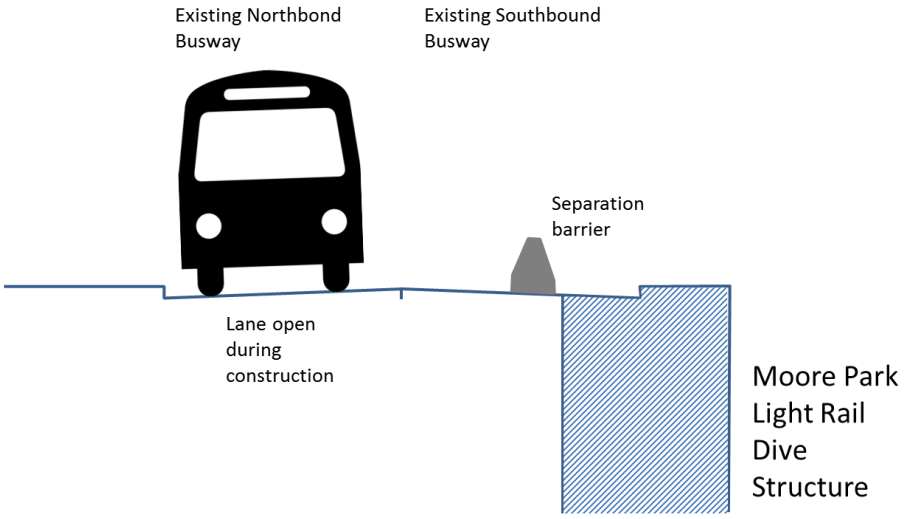
The site compound, bentonite plants and lay down facility that is to be located in the Moore Park East precinct will be positioned in an area to minimise the effect on parking provisions during special events. Furthermore, to minimise the impact on the road network and in particular the localised congestion within the Moore Park precinct during major events, construction activities and traffic movements to and from the staff car park would be planned to ensure that there is minimal construction traffic within the local area.

4.4.5. Public Transport Access

Within the Moore Park precinct, light rail is aligned along the eastern side of the off-road busway. Towards Alison Road, the light rail corridor shares the alignment with the buses to join with Alison Road. To ensure safety of the workers on site, separation barriers would be installed along the borders of the worksites where there is high speed traffic on

adjacent lanes. As the busway borders the rail alignment, the southbound bus lane cannot be accommodated due to the requirement of separation barriers between the moving bus lane and construction activities. Therefore, only one lane can remain operational during the construction phase. An example of the placement of the barrier adjacent to the Moore Park stop is shown in Figure 4-35.

Figure 4-35: Busway Adjacent to Moore Park



The operational bus lane would be utilised in the peak directional flow i.e. northbound during the AM and southbound during the PM and the opposing bus movements would be directed onto Anzac Parade during the construction phase.

Separation barriers are required whilst works are undertaken along the boundary of the light rail e.g. excavation and track slab installation. Outside of these times, the barriers could be moved further into the workszone to allow dual movement of buses on the busway.

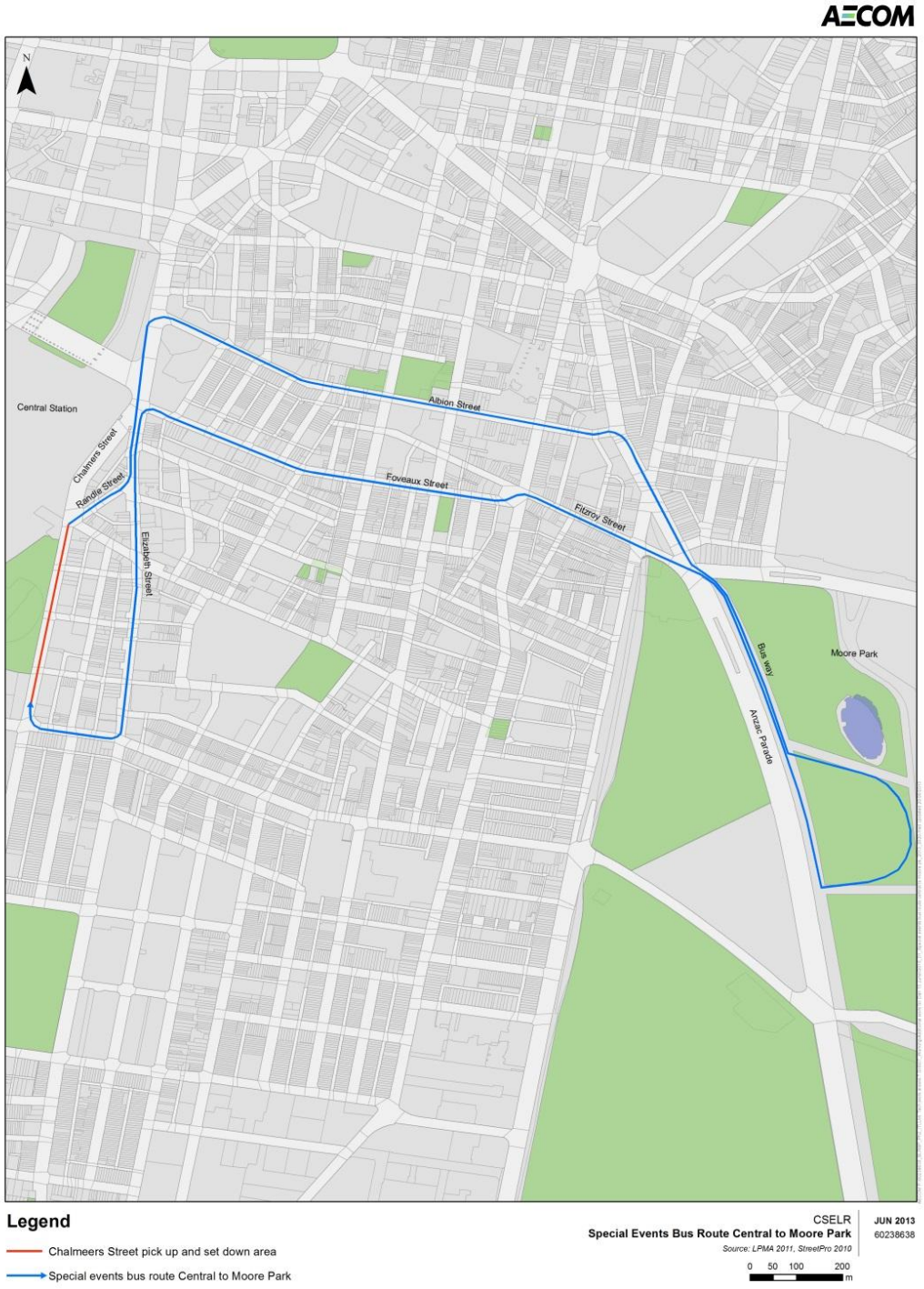
Towards Alison Road, the alignment of the light rail would encompasses both lanes of the busway which would require closure of busway. Alison Road services would enter / exit the Anzac Parade busway via the existing Robertson Road signals. It is noted that the Robertson Road layover facility is proposed to be removed as part of the project and would be decommissioned during construction.

With high trip generators of UNSW and Randwick hospitals located to the south of the CBD, there are significant public transport demands in the counter peak direction during the AM and PM peak periods. Therefore, bus priority measures such as providing peak hour bus priority lanes along Anzac Parade must be explored as part of the Traffic Management Plan of the project following discussions with key stakeholders such as UNSW, Health Infrastructure, STA and RMS.

4.4.5.1. Special Events Transport Access

During major events at Moore Park, special events buses operate between Central Station and Moore Park to transfer visitors between the rail services and the event location. These services operate via Chalmers Street, Foveaux/Albion Street and Anzac Parade busway, utilising the loop around Tramway Oval to set down and pick up passengers as shown in Figure 4-36.

Figure 4-36: Moore Park Special Events Buses



As previously indicated, during the construction of the CSELR, the southbound lane must be closed to ensure safety precautions can be maintained on site. Moore Park special events buses may continue to operate as shown in Figure 4-36, since only the northbound bus movement is required along the busway with buses entering Moore Park via the northern intersection of Gregory Avenue and exiting via the southern intersection. This requires the northbound STA services to operate along the busway during special events at Moore Park with southbound services operating on Anzac Parade.

Construction at the southern Gregory Avenue intersection with busway must be undertaken in a staged manner to facilitate one directional bus movements at this location at all times. To ensure the current level of operation remains unchanged during construction, the site compound and the bentonite plant would remain wholly within the Tramway Oval boundary and the circulating lane would remain serviceable during construction.

4.4.6. Pedestrian and Cycle Access

A shared pedestrian and cycle path is located adjacent to the busway within Moore Park and is situated between the southbound traffic lanes of Anzac Parade and the northbound bus lane. Similar to the busway, this shared path extends from Moore Park Road to Alison Road before continuing onto Centennial Park and UNSW via Alison Road and Wansey Road to follow the path of the light rail alignment.

For the majority of the alignment, the shared path would remain unaffected from the construction activities as it is separated by the busway. However, towards Alison Road, the light rail alignment crosses over the shared path, in which case an alternate path would need to be provided for pedestrians and cyclists. This alternate path would be provided within the same segment of the intersection and would not require crossing of Anzac Parade or Alison Road.

During intersection works at Lang Road, all existing pedestrian and bicycle crossing facilities would be maintained either by providing an alternate crossing opportunity adjacent to the work zone or maintaining the existing pedestrian facilities.

4.4.7. Emergency Vehicle Access

During construction, no special provisions would be provided adjacent to the worksites within Moore Park. It is assumed that emergency services would travel via Anzac Parade and the surrounding roads when responding to emergencies. When responding to emergencies within the worksites, it is intended that the emergency vehicles would utilise the construction vehicle paths along the workzone or the adjacent bus lanes.

4.4.8. Taxis

There are no taxi facilities adjacent to the light rail alignment, however taxi drop offs occur along Driver Avenue during special events and taxi ranks are located behind the Horden Pavilion to pick up passengers These facilities would continue to operate during construction activities within Moore Park and would not be impacted, therefore, no additional provision is proposed for taxis within the Moore Park precinct.

4.5. Kingsford (Anzac Parade between Alison Road and 9-Ways)

4.5.1. Construction Worksites and Access

Construction within the Kingsford Precinct consists of the following:

- Anzac Parade kerb re-alignment;
- Staged construction of Alison Road crossover;
- Carlton Street platforms;
- Staged construction of Todman Avenue crossover;
- Todman Avenue platforms;
- Staged construction of Doncaster Avenue crossover;
- Staged construction of High Street;
- UNSW frontage crossover;
- UNSW platforms;
- Anzac Parade median crossover, at Day Avenue;
- Intersection crossovers at Barker Street, Strachan Street, Borrodale Street (complete closure);
- Strachan Street platforms;
- Staged re-construction of the 9-Ways intersection; and
- 9-Ways interchange.

To enable these works, the following construction compounds and worksites would be required:

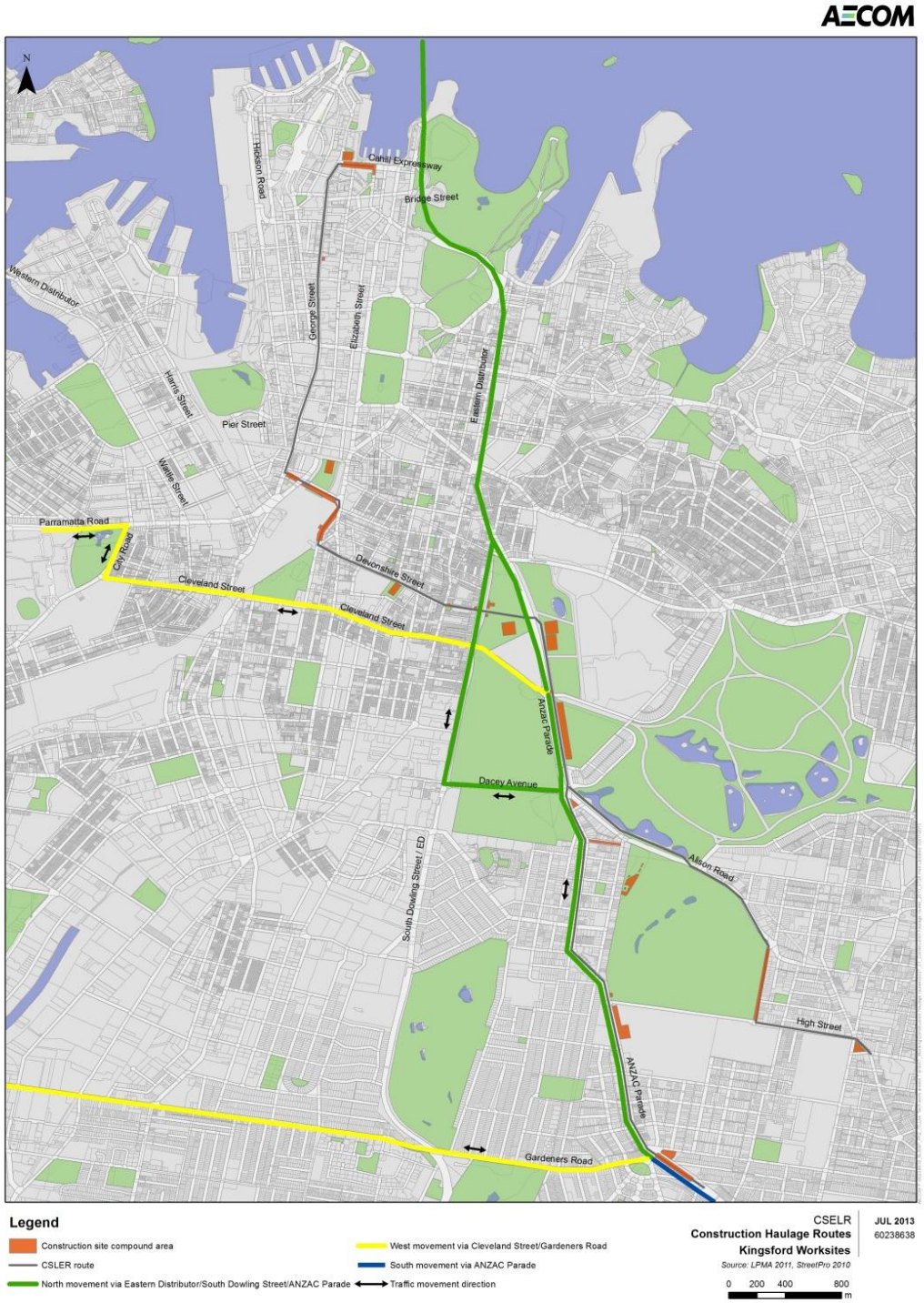
- 1,200 square metre construction site within Tay Reserve;
- 6,000 square metre worksite and 3,200 square metre work compound within UNSW;
- 1,200 square metre worksite at the intersection of Rainbow Street and Anzac Parade, currently owned by Sydney Transit Authority and Randwick City Council; and
- 8,400 square metre worksite within the Anzac Parade median, adjacent to the 9-Ways intersection.

Access points to these worksites would be via Anzac Parade and Alison Road with secure entry and exit points established to ensure the worksites are clearly defined to motorists and are not mistaken for roadways.

4.5.1.1. Haulage Route

The haulage routes for works in the Kingsford precinct have been identified in Figure 4-37.

Figure 4-37: Kingsford Construction Haulage Route



4.5.2. Traffic Management

The light rail construction within the Kingsford precinct would involve staging of works to maximise capacity of Anzac Parade during construction and, where possible, to implement the ultimate end state configurations along the corridor. This would involve maintaining a minimum of two lanes of traffic in both directions during the day time and construction activities at major intersections limited to weekend periods to minimise traffic impact on peak hour traffic and public transport operations.

However, locations with platforms would require staged night works with traffic deflections, kerb barriers and speed reductions down to 40km/hr before reverting back to normal traffic speeds and removal of kerb barriers before the morning peak.

As per the ultimate plan, the closure of the median gaps at Abbotford Street, Carlton Street and Ascot Street would be implemented during the construction phase. This would force the right-turn movements at these intersections to be facilitated at the intersection of Todman Avenue, with the new right turn facility form Anzac Parade south to Todman Avenue east.

During construction, it is probable that there may be multiple activities along various sites on Anzac Parade at any one time. These must be managed so that accesses to adjacent developments are maintained. In particular, concurrent construction activities may occur within UNSW adjacent to Anzac Parade which will require local traffic management measures that considers the UNSW development's traffic management plans.

4.5.2.1. Alison Road

The intersection of Alison Road and Anzac Parade is one of the major intersections along Anzac Parade and accommodates over 7,000 vehicle movements during the peak hour (7:45 - 8:45AM). This intersection is located adjacent to the entertainment precinct and the Royal Randwick Racecourse, which regularly generate large crowds during weekends.

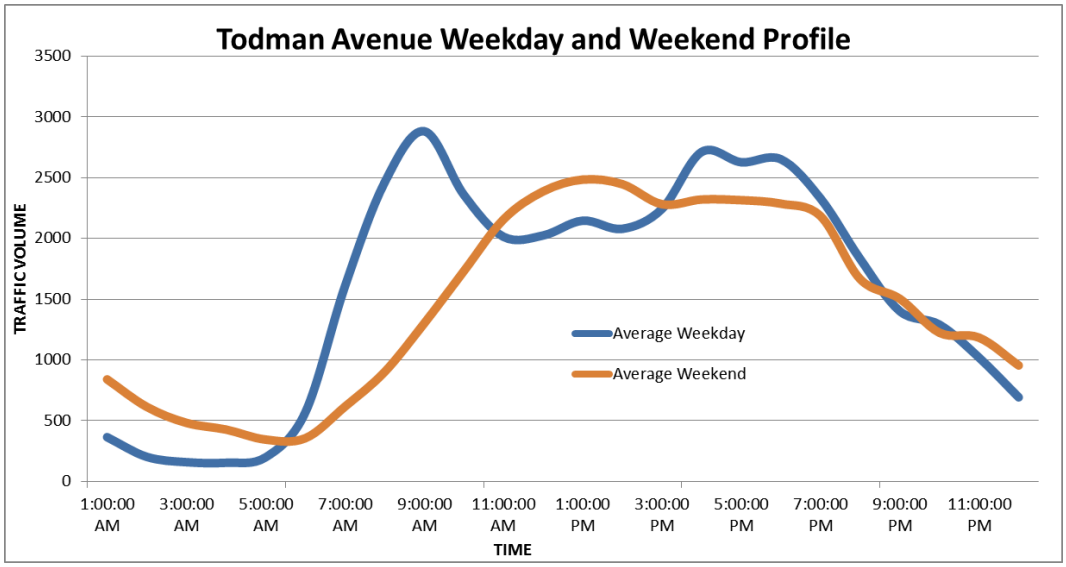
Given the important function of the intersection during peak weekday and weekend periods, the intersection crossover would need to be undertaken during week nights to minimise the impact on adjacent developments and the road network. The construction of the light rail across Alison Road would be undertaken in stages to maintain a minimum of two lanes of travel in each direction during the construction. The proposed staging across the intersection is contained in Appendix B.6.

The limited construction window of working only during weeknights would result in the duration of the intersection crossover exceeding 14 weeks. However, there may be opportunities where no events are scheduled in the Moore Park Precinct / Randwick Racecourse and periods of low traffic generated by UNSW (such as Christmas/new year) when intersection works would be feasible during the weekend period. Further discussions with Centennial Parklands, Randwick Racecourse, UNSW and other stakeholders will be required to explore potential targeted periods.

4.5.2.2. Todman Avenue

Similar to Alison Road, but to a lesser extent, Todman Avenue is a major signalised intersection that links Anzac Parade traffic with Southern Cross Drive. The peak traffic movements at the intersection, during weekdays, occur mainly during the AM and PM peak periods, whereas during the weekend, peak flows occur in the afternoon period equivalent to approximately 90% of the peak weekday traffic, as shown in Figure 4-38.

Figure 4-38: Todman Avenue and Anzac Parade Intersection Traffic Profile



To minimise the impact during journey to work/education trips, as well as minimising impact on the network, construction across the Todman Avenue intersection would be staged during the weekend. The staging would not impact on the north-south capacity of Anzac Parade, however, during some stages, the right turn movement from Todman Avenue east to Anzac Parade north cannot be accommodated. Therefore, the right turn movements onto Anzac Parade northbound must be accommodated at the adjacent Doncaster Avenue intersection during construction activities at Todman Avenue. The intersection staging plans are contained in Appendix B.7.

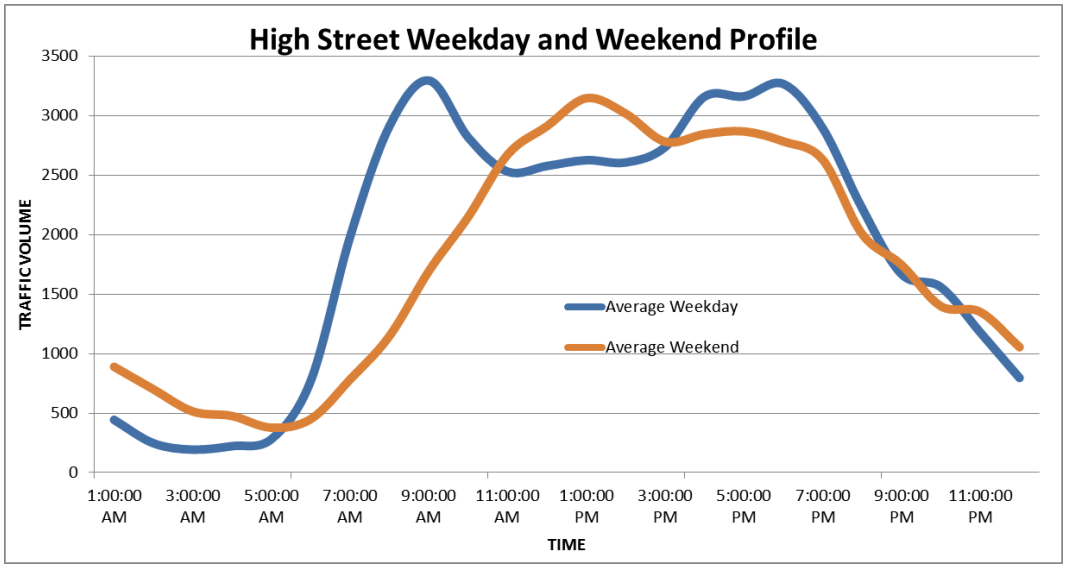
4.5.2.3. High Street

The intersection of High Street and Anzac Parade provides access to three major developments within the precinct – Royal Randwick Racecourse, UNSW and the Randwick hospitals (Sydney Children's Hospital and Prince of Wales Hospital). Although other access points are available for these developments, the High Street and Anzac Parade intersection serves as one of the major points of access for these developments.

UNSW in particular is major daily trip generator with up to 30,000 people each day. A significant portion these trips access the university via the express bus services operating between the university and Central and Circular Quay stations. These services operate via High Street and Anzac Parade during peak hours.

Similar to Todman Avenue, the peak traffic movements during weekdays occur mainly during the AM and PM peak periods, whereas during the weekend, peak flows occur in the afternoon period with total flows representing approximately 90% of the weekday traffic, as shown in Figure 4-39.

Figure 4-39: High Street and Anzac Parade Intersection Traffic Profile



As identified previously, the average weekend flows are lower overall when compared to weekday flows, therefore the construction of the High Street crossover would be staged during the weekend. This will also ensure that university express bus services remain operational during weekday peak hours. Furthermore, construction activities at the intersection should be avoided, wherever possible, during special events at the racecourse or the university during the weekends.

The staging of the High Street intersection would maintain all existing movements at the intersection; however the existing dual right turn from High Street would need to be restricted to a single lane during these weekend closures.

Vehicles exceeding 12.5 metres would be prohibited from turning at this intersection. This would require bus operations between High Street and Anzac Parade to be limited to 12.5m length buses. Furthermore, heavy vehicle deliveries to Randwick Racecourse and the university would need to utilise alternate access points such as Doncaster Avenue, for the recourse, and Barker Street, for the university, during the scheduled weekend periods when construction activities are carried out at the intersection of High Street and Anzac Parade.

The proposed staging plan of High Street intersection is contained in Appendix B.8.

4.5.2.4. Rainbow Street / Gardeners Road (Nine Ways)

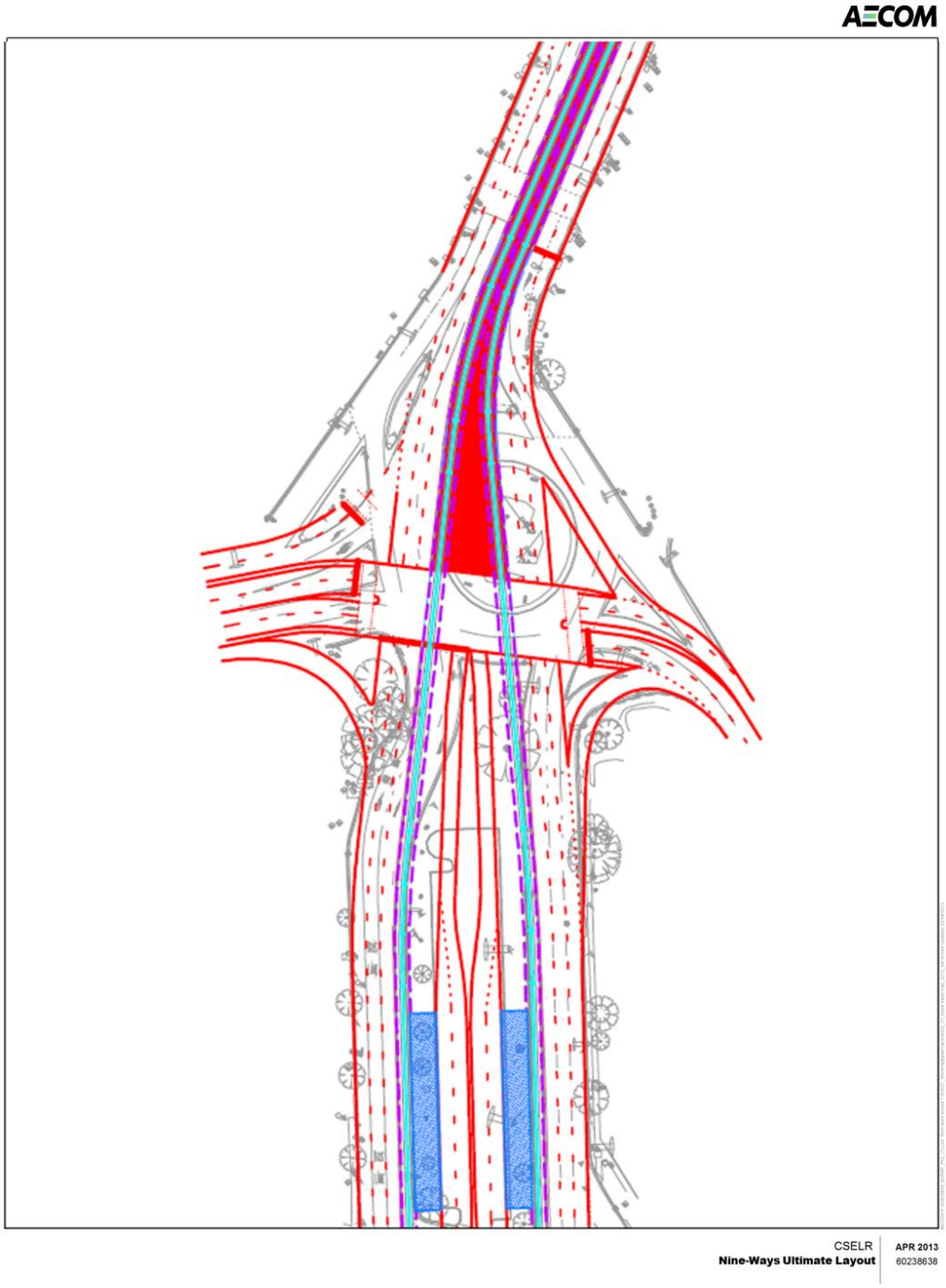
The roundabout intersection of Anzac Parade, Rainbow Street, Gardeners Road or commonly referred to as the Nine Ways intersection accommodates volumes exceeding 4,000 vehicles in the peak hour (4:45-5:45 PM). As the existing intersection is controlled by a roundabout, a multi-staged crossing of the intersection is not possible. Instead, an interim reconfiguration of the intersection, whilst retaining the existing pavement, with minor adjustments, would be implemented to allow construction of the Kingsford Terminus and trackwork. The strategy during construction would be to maintain end-state turning movements at the intersection.

As per the ultimate plan, the right turn movement from Anzac Parade south to Rainbow Street would be prohibited during construction. These movements would be accommodated at the downstream intersection at Barker Street or earlier upstream at adjoining roads and accessing Avoca Street as shown in Figure 4-48.

The interim layout would require removal of the existing kerb blisters surrounding the roundabout island as well as minor adjustments of the roundabout island to increase capacity.

Upon completion of the trackworks, within the interim intersection worksite, the proposed layout, as shown in Figure 4-40, could be implemented

Figure 4-40: Proposed Configuration of Nine-ways Intersection



The interim layout would allow for the installation of the southern trackwork as well as the removal of the roundabout island and formation of the final intersection layout. With

the implementation of the ultimate layout, the worksite required for the northern trackwork can be facilitated.

Minor interruptions to the intersections would be required during overhead wiring as well as during changeovers between the intersection layouts to facilitate installation of signals, linemarking, removal of kerb blisters and paving. These construction works would need to be undertaken during nightshifts to minimise the impact on traffic.

Table 4-5: Summary of Proposed Conditions for Anzac Parade Intersection Closures

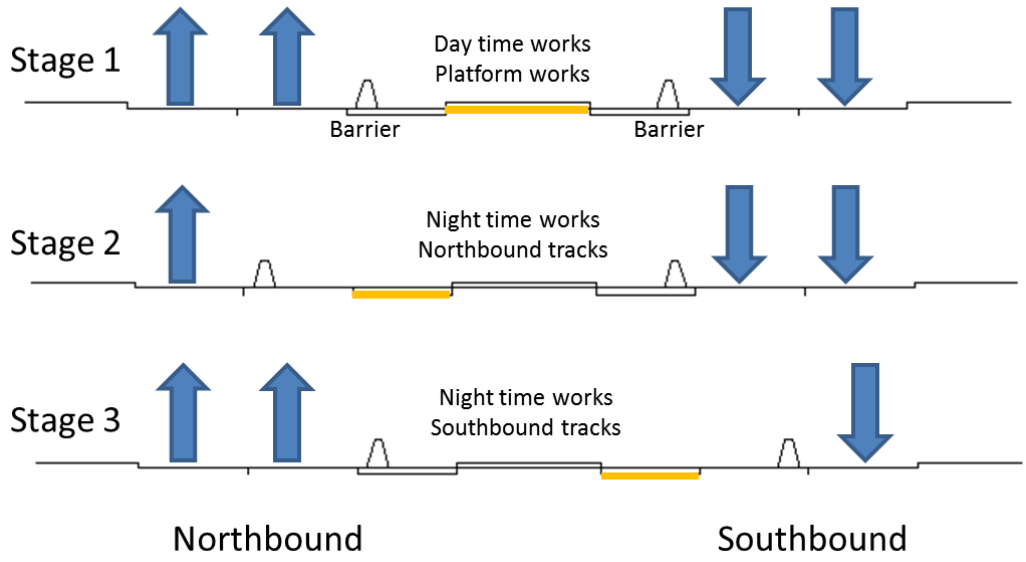
Intersection of Anzac Parade	Condition of closure
Alison Road	Weeknight works.
Abbotford Street	Left turn only as per the end configuration
Carlton Street	Left turn only as per the end configuration
Goodwood Street	Left turn only as per the current configuration
Ascot Street	Left turn only as per the end configuration
Bowral Street	Left turn only as per the current configuration
Todman Avenue	Weekends works Doncaster Avenue open
Doncaster Avenue	Weekend works Todman Avenue open
High Street	Weekend works Maintain access for all vehicles under 12.5m
Day Avenue	Left turns only as per the end configuration
Barker Street	Weekend works Middle or Meeks Street open Through and left turn movements allowed on Anzac Parade
Middle / Strachan Street	Barker Street open
Meeks / Borrodale Street	Barker Street open
Nine Ways	End state turn movements

4.5.2.5. Restricted Mid-block Works

During track works adjacent to median light rail platforms, the road width would be insufficient to accommodate traffic and construction activities. Therefore construction

within constrained road widths would be undertaken in stages to maintain two lanes in each direction along Anzac Parade, during peak daytime periods, and one lane in one direction during night works as shown in Figure 4-41.

Figure 4-41: Constrained Road Width Construction Staging



As shown in Figure 4-41, the staged construction of track lines adjacent to the platforms would require closures of a single lane. These track works would occur during night shifts with speed restrictions along the corridor. After each night shift, the barriers would be positioned within the rail corridor to allow dual lanes in each direction prior to the start of the AM peak traffic.

4.5.3. Property Access

Within the Kingsford precinct the majority of the light rail alignment is contained within the existing central median of Anzac Parade. As a result, impacts on property access during the construction phase would be minimal.

The strategy during construction would be to maintain the end-state right-turn opportunities along Anzac Parade intersections wherever possible. However during construction works at key intersections, alternative locations would be provided, in conjunction with RMS, to ensure sufficient capacity is maintained. These alternatives include:

- Doncaster Avenue as alternative when Todman Avenue is closed;
- Meeks and Middle Streets as alternatives when Barker Street is closed; and
- Barker Street as alternative when High Street is restricted.

The only periods where access may be hindered is during the intersection works at Todman Avenue and Doncaster Avenue. Since these intersections would be key locations for vehicles accessing properties bounded by Anzac Parade, Doncaster Avenue and Alison Road, during both the construction and operational stages, construction activities at Todman Avenue and Doncaster Avenue would need to be carried out separately.

Similarly, the right turn movements from Anzac Parade at the Day Avenue, Strachan / Middle Streets and Borrodale / Meeks Streets intersections would be banned during both the construction and operational phases. This allows right turn movements to only occur

at the intersection of Anzac Parade and Barker Street. Therefore, intersection works at Strachan / Middle Streets and Borrodale / Meeks Streets would not coincide with works at Barker Street. The interdependencies between these intersections are shown in Figure 4-42 and Figure 4-43 and the interdependencies of the intersections are summarised in Table 4-5

Figure 4-42: Barker Street Intersection Dependency on Middle / Strachan Street

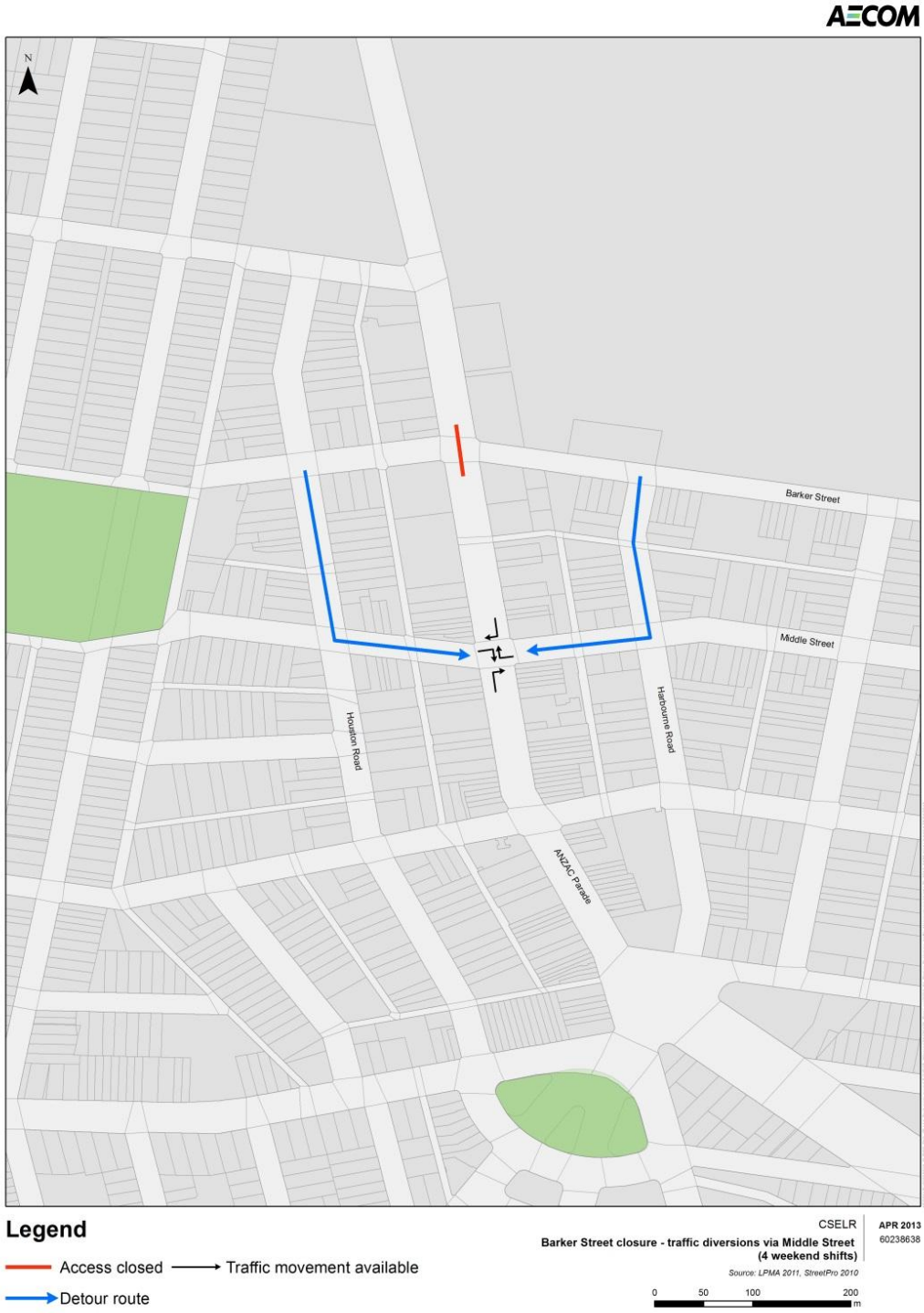


Figure 4-43: Strachan / Middle Street Intersection Dependency on Barker Street

4.5.4. Parking

The impact on parking during construction of CSELR within the Kingsford precinct would necessitate all parking removed along the Anzac Parade light rail corridor. The impacts are comparable to the AM and PM peak parking provision for the light rail end-state configuration as outlined in The Transport Operations Report (Booz/AECOM, 2013).

During the construction of light rail, the parking supply would reduce by 154 spaces, north of Day Avenue, and 267 spaces between Day Avenue and Sturt Street. However as identified within the Transport Operations Report (Booz/AECOM, 2013), the demand may be accommodated within the wider Kingsford precinct.

4.5.5. Public Transport Access

During construction, opportunities to maintain the bus priority lanes between Nine Ways and UNSW would be limited as only two lanes of traffic can be accommodated for each direction, with the loss of an additional lane adjacent to the proposed Strachan Street light rail stop during evening works. As such, the existing level of bus reliability cannot be guaranteed, therefore bus priority measures must be explored during the construction phase.

A possible measure would be to facilitate bus lane operation on Anzac Parade in the peak direction along the kerbside lane and two peak direction traffic lanes. This would result in the non-peak traffic movement being constrained to a single lane and is the subject of further traffic analysis. The bus priority lane would ideally be effective between the UNSW light rail transition and Nine Ways intersection, as these two locations provide ideal switch-over layouts, especially for the UNSW transition and interim 9-Ways intersection. For the ultimate layout, the switchover would need to be facilitated at the intersection of Meeks / Borrodale Street intersection.

North of Barker Street, the UNSW express buses would continue to operate via Anzac Parade and High Street, at bus stops adjacent to existing locations. However, as highlighted at Section 4.5.2.3, vehicle movements between High Street and Anzac Parade will be limited to 12.5m, during weekend construction works. Therefore, existing bus routes that utilise articulated buses will need to be restricted to 12.5m buses, on weekends, during construction works at the intersection of High Street and Anzac Parade.

Considerations could also be given to local diversions such as Houston Road, between Gardeners Road and Day Avenue, however this would result in significant impact on a local residential street and would be considered only as a last resort and would only be feasible following extensive investigations to determine if such an option would be feasible.

4.5.6. Pedestrian and Cycle Access

Pedestrian footpaths are located along both sides of Anzac Parade for the entirety of the road within the Kingsford precinct. The width and quality of the footpaths varies depending on the adjoining developments and the level of pedestrian activity within the region.

For the majority of the alignment, the existing pedestrian footpaths would be maintained, except during kerb realignments and services relocations where the footpaths would be narrowed and localised diversions would be in place to protect the pedestrians from the road activities.

During intersection works, pedestrian crossing opportunities would be maintained either by providing an alternate crossing at an adjacent location or maintaining the existing pedestrian facility. However, at locations where light rail is aligned near the pedestrian facility, pedestrians would need to be diverted to an alternate footpath prior to the works zone being established. For example, the High Street intersection and UNSW platform works would require the closure of the pedestrian footpath between High Street and the UNSW main entrance and diversion of pedestrians to the western side Anzac Parade. Although this would extend the length of the pedestrian trips, access to their destinations would be maintained.

At present, there are no cycle facilities provided along Anzac Parade between Alison Road and the Nine Ways intersection. Cyclists are observed to utilise Anzac Parade both on-road and off-road along the footpaths, where widths permit, but the lack of pavement markings or signs suggest that these are informal cycle movements and that these movements would continue along Anzac Parade, with no special provisions for cyclists.

4.5.7. Emergency Vehicle Access

During construction, no special provisions would be provided adjacent to the worksites within the Kingsford precinct. It is assumed that emergency services would travel via the Anzac Parade traffic lanes, as currently used, and the surrounding roads when responding to emergencies. When responding to emergencies within the worksites, it is intended that the emergency vehicles would utilise the construction vehicle paths, only on approach to the block, and the adjacent traffic lanes would form the key access point.

4.5.8. Taxis

There are no immediate taxi facilities within the Kingsford precinct. There is however, a taxi rank located south of the Nine Ways intersection, adjacent to the South Sydney Junior Leagues Club, along Anzac Parade. As per the end state, this taxi zone would be removed during the construction phase. During the construction phase, it is suggested that these taxi zones be relocated along the Wallace Street frontage of the South Sydney Juniors Club.

4.6. Randwick (Alison Road, Wansey Road and High Street)

4.6.1. Construction Worksites and Access

The construction worksites within the Randwick Precinct consist of the construction activities between west of the Anzac Parade and Alison Road intersection and the intersection of High Street, Avoca Street and Belmore Road and would consist of the following construction activities:

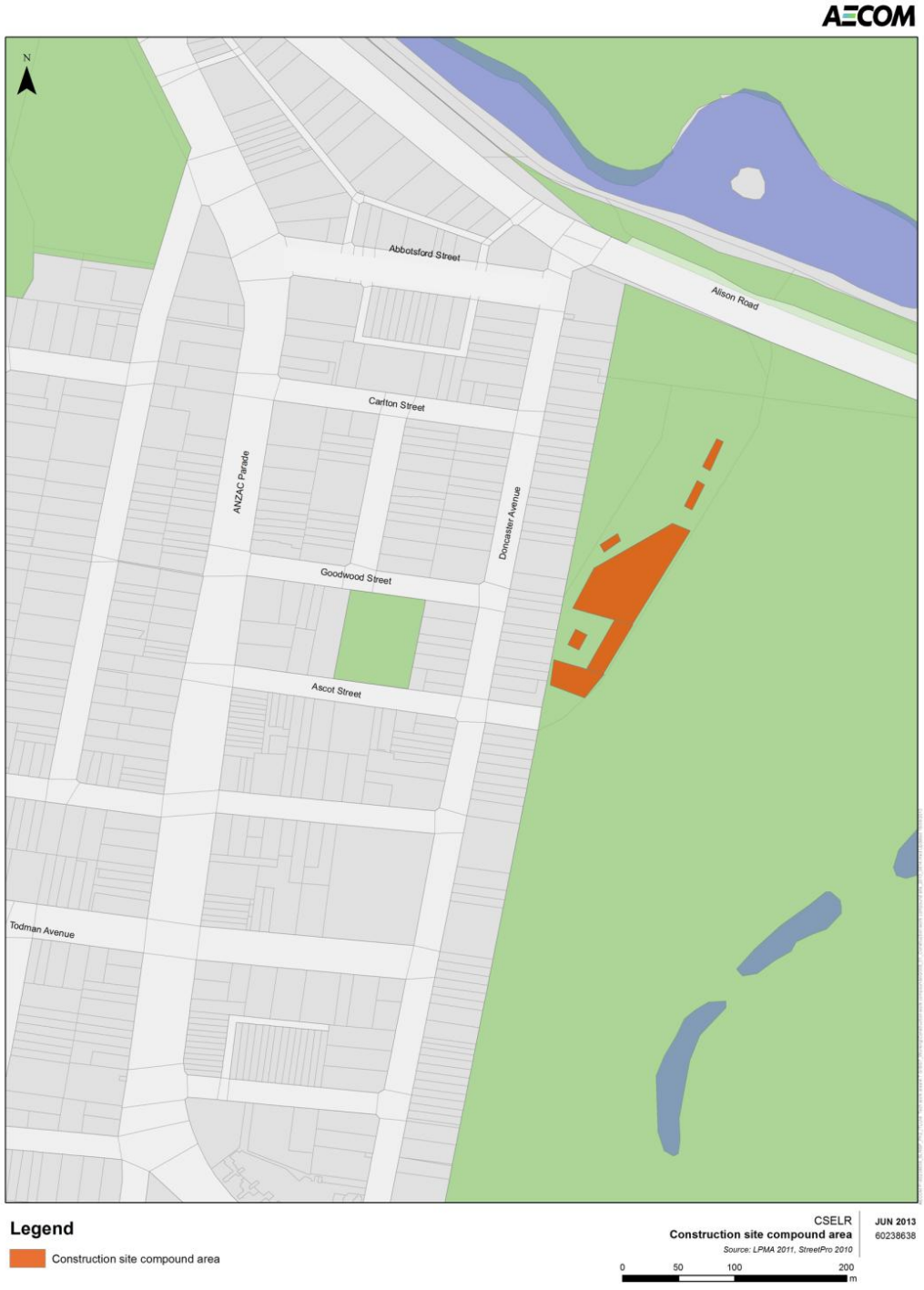
- Kerb realignment along Alison Road, Wansey Road and High Street;
- Randwick Racecourse light rail stabling yard;
- Alison Road crossover at Doncaster Avenue intersection;
- Royal Randwick Racecourse platforms;
- Wansey Road platforms;
- UNSW High Street platforms;
- High Street cross over at Wansey Road;
- Staged segmental construction along High Street;
- Belmore Road cross over; and
- Randwick platforms at High Cross Park.

In addition to the light rail infrastructure, the following network changes would be implemented within the Randwick precinct:

- Reconstruction of the shared path along Wansey Road and Alison Road;
- Signalisation of the Wansey Road and Alison Road intersection;
- Signalisation of the Wansey Road and High Street intersection;
- Signalisation of the Clara Street and High Street intersection; and
- Reconfiguration of the Avoca Street, Belmore Road and Cuthill Street triangle.

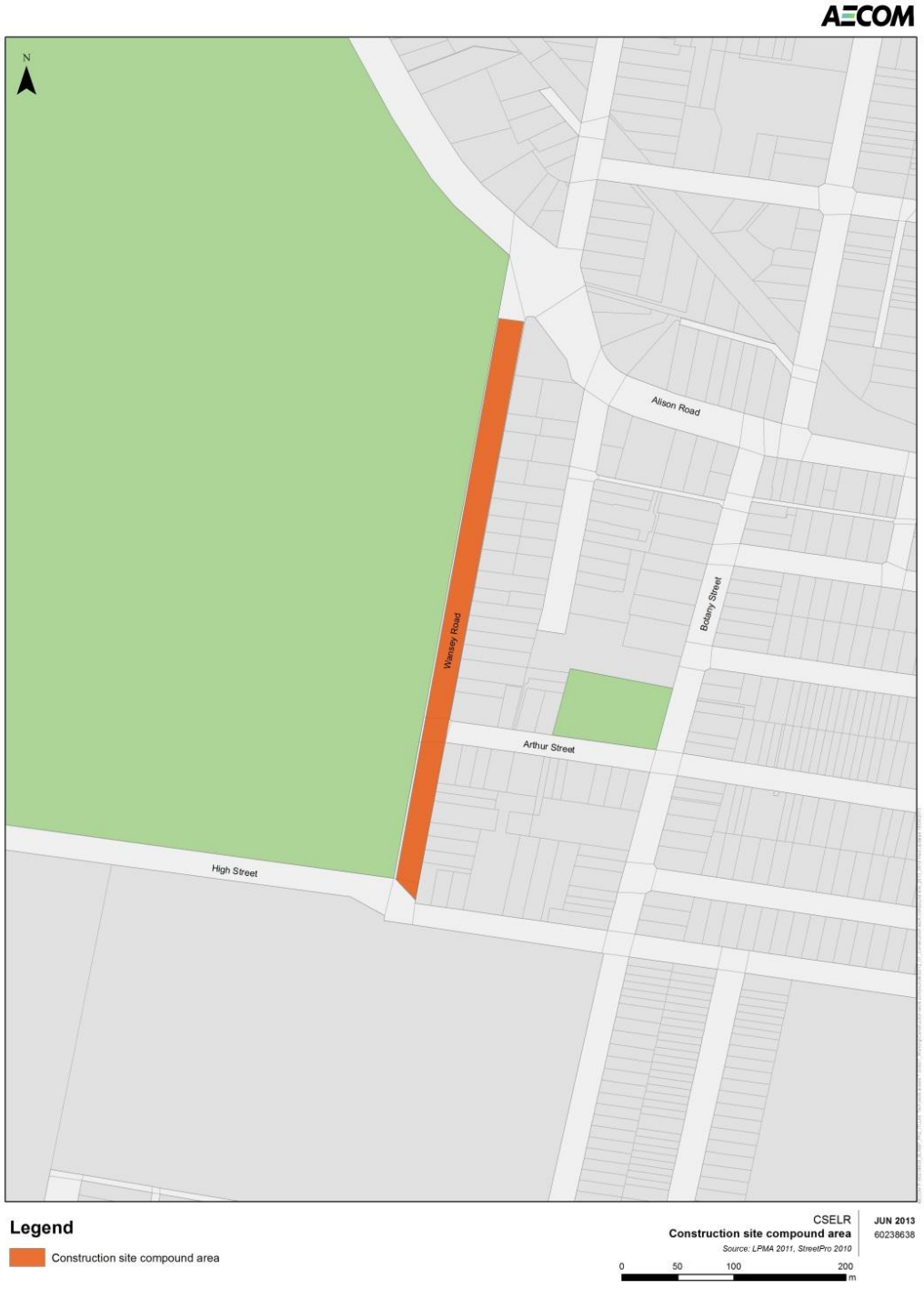
A map of the worksites within the Randwick Precinct is shown in Figure 4-44.

Figure 4-44: Royal Randwick Racecourse Work Compound



Access to the Royal Randwick Racecourse worksite would be via Doncaster Avenue. Presently there are multiple existing entry points to the site along Doncaster Street and the construction vehicles would utilise these existing road connections.

Figure 4-45: Wansey Road Worksite



Access to the Wansey Road worksite would be via Alison Road, High Street and Anzac Parade.

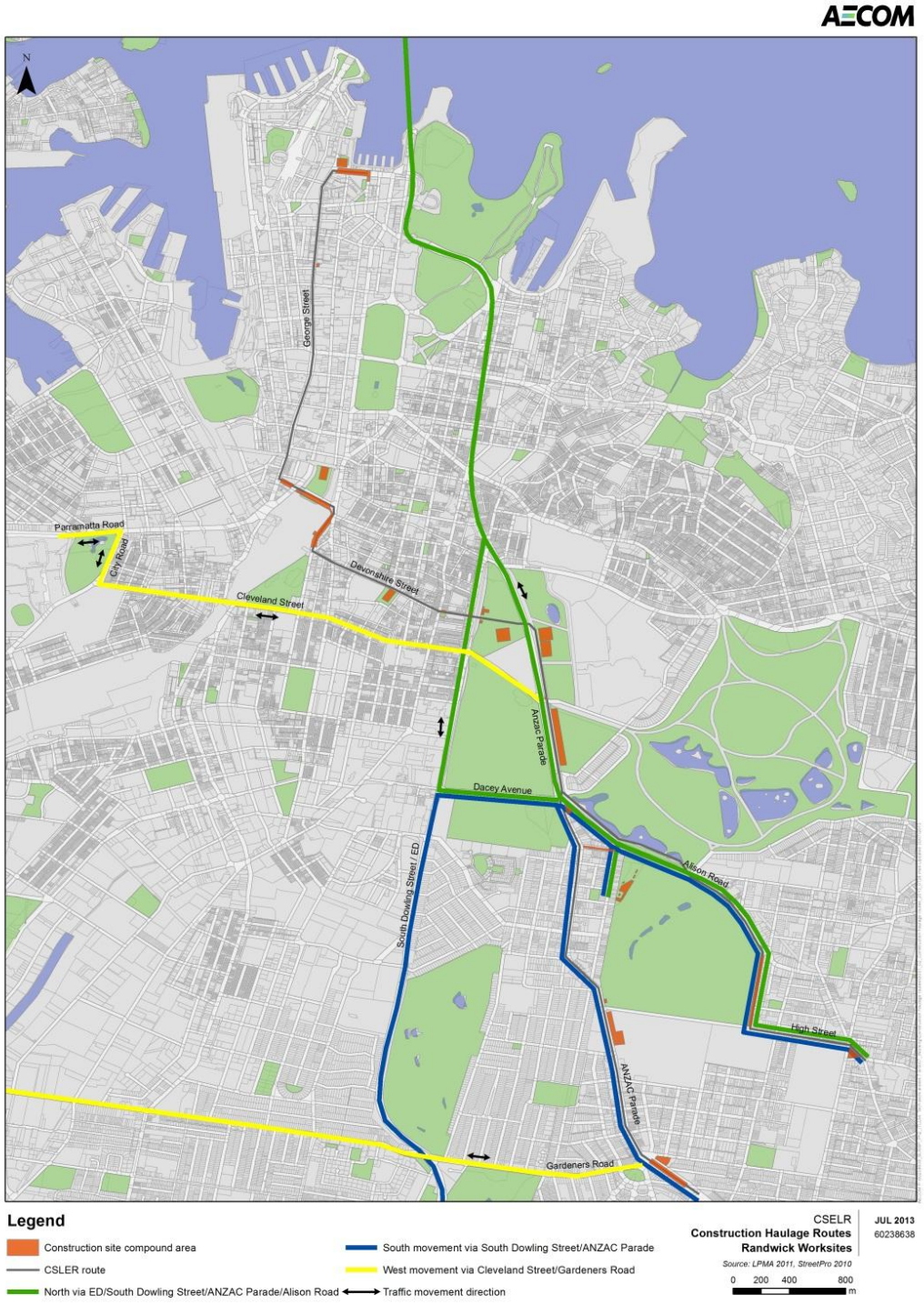
Figure 4-46: High Cross Park Worksite

The High Cross Park worksite would be accessed mainly via High Street and Belmore Road with potential access points available from all three road frontages.

4.6.2. Haulage Routes

The haulage routes for construction vehicles accessing Randwick precinct are shown in Figure 4-47.

Figure 4-47: Alison Road and High Street Construction Haulage Route



4.6.3. Traffic Management

The Randwick precinct alignment crosses three major developments of the Royal Randwick Racecourse, UNSW and the Randwick hospitals. Of these developments, the Sydney Children's Hospital is dependent on the functionality of High Street, at all times, for its emergency vehicles as well as general emergency visitations.

The lane configurations, during the construction phase, would complement the final layouts along Alison Road, Wansey Road and High Street. High Street in particular would maintain a single traffic lane in each direction at all times. Similarly, a single lane would be maintained along Wansey Road and a minimum of two lanes would be maintained along Alison Road, adjacent to the worksites, during construction.

A site south of the Royal Randwick Racecourse stabling yard is identified as one of two potential worksites to be used as the site office for the south east corridor with an area of 600 square metres for a site compound and 3,200 square metres for parking and laydown. With established access from Doncaster Avenue, the site compound could operate independent of the racecourse operations, subject to agreement from the Australian Turf Club.

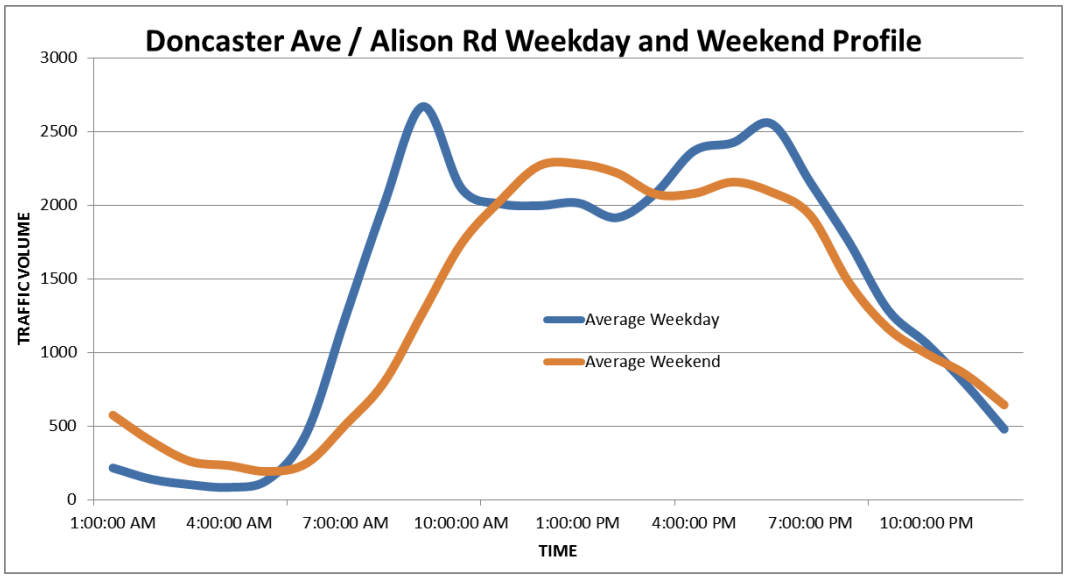
4.6.3.1. Doncaster Avenue

The intersection of Alison Road and Doncaster Avenue caters for traffic entering Alison Road from Doncaster Avenue as well as the bus movements between Alison Road and the busway. This intersection accommodates approximately 4,800 vehicle movements during the average peak hour (7:30 - 8:30AM). In addition to these peak hour commuter flows, this intersection is located adjacent to the Royal Randwick Racecourse, which generates large crowds during special events, usually held during public holidays and weekends.

The peak season for events at the racecourse, based on 2013 scheduled events, occurs between the months of September to December with one or two events scheduled per month for the remainder of the year. Another key time period is the Autumn Racing Carnival when racecourse activity would generate additional traffic on the local network.

The peak traffic movements during weekdays occur mainly during the AM and PM peak periods, whereas during the weekend, peak flows occur in the afternoon period, but with total weekend flows representing approximately 90% of the weekday traffic, as shown in Figure 4-48.

Figure 4-48: Doncaster Avenue and Alison Road Traffic Profile



To reduce the duration of potential disruption to traffic during weekday peak periods, the staged intersection works are to occur during weekends, when no events are scheduled at the racecourse.

The construction of the light rail across Alison Road would be undertaken in stages to maintain a minimum of two lanes of travel in each direction during each works stage. It is estimated that the total disruption to the intersection would be 10 weeks. The proposed staging across the intersection is contained Appendix B.9.

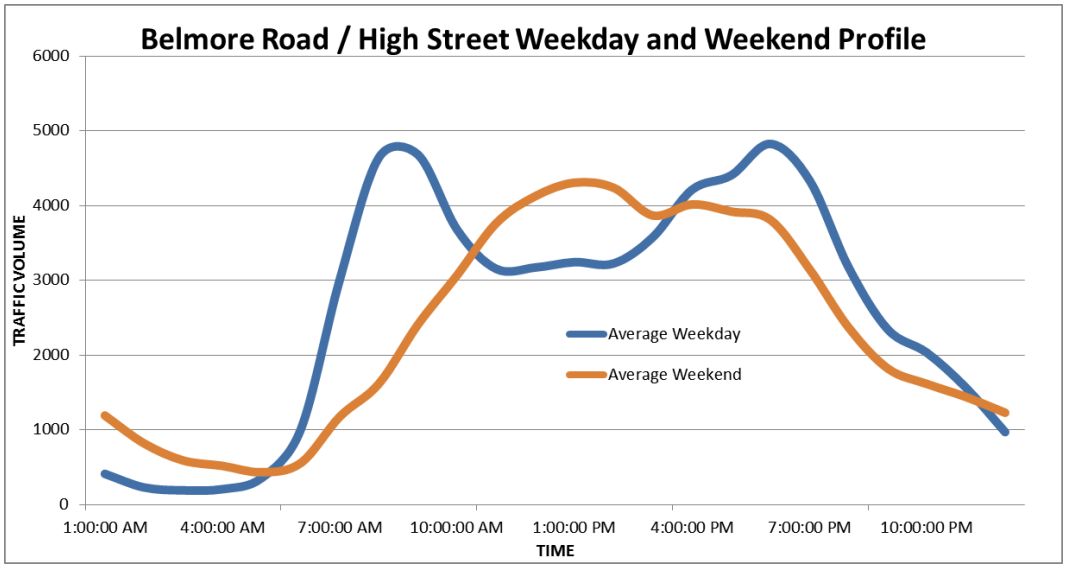
4.6.3.2. High Street

As High Street accommodates multiple developments with numerous off-street parking spaces with varying levels of parking turn-over, construction works along High Street would all be segmental hand-work. This is to minimise the disruption for the property access as well as to maintain vehicles access to the hospitals. Intersection works at Wansey Road and Botany Street would all be undertaken in staged hand-work as the work progresses along High Street, and works would be undertaken during off-peak periods, either during weeknights and/or weekends to facilitate peak hour bus movements between High Street and Botany Street as well as to cater for right turning movements from High Street to Botany Street. Regardless of construction works along High Street, traffic access would be maintained to facilitate traffic movements along High Street for vehicle access to the hospital

4.6.3.3. Belmore Road

The intersection of High Street, Belmore Road and Avoca Street is a five arm intersection that provides access to the main commercial precinct of Randwick as well as the major north-south corridor of Avoca Street and the major developments along High Street. As per the surrounding road network, the peak traffic movements at the intersection occur mainly during the AM and PM peak periods during weekdays, whereas during the weekend peak flows occurs in the afternoon period with approximately 90% of the weekday traffic, as shown in Figure 4-49.

Figure 4-49: Belmore Road / High Street Traffic Profile



To minimise the impact on peak hour movements, the Belmore Road intersection works would be staged during the weekend. During the majority of the works stages, traffic on Avoca Street south of the intersection would be reduced to a single lane in both directions. This is due to the configuration of the intersection and the alignment of the light rail crossing into High Cross Park. The intersection cross over would be undertaken over three stages over 6 weekends. The intersection staging plans are illustrated in Appendix B.10.

4.6.4. Property Access

4.6.4.1. Royal Randwick Racecourse

More than half of the Randwick precinct alignment lies along the boundary of the Royal Randwick Racecourse. At present, there are multiple access points to the racecourse situated along all the boundary streets, with three of their main access points located at Alison Road, Ascot Street and High Street, between Anzac Parade and Wansey Road.

With light rail aligned along the southern side of Alison Road, between Doncaster Avenue and Wansey Road, construction activities would impact on the Alison Road access point and this access may not be maintained. However, it is understood that this access point is used as a secondary access point during scheduled events with the majority of vehicles and taxis utilising the Ascot Street entrance for set downs and pickups. Furthermore, public parking within the in-field area of the racecourse is accessed only via the High Street access point. With an internal road network within the Racecourse providing connections between all the major access points, the closure of the Alison Road entry point during construction would still maintain accessibility to all areas of the racecourse.

Availability of the Alison Road access would only be impacted during works directly outside the entry point and once these works are complete, the access can be opened temporarily during scheduled events. Additionally, to minimise the disruption, construction activities would be on-hold during special events so as not to impact on the roundabout operation at the intersection of Ascot Street and Doncaster Avenue.

Aside from the access points mentioned previously, there are minor access points located further south along Alison Road and Wansey Road that are understood to be utilised by service vehicles throughout the week (with the Wansey Road entrance providing access to the stables). Similar to the main entrance at Alison Road, access to these minor entrances would need to be closed to vehicle traffic during the construction phase and directed to use the alternate access points located along High Street. Although this would increase the travel distance and time, the existing internal roads within the racecourse would maintain accessibility to the buildings currently serviced via Wansey Road and Alison Road.

4.6.4.2. High Street Developments

As mentioned previously, the UNSW and Randwick hospitals are both accessible via High Street. Besides these developments there are high density residential apartments, medical practices and retail stores with off-street parking provisions. With an existing road width of 12.5 metres, the kerb and guttering would require realigning, to satisfy the minimum lane widths when light rail is operational.

To minimise the impact to properties, and in particular the hospital emergency access points, the light rail construction works are proposed to be undertaken in segments and stages using ‘hand-work’ methods within small workzones. This would allow traffic to pass around the worksites and minimise the occupation of High Street and, in the case of the Hospital, to maintain vehicle access at all times.

4.6.5. Parking

Within the Randwick precinct the impact on parking during construction of light rail would be consistent with those of the end-state configuration. During the construction of light rail, the parking supply would reduce by 304 spaces between Darley Road and High

Cross Park. Based on these numbers, there would be a shortfall in parking capacity within the precinct, however through the proposed tightening of parking controls and restrictions as identified in the parking strategy[23], parking demand can be reduced to meet the practical capacity available.

4.6.6. Public Transport Access

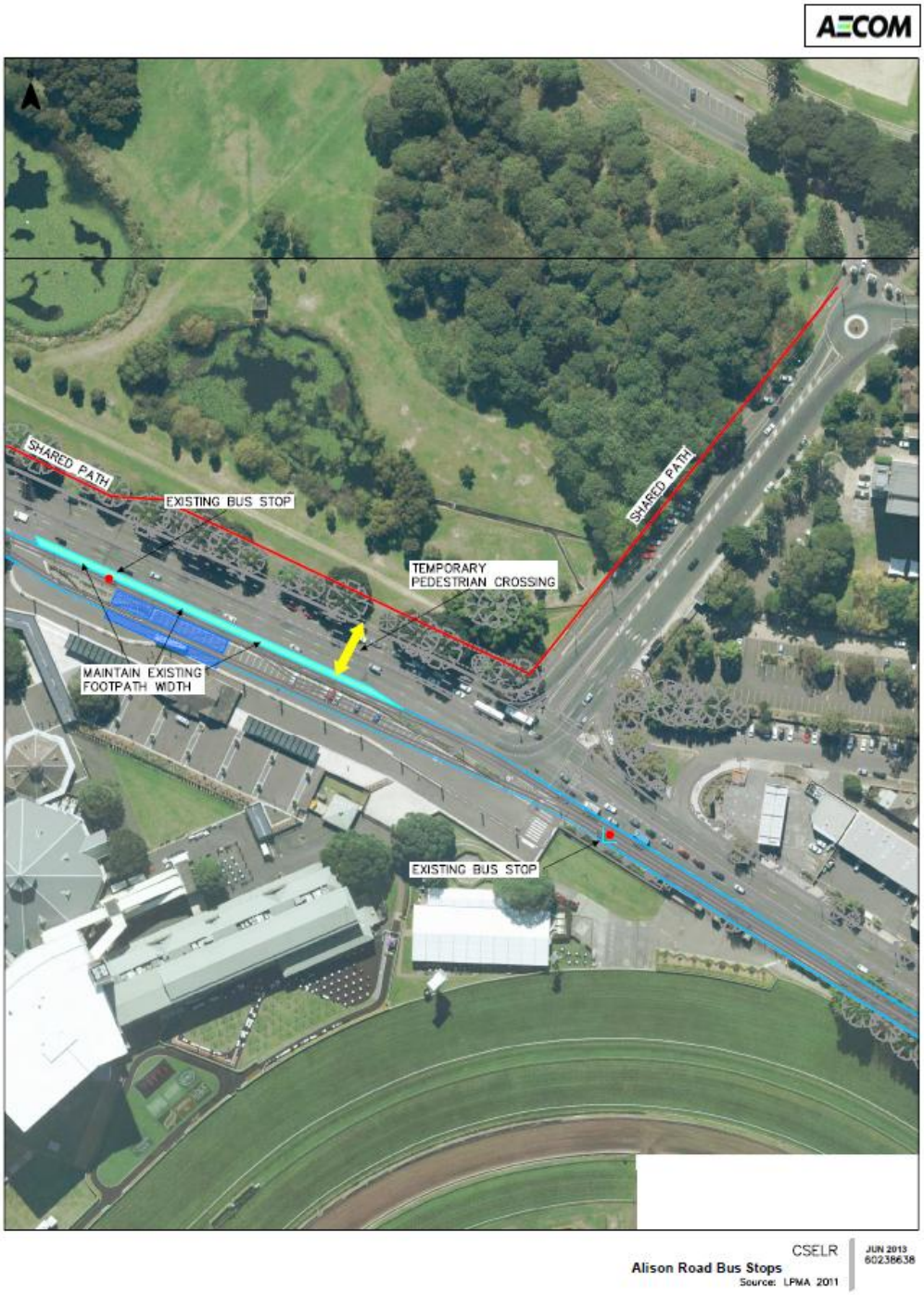
Normal bus operations will remain operational along Alison Road and High Street. The only exception would be the closure of the busway between Anzac Parade and Doncaster Avenue. As identified previously, the light rail is proposed to utilise the existing bus way corridor which will prohibit bus operations during construction. Nevertheless, bus priority measures would need to be explored at the intersection of Anzac Parade and Alison Road with detailed modeling.

4.6.6.1. Alison Road Bus Stop

With construction activities occupying the southern side of Alison Road between Doncaster Avenue and Wansey Road, pedestrian access to this section would be prohibited. At present, there is a bus stop located on the approach to Darley Road and another located adjacent to the main kerbside entrance to the Racecourse. The workzones adjacent to these areas are shown in Figure 4-50.

[23] CSELR Transport Operations Report Chapter 7 (Booz, AECOM, May 2013)

Figure 4-50: Works Zone Adjacent to the Alison Road Bus Stops



As shown in Figure 4-50, the existing bus stop adjacent to the racecourse's main entrance could remain during the construction phase, however the bus stop located to the east of Darley Road cannot be maintained. This eastern bus stop is currently serviced by 372, 373, 374, 376 and 377 which could be serviced by the bus stop outside racecourse. The express buses do not service these stops, as such removal of this eastern bus stop and utilising the western bus stop would not impact on the operation of the express bus routes.

Removal of the eastern bus stop would increase the walking distances of the bus route patrons within the region, the major generator being the TAFE Randwick Campus. To improve the access to this bus stop, a pedestrian path could be provided on Racecourse land, following discussions and agreement with ATC, to maintain continuity of the

footpath on the south side of Alison Road to the eastern pedestrian leg at the intersection with Darley Road.

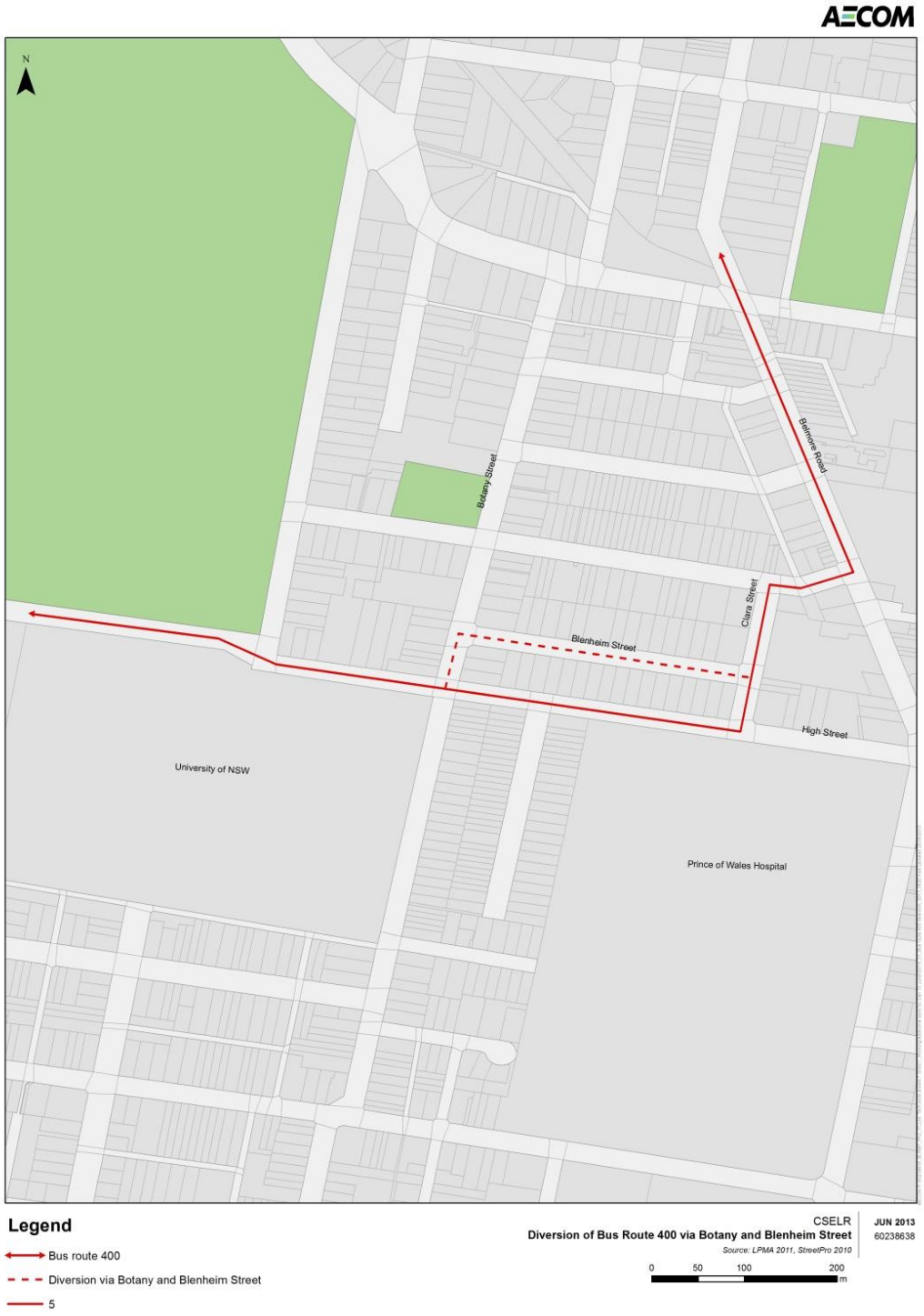
Alternatively, a pedestrian path may be provided within the racecourse grounds to link the bus stop with the existing pedestrian crossing at the intersection of Darley Road and Alison Road. Again this requires discussions and an agreement with ATC.

4.6.6.2. Blenheim Street Bus Diversion

At the intersection of Clara Street and High Street the swept path movements for buses turning between High Street west and Clara Street cannot be accommodated during construction. Therefore, a bus diversion via Blenheim Street would be required for the bus routes 357, 400 and 410 as shown in Figure 4-51.

The diversion shown in Figure 4-51 would require the relocation of the High Street bus stops to Clara Street, north of Blenheim Street. This is consistent with the end-state light rail proposals, whereby the bus stops would be located on Clara Street south of Blenheim Street. As there are no other existing bus stops between the existing bus stop and Botany Street, the impact of the bus diversion would be minimal.

Figure 4-51: Blenheim Street Bus Diversion



4.6.6.3. Alison Road Busway

As identified previously, the light rail corridor would share the busway, located north of Alison Road within Moore Park. As such, buses would not be able to access this portion of the busway during construction and would be required to travel within the Alison Road traffic lanes. This would increase the travel time for buses through the intersection of Alison Road and Anzac Parade and impact on reliability of the services. Potential mitigation measures would be to allow bus priority lanes in the peak direction during peak hours together with bus priority measures at the intersection of Anzac Parade and

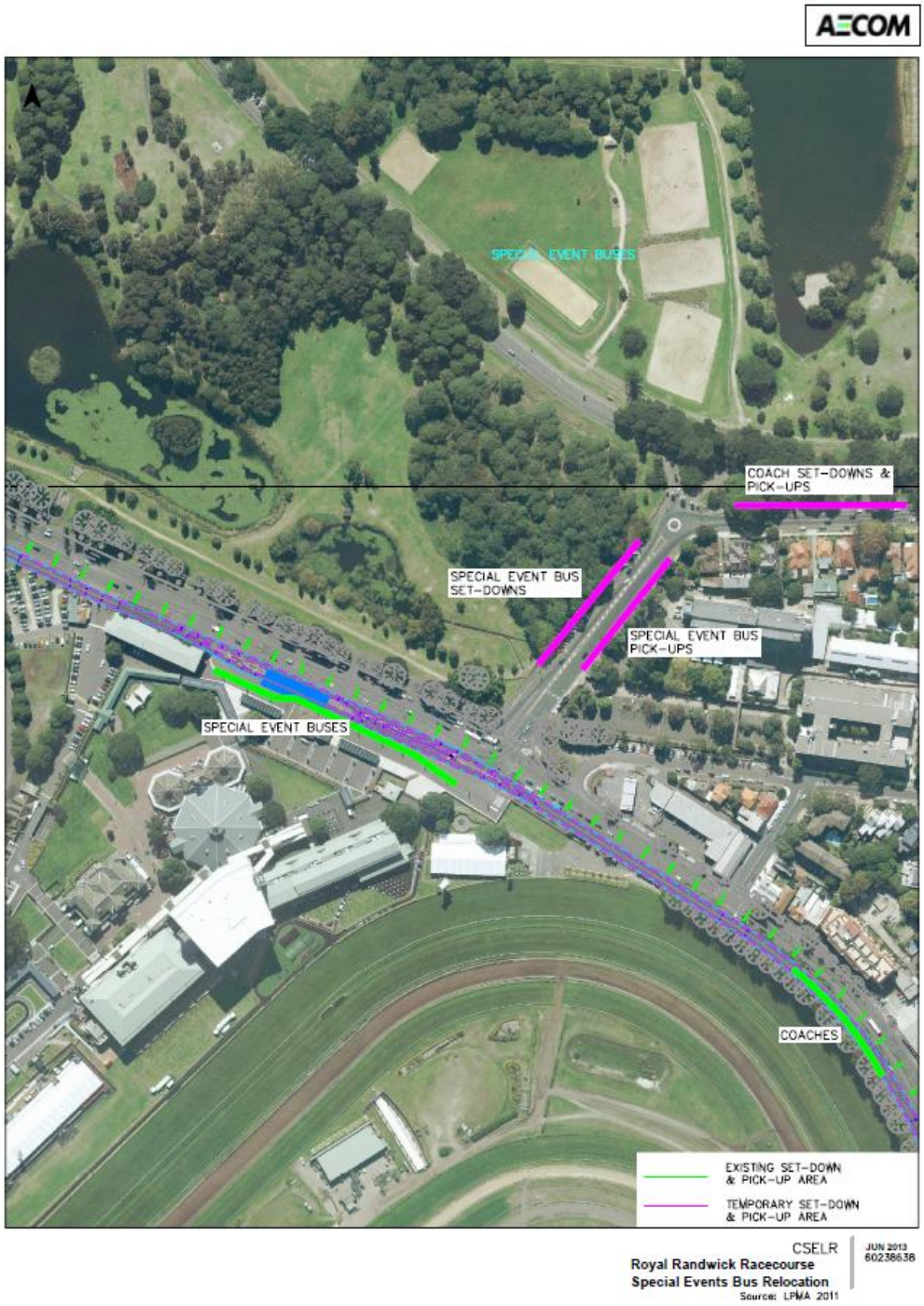
Alison Road. These priority measures will be explored as part of the Traffic Management Plans in consultation with the bus operators and the relevant Road Authority.

4.6.6.4. Special Events Public Transport and Coach Access

During major events at Royal Randwick Racecourse, special event buses operate to transfer visitors between Central Station and the racecourse. These services operate via the passenger drop off zone located within the racecourse grounds along Alison Road. Similarly, private coaches utilise the kerbside amenities to set-down and pick-up passengers along Alison Road between Darley Road and Wansey Road.

With the Alison Road frontage of the racecourse to be designated as a works zone, for the entirety of the construction phase, alternate passenger set-down and pick-up areas are required. The temporary locations for special event buses and coaches during construction would be along Darley Road adjacent to the TAFE Randwick campus as shown in Figure 4-52.

Figure 4-52: Temporary Royal Randwick Racecourse Special Events Bus Set-down and Pick-up Zone



To facilitate the set-down and pick-up zone along Darley Road, the existing on-street angle parking provisions along Darley Road would need to be revised to allow the extension of the existing bus zones. It is noted that these bus zones would only be required during events scheduled at the racecourse and that wardens would be installed within the bus zones to provide directions to visitors and manage the buses.

Given the crowds generated during the events, the temporary relocation of the bus zones would require the retention of the existing pedestrian crossing at the intersection of Alison Road and Darley Road or an alternate facility to safely cross Alison Road, such as police/traffic controllers to manage the large crowds. During events scheduled at the

racecourse, construction activities adjacent to the main entrance to the racecourse would be planned to allow safe pedestrian access across the worksites would be provided.

4.6.6.5. University Express Services 890, 891 and 892

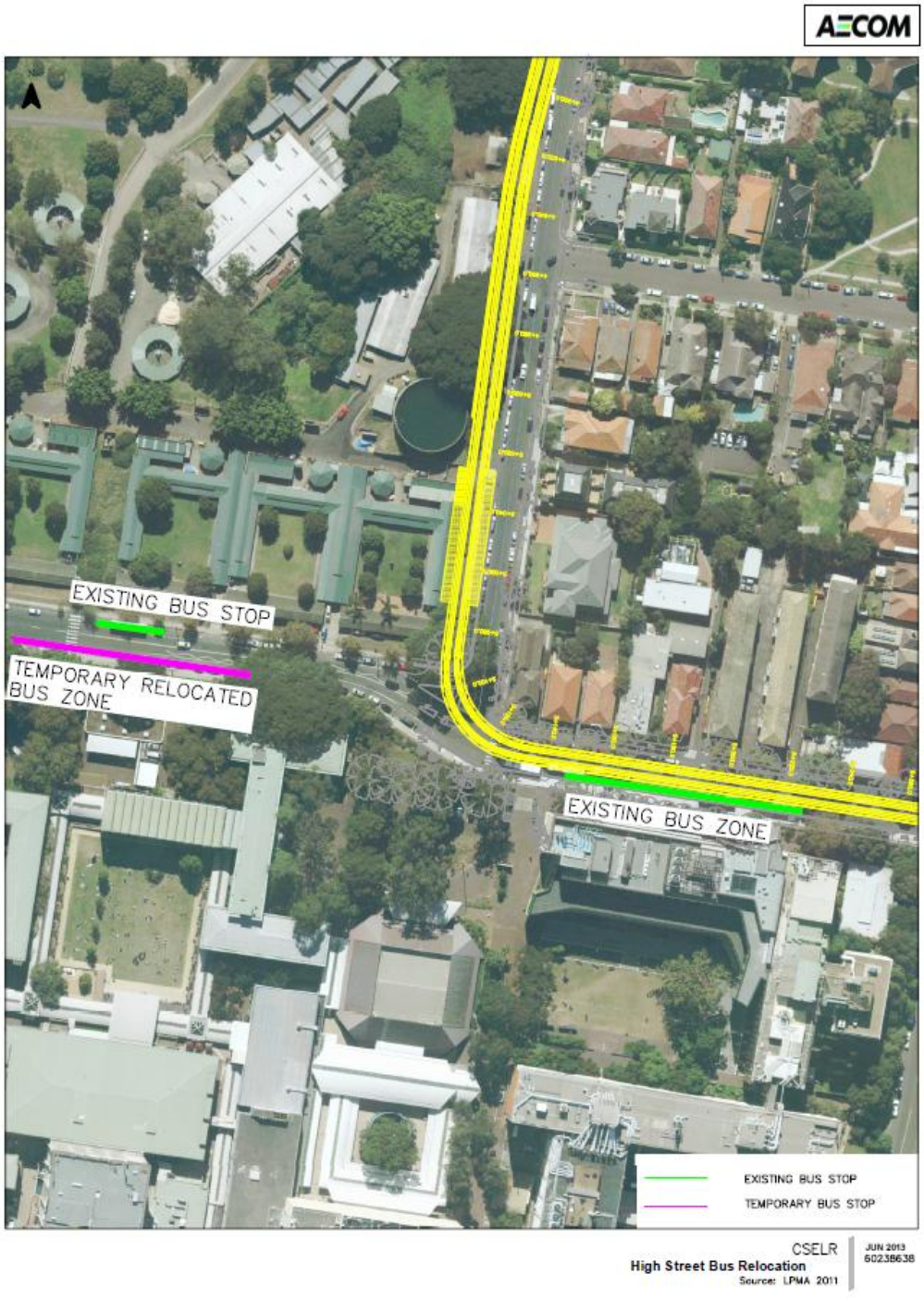
Throughout the construction phase, the university express services 890, 891 and 892 will continue to service the university via Central Station and Circular Quay. The key intersection of High Street and Anzac Parade will accommodate existing bus operations during peak periods. The intersection works at this location will be limited to weekend periods which would limit the manoeuvrability of vehicles, however the university express services only operate during weekday peak periods.

Construction activities along High Street will be contained between Wansey Road and Belmore Road with minimum of one traffic lane in each direction maintained for the majority of the construction as detailed in Sections 4.6.3.2 and 4.6.4.2. Construction activities at the signalised intersection of Botany Road and High Street will occur outside of peak periods to minimise the impact on the university express buses.

At present, the bus stops outside the UNSW, adjacent to Gate 9, is utilised by numerous regular bus services as well as University express services. With the operation of the light rail, an indented bus bay would be provided for the westbound services, adjacent to the existing bus stop, and the eastbound bus stop would be removed. During construction, to reduce any conflict between the bus operations and construction activities, a westbound bus stop is proposed west of Wansey Road, as shown in Figure 4-53.

The existing bus stops located adjacent to the rail stations currently servicing the university express services will remain operational throughout the construction phase.

Figure 4-53: UNSW High Street Bus Relocation



4.6.7. Pedestrian and Cycle Access

The existing shared pedestrian and cycle path along the Royal Randwick Racecourse frontages of Alison Road and Wansey Road would be closed for the duration of construction. During this time, pedestrians would be directed to use the opposite footpaths on Wansey Road and Alison Road. To facilitate the movement of pedestrians in the region, the signalisation of the Wansey Road and Alison Road intersection would need to be implemented as part of the early works so that pedestrians can safely cross Alison Road during the construction phase.

With combined factors of steep road gradient, high traffic volumes during peak hours and reduced lane capacities, Alison Road would not be a desirable on-road cycle route during construction. Alternate on-road cycle routes would be signposted during the construction phase to maintain suitable cycle access to UNSW and the southern Randwick precinct.

A multi-criteria analysis examined suitable cycle route alternatives providing a north south connection between strategic cycle routes and the major attractor of UNSW. Existing Randwick City Council on-road cycle routes would be encouraged through signposting and line marking. Potential cycle routes that service the north-south connection include:

- Botany Street, Church Street and King Street;
- Botany Street, Church Street, and Dangar Street;
- Church Street, Frances Street, Cook Street, and Belmore Road; and
- University Mall, Day Avenue, Doncaster Avenue;

The majority of these streets are currently designated by Randwick City Council as on-road cycle routes.

In addition to the north-south connection, the designated High Street on-road cycle route would be affected for the duration of construction. During this time, cyclists would be directed to alternative east-west routes, including the parallel Arthur Street connection to Belmore Road.

Although these routes may extend the distance of cycle trips, the traffic volumes through these roads are considerably lower than Alison Road during peak hours, contributing to an improved cycling environment. The alternate routes are shown in Figure 4-54.

Figure 4-54: Alternate Randwick Precinct Cycle Route

Line marking and signs would need to be installed along the temporary route to notify drivers of the presence of cyclists on the road. Furthermore, directional signs would need to be installed at key locations to direct cyclists along the cycle route. In total the temporary route would extend cycle trips by approximately 500-600 metres.

For the majority of the alignment, the existing pedestrian footpaths would be maintained, except during kerb realignments and services relocations where the footpaths would be narrowed and localised diversions would be in place to protect the pedestrians from the road activities.

Pedestrian crossing opportunities would be maintained during intersection works at Botany Street and Belmore Road either by maintaining the existing pedestrian facilities or providing alternate crossing opportunities at adjacent locations.

4.6.8. Emergency Vehicle Access

During construction, no special provisions would be provided adjacent to the worksites within the Randwick precinct. It is assumed that emergency services would travel via the open general traffic lanes along Alison Road and High Street, and the surrounding roads when responding to emergencies. When responding to emergencies within the worksites, it is intended that the emergency vehicles would utilise the construction vehicle paths, only on approach to the block, and the adjacent traffic lanes would form the key access point.

4.6.9. Taxis

There is one taxi zone located on High Street, outside the Prince of Wales Hospital. As per the end state, this taxi zone would be removed during the construction phase. The nearest location for a taxi zone is Clara Street, opposite the existing taxi zone. In keeping with the relocation of the bus zones, the taxi zone would be relocated to Clara Street, adjacent to the bus stops.

5. Glossary

Term	Acronym / Abbreviation	Description
Average Annual Daily Traffic	AADT	A transportation engineering measure used to express the total volume of vehicle traffic of a highway or road for a year divided by 365 days.
Bi-directional Signalling		Signalling system which allows trains to move in either direction on a single track with safe separation between trains.
Car		An individual vehicle within a Train Set.
CityRail (Sydney Trains) Station		Existing rail station on the Sydney Trains (formerly CityRail) network.
Consent		Approval to undertake a development received from the consent authority. Also referred to as development consent.
Construction Environmental Management Plan	CEMP	A document setting out the management, control and monitoring measures to be implemented during construction of a development, to avoid or minimise the potential environmental impacts identified during an environmental impact assessment process.
CBD &South East Light Rail	CSELR	The project, Sydney CBD and South-East Light Rail
Construction site (or worksite)		Land required for construction activities associated with the project (including storage, amenities, site offices, etc.), and may be required for the construction and commissioning phases. A construction site may be temporary (e.g. for Enabling Works such as adjustment to a water main) or long term (e.g. a station construction worksite).
Construction Traffic Management Plan	CTMP	Measures put in place during construction projects to manage construction activities, provide safe worksites and minimise disruption to businesses and residents

Term	Acronym / Abbreviation	Description
Construction Traffic and Transport Management Strategy	CTTMS	This Framework is for Sydney CBD and South East Light Rail (CSELR) project. This provides a procedures and techniques for mitigating or managing construction impacts on to general traffic, pedestrians, cyclists, and public transport services past the worksites, manage traffic flows through, and around, the construction zone and haulage routes, minimise the impact of construction on local residents and businesses; and address local and regional traffic impacts during construction.
Controlled Access Lane		Access for construction, local access and emergency vehicles is maintained through work area, under traffic controllers.
Degree of Saturation	DoS	A transportation engineering measure used to express how much demand an intersection or road is experiencing compared to its total capacity.
Director-General's requirements		Requirements for an environmental assessment issued by the Director-General of the Department of Planning in accordance with the *Environmental Planning & Assessment Act 1979*.
Disability Discrimination Act	DDA	The Commonwealth legislation *(Disability Discrimination Act, 1992)* aimed at improving access including on public transport for people with a disability.
End-state		A term used to describe the condition / arrangement of infrastructure in the post-construction phase.
Environmental Assessment	EA	Is an assessment of the possible impact that a proposed project may have on the environment; considering natural, social and economic aspects.
Environmental Impact Statement	EIS	This refers to the report assessing the potential impacts of a proposed Project. EIS would be assessed under Part 4 or 5 of the Environmental Planning and Assessment Act 1979. The assessment will be determined by the Minister for Planning and Infrastructure.
Framework Traffic Management Plan	FTMP	Strategies for proposed traffic management measures that will be established and practiced throughout the construction period of a project.

Term	Acronym / Abbreviation	Description
Handwork		Construction works that rely on manual techniques rather than use of specialised machinery. Generally used at intersections and where confined worksite space restricts use of machines.
Headway		The difference in time or distance between two trains travelling in the same direction.
Heavy rail		The structures and vehicles of railways not falling under the description of trams, light rail, medium capacity system, or rapid transit. In this case, it is Sydney Trains network (formerly CityRail).
Light Rail Construction Contractor	LRTCC	Plan for site access for contractors and public during construction and operation phases.
Light Rail Operations Contractor	LRTO	Light Rail Operations contractor responsible for rollingstock, systems, and station works, fit-out and services including mechanical and electrical.
IMO site access plan		The plans of that name that form part of the project management plans and must be updated by the project company in accordance with the plan and reports schedule.
Inner West Light Rail	IWLR	The existing Pyrmont Light Rail and Inner West extension.
Integrated ticketing		Allows a person to make a journey that involves transfers (within or between different transport modes) with a single ticket that is valid for the complete journey.
Integrated transport		A network of different transport modes providing efficient journeys.
Integrated Transport and Land Use	ITLU	Technical Advisor for the Sydney Light Rail on behalf of Transport for NSW.
Intelligent Transport Systems	ITS	Information and communications technology within transport infrastructure and vehicles to improve transportation safety efficiency.
Interchange point		Location that provides for transfer from one mode to another e.g. to heavy rail, light rail or buses.

Term	Acronym / Abbreviation	Description
Kiss-n-ride		Where a car passenger is dropped off at a public transport station/bus interchange by a private car. This is generally by a family member, hence the 'kiss' goodbye.
Level of Service	LoS	Level-of-service for signalised and unsignalised intersections defines the average vehicle control delay
Light rail		A form of urban rail public transportation that generally has a lower capacity and lower speed than heavy rail and metro systems, but higher capacity and higher speed than street-running tram systems.
Maintenance depot		Land including buildings and facilities for the maintenance of the light rail including rolling stock and the infrastructure.
Mode split		The proportion of passengers between different transport modes.
Network Co-ordination Liaison Group	NCLG	The Network Coordination Liaison Group is a group of key stakeholders who are to be formed to develop and manage traffic and transport issues relating to construction of Light Rail. Issues are considered at a strategic level to ensure consistency and considered within the context of the wider network.
Over-Head Wiring	OHW	The OHW supplying power to the SLR will be fixed to poles, where feasible co-ordinated with existing street lighting poles
Open Access Lane		Access lane provided outside work area for construction, local access and emergency vehicles.
Paid concourse		Area of the station that can only be accessed by ticket holders.
Permanent Route Infrastructure	PRI	Comprises the civil works to be designed and constructed by the construction contractor for handover to the operations contractor for the CBD &South East Light Rail.
Product		The new CBD &South East Light Rail in total including assets, brand, systems, intellectual property, interfaces and metro services.
Product Specification		A Sydney Light Rail document which sets out the owner and technical requirements.

Term	Acronym / Abbreviation	Description
Project		The construction and operation of the proposed Sydney Light Rail as considered by the preliminary environmental assessment.
Proponent		The person proposing to carry out development comprising all or any part of the project, including any person certified by the Minister for Planning to be the proponent (such certification to be obtained prior to commencement of the relevant part of the project).
Rail Clearways program		The Rail Clearways program is an initiative of the NSW Government to improve capacity and reliability on CityRail's Sydney suburban network.
Road header		Machine used to excavate tunnels with a boom-mounted cutting head.
Roads and Maritime Services	RMS	It is a state government authority responsible for building and maintaining infrastructures, providing licence and registration services, managing compliance to rules and regulations, providing safety management services, delivering traffic management services, environmental solutions, managing tolling and regulating users of roads and waterways.
Road Occupancy Licence	ROL	A Road Occupancy Licence is a process whereby an Authority (primarily RTA) gives its approval for an activity which involves removing one or more lane of the road from traffic or parking use to another use – usually temporary construction.
Rolling stock		Standard trains used on the Light Rail.
Scramble crossing		A pedestrian crossing scheme which comprises concurrent all-red phase for vehicles and green pedestrian phase on all arms.
Spoil		Excess material resulting from excavation, generally comprising existing road paving and subgrade, soil and rock material.

Term	Acronym / Abbreviation	Description
Stabling facility		Location where rolling stock (trains) are stored when not in service.
Station		Refers to proposed Light Rail station infrastructure, including platforms, concourse, pedestrian connections, and associated requirements / facilities to service the station.
Station concourse		Areas of the station that can be accessed by any member of the public.
Station Plan		Plans that may be prepared for land on which light rail stations are to be situated, and land in the vicinity of such stations, with respect to development, traffic and parking management arrangements, pedestrian links and access facilities, retail and commercial development associated with Metro railway stations, public domain amenities and improvements, and other matters ancillary to the operation of light rail and any associated transport or other facilities.
South East	SE	This refers to South-East Light Rail project, which covers the south and east of the Sydney central business district. It includes suburbs of Surry Hills, Moore Park, Kensington, Kingswood and Randwick.
Sydney Coordinated Adaptive Traffic System.	SCATS	A computerised traffic light management system.
Sydney Light Rail Strategic Plan	SLRSP	Sydney Light Rail Strategic Plan.
Ticket Vending Machine		Vending machine capable of dispensing, charging and displaying information about ticket media.
Traffic Control Plan	TCP	Plans detailing proposed traffic management for construction staging, including traffic diversions, delineation and signposting.

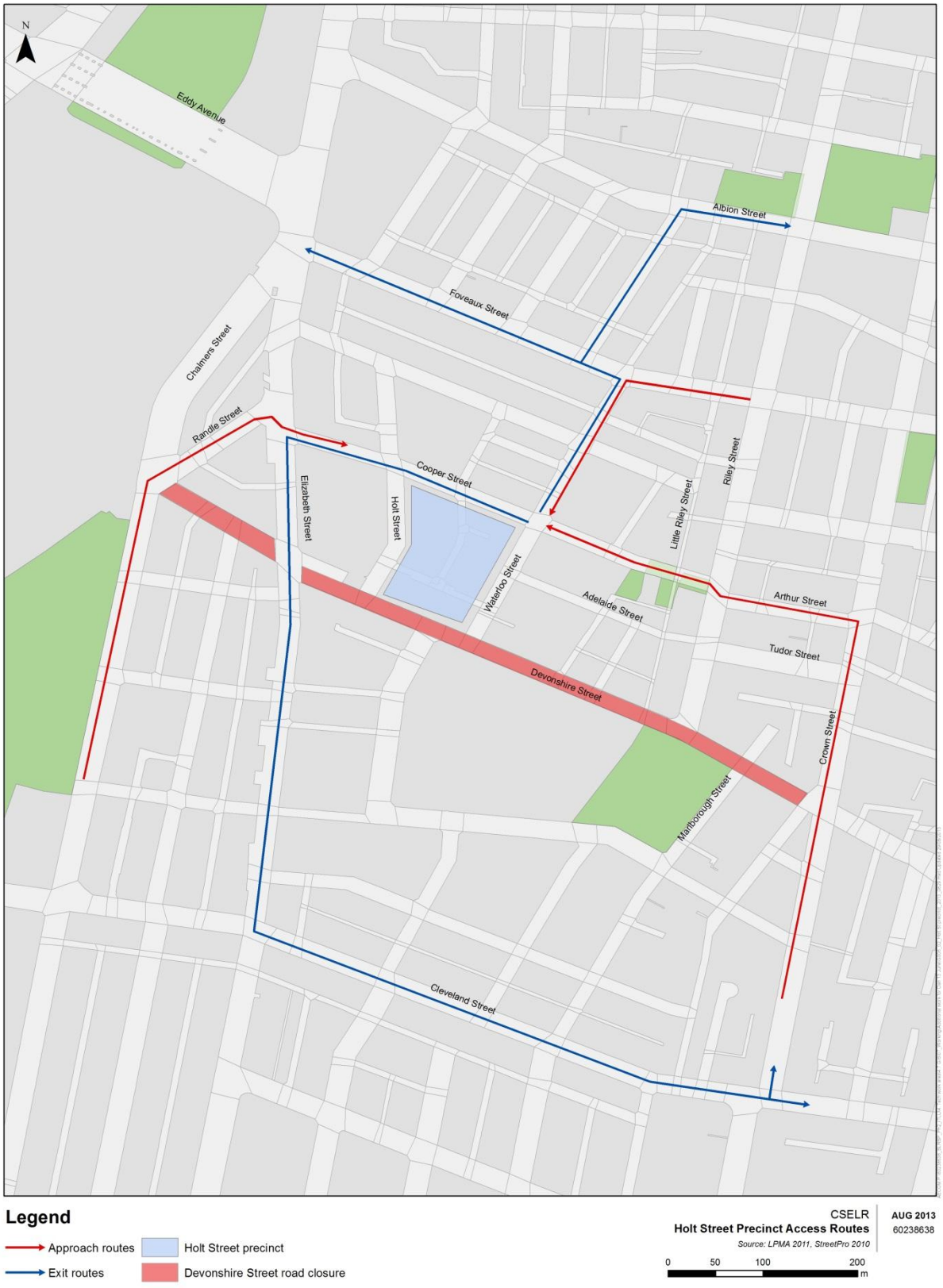
Term	Acronym / Abbreviation	Description
Transport for New South Wales	TfNSW	Transport for NSW is a state government authority responsible for planning, program administration, policy, regulation, procuring transport services, infrastructure and freight. Also providing safe, reliable, clean and efficient transport services to improve the customer experience.
Transport Management Centre	TMC	Transport Management Centre is a part of Transport for NSW responsible for monitoring and managing of the 18,000km NSW State road network 24 hours a day, seven days a week.
Traffic Management Plan	TMP	Measures put in place during construction projects to manage construction activities, minimise traffic disruption and avoid potential safety problems.
Traffic and Transport Liaison Group	TTLG	A group consisting of key stakeholders organised on a local Council basis to discuss and approve in principle to permanent and temporary traffic and surface transport issues relating to stations and worksites.
Transitway	T-way	A Transitway is a bus-only or high-occupancy vehicle road that forms part of a bus rapid transit system. Transitways are usually grade-separated from regular traffic and employ various prioritisation techniques such as exclusive traffic signal phases.
Turnback		Configuration of tracks allowing a train to terminate a service and return to its starting point.
Urban context		The broader area considered for patronage and planning, which is generally a 1km radius of the proposed station.
University of New South Wales	UNSW	The main Kensington Campus located adjacent to Anzac Parade and High Street
Utility Services		Any utility service, including water, electricity (including for the avoidance of doubt, the emergency electrical systems and any diesel or other fuel required for the operation of those systems), steam/condensate, fire services, gas, telephone, drainage, sewerage and all communications services.
Variable Message Sign	VMS	Equipment used in Intelligent Transport Systems to inform and or manage road users.

Term	Acronym / Abbreviation	Description
Wire Free Operation	WFO	Wire free operation to supply power for the CESLR to avoid the need to mount overhead wires on new or existing poles.

6. Appendices

Appendix A.1 Rocks Precinct Access Plan

Appendix A.2 Surry Hills precinct Access Plan




N
Eddy Avenue
Albion Street
Foveaux Street
Chalmers Street
Randle Street
Cooper Street
Elizabeth Street
Holt Street
Waterloo Street
Little Riley Street
Riley Street
Adelaide Street
Arthur Street
Tudor Street
Devonshire Street
Crown Street
Marlborough Street
Cleveland Street
Legend
Approach routes
Exit routes
Adelaide Street precinct
Devonshire Street road closure
CSELR
Adelaide Street Precinct Access Routes
Source: LPMA 2011, StreetPro 2010
AUG 2013
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m


N
Albion Street
Foveaux Street
Riley Street
Little Riley Street
Waterloo Street
Adelaide Street
Arthur Street
Tudor Street
Devonshire Street
Crown Street
Marlborough Street
Esther Lane
Bourke Street
Devonshire Street
Nobbs Street
South Dowling Street / ED
Parkham Street
Fitzroy Street
Legend
Approach routes
Exit routes
Traffic direction
Esther Lane precinct
Devonshire Street road closure
CSELR
Esther Lane Precinct Access Routes
Source: LPMA 2011, StreetPro 2010
AUG 2013
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N
Eddy Avenue
Albion Street
Foveaux Street
Chalmers Street
Randle Street
Cooper Street
Elizabeth Street
Holt Street
Waterloo Street
Little Riley Street
Riley Street
Adelaide Street
Arthur Street
Tudor Street
Devonshire Street
Crown Street
Clisdell Street
Belvoir Street
Marlborough Street
Nicholson Street
William Street
Riley Street
Cleveland Street
Crown Street
Baptist Street
Legend
Approach routes
Exit routes
Clisdell Street precinct
Devonshire Street road closure
CSELR
Clisdell Street Precinct Access Routes
Source: LPMA 2011, StreetPro 2010
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AECOM
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Chalmers Street
Randle Street
Elizabeth Street
Waterloo Street
Adelaide Street
Devonshire Street
Riley Street
Crown Street
Clisdell Street
John Northcott Place
Belvoir Street
Marlborough Street
Wilton Street
Riley Street
Nickson Street
Cleveland Street
Crown Street
Baptist Street
Boronia Lane
Legend
Approach routes
Exit routes
John Northcott precinct
Devonshire Street road closure
CSELR
John Northcott Precinct Access Routes
Source: LPMA 2011, StreetPro 2010
AUG 2013
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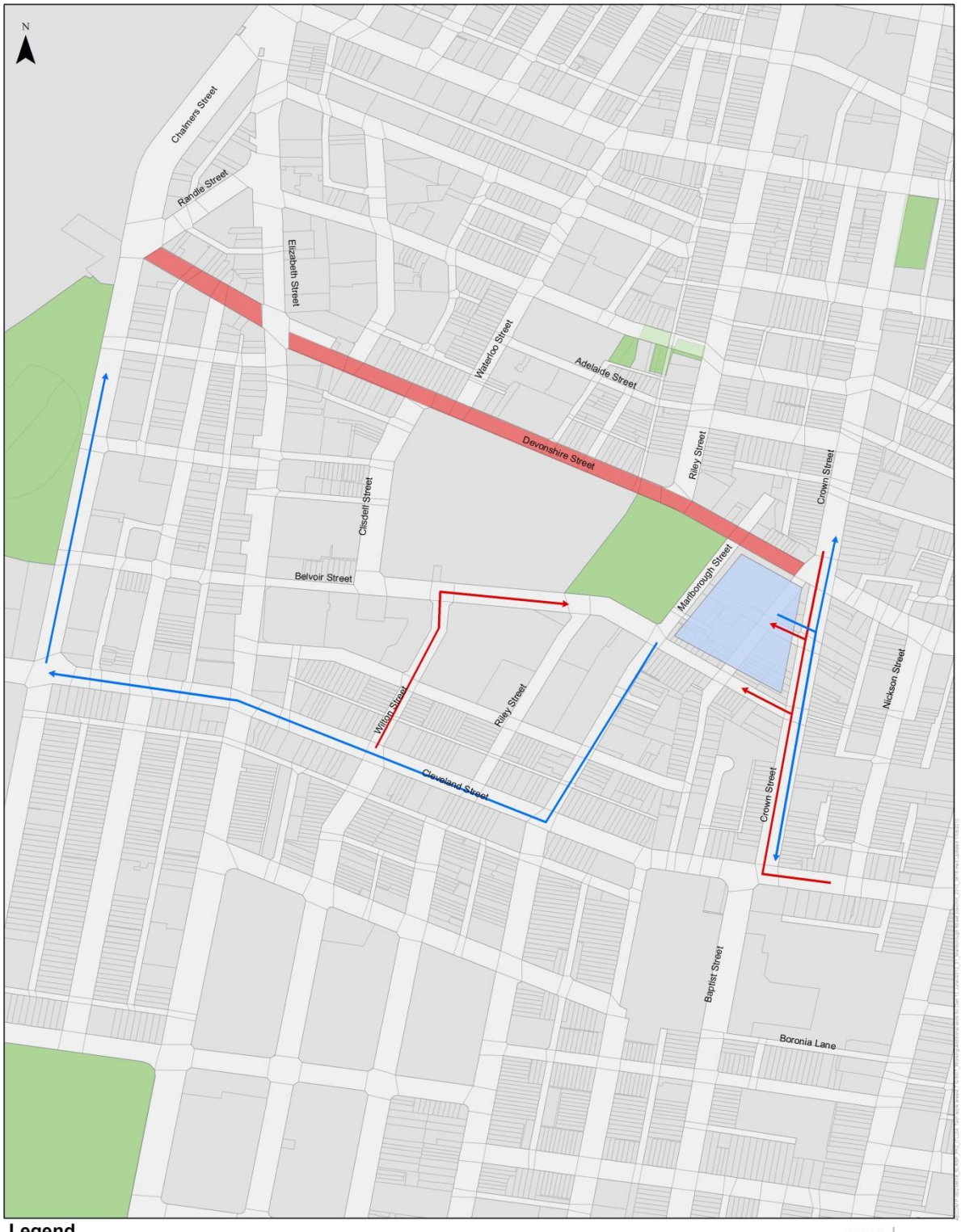
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Chalmers Street
Randle Street
Elizabeth Street
Waterloo Street
Adelaide Street
Devonshire Street
Riley Street
Crown Street
Clisdell Street
Belvoir Street
Marlborough Street
Nickson Street
Wilton Street
Riley Street
Cleveland Street
Crown Street
Baptist Street
Boronia Lane
Legend
Approach routes
Exit routes
Traffic direction
Marlborough Street precinct
Devonshire Street road closure
CSELR
Marlborough Street Precinct Access Routes
Source: LPMA 2011, StreetPro 2010
AUG 2013
60238638
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N
Waterloo Street
Adelaide Street
Devonshire Street
Riley Street
Crown Street
Marlborough Street
Bourke Street
Nobbs Street
South Dowling Street / ED
Nickson Street
Wilton Street
Riley Street
Parkham Street
Cleveland Street
Crown Street
Baptist Street
Boronia Lane
Legend
Approach routes
Exit routes
Traffic direction
Nickson Street precinct
Devonshire Street road closure
CSELR
Nickson Street Precinct Access Routes
Source: LPMA 2011, StreetPro 2010
AUG 2013
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AECOM
N
Eddy Avenue
Albion Street
Foveaux Street
Chalmers Street
Randle Street
Cooper Street
Elizabeth Street
Holt Street
Waterloo Street
Adelaide Street
Little Riley Street
Riley Street
Arthur Street
Tudor Street
Devonshire Street
Crown Street
Marlborough Street
Cleveland Street
Legend
Approach routes
Exit routes
Tudor Street precinct
Devonshire Street road closure
CSELR
Tudor Street Precinct Access Routes
Source: LPMA 2011, StreetPro 2010
AUG 2013
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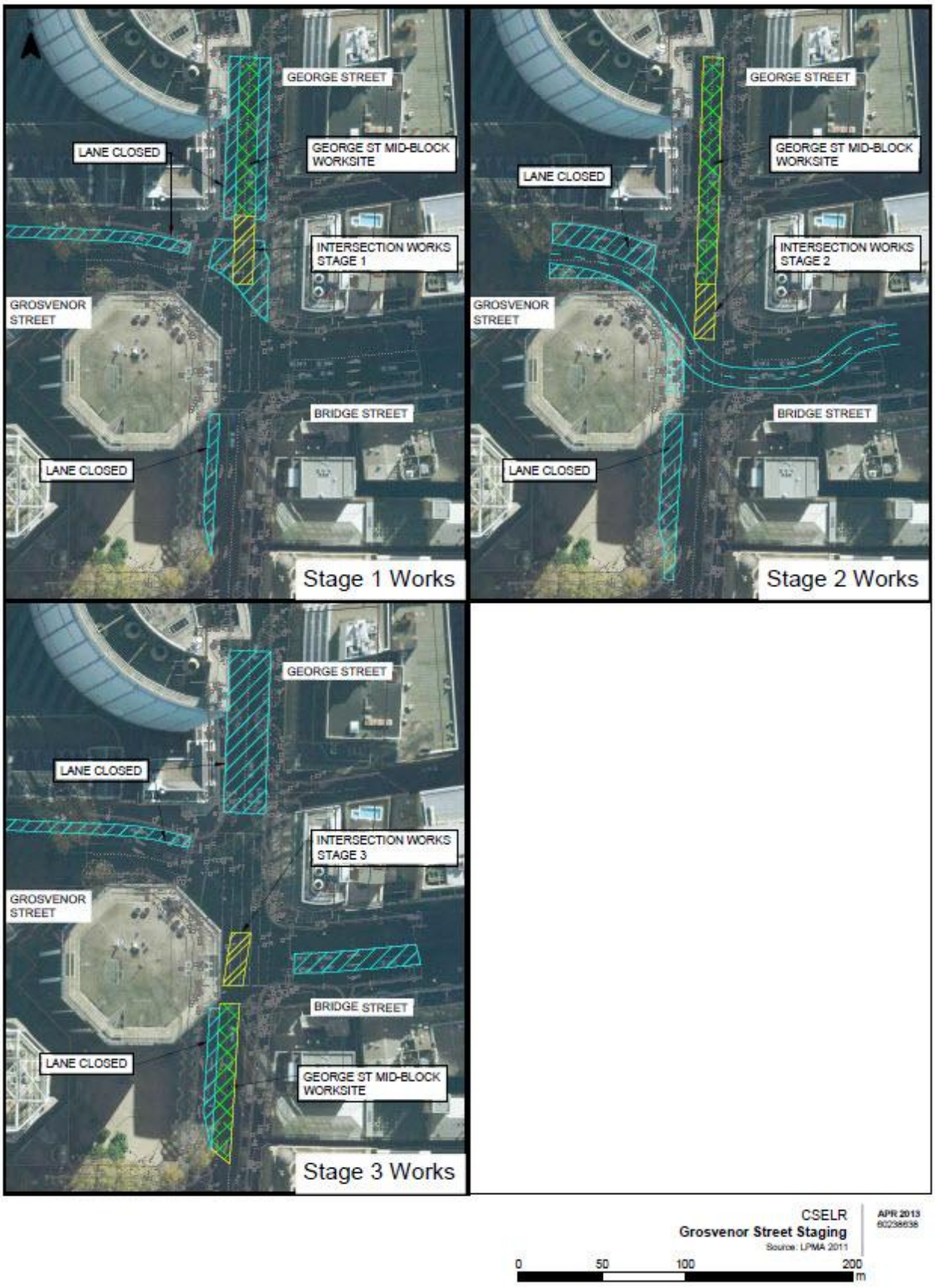
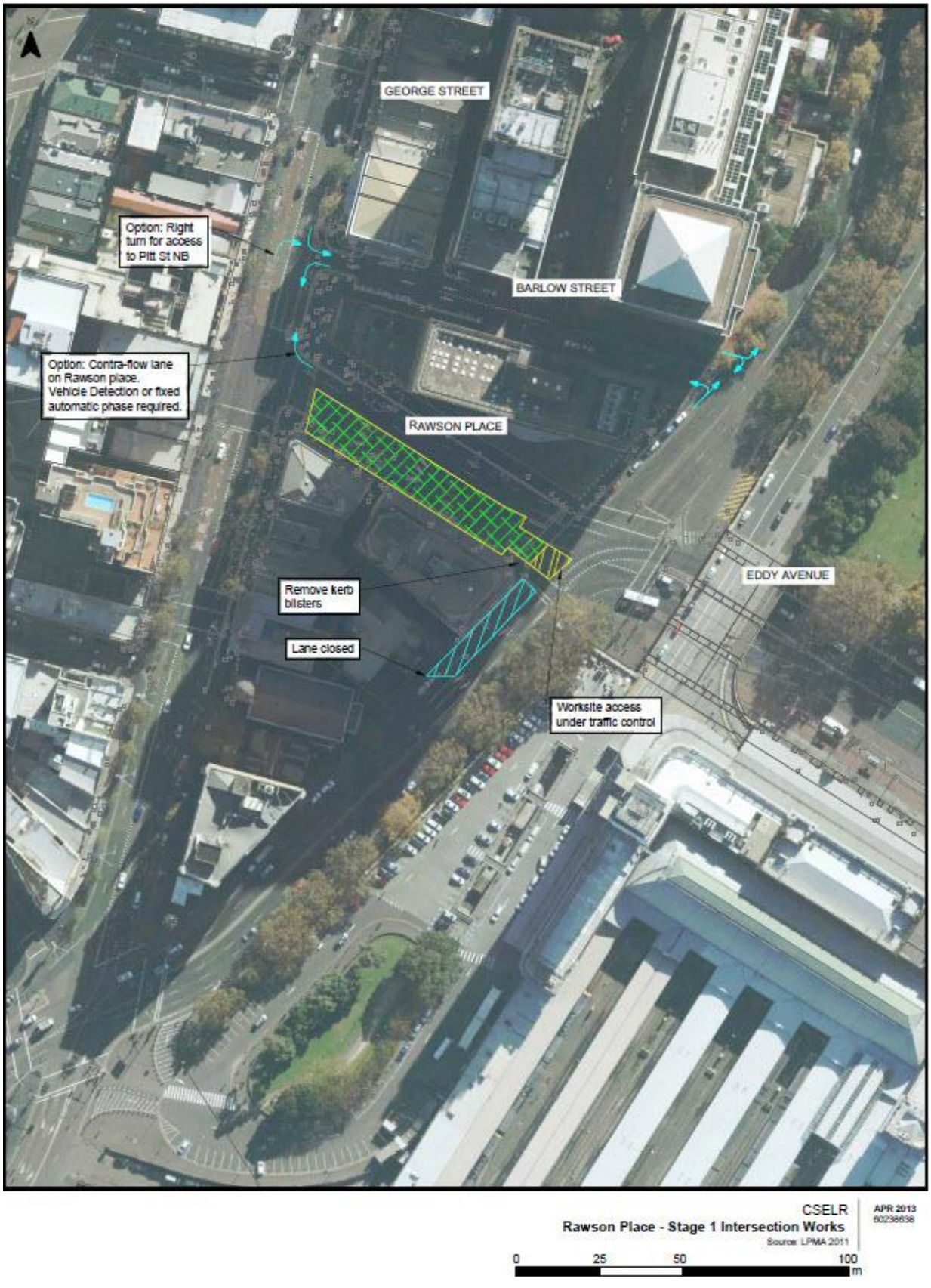
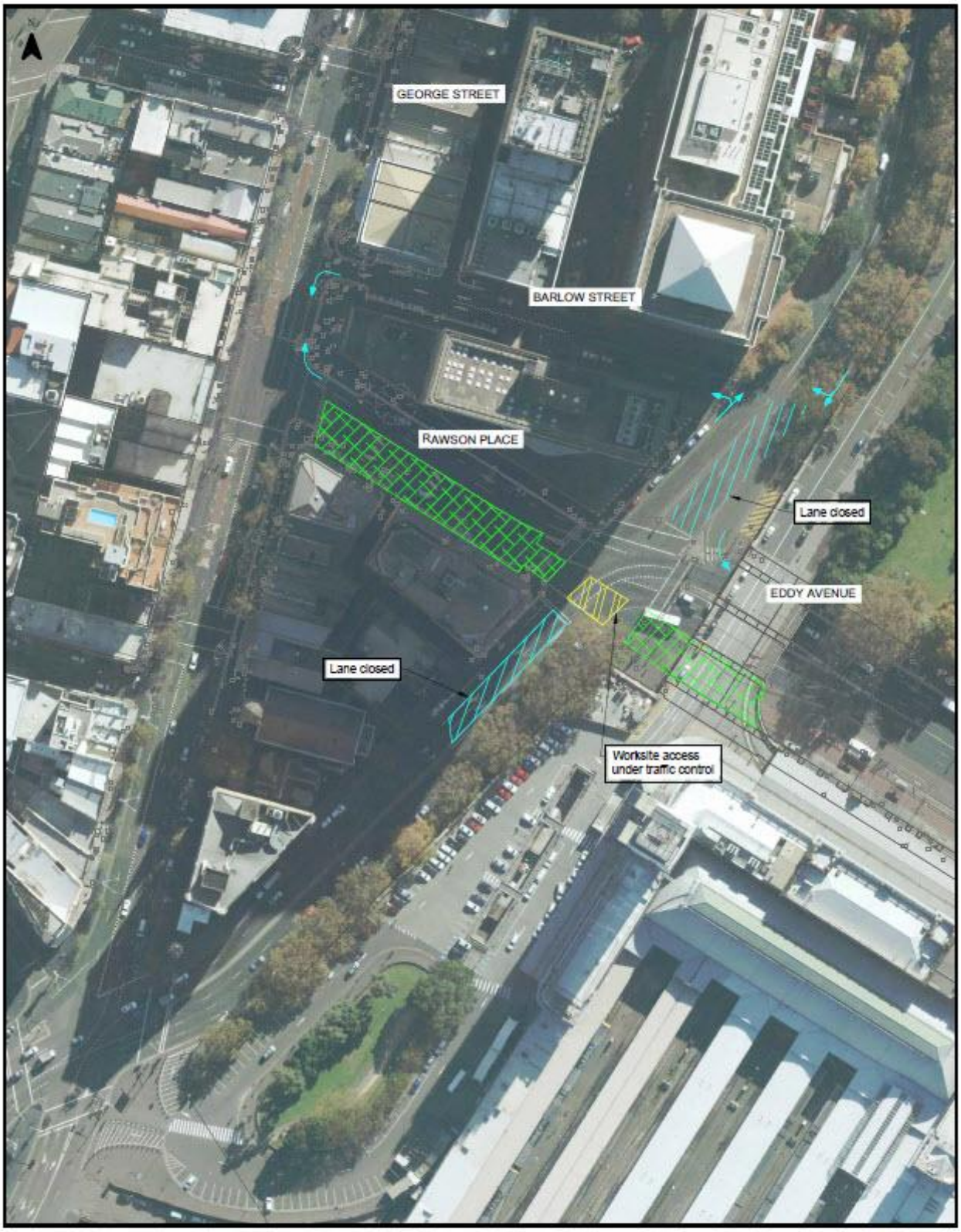
Appendix B.1 Bridge / Grosvenor Street Indicative Staging Diagram



Appendix B.2 Pitt Street / Eddy Avenue Indicative Staging Diagram




GEORGE STREET
BARLOW STREET
RAWSON PLACE
Lane closed
EDDY AVENUE
Lane closed
Worksite access under traffic control
CSELR
Rawson Place - Stage 2 Intersection Works
Source: LPMA 2011
APR 2013
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0
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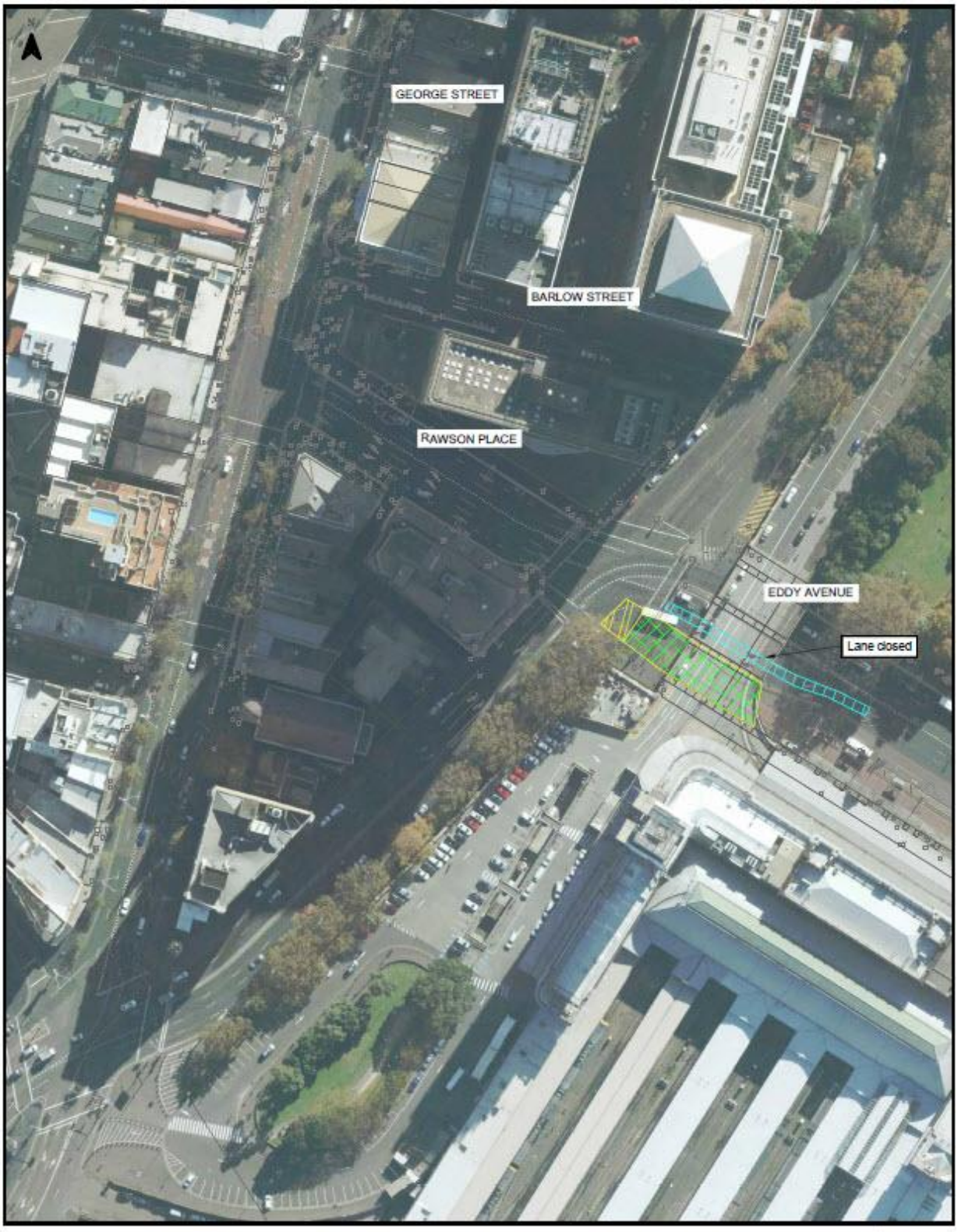
m

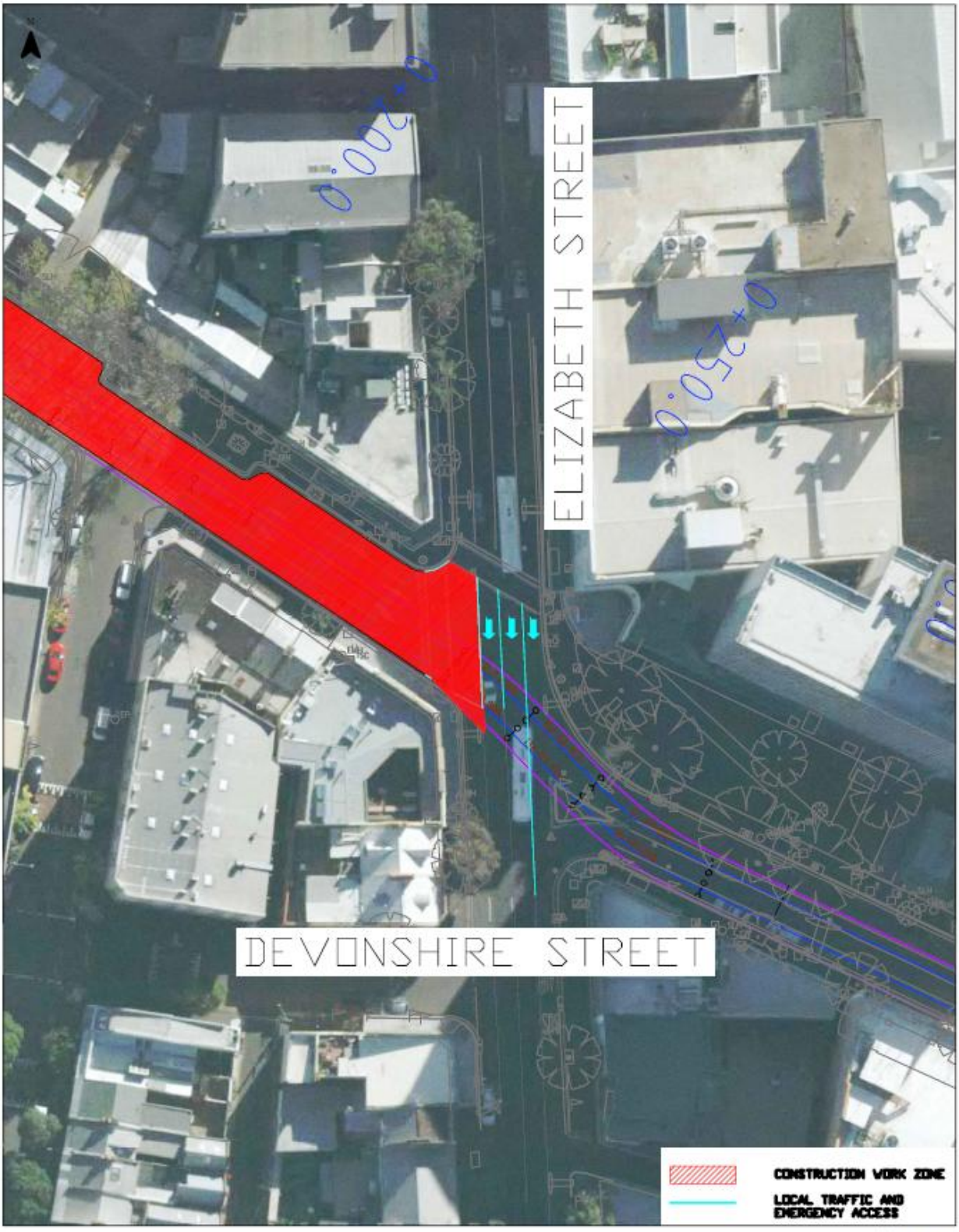


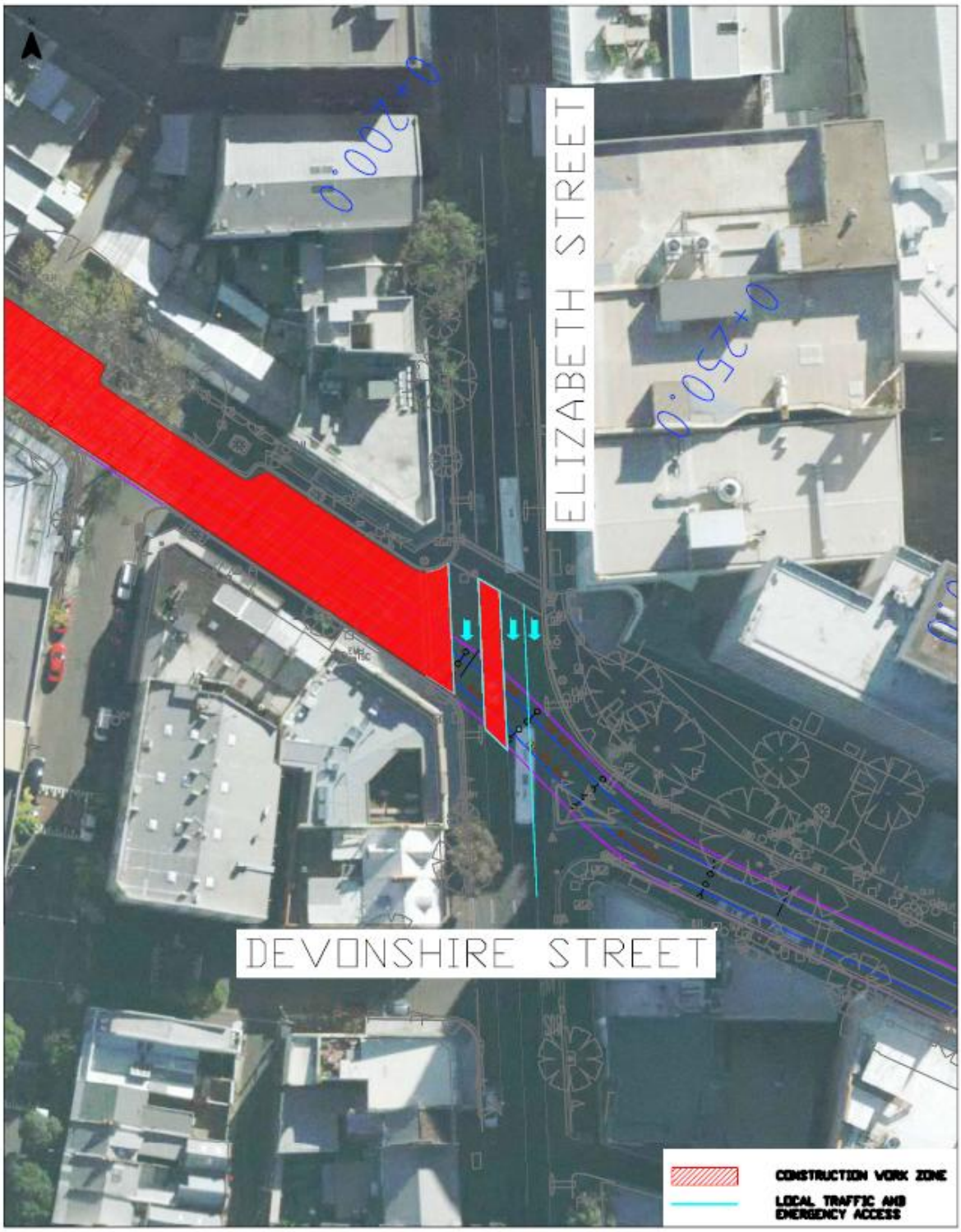
CSELR
Rawson Place - Stage 3 Intersection Works
Source: LPMA 2011

APR 2013
60239838

0 25 50 100 m

Appendix B.3 Elizabeth Street Indicative Staging Diagram

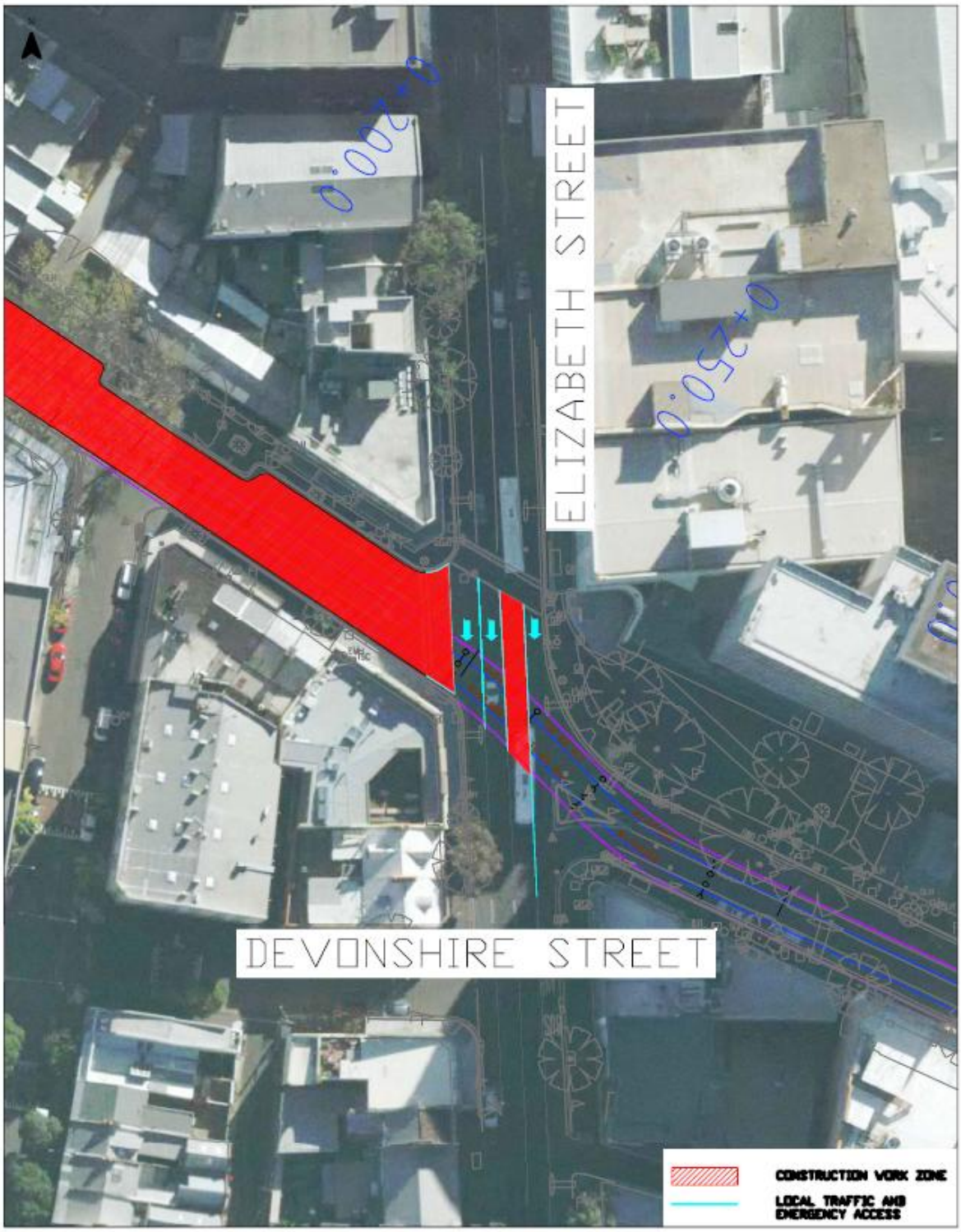




CSELR | APR 2013 60238638

Elizabeth Street Staged Construction 2 of 4 (5 weekends total)

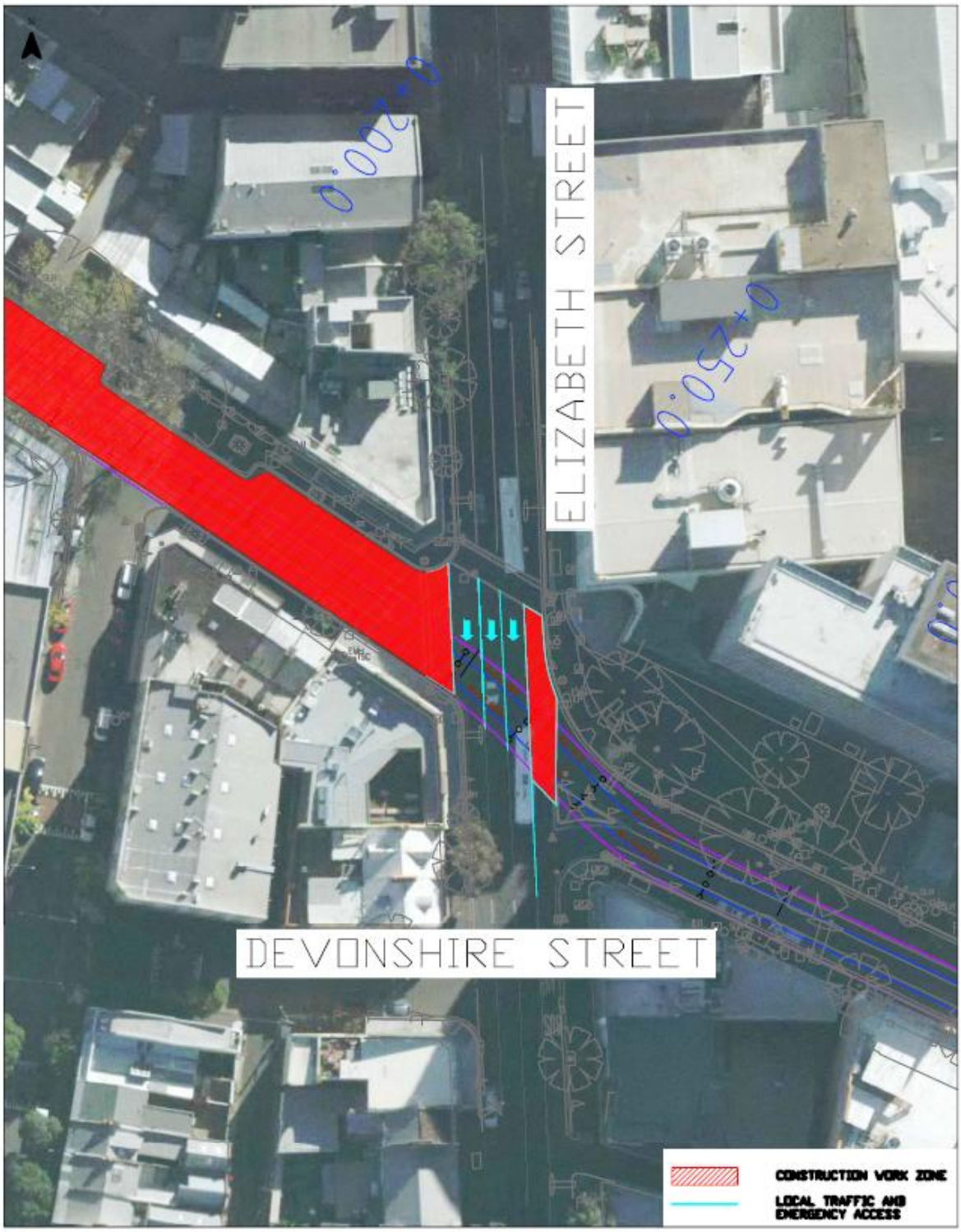
Source: LPMA 2011



CSELR | APR 2013 60238638

Elizabeth Street Staged Construction 3 of 4 (5 weekends total)

Source: LPMA 2011



CSELR | APR 2013 60238638

Elizabeth Street Staged Construction 3 of 4 (5 weekends total)

Source: LPMA 2011

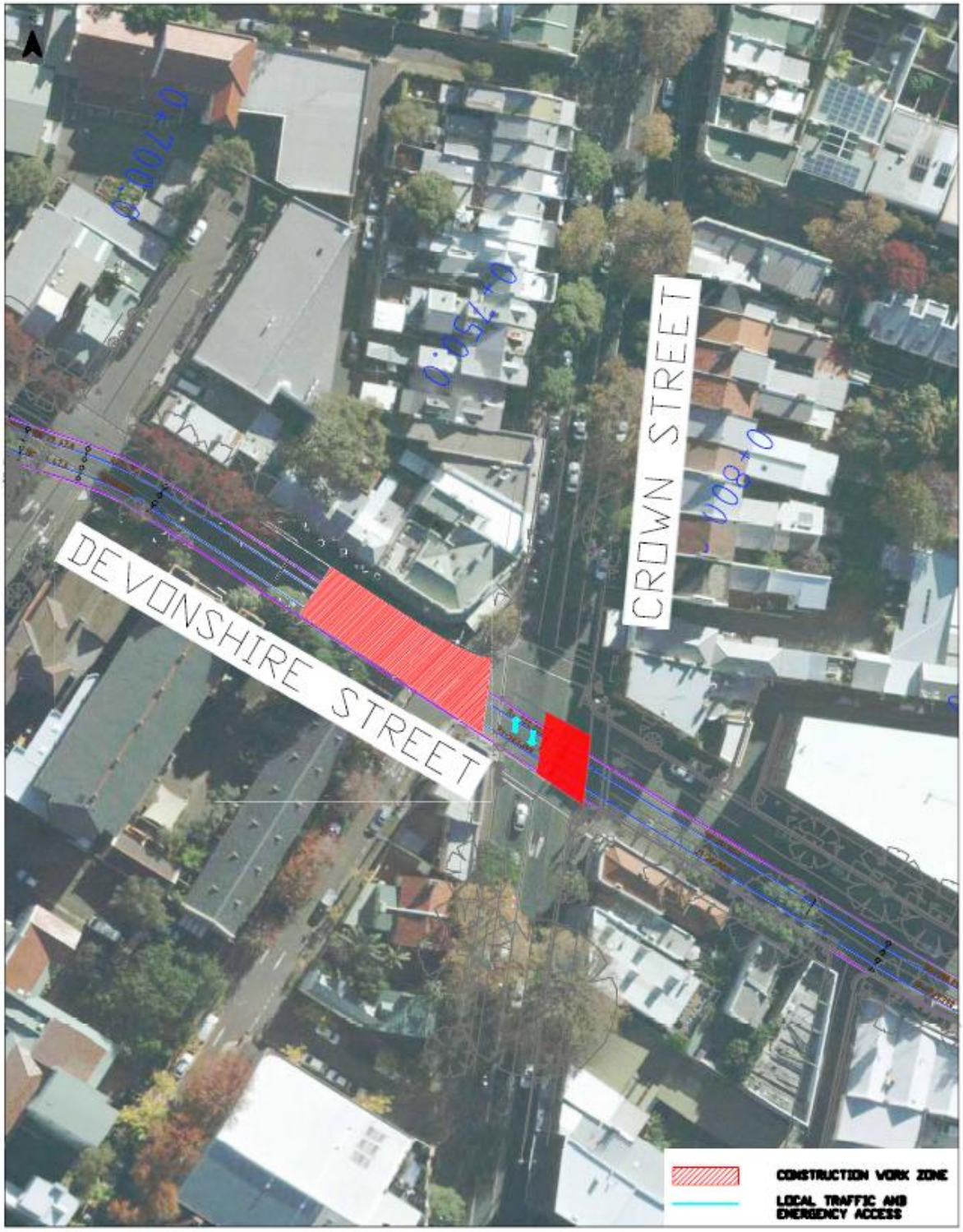
Appendix B.4 Crown Street Indicative Staging Plan

AECOM

CSELR | APR 2013 | 60238638

Crown Street Staged Construction 1 of 2 (4 weekends total)

Source: LPMA 2011



CSELR | APR 2013 60238638

Crown Street Staged Construction 2 of 2 (4 weekends total)

Source: LPMA 2011

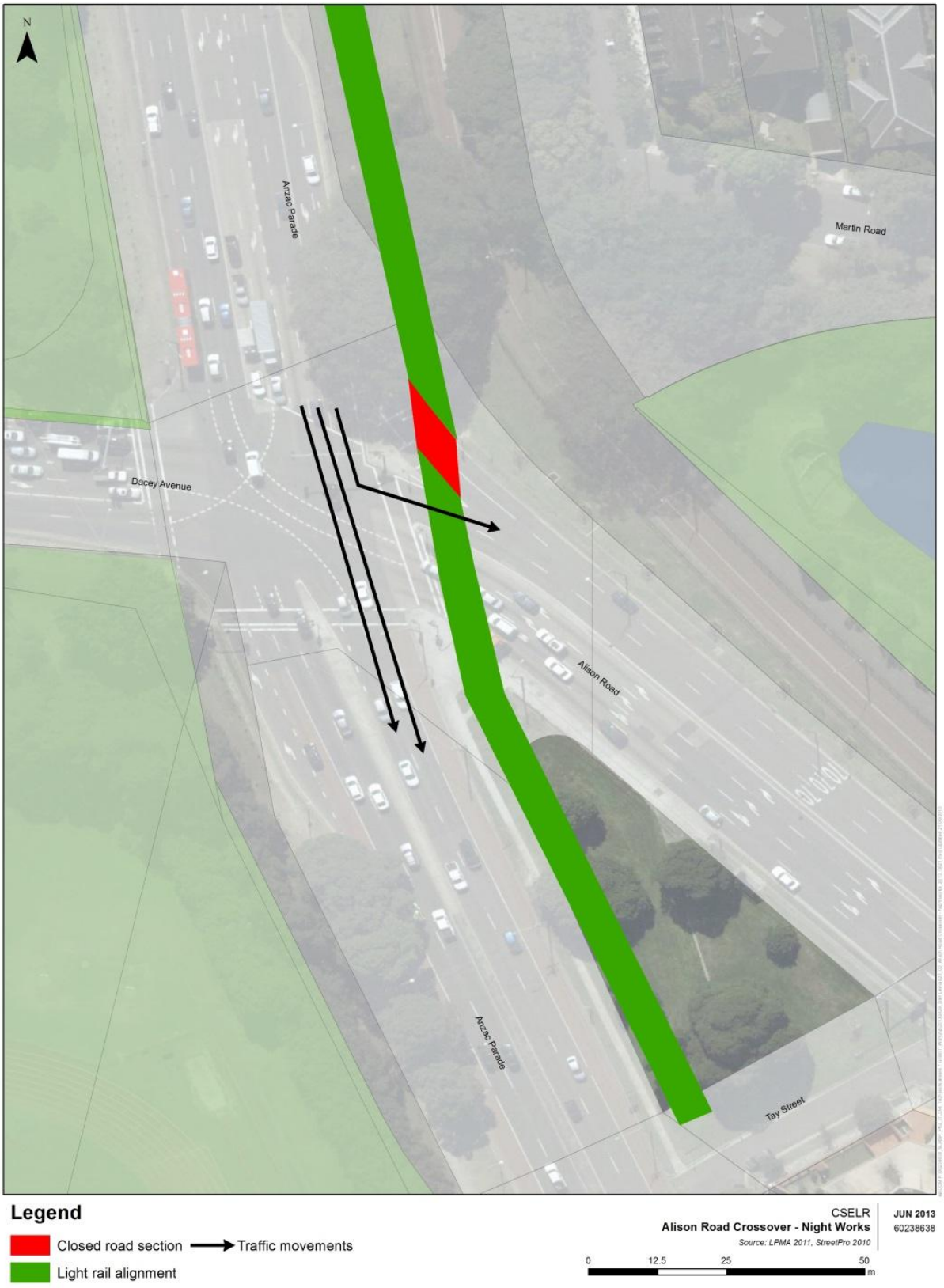
Appendix B.5 Bourke Street Indicative Staging Plan

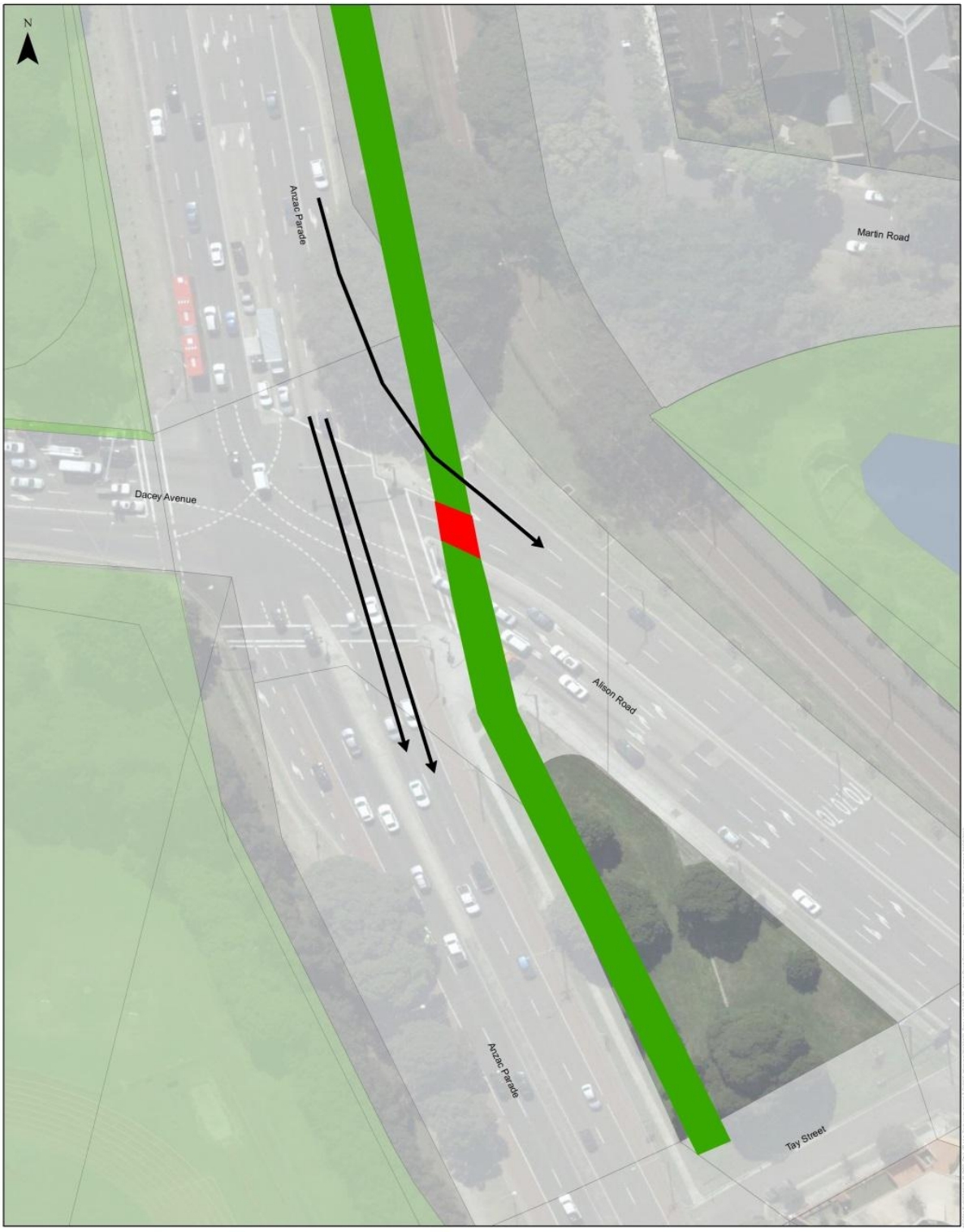
CSELR | APR 2013 60238638

Bourke Street Staged Construction 2 of 2 (5 weekends total)

Source: LPMA 2011

Appendix B.6 Alison Road Indicative Staging Plan





Legend

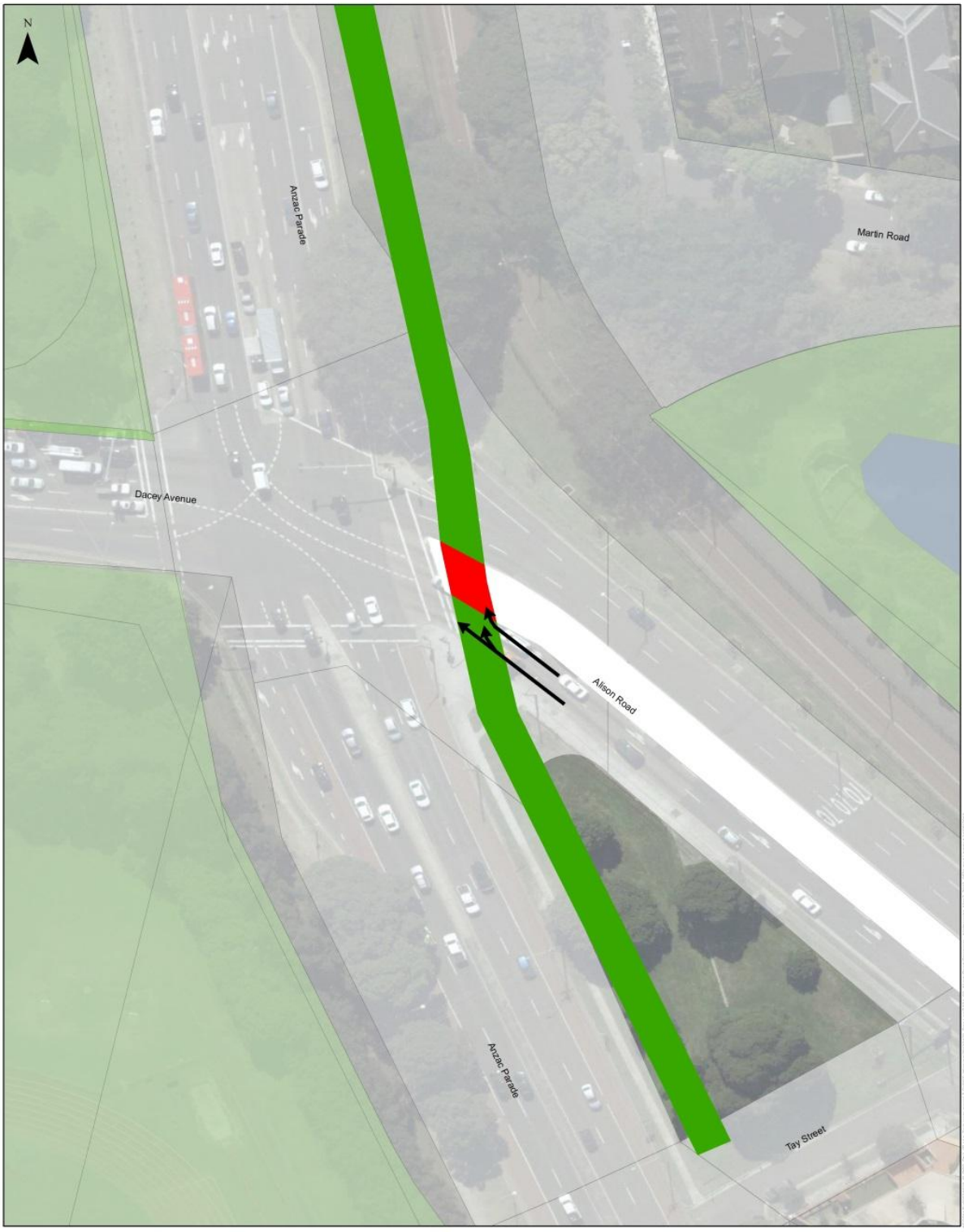
Closed road section → Traffic movements

Light rail alignment

CSELR
Alison Road Crossover - Night Works
Source: LPMA 2011, StreetPro 2010

0 12.5 25 50 m

JUN 2013
60238638



Legend

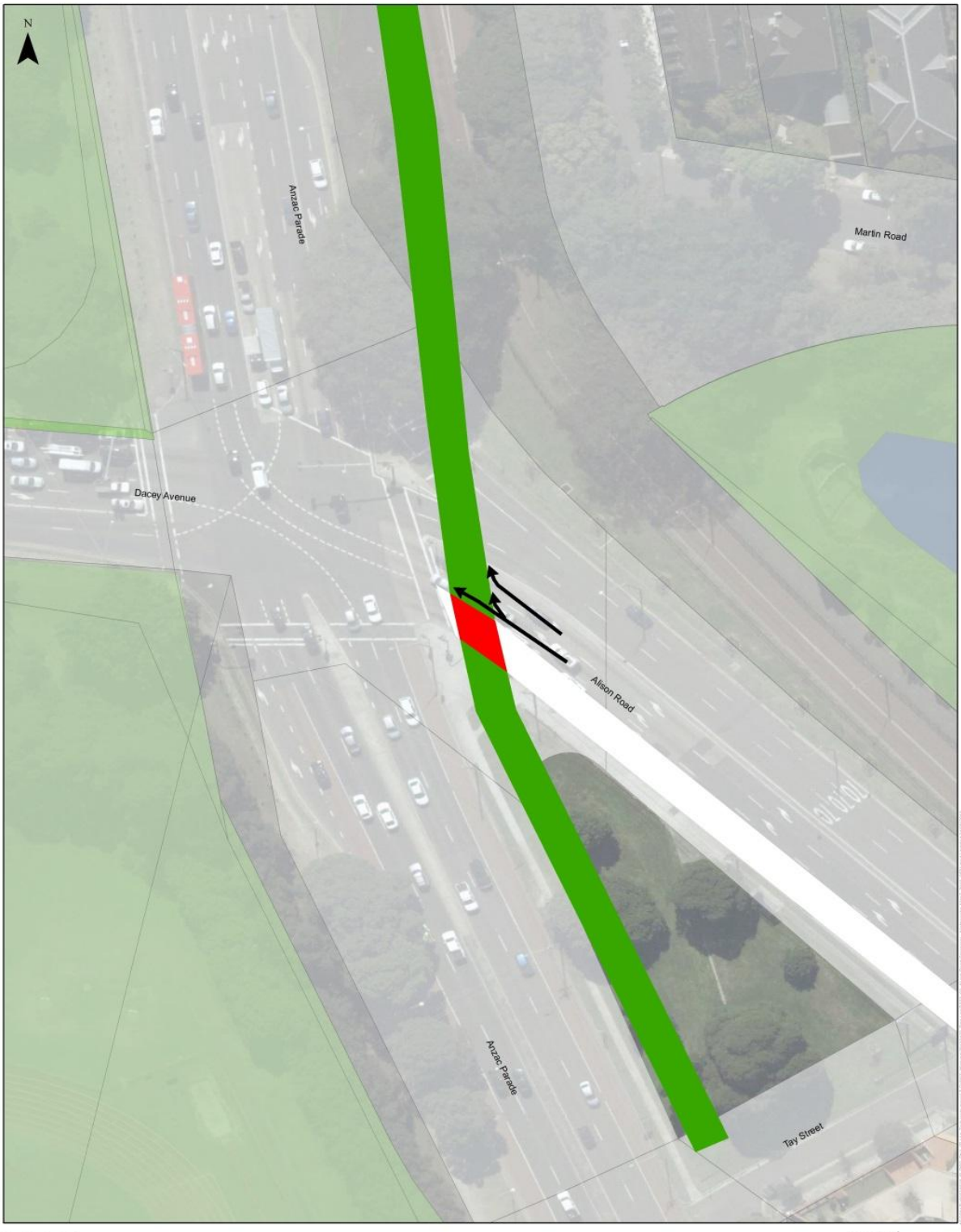
Light rail alignment → Traffic movements

Closed road section

CSELR
Alison Road Crossover - Night Works
Source: LPMA 2011, StreetPro 2010

0 12.5 25 50 m

JUN 2013
60238638


N
Anzac Parade
Martin Road
Dacey Avenue
Alison Road
Anzac Parade
Tay Street
Legend
Light rail alignment
Traffic movements
Closed road section
CSELR
Alison Road Crossover - Night Works
Source: LPMA 2011, StreetPro 2010
JUN 2013
60238638
0
12.5
25
50
m