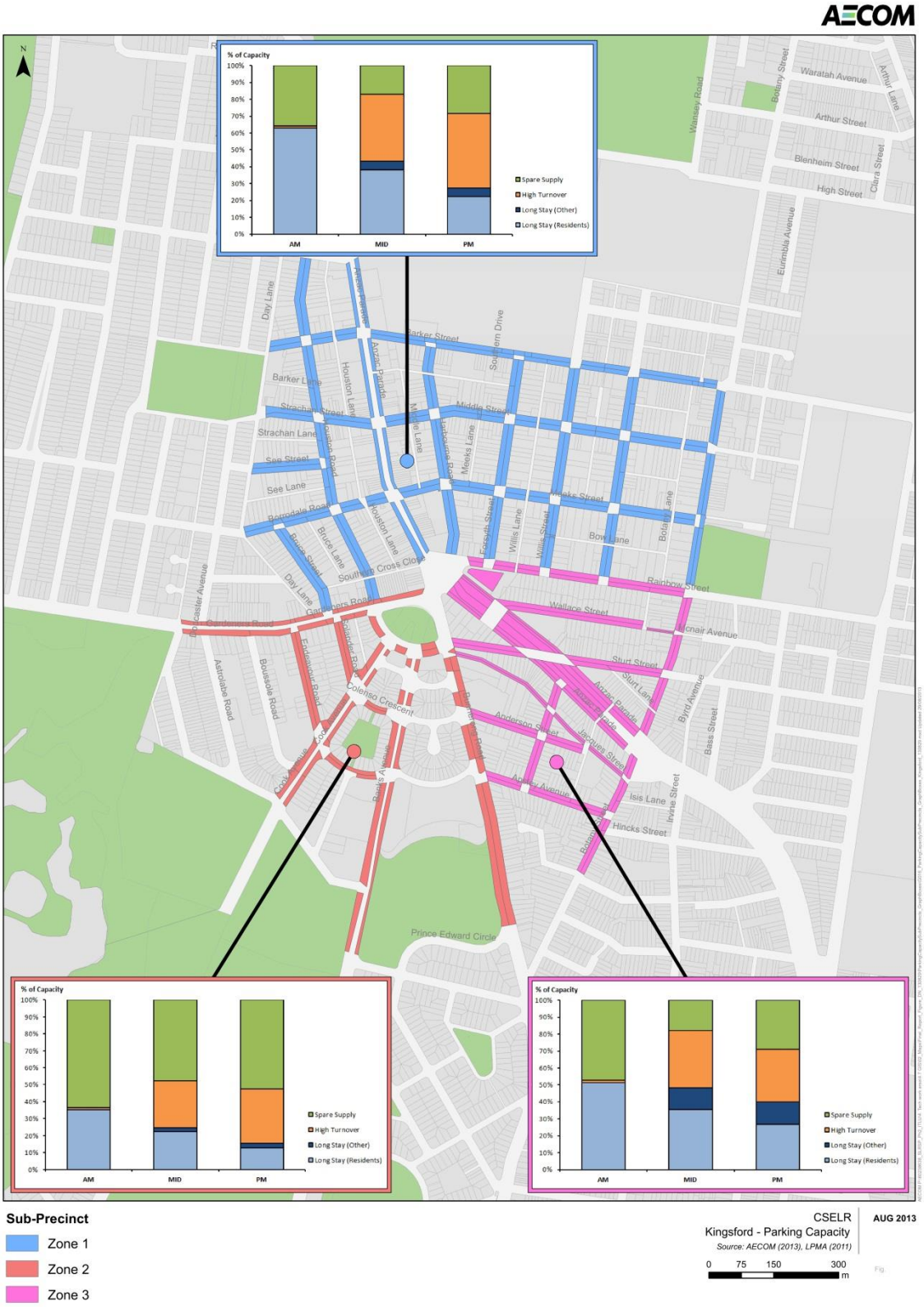
Figure 6-33: Kingsford: Parking Occupancy by User Type



In addition to the sub precinct zone analysis of Kingsford, detailed analysis of the immediate walking catchment of the alignment at two key areas was undertaken. The key areas and parking analysis are illustrated in Figure 6-34 and Table 6-13.

Figure 6-34: Kingsford: Sub Area Occupancy by User Type

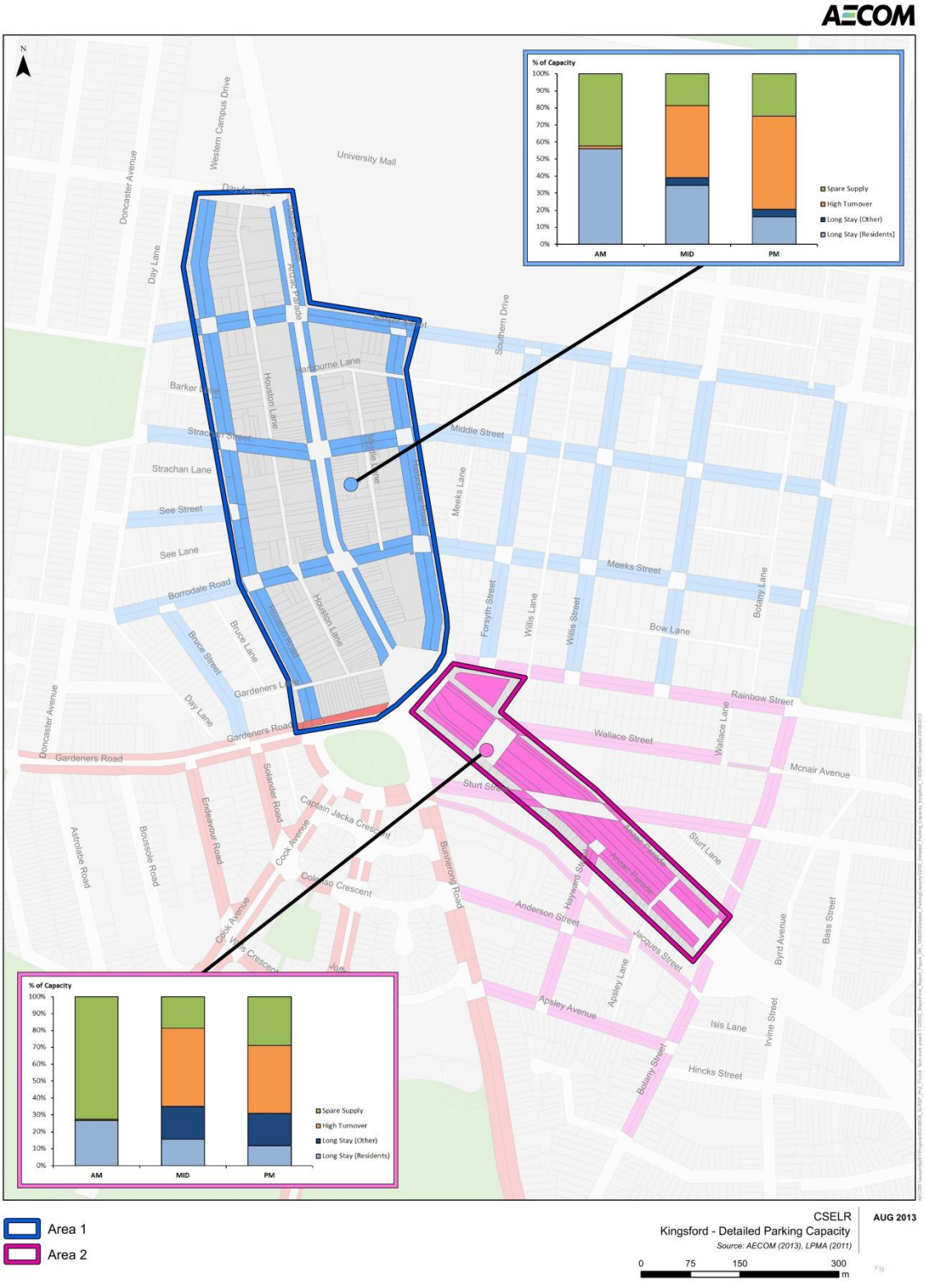


Table 6-13: Kingsford Sub Area Parking Assessment

	Pre-AM Peak			Interpeak			Post-PM Peak			Daily
	Demand	Supply	Occupancy	Demand	Supply	Occupancy	Demand	Supply	Occupancy	% High Turnover
Area 1	362	623	58%	558	683	82%	518	686	76%	47%
Area 2	124	445	28%	363	445	82%	318	445	71%	48%

**Note supply and demand includes time restricted and non-restricted parking only.*

- During the survey of the Pre-AM Peak, Area 1 and Area 2 both observe low occupancy of available parking spaces at 58% and 28% respectively.
- Occupancy rates of available parking during the Interpeak are consistent between Area 1 and Area 2.

6.3.4.4. Randwick Precinct

The occupancy survey results for the Randwick precinct are illustrated in Figure 6-35 to Figure 6-37 and summarised in Table 6-14. The precinct was divided into four subsections to provide summary measures for parking demand and turnover.

Figure 6-35: Randwick – Pre-AM Peak Occupancy (before 7.30am)

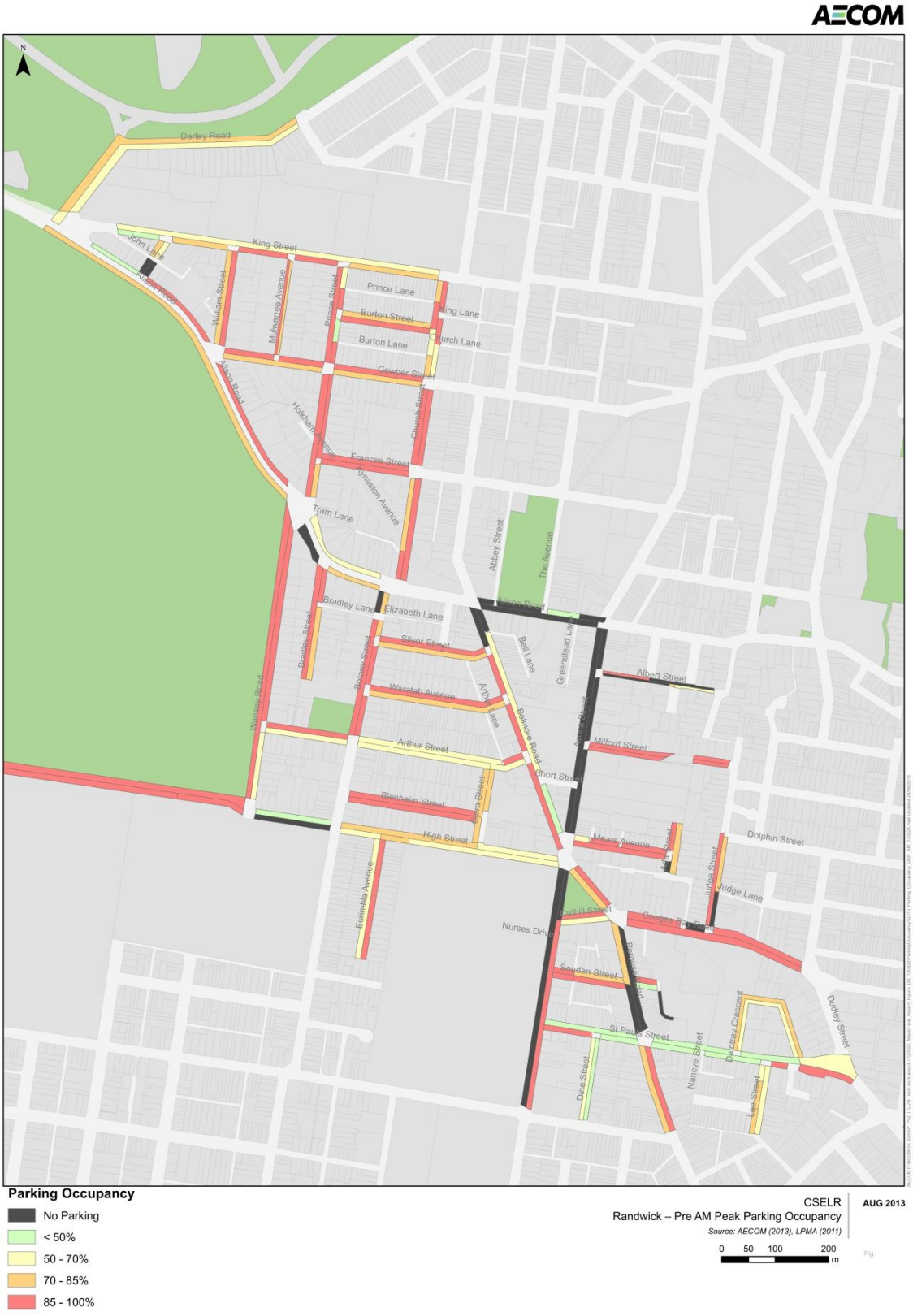


Figure 6-36: Randwick – Interpeak Occupancy (between 10.00am and 2.00pm)

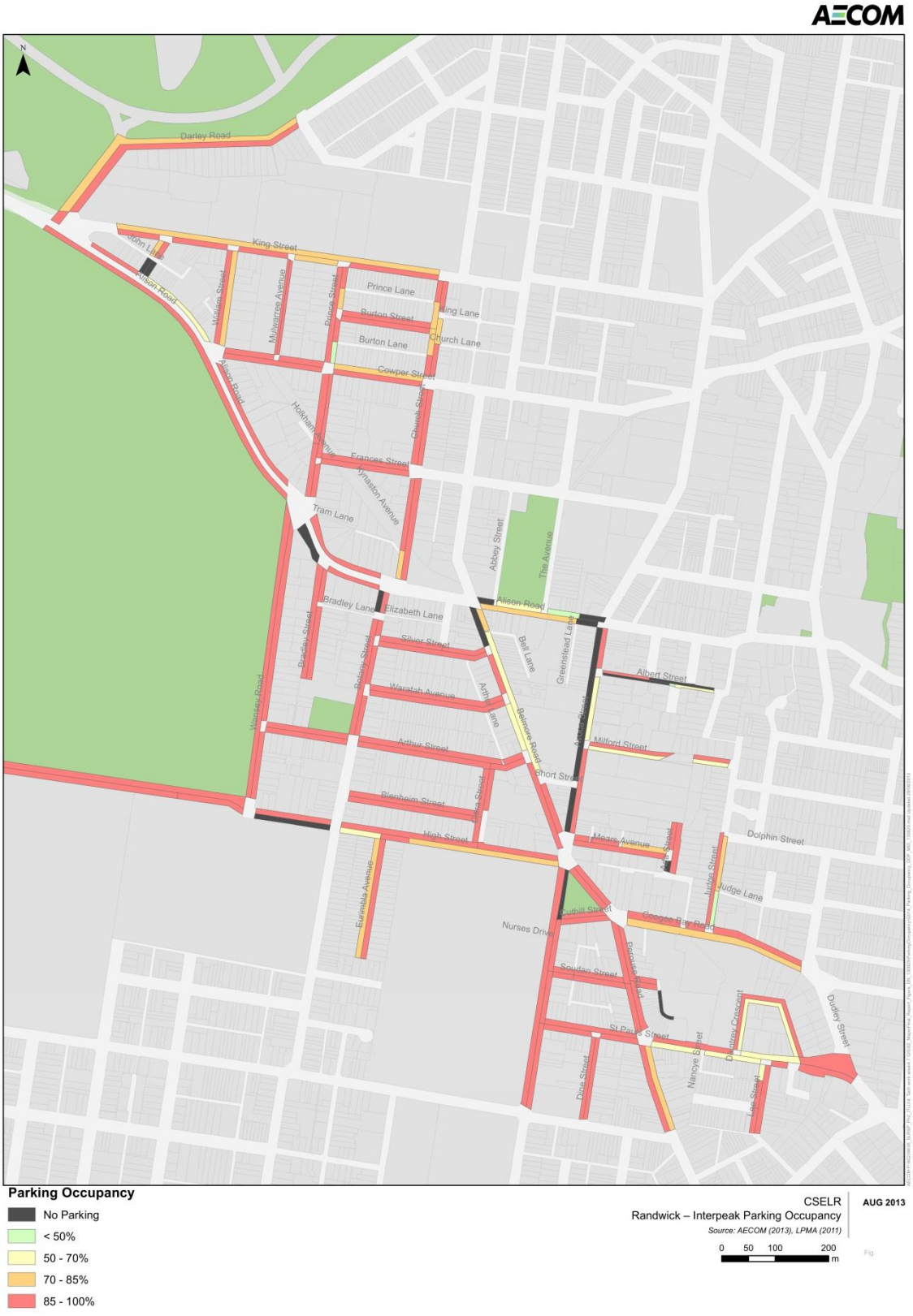
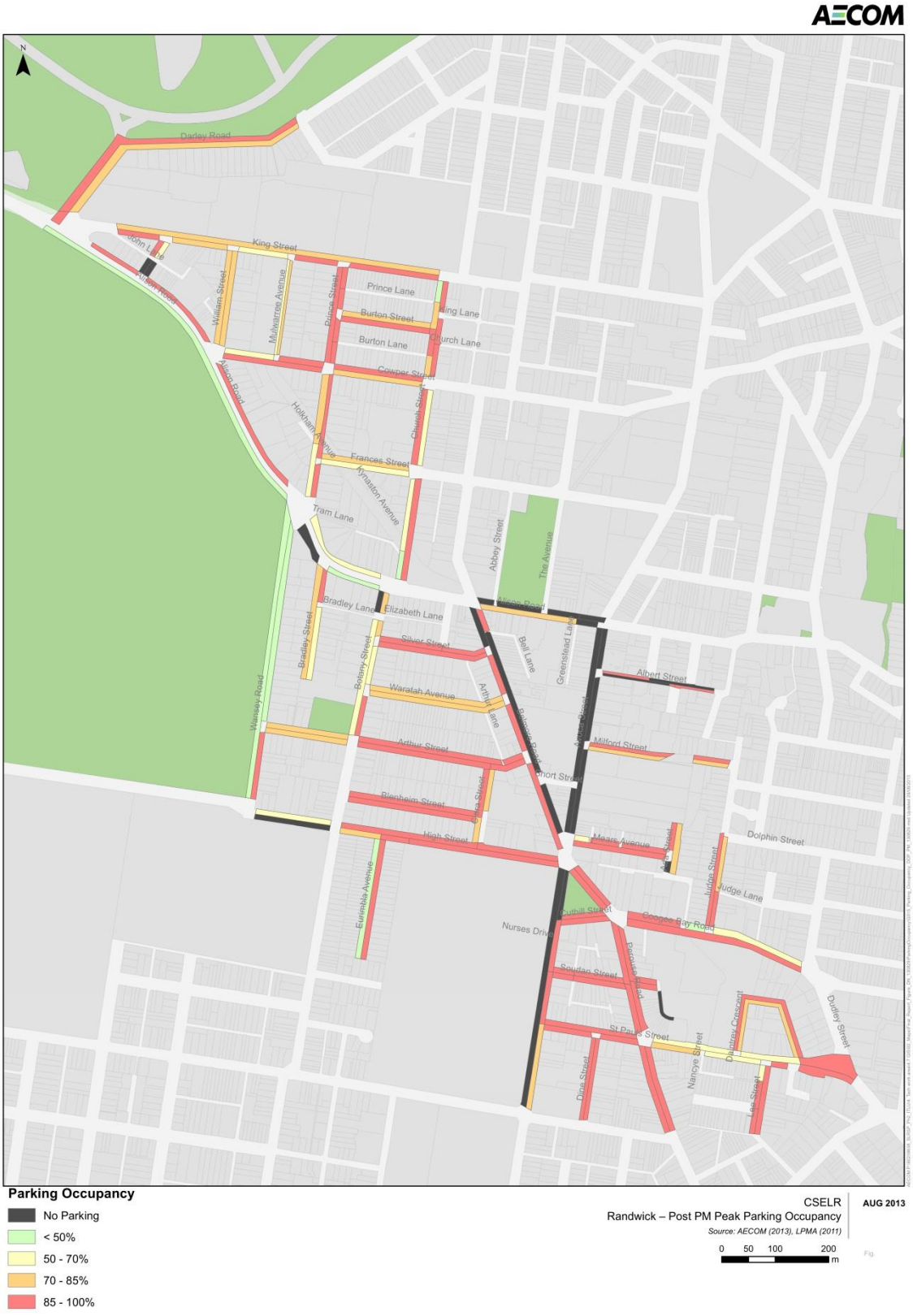


Figure 6-37: Randwick –Post-PM Peak Occupancy (after 6.30pm)



On-street parking demands, supply and occupancy for the Randwick precinct are detailed in Table 6-14. The table provides a breakdown by sub-precinct zone for the three time periods assessed. The sub-precinct zones were illustrated previous in Figure 6-18.

Table 6-14: Randwick – Demand, Supply and Occupancy by Zone

	Pre-AM Peak			Interpeak			Post-PM Peak			Daily
	Demand	Supply	Occupancy	Demand	Supply	Occupancy	Demand	Supply	Occupancy	% High Turnover
Zone 1	661	804	82%	734	804	91%	656	804	82%	32%
Zone 2	275	313	88%	308	313	98%	201	313	64%	26%
Zone 3	414	530	78%	530	630	84%	457	528	87%	45%
Zone 4	412	587	70%	547	633	86%	523	607	86%	41%
Precinct Total	**1,762**	**2,234**	**79%**	**2,119**	**2,380**	**89%**	**1,837**	**2,252**	**82%**	**37%**

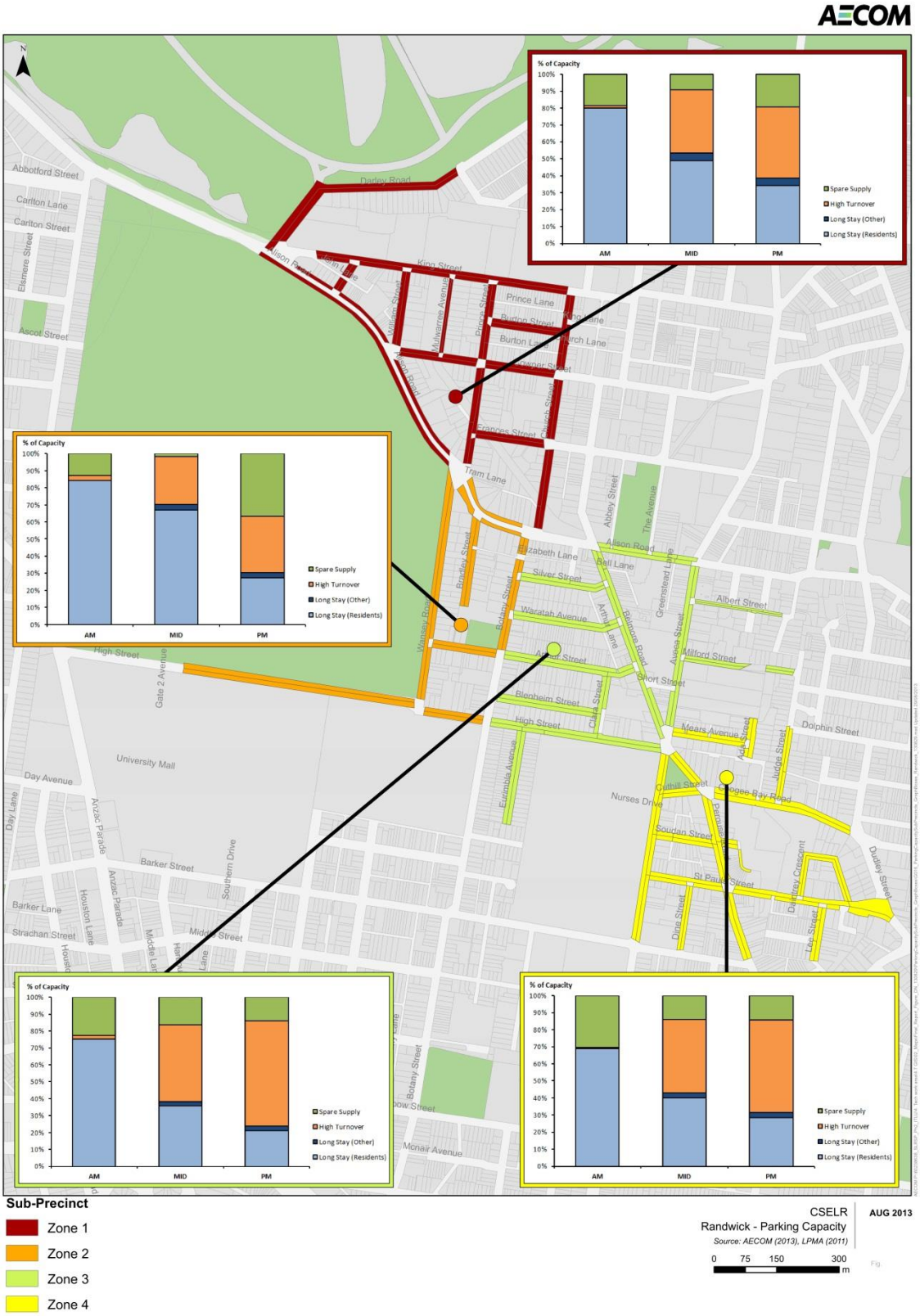
**Note supply and demand includes time restricted and non-restricted parking only.*

In addition to the Kingsford occupancy analysis, an assessment of the user pattern of the parking demand was undertaken. Figure 6-38 illustrates the total parking demand and supply for available spaces over the three time periods assessed, noting the parking supply changes throughout the day. The bars are proportionally split between high turnover and long stay demand, with the available spare supply summing to 100% capacity.

The key trends from the parking occupancy and capacity analysis of the Randwick precinct are:

- Parking supply remains relatively consistent within the Randwick precinct across the day.
- The survey showed occupancy to be highest in the Randwick precinct during the Interpeak period, at an average of 90%. Within this, the highest occupancy of 98% was recorded in sub-precinct zone 2, adjacent to UNSW and Wansey Road.
- The AM peak occupancy rates were higher for zone 1 and zone 2, with 82% and 88% respectively. The zones both comprise a high proportion of unrestricted parking.
- Sub-precinct zones 3 and 4 had slightly lower overall occupancy, but also recorded the greatest proportion of high turnover demand, at 45% and 41% respectively.

Figure 6-38: Randwick Parking Occupancy by User Type



In addition to the sub precinct zone analysis of Randwick, detailed analysis of the immediate walking catchment of the alignment at key areas was undertaken. The key areas and parking analysis are illustrated in Figure 6-39 and Table 6-15.

Figure 6-39: Randwick Sub Area Occupancy by User Type

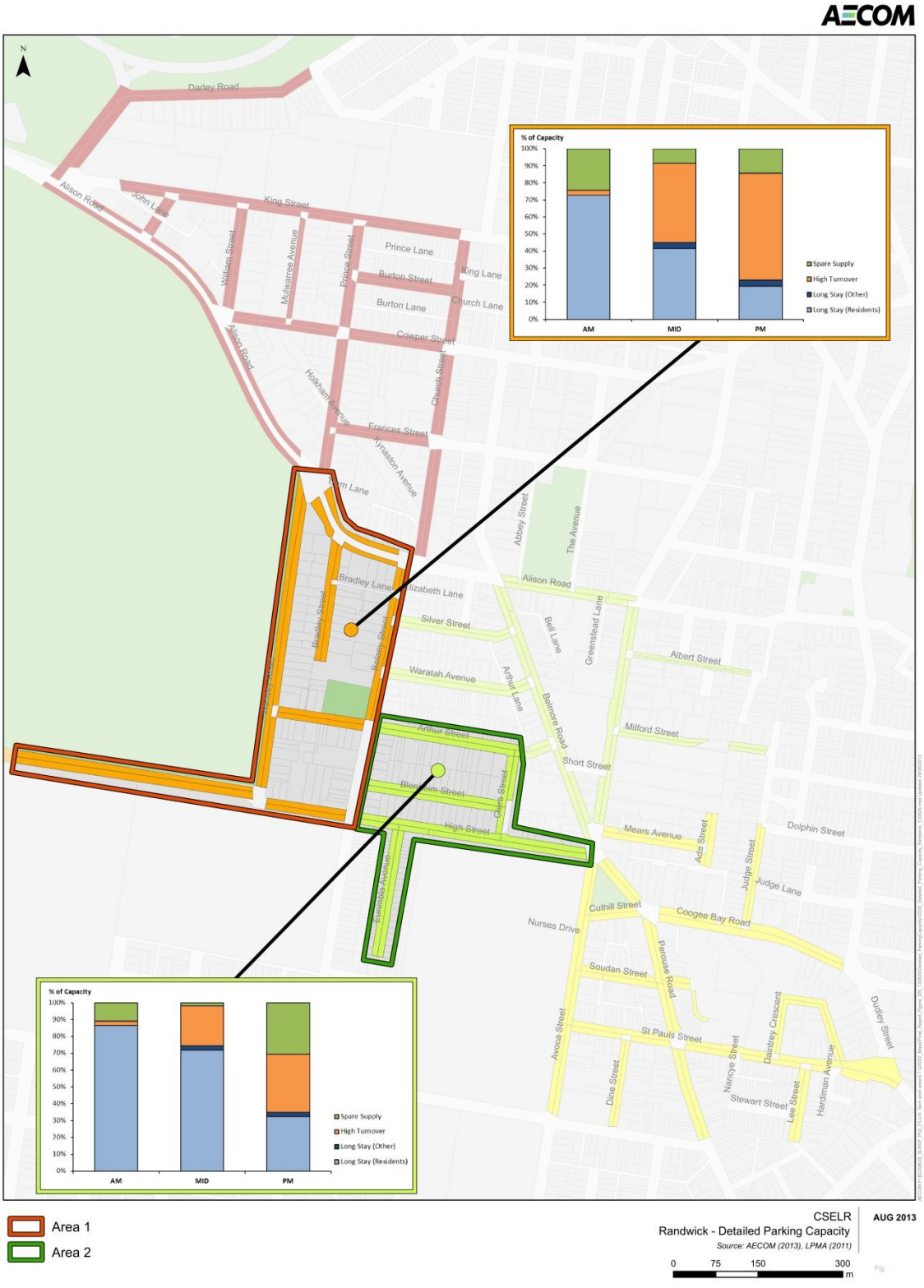


Table 6-15: Randwick – Sub Area Parking Assessment

	AM			MID			PM			Daily
	Demand	Supply	Occupancy	Demand	Supply	Occupancy	Demand	Supply	Occupancy	% High Turnover
Area 1	341	381	90%	374	381	98%	267	381	70%	24%
Area 2	222	292	76%	268	292	92%	252	292	86%	44%

**Note supply and demand includes time restricted and non-restricted parking only.*

- During the survey of the Pre-AM Peak, Area 1 observes a high occupancy of available parking spaces at 90%, it is noted a majority of the parking within the area are categorised as unrestricted for all time periods.
- During the Interpeak period, the occupancy rates of both areas are at the highest with the demand approaching the available supply.

6.3.5. Phase 4: impact of the Project on parking demand on the corridor

As illustrated in Section 6.3.3, following the implementation of the Project a quantum of existing parking demand will no longer be able to be provided within the Project corridor. This section clarifies the quantum of demand which will be impacted by the Project and which needs further consideration in terms of mitigation and demand management.

6.3.5.1. Surry Hills Precinct

Analysis of the parking directly impacted by the light rail alignment through Surry Hills was undertaken. Table 6-16 provides a summary of the demand, supply and weighted occupancy for the parking removal required to accommodate light rail.

The proposed light rail alignment will necessitate the removal of existing parking along Devonshire St to accommodate two segregated light rail tracks. Parking along Chalmers St between Elizabeth St and Randle St will be removed due to the location of the Central light rail stop.

Table 6-16: Surry Hills - Parking directly impacted by the Project

	Pre-AM Peak			Interpeak			Post-PM Peak			Daily
	Demand	Supply	Occupancy	Demand	Supply	Occupancy	Demand	Supply	Occupancy	% High Turnover
Zone 1	39	57	68%	52	57	91%	39	57	68%	64%
Zone 2	38	48	79%	45	48	94%	45	48	94%	60%
Zone 3	21	23	91%	22	23	96%	18	23	78%	64%
Precinct Total	**98**	**128**	**77%**	**119**	**128**	**93%**	**102**	**128**	**80%**	**63%**

Note: Zones 4, 5 and 6 do not include parking directly impacted by the Project.

The key trends from the analysis of the directly impacted parking along the Devonshire St corridor include:

- The directly impacted parking supply along the Devonshire St alignment is greatest during the Interpeak time period.
- The directly impacted parking is generally highly utilized; in particular in the central and eastern sub-precincts (zone 2 and zone 3) east of Waterloo Street. Although it is noted that total supply impacted is very low in zone 3, east of Crown Street.

6.3.5.2. Kensington Precinct

Analysis of the parking directly impacted by the light rail alignment through Kensington was undertaken. Table 6-17 provides a summary of the demand, supply and weighted occupancy for the parking removal required along Anzac Parade to accommodate light rail.

The proposed alignment allows for partial retention of the existing city bound bus only lane to be retained providing parking outside of the morning peak period. The primary parking impacts to the Kensington precinct apply to the loss of parking along eastern kerb of Anzac Parade.

Table 6-17: Kensington - Parking directly impacted by the Project

	Pre-AM Peak			Interpeak			Post-PM Peak			Daily
	Demand	Supply	Occupancy	Demand	Supply	Occupancy	Demand	Supply	Occupancy	% High Turnover
Zone 1	30	34	88%	49	63	78%	34	60	57%	66%
Zone 2	44	50	88%	72	76	95%	59	76	78%	67%
Precinct Total	**74**	**84**	**88%**	**121**	**139**	**87%**	**93**	**136**	**68%**	**66%**

The Surry Hills analysis describes that:

- The parking supply impacted by light rail within zone 2 is more pronounced during the Interpeak and Post-PM Peak due to the parking restriction already in place during the AM peak on Anzac Parade northbound.
- High occupancy levels were observed during the AM and Interpeak periods, especially in sub-precinct 2, south of Todman Avenue.
- % High turnover rates for the Kensington precinct are consistent between zones.

The key trends from the analysis of the directly impacted parking along the Anzac Parade corridor include:

- The parking supply impacted by light rail within zone 2 is more pronounced during the Interpeak and Post PM Peak due to the parking restriction already in place during the AM peak on Anzac Parade northbound.
- High occupancy levels were observed during the AM and Interpeak periods, especially in sub-precinct 2, south of Todman Avenue. Although it is noted that AM demand was lower in comparison to other periods, noting AM supply is restricted.

6.3.5.3. Kingsford Precinct

Analysis of the parking directly impacted by the light rail alignment through Kingsford was undertaken. Table 6-18 provides a summary of the demand, supply and weighted occupancy for the parking removal required to accommodate light rail.

The proposed alignment impacts parking within the Kingsford precinct along Anzac Parade between UNSW and Stuart St due to the removal of the kerbside bus only lanes that provided on-street parking outside of peak periods. The footprint of the Kingsford light rail stop also reduces the supply of parking with the removal of off-street parking within the central median between Rainbow St and Sturt St.

Table 6-18: Kingsford - Parking directly impacted by the Project

	Pre-AM Peak			Interpeak			Post-PM Peak			Daily
	Demand	Supply	Occupancy	Demand	Supply	Occupancy	Demand	Supply	Occupancy	% High Turnover
Zone 1	9	47	19%	46	83	55%	60	83	72%	92%
Zone 3	71	178	40%	148	178	83%	145	178	81%	56%
Precinct Total	80	225	36%	194	261	74%	205	261	79%	64%

Note: Zones 4, 5 and 6 do not include parking directly impacted by the Project.

The Kingsford analysis describes that:

- Sub-precinct zone 3 experiences the greatest impact with the introduction of light rail due to the removal of non-restricted off-street parking.
- The directly impacted parking within sub-precinct zone 3 observed occupancy of 81-83% during the Interpeak and Post-PM Peak.
- Parking directly impacted by the Project within zone 1 observed a high turnover rate (92%) due to the supply of periodic short stay parking only. The analysis showed 8% of High Turnover vehicles were observed to move between the impacted corridor and the greater sub precinct zone.

6.3.5.4. Randwick Precinct

Analysis of the parking directly impacted by the light rail alignment through Kingsford was undertaken. Figure 6-25 provides a summary of the demand, supply and weighted occupancy for the parking removal required to accommodate light rail.

The proposed alignment directly impacts parking within the Randwick precinct along Belmore Rd, High St, Wansey Rd and Alison Rd. The removal of parking along the constrained corridors is necessary to provide segregated light rail operation.

Table 6-19: Randwick – Parking directly impacted by the Project

	Pre-AM Peak			Interpeak			Post-PM Peak			Daily
	Demand	Supply	Occupancy	Demand	Supply	Occupancy	Demand	Supply	Occupancy	% High Turnover
Zone 1	72	84	86%	76	84	90%	62	84	74%	48%
Zone 2	115	132	87%	131	132	99%	65	132	49%	44%
Zone 3	38	57	67%	47	57	82%	52	57	91%	62%
Zone 4	19	24	79%	24	24	100%	22	24	92%	63%
Total	**244**	**297**	**82%**	**278**	**297**	**94%**	**201**	**297**	**68%**	**50%**

The Randwick analysis describes that:

- The existing parking within Randwick directly impacted by light rail recorded a generally high occupancy rate. In particular zones 1, 2 and 4 recording 90% to 100% occupancy during the Interpeak.
- The greatest impact on parking supply is within Zone 2 which features a high number of unrestricted parking.
- The turnover of parking demand within sub-precinct zones 1 and 2, primarily along Alison Road and Wansey Rd, were observed to be low at only 48% and 44% respectively. The majority of the impacted parking demand was observed across multiple periods of the day despite the presence of short stay parking.

6.4. Recommendations for Mitigation and Management

6.4.1. Project policies for mitigation

The policies in this section respond to the kerbside access assessment in Section 6.3 and are designed to meet the policy principles defined in Section 6.2.1, particularly policy principles 3 to 7.

The policy principles are set out below, alongside a description of how these measures have been implemented both at a strategic level and spatially throughout the Project corridor. The order of the policies relates to their hierarchical application to ensure the strategy meets the objectives.

1. Emphasise the mass transit function of surface public transport

The Project planning and design development has considered throughout the various stages of the Project development the most efficient way to utilise available road space to achieve the broader policy objectives as set out in federal, state and local planning policies. This includes, for example, ensuring concordance with the NSW Long Term Transport Master Plan (TfNSW, December 2012) as well as the supporting modal strategy Sydney's Light Rail Future (TfNSW, December, 2012). Both of these documents are described in more detail earlier in this report.

However it is important to consider the aims of these strategies, designed to deliver real customer benefits, which include:

- Expanding the public transport network to address CBD congestion and provide reliable turn up and go services for city commuters.
- Integrating bus and light rail to create an integrated public transport solution to meet the travel demands of Sydney residents.
- Delivering an effective and efficient surface public transport network.

These policies and strategies have guided the development of the Project development from options identification through options assessment and design development to ensure efficient and effective use of public road space. These policy principles have therefore been adopted at a strategic level and at a local level through the design development process.

2. Where feasible, retain existing parking and loading supply on project corridor

The retention of existing parking and loading supply has been accommodated where feasible on the Project corridor balanced with the primary objective stated above to deliver a high quality on-street mass public transit system for Sydney's CBD and inner suburbs which can reliably and efficiently move significant volumes of people.

The assessment undertaken in this strategy has considered a reduced future supply following implementation of the Project against a status quo in parking demand which represents a conservative analytical approach. This is conservative due to the likely potential change in travel patterns and modal shift to public transport which will arise as a result of the implementation of the Project. Any modal shift is likely to be strongest in the Randwick precinct with multiple significant trip generators (TAFE, Hospital and University) and where these major trip generators are currently served only by public buses and have significant unrestricted parking locally.

The travel patterns of people in the future are likely to include a significant modal shift from private car to public transport following the implementation of the Project. This would result in the freeing up of capacity for other kerbside activity which is likely to be of a similar magnitude to the level of directly impacted parking supply on the corridor. This alone would therefore create a scenario whereby the Project has no significant adverse impact on existing levels of kerbside utilisation and occupancy and may indeed positively impact the balance between supply and demand, notwithstanding the potential reduction in overall capacity.

3. Replace impacted parking and loading supply on the Project corridor with new parking supply on the corridor

In addition to retaining existing parking and loading on the Project corridor, consideration has been given through the planning and design process to the potential to accommodate additional spaces on the Project corridor. However due to the road space width constraints within the Project corridor it has not been possible to provide additional parking within the corridor.

4. Consider opportunities to balance efficiency in kerbside access for the corridor and adjacent streets within the same precinct

It has been demonstrated through the assessment of parking supply and demand that there are opportunities to balance the demands for parking and loading on the corridor, which will be impacted by the implementation of the Project with available kerbside capacity in the precincts. What is important to consider is how best to manage the available kerbside capacity, especially in locations where demand and supply could become closer. This is described in more detail below.

5. Optimise available capacity on the Project corridor and surrounding precincts

Introduce parking management measures which facilitate dual use of available parking capacity to maximise efficiency of utilisation; maintaining amenity for local residents and providing capacity during the day for short stay parking.

- Parking permit schemes should be considered, particularly in predominately residential precincts surrounding the Project corridor in Randwick and Kingsford precincts.
- These would be designed to afford priority to local residents to park in the vicinity of their home with an allowance for short term parking for visitors and for vehicle access to commercial land uses and other short stay trip generators.
- The need for parking permit schemes in the vicinity of the termini at Randwick and Kingsford is considered appropriate to minimise the future potential for induced demand for parking which would also generate additional traffic contrary to planning policy and project objectives. The introduction of parking permit schemes in these locations is deemed appropriate in these locations based on the assessment of existing conditions to manage existing demand and supply even without the implementation of the Project.

It may be appropriate for councils to implement greater restrictions on parking on streets immediately adjacent to the Project corridor where commercial land uses are present for loading and short term parking. For example, allocation of kerbside capacity on side streets directly off the corridor for locations where commercial land uses are present both for loading and for short term parking for access to retail shops, cafes and other local services.

6.4.2. Management of impacted disability parking

As stated in the kerbside access hierarchy and policy response, the highest priority was to ensure that any disability parking impacted by the Project would be replaced. There are only two locations with disability parking impacted, covering 4 spaces. These are described below with potential locations identified for re-provision (which will need to be agreed following further consultation with Councils and relevant stakeholder groups):

Table 6-20: Re-location of Disability Parking Spaces

Existing Location	Potential location for re-location
CBD (3 spaces); Rawson Place (1) and Chalmers Street (2)	*Implementation of relocated disability parking in the CBD will be managed through the City Centre Access Strategy (CCAS).*
Randwick (1 space): High St between Clara St and Hospital Rd	Clara St at intersection with High St
Surry Hills (5 spaces): Devonshire St between Marlborough St and Clisdell St (3); and Devonshire St between Clisdell St and Elizabeth St.	Waterloo Rd and Holt St at intersection with Devonshire St

6.4.3. Management of parking demand and supply on the corridor and in surrounding precincts

The following section provides an assessment of the potential opportunities to balance demand with supply in the future following implementation of the Project. This assessment is set out in Table 6-21 which follows.

The table summarises the demand-supply relationships at the sub-precinct level considering the potential for increasing balance and efficiency at the local level, based on the assessment undertaken and observations of impacted demand.

Table 6-21: Potential Opportunities to Balance Demand

Precinct	Opportunities
Surry Hills *Devonshire Street between Chalmers Street and Bourke Street plus the section of Chalmers Street between Eddy Avenue and Devonshire Street*	The existing parking demand in the corridor, which will be directly impacted by the Project, varies throughout the day between 98 and 119 vehicles. This can be broken down as follows: ■ Zone 1 includes impacted parking on Devonshire St from Chalmers St to Waterloo Rd. Demand on this section is between 39 and 52 vehicles. ■ Zone 2 includes impacted parking on Devonshire St between Waterloo Rd and Crown St. Demand on this section is between 38 and 45 vehicles. ■ Zone 3 includes impacted parking on Devonshire St between Crown St and Bourke St. Demand on this section is between 18 and 22 vehicles. Following implementation of the Project the future parking supply within the Surry Hills precinct will reduce by approximately 128 spaces. However, even during the highest occupancy existing peak period there are still 360 unoccupied spaces within the surrounding survey area. Therefore there will be sufficient latent capacity, of approximately 232 spaces equivalent to 11% of potential capacity, across the Surry Hills precinct to absorb any displaced demand within remaining available capacity across all periods of the day within the survey extents. At the more local level, each of the sub-precincts is projected to retain sufficient capacity to accommodate parking demand displaced from the Project corridor within the immediate surrounding local area. *This will be subject to appropriate parking management measures (parking controls) to balance supply and demand being implemented.* The following administrative controls have been determined through consultation with City of Sydney Council to mitigate the potential impacts of the Project on parking demand and supply in Surry Hills: ■ Consolidate City of Sydney Council residential permit precincts to allow resident permit-holders to search further afield when nearby streets are occupied. ■ Expand use of pay-parking (with standard resident exemptions) to encourage turnover and discourage commuting. ■ Provide resident exemptions in nearby spaces where they are not currently exempt. *Transport for New South Wales will work through implementation of these measures to manage kerbside activity with the City of Sydney Council.*
Kensington *Anzac Parade between Alison Road and Day Avenue*	The existing demand for parking in the corridor, which will be directly impacted by the Project, varies throughout the day between 74 and 121 spaces. This is broken down as follows: ■ Zone 1 includes impacted parking along Anzac Parade from Alison Rd through to Todman Ave. Demand on this section is between 30 and 49 vehicles. ■ Zone 2 includes the impacted parking along Anzac Parade between Todman Ave and Day Ave. Demand on this section is between 44 and 72 vehicles.

Precinct	Opportunities
	Following implementation of the Project the future parking supply within the Kensington precinct will reduce by approximately 139 spaces. However, even during the highest occupancy peak period there are still 244 unoccupied spaces. Therefore there will be sufficient latent capacity, of approximately 105 spaces equivalent to 7% of potential capacity, across the precincts surrounding the northern section of Anzac Parade to absorb displaced demand. At the local level, each of the sub-precincts is projected to retain sufficient capacity to accommodate demand within the local area surrounding the Project corridor. *This will be subject to parking management measures to balance supply and demand being implemented. Transport for New South Wales will work through implementation of these measures to manage kerbside activity with Randwick City Council.*
Kingsford *Anzac Parade between Day Avenue and Sturt Street*	The existing demand for parking in the corridor, which will be directly impacted by the Project, varies throughout the day between 80 and 205 spaces. This is broken down as follows: ■ Zone 1 includes the impacted parking along Anzac Parade from Day Ave through to Rainbow St. Demand on this section is between 9 and 60 vehicles. ■ Zone 3 includes the impacted parking along Anzac Parade between Rainbow St and Sturt St, including off-street parking on Anzac Parade, south of Nineways. Demand on this section is between 71 and 148 vehicles. Following implementation of the Project the future parking supply within the Kingsford precinct will reduce by approximately 261 spaces. However, even during the highest occupancy peak period there are still 323 unoccupied spaces, therefore there is latent capacity across the Kingsford precinct to absorb any displaced demand. Furthermore, it is noted that whilst this displaced demand can be absorbed, that it would leave latent capacity in the busiest period of only 2% of potential capacity across the whole of the Kingsford precinct. Therefore, if existing demand levels are maintained then parking utilisation would be close to effective capacity allowing for inefficiency in demand and supply. In order to maximise the benefit of available capacity for high priority users, including disability, servicing and loading, short stay parking for local business and long stay for residents, and noting the potential for induced demand from the Kingsford terminus, it is recommended that controls be adopted to restrict parking to key uses and removing unrestricted parking. *Transport for New South Wales will work through implementation of these measures to manage kerbside activity with Randwick City Council.*
Randwick *Alison Road between Darley Road and Wansey Road plus Wansey Road between Alison Road and High Street plus High Street between Wansey Road and Belmore Road plus Belmore Road between Avoca Street and Coogee Bay Road*	The existing demand for parking in the corridor which will be directly impacted by the Project varies throughout the day between 201 and 278 spaces. This is broken down as follows: ■ Zone 1 includes the impacted parking along Alison Rd from Darley Rd through to Wansey Rd. Demand on this section is between 62 and 76 vehicles. ■ Zone 2 includes the impacted parking along Wansey Rd between Alison Rd and High St. Demand on this section is between 65 and 131 vehicles. ■ Zone 3 includes the impacted parking along High St between Botany St and Belmore Rd. Demand on this section is between 38 and 52 vehicles. ■ Zone 4 includes the impacted parking along Belmore Rd between High St and Perouse Rd. Demand on this section is between 19 and 24 vehicles. Following implementation of the Project the future parking supply within the Randwick precinct will reduce by approximately 297 spaces. During the highest occupancy peak period there are 261 unoccupied spaces. If existing demand levels remain unchanged in future with no modal shift as a result of the implementation of the Project, then demand could potentially outstrip supply. However, this does not take account of any potential change in travel patterns as a result of light rail being implemented. The potential for modal shift to CSELR is high for the major land uses in the precinct such as the TAFE, Hospital and University. Further investigation of the spatial disaggregation of utilisation reveals:

Precinct	Opportunities
	■ Zones 1 and 3 are likely to have sufficient capacity within the local area surrounding the Project corridor in the AM peak to accommodate any displaced demand. Effective capacity could be reached in the inter peak and PM peak. ■ Zone 2 is likely to have sufficient capacity within the local area surrounding the Project corridor in the PM peak to accommodate any displaced demand. Effective capacity could be reached in the AM and inter peak. ■ Zone 4 has sufficient capacity to accommodate the existing demand within the local area surrounding the Project corridor. *Transport for New South Wales will work through implementation of these measures to manage kerbside activity with Randwick City Council.*

6.4.4. Local Area Mitigation for the CBD

The local area mitigation opportunities for the CBD are outlined in Table 6-22.

Table 6-22: Local Area Mitigation for the CBD

Precinct	Local Area Mitigation
CBD	Network changes to intersections along the George Street corridor provide an opportunity to mitigate the impacts by relocating peak and off-peak loading zones and off-peak parking to the additional kerb space provided at cross streets. *It is noted that any potential mitigation identified in this report for CBD loading and parking zones will be subject to the City Centre Access Strategy (CCAS), being prepared by TfNSW in and would be subject to further consultation with the City of Sydney Council prior to implementation.* The current project design creates the potential for the impacted loading and taxi zones to be relocated to the following locations: ■ George Street North – There is the potential to relocate the taxi zone near the Four Season's hotel, north of Essex Street, to the north of Alfred Street. ■ Essex Street – The existing short stay parking on the southern kerbside of Essex Street could be considered for reclassification as a northern CBD loading zone. ■ Bridge Street – The dedicated left turn lane into George Street becomes obsolete due to the removal of southbound traffic lanes. This presents an opportunity to enhance the footpath and potentially provide a replacement taxi zone on Bridge Street, subject to proposed taxi zone ■ Margaret Street – Since George Street northbound is proposed to be reduced to a single lane, there is an opportunity to convert the kerbside left turn lane into a kerbside loading and/ or parking zone. ■ Hunter Street – The proposed design would reduce Hunter Street from 4 lanes to 2 lanes at the intersection with George Street. This creates a potential opportunity for additional loading and/ or parking zones on both sides of Hunter Street. ■ King Street – The design proposes that west of George Street, the eastbound right turn lane into George Street would become obsolete. This presents a potential opportunity for additional kerbside parking and loading along the southern kerb. It is however noted that this would need to be considered alongside other modal initiatives for King Street, such as the potential future extension of the King Street cycleway east to Elizabeth Street. ■ Market Street – The removal of the monorail combined with the network changes removing the need for the left turn lane into George Street creates an opportunity for additional loading capacity on one side of Market Street to the east of George Street. The provision of new loading or parking in this location would need to be balanced against the need for potential future pedestrian footpath capacity enhancements as this location has been shown in **Section 2** to experience significant pedestrian volumes and low levels of service for pedestrians.

Precinct	Local Area Mitigation
	■ Park Street – The dedicated left turn lane into George Street will no longer be required as a result of the network changes associated with the proposed design. This will create a potential opportunity for additional loading and/ or parking capacity along the southern kerb of Park Street. The implementation of any future changes to kerbside activity on Park Street will need to be coordinated with delivery of the city centre bus network redesign and consider bus stop capacity requirements in this key city centre bus stop location. ■ Bathurst Street – The left turn lane onto George Street will be removed under the proposed design creating opportunities for additional loading and/or parking capacity. ■ Ultimo Rd – The dual turning lanes to George Street will no longer be required under the proposed design since George Street is proposed to have only one lane in each direction. Therefore, there is a potential opportunity to create additional loading and/or parking capacity along the northern kerb of Ultimo Road.

6.4.5. Process for implementation

The strategy set out above has described:

- the Project policy measures;
- existing parking supply and demand;
- the potential impact of the Project on both parking supply and demand; and
- a series of measures designed to ameliorate the potential impacts of the Project on parking and loading.

Transport for New South Wales (TfNSW) will continue to work with the key stakeholders involved in the management and operation of the road network and management of kerbside activity to implement the mitigation measures outlined in this report. The City of Sydney Council and Randwick City Council will be key stakeholders in the implementation of any changes to the function and management of on-street kerbside activity within the area of influence of the Project.

The purpose of further consultation and design will be to ensure appropriate and satisfactory measures are implemented which promote better utilisation and efficiency of use for kerbside space, while considering the access requirements of local residents, businesses, sporting, health and education use and all other land uses along and in the vicinity of the corridors.

As set out earlier, the Project approvals process for the CSELR project sits alongside a suite of strategies and plans which together shape the future direction of access into and around the Sydney CBD and broader metropolitan area. These documents include the state government geographical and modal strategies; the City Centre Access Strategy (CCAS) and the Sydney's Bus Future (under development) which sit under the NSW Transport Masterplan. The changes proposed through these strategies, as well as the changes to the broader South East bus network, will need to be considered alongside the CSELR project for the implementation of on-street changes to kerbside activity in specific locations. As noted earlier, the implementation will be undertaken by the two relevant councils so any on-street changes to kerbside activity will also need to be made in accordance with local government planning policies of the two councils and through their normal approvals processes for such changes.

7. Light Rail Stop Precinct Access Plans

7.1. Context

To ensure the success of the light rail project, customers must be able to efficiently access and egress each of the light rail stop precincts. A detailed assessment of how this takes place is vital to ensure identification of potential infrastructure upgrades or new facilities which may be required.

This section identifies, on a stop by stop basis, a number of actions that will be required to support efficient and effective access and egress to light rail stops and ensure that the Project attracts high levels of demand and generates maximum benefits.

The customer experience or 'take home value' of the transport system has two primary elements:

1. The functionality of transporting customers from origin to destination
2. The experience of the journey itself

The key access modes and transfers that would contribute to a successful interchange are outlined below. The design of, and provision for, these access modes, including all associated infrastructure, needs to be both functional and efficient, but also safe, clean, and well-maintained for the customer. The key access and interchange modes for which provision needs to be made are:

- Heavy rail and ferry transfers
- Pedestrian and cycle facilities
- Bus services and set-downs
- Kiss & ride facilities
- Taxi services and facilities

Best practice in interchange design and planning, including the emerging Transport for NSW Interchange Guidelines, focus on the delivery of high quality passenger outcomes for development of future interchanges. These guidelines and principles relate to four key messages:

- Efficiency (covering operations, movement to and within the interchange)
- Usability (accessibility, safety and accident prevention, personal security, protected environment)
- Understanding (legibility, permeability, way finding, information)
- Quality (perception, build design, urban realm, sense of place)

Guidelines and best practice highlight the importance of good design and planning of pedestrian facilities in the success of transport interchanges. Providing easy, attractive and safe pedestrian facilities for access to mass transit nodes helps contribute to an integrated public transport network and deliver a high quality whole-of-journey experience for the passenger.

7.2. Multi-Modal Access Principles

7.2.1. Principles

A number of principles were developed to guide the precinct assessments. The principles are based on NSW Government customer research, and international and Australian examples of best-practice. These principles outline the overall objectives that should be considered in the design, delivery and operation of transport interchanges, include:

- Efficient movement of people
  - This movement relates to customers entering and exiting the interchange, and transferring between different transport modes
- A legible journey
  - Integrated customer information and way finding across a multi-modal system allows people to clearly understand and plan their movement through the interchange, and reduces confusion and disorientation
- Accessibility for all
  - As a public facility, it is critical that interchange allows for access by all people, especially those with reduced mobility, including people with disabilities, the elderly and young, and those with luggage and bicycles
- A positive customer experience
  - Apart from the reliability and convenience of transport services, a positive customer experience will be derived from the more personal aspects of the journey – a sense of feeling safe, comfortable and informed.
  - There are nine key 'customer service drivers' that determine customer satisfaction: Timeliness, Personal Safety/Security, Ticketing, Convenience, Accessibility, Comfort, Cleanliness, Information, Customer Service/Staff.
- A high-quality urban place
  - A well-designed interchange can be the focus of a local community, accommodating a mix of different functions and activities, and be the catalyst for the renewal of existing urban areas
- Sustainable growth and change over time
  - Public transport is an enduring part of a city and the design and operation of an interchange requires a long-term perspective
- Integrated operations and management
  - A coordinated and cooperative approach between these various parties (transport operators, highway authorities and other government agencies) leads to improved service levels, greater responsiveness and increased customer satisfaction

7.3. Stop Precinct Plans

7.3.1. Light rail stop precinct access and egress

Accessibility to light rail will play a significant role in its success. Access to light rail stops will need to cater for all modes including pedestrians, cyclists, bus, heavy rail, light rail and car and provide an easily accessible, legible and attractive public transport system.

7.3.1.1. Key issues to resolve for multimodal access

The key multimodal issues for the stop precincts are;

- Resolving stop access issues for pedestrians
- Enabling a seamless transition from different public transport modes (including ferry, bus, light rail and heavy rail) to light rail
- Positioning bus stops to allow for safe and efficient transfers

Crowding assessment relative to the platform widths was undertaken to confirm platform widths can cater for demand.

7.3.1.2. Stop precinct access mode share

Forecasts of the future access mode share for the CSELR system have been derived from the PTPM developed by the NSW Bureau of Transport Statistics (NSW BTS).

Table 7-1 summarises the anticipated light rail stop mode share across the entire light rail corridor for the assessment year 2021.

Table 7-1: Light Rail Stop Precinct Forecast Mode Share

Year	AM peak light rail trips by access mode				Access mode share		
	Bus / ferry	Walk	Rail / light rail	Total	Bus / ferry	Walk	Rail
2021	9,497	5,589	2,782	17,867	53%	31%	16%

Source: NSW Bureau of Transport Statistics, 2013.

Table 7-1 shows that the anticipated primary mode for access to light rail will be bus - accounting for approximately 53% of all passengers during the AM peak. The second highest forecast mode share for light rail access is walking, with nearly 31% of all passenger access forecast by pedestrians. Heavy rail interchange is expected to provide the next highest at approximately 16%.

There will however be significant variance within the anticipated levels of modal demand for access to light rail across the system, dependent on the stop location and availability of complementary public transport stations, stops and services.

Notable exceptions will be locations such as Town Hall and Central Station stops, both of which will experience a significant heavy rail to light rail interchange due to the proximity of the major, established CBD rail stations.

Vehicular access

Whilst it is not anticipated that there will be a significant need to provide for vehicular access at stops and the intent of the system is to contribute to the delivery of a high quality public transport system, with good local pedestrian access, it is inevitable that there will be a need to provide for some degree of access to the system by private vehicle.

This will be especially critical at the terminus locations. It is proposed, that to cater for the potential for linked car trips, that a small number of car share bays and vehicles be accommodated for such onward journeys. In addition, where appropriate and provision can be made within local conditions, a degree of very short term parking, in the form of kiss and ride bays and taxi bays will be made available to cater for onward travel by private vehicle and taxi.

A review of potentially feasible car share locations has been undertaken based on a review of car share demand profile data. A number of priority locations have been identified and these are set out in Table 7-2.

Table 7-2: Car share priority locations

Priority	Location
1	Circular Quay, Grosvenor Street, Wynyard, QV Building ,Town Hall, World Square, Chinatown, Rawson Place, Central Station, Surry Hills
2	Randwick, Strachan Street, Kingsford
3	Wansey Road, UNSW ANZAC Parade, Carlton Street, Todman Avenue, UNSW High Street

Source: AECOM, 2013.

Bicycle access

Bike u-rails are proposed at Circular Quay and all non-CBD light rail stops, located on the street adjacent to or at the stop. This will cater for demand at strategic points on the light rail system which are also in close proximity to the strategic bicycle network and are estimated to see potential for bicycle to light rail access. Secure lockers will also be provided at the Randwick and Kingsford termini, supplemented by u-rails. The subsequent sections provide further detail on the proposed access arrangements for each stop on the light rail system.

7.3.2. Circular Quay Precinct Access Plan

Access and Safety Improvements

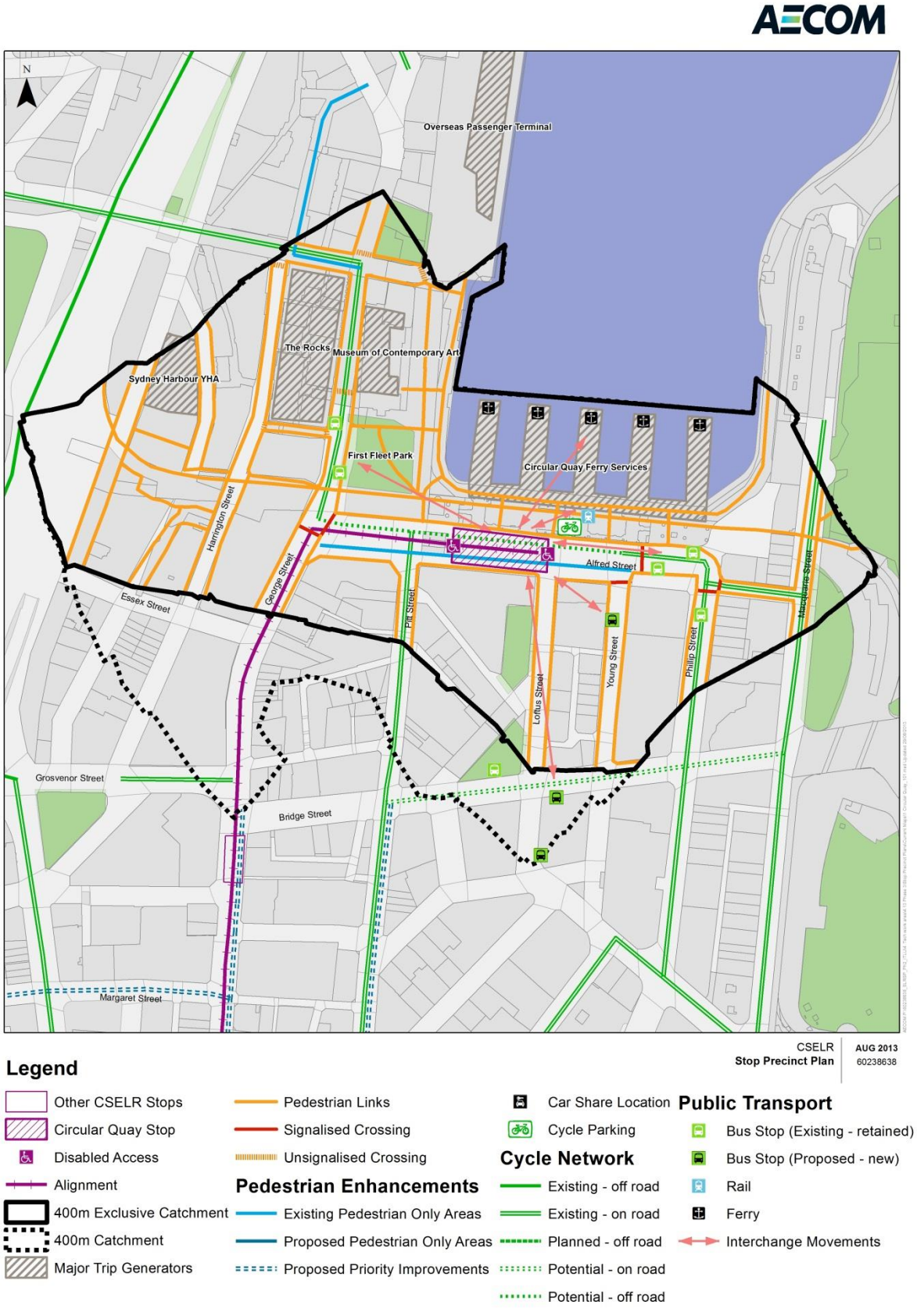
The key actions for multimodal access and customer safety to be resolved at the Circular Quay stop precinct are;

- Close Alfred Street to vehicular traffic between George Street and Young Streets. This will minimise interaction between cars and pedestrians trying to access light rail platforms.
- Locate the Circular Quay light rail stop in close proximity to the ferry terminal and Circular Quay heavy rail station.
- Position new bus stops on Young Street to allow for a 'round the corner' seamless transfer from bus to light rail. This would be within the pedestrianised zone of Alfred Street and remove interaction between cars and pedestrians.
- Integrate light rail platforms into Circular Quay pedestrian precinct.
- Introduce integrated customer information and wayfinding for interchange and connections between light rail and all other modes to make the quickest route more legible.
- Coordination of bus, ferry and light rail timetables to be investigated, particularly during off peak periods when the frequency of light rail services will be reduced.
- Investigate the potential for a dedicated cycle parking facility at major light rail terminus.

Table 7-3: Circular Quay Precinct Access Plan

Stop Name
Circular Quay
Land Uses
– Tourist Attractions. – Commercial. – Tourist Accommodation. – Transport. – Retail / food & beverage.
Major Trip Generators
– Tourist Attractions (Sydney Harbour, Sydney Opera House, Sydney Harbour Bridge, Museum of Contemporary Art Australia, Customs House, Overseas Passenger Terminal). – Commercial (Gateway Plaza, AMP). – Tourist accommodation (Four Seasons Hotel, Shangri-La Hotel, Quay West Hotel). – Transport (Circular Quay Station, Circular Quay Ferry Terminal). – Retail / food & beverage (The Rocks, East Circular Quay).
Multi-Modal Stop Access
Patronage
– 561 boardings and 764 alightings forecast for 2021. – 874 boardings and 979 alightings forecast for 2036.
Heavy Rail
– Circular Quay is not forecast to be a major interchange for passengers from heavy to light rail. – 50m west of Circular Quay Station.
Light Rail
– 500m north-east of proposed Grosvenor Street stop on CSELR line.
Ferry
– Estimated AM peak hour interchange patronage from ferry and bus to light rail is 468 (83%) in 2021. The PTPM model does not provide a breakdown of bus and ferry trips, however it can be assumed that the majority of transfers are from ferry to light rail due to the stop's location at the northern end of the CBD. – 50m south of Circular Quay Ferry Terminal.
Bus
– 300m north-west of proposed Young Street stop (both directions). – 350m north-west of proposed Bridge Street stop (both directions).
Pedestrian
– Estimated AM peak hour walk up patronage of 93 (17%) in 2021.
Bicycle
– Off-road cycle paths: ▪ Two way; Kent Street (north-south) and Cahill Expressway (east-west). – On-road routes: ▪ Two way; Pitt Street (north-south), Macquarie Street (north-south), Phillip Street (north-south), Grosvenor Street (east-west), Argyle Street (east-west). ▪ One way; Bligh Street (southbound), Bent Street (westbound). – Potential off-road cycle path on Alfred Street (between George Street and Young Street). – Potential two way on-road route on Bridge Street (between Pitt Street and Macquarie Street). – Proposed u-rail cycle parking facility with approximately 10 spaces.

Figure 7-1: Circular Quay Precinct Access Plan



7.3.3. Grosvenor Street Precinct Access Plan

Access Improvements

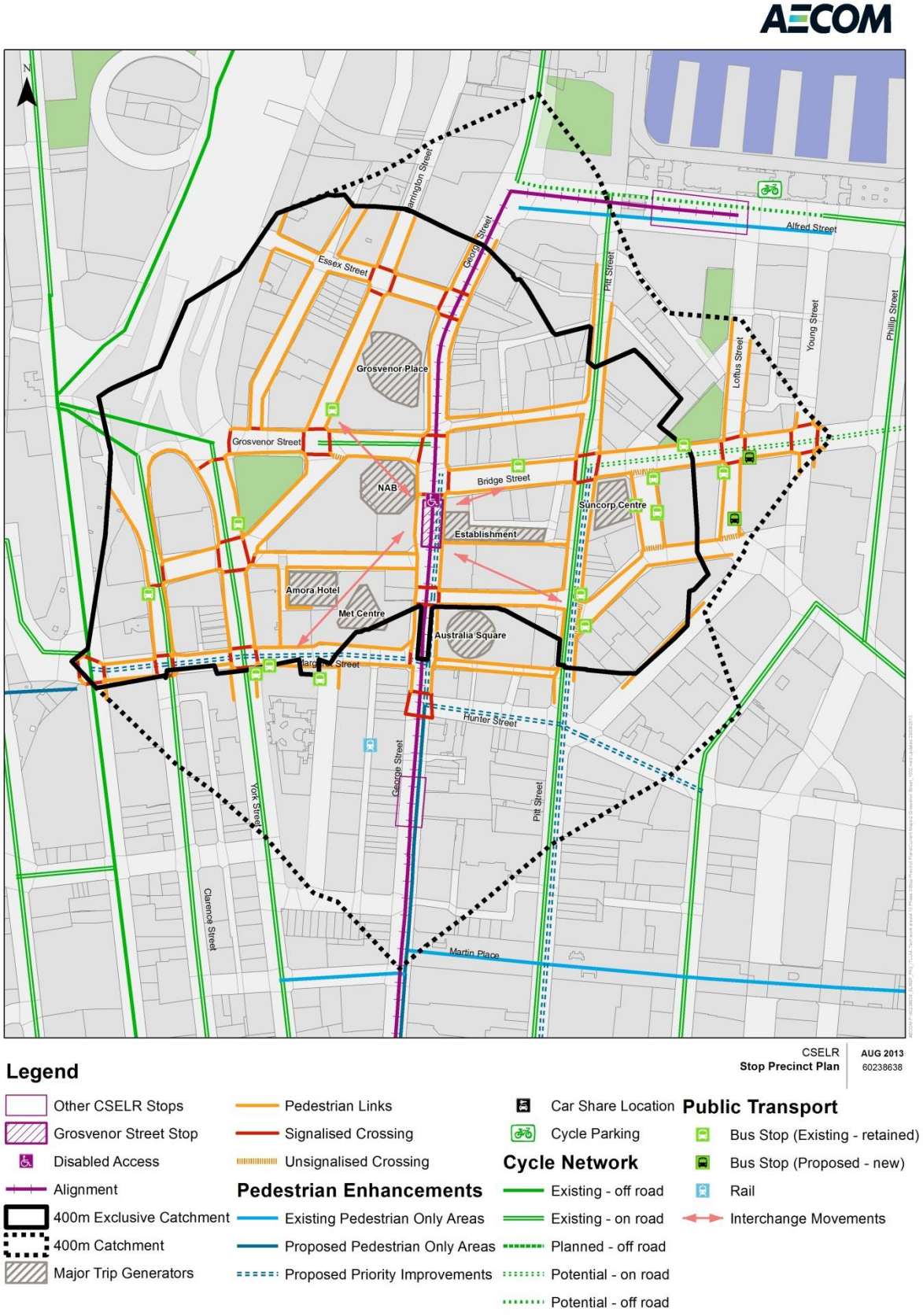
The key actions to resolve the multimodal access issues at the Grosvenor Street stop precinct are;

- Implement pedestrian priority improvements at key signalised intersections. This will reduce walking time for passengers transferring from bus to light rail. Key signalised intersections include;
  - Bridge and Loftus Streets
  - Bridge and Pitt Streets
  - George, Bridge and Grosvenor Streets (the George Street signals will provide customers with safe, direct access to light rail platforms)
- Reduce pedestrian wait times at other key signalised intersections through review of signal operations:
  - George and Bond Streets
  - George and Margaret Streets and Curtain Place
- Potential introduction of new pedestrian signalised crossing at Pitt and Bond Streets for bus to light rail interchange.
- Through the City Centre Access Strategy (CCAS) pedestrian infrastructure upgrades will be considered on links with high pedestrian volumes such as Bridge Street (south side) between George Street and Loftus Street.
- Introduce integrated customer information and wayfinding for interchange and connections between light rail and all other modes to make the quickest route more legible.
- Coordination of bus and light rail timetables to be investigated, particularly during off peak periods when the frequency of light rail services will be reduced.

Table 7-4: Grosvenor Street Precinct Access Plan

Stop Name
Grosvenor Street
Land Uses
– Commercial – Tourist accommodation – Retail / food & beverage – Entertainment
Major Trip Generators
– Commercial (Suncorp Centre, Grosvenor Tower, Australia Square, NAB Head Office). – Tourist accommodation (Amora Hotel, Establishment Hotel). – Retail / food & beverage (Met Centre). – Entertainment (Establishment).
Multi-Modal Stop Access
Patronage
– 884 boardings and 722 alightings forecast for 2021. – 1,180 boardings and 958 alightings forecast for 2036.
Heavy Rail
– Grosvenor Street is not forecast to be a major interchange for passengers from heavy to light rail. – 300m north of Wynyard Station. – 500m south-west of Circular Quay Station.
Light Rail
– 250m north of proposed Wynyard stop on CSELR line. – 550m south-west of proposed Circular Quay stop on CSELR line.
Bus
– Estimated AM peak hour interchange patronage from bus to light rail is 497 (56%) in 2021. – 350m south-east of proposed Bridge Street / Loftus Street stop (both directions). – 400m north-east of proposed Kent Street stop (both directions).
Pedestrian
– Estimated AM peak hour walk up patronage of 387 (44%) in 2021.
Bicycle
- Off-road cycle path: ▪ Two way; Kent Street (north-south). - On-road routes: ▪ Two way; Pitt Street (north-south), Phillip Street (north-south), Grosvenor Street (east-west). ▪ One way; Castlereagh Street (southbound), Bligh Street (southbound), York Street (southbound), Clarence Street (northbound), Bent Street (westbound). ▪ Potential two way on-road route on Bridge Street (between Pitt Street and Macquarie Street).

Figure 7-2: Grosvenor Street Precinct Access Plan



7.3.4. Wynyard Precinct Access Plan

Access Improvements

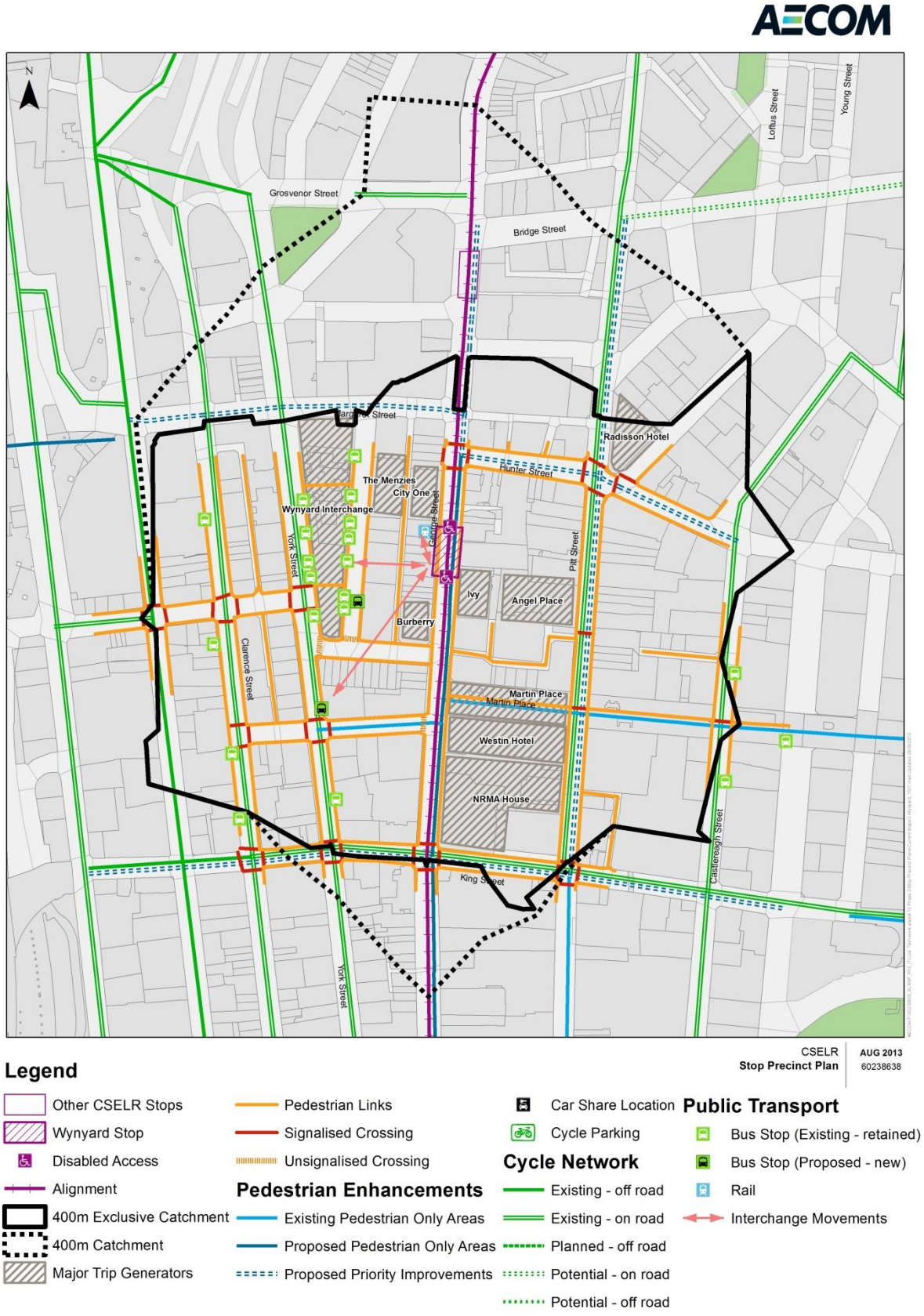
The key actions to resolve multimodal access issues in the Wynyard stop precinct are;

- Strengthen pedestrian links between the Wynyard bus interchange and light rail stop. This could include;
  - Introduce integrated customer information and wayfinding (consistent with the Transport for NSW Wayfinding Strategy) for interchange and connections between light rail and all other modes to make the quickest route more legible. This is particularly important for customers using the new Wynyard Walk to access Barangaroo as well as those interchanging between the Wynyard bus and light rail stops.
  - Through the City Centre Access Strategy (CCAS) pedestrian infrastructure upgrades will be considered, on links with high pedestrian volumes, such as Wynyard Street.
  - Reducing bus / pedestrian conflict on Carrington Street.
- Close George Street to vehicular traffic to improve pedestrian access to and from the light rail stop. This will reduce pedestrian wait times at key signalised intersections;
  - George Street and Hunter Street
  - George Street and King Street
- Coordination of bus and light rail timetables to be investigated, particularly during off peak periods when the frequency of light rail services will be reduced.

Table 7-5: Wynyard Precinct Access Plan

Stop Name
Wynyard
Land Uses
– Commercial – Transport (Wynyard interchange for trains and buses) – Tourist accommodation – Retail / food & beverage – Entertainment
Major Trip Generators
– Commercial (Martin Place, Angel Place, NRMA Building). – Transport (Wynyard interchange). – Tourist accommodation (Westin, The Menzies, Radisson Hotel, Travel Lodge Wynyard). – Retail / food & beverage (Wynyard Walkways, Burberry). – Entertainment (City Recital Hall, Ivy).
Multi-Modal Stop Access
Patronage
– 1,015 boardings and 1,882 alightings forecast for 2021. – 1,267 boardings and 2,491 alightings forecast for 2036.
Heavy Rail
– Wynyard is not forecast as a major rail to light rail interchange. – 50m south of Wynyard Station. – 500m north-west of Martin Place Station.
Light Rail
– 250m south of proposed Grosvenor Street stop on CSELR line. – 550m north of proposed Queen Victoria Building stop on CSELR line.
Bus
– Estimated AM peak hour interchange patronage from bus to light rail is 724 (71%) in 2021. – 250m east of Wynyard bus interchange (Carrington Street and York Street). – 300m south-west of Pitt Street (corner Bent Street). – 350m west of proposed Castlereagh Street stop.
Pedestrian
– Estimated AM peak hour walk up patronage of 290 (29%) in 2021.
Bicycle
– Off-road cycle paths: ▪ Kent Street. ▪ King Street (between Clarence Street and Sussex Street). – On-road routes: ▪ Two way; Pitt Street (north-south), Phillip Street (north-south), Grosvenor Street (east-west). ▪ One way; Castlereagh Street (southbound), Bligh Street (southbound), York Street (southbound), Clarence Street (northbound), Bent Street (westbound), King Street between Clarence Street and Macquarie Street (eastbound).

Figure 7-3: Wynyard Precinct Access Plan



7.3.5. Queen Victoria Building Precinct Access Plan

Access Improvements

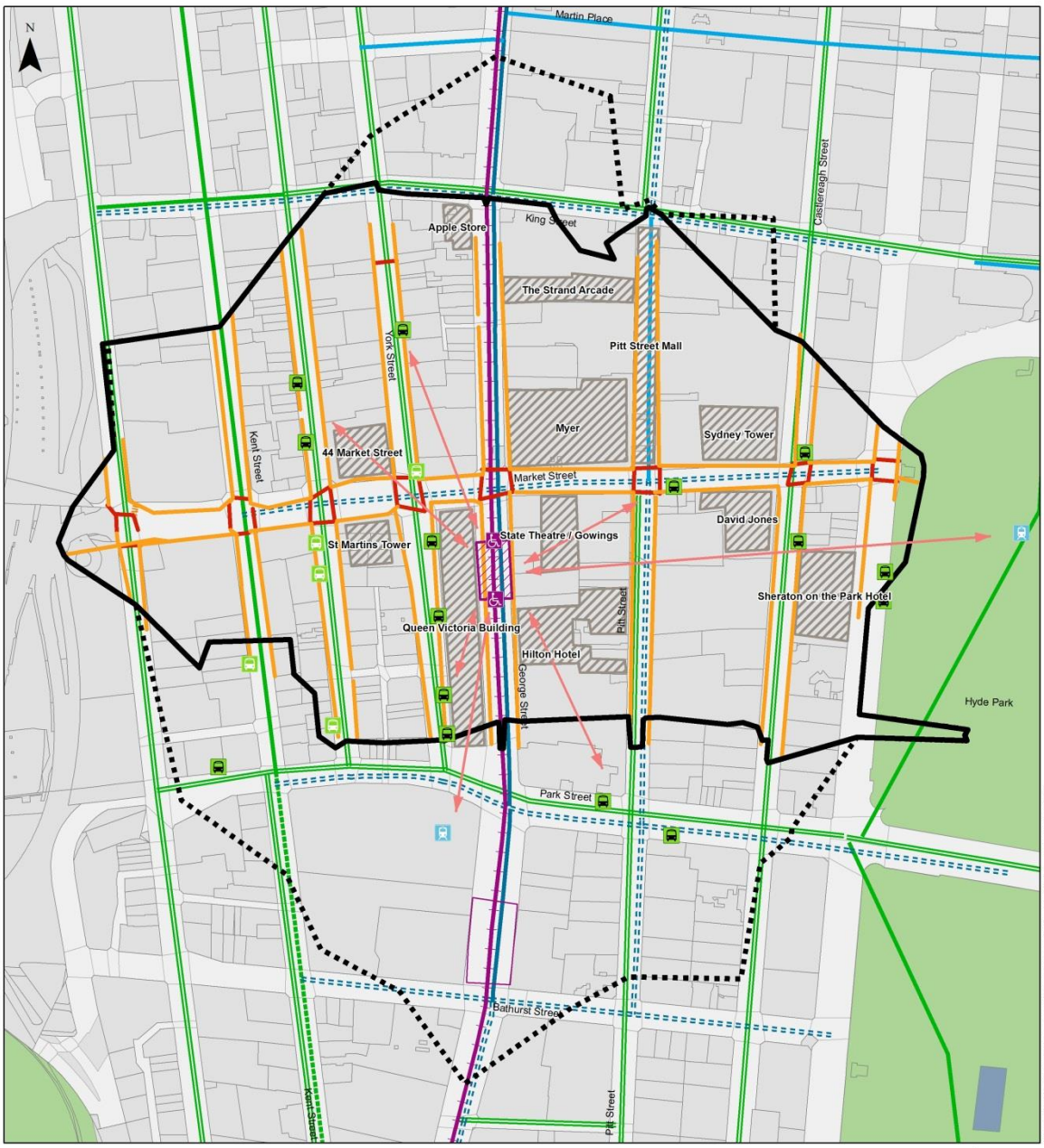
The key actions to resolve the multimodal access issues at the Queen Victoria Building stop precinct are;

- Implement pedestrian priority improvements to reduce pedestrian wait times at key intersections such as;
  - Market Street and Clarence Street
  - Market Street and York Street
  - Market Street and George Street
  - Market Street and Pitt Street Mall
  - Market Street and Castlereagh Street
  - Market Street and Elizabeth Street
- Close George Street to vehicular traffic to improve pedestrian access to and from the light rail stop.
- Through the City Centre Access Strategy (CCAS) pedestrian infrastructure upgrades will be considered, on links with high pedestrian volumes, such as Market Street between George Street and Elizabeth Street.
- Convenience afforded by Queen Victoria Building connection for customers interchanging between bus and light rail.
- Introduce integrated customer information and wayfinding for interchange and connections between light rail and all other modes to make the quickest route more legible.
- Coordination of bus and light rail timetables to be investigated, particularly during off peak periods when the frequency of light rail services will be reduced.

Table 7-6: Queen Victoria Building Precinct Access Plan

Stop Name
Queen Victoria Building
Land Uses
– Retail / food & beverage – Commercial – Residential – Tourist accommodation
Major Trip Generators
– Retail / food & beverage (Pitt Street Mall, David Jones, Myer, Apple, Topshop, Queen Victoria Building). – Commercial (400 George Street, 420 George Street, 85 Castlereagh Street, Stockland Tower, St Martin's Tower, 44 Market Street). – Tourist accommodation (Hilton, Swissotel, QT Sydney, Sheraton on the Park). – Residential buildings to the east and west of George Street. – Sydney Tower.
Multi-Modal Stop Access
Patronage
– 691 boardings and 1,708 alightings forecast for 2021. – 811 boardings and 2,171 alightings forecast for 2036.
Heavy Rail
– Queen Victoria Building is not forecast as a major interchange for passengers from heavy to light rail. – 250m north of Town Hall Station. – 500m west of St James Station.
Light Rail
– 250m north of proposed Town Hall stop on CSELR line. – 550m south of proposed Wynyard stop on CSELR line.
Bus
– Estimated AM peak hour interchange patronage from bus to light rail is 459 (66%) in 2021. – 200m east of proposed bus stops on York Street (southbound only). – 250m south-west of proposed bus stop on Market Street (westbound only). – 300m east of existing bus stops on Clarence Street (northbound only). – 400m south-west of proposed bus stops on Castlereagh Street (southbound only). – 500m west of proposed bus stops on Elizabeth Street.
Pedestrian
– Estimated AM peak hour walk up patronage of 232 (34%) in 2021.
Bicycle
– Off-road cycle paths: ▪ Kent Street. ▪ King Street (between Clarence Street and Sussex Street). – On-road routes: ▪ Two way; Park Street (east-west). ▪ One way; Pitt Street (northbound), Castlereagh Street (southbound), York Street (southbound), Clarence Street (northbound), Sussex Street (southbound, south of King Street), King Street between Clarence Street and Macquarie Street (eastbound).

Figure 7-4: Queen Victoria Building Precinct Access Plan



7.3.6. Town Hall Precinct Access Plan

Access Improvements

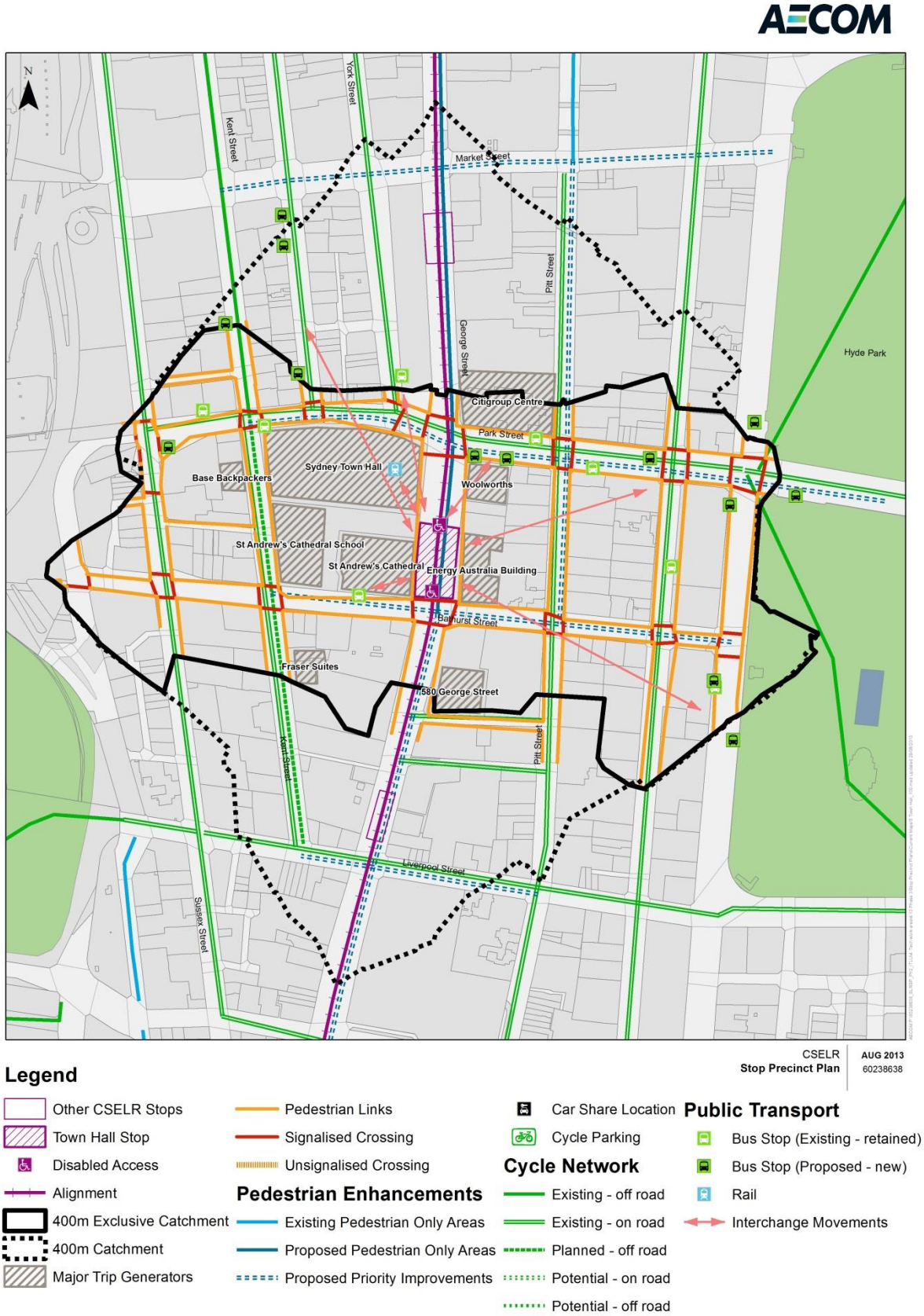
The key actions to resolve the multimodal access issues at the Town Hall stop precinct are;

- Implement pedestrian priority improvements along the Park / Druitt Street 'bus spine' to reduce pedestrian wait times at the following key intersections
  - Park Street and Elizabeth Street
  - Park Street and Castlereagh Street
  - Park Street and Pitt Street
- Close George Street to vehicular traffic to improve pedestrian access to and from the light rail stop.
- Introduce integrated customer information and wayfinding for interchange and connections between light rail and all other modes to make the quickest route more legible.
- Coordination of heavy rail, bus and light rail timetables to be investigated, particularly during off peak periods when the frequency of light rail services will be reduced.

Table 7-7: Town Hall Precinct Access Plan

Stop Name
Town Hall
Land Uses
– Commercial – Residential – Retail / food & beverage – Tourist accommodation – Civic – Educational
Major Trip Generators
– Commercial buildings (Citigroup Centre, Ausgrid Building, HSBC Building, commercial buildings to east and west of George Street) – Residential buildings (Lumiere, residential buildings to east and west of George Street) – Transport (interchange from heavy rail at Town Hall Station or buses on Park / Druitt Streets to light rail) – Retail / food & beverage (Woolworths, Queen Victoria Building, The Galleries, Regent Place) – Tourist accommodation (Frasers Suites, Base Backpackers) – Civic (Sydney Town Hall, St Andrew's Cathedral) – Educational (St Andrew's Anglican College)
Multi-Modal Stop Access
Patronage
– 827 boardings and 872 alightings forecast for 2021. – 1,149 boardings and 1,129 alightings forecast for 2036.
Heavy Rail
– Estimated AM peak hour interchange patronage from heavy to light rail is 286 (35%) in 2021. – Above Town Hall Station. – 550m north-west of Museum Station.
Light Rail
– 250m south of proposed Queen Victoria Building stop on CSELR line. – 200m north of proposed World Square stop on CSELR line.
Bus
– Estimated AM peak hour interchange patronage from bus to light rail is 354 (43%) in 2021. – 100m south of proposed bus stops on Park Street. – 150m north-east of existing bus stop on Bathurst Street. – 300m west of existing and proposed bus stops on Castlereagh Street. – 400m west of existing and proposed bus stops on Elizabeth Street.
Pedestrian
– Estimated AM peak hour walk up patronage of 187 (23%) in 2021.
Bicycle
– Off-road cycle paths: ▪ Kent Street (north of Druitt Street, proposed for extension to Liverpool Street). – On-road routes: ▪ Two way; Park Street (east-west). ▪ One way; Pitt Street (northbound), Castlereagh Street (southbound), York Street (southbound), Clarence Street (northbound), Sussex Street (southbound, south of King Street).

Figure 7-5: Town Hall Precinct Access Plan



7.3.7. World Square Precinct Access Plan

Access Improvements

The key actions to resolve the multimodal access issues at World Square stop precinct are;

- Implement pedestrian priority improvements to reduce pedestrian wait times at key intersections such as;
  - George Street and Liverpool Street
  - George Street and Bathurst Street
- Through the City Centre Access Strategy (CCAS) pedestrian infrastructure upgrades will be considered, on links with high pedestrian volumes, such as George Street and Liverpool Street between Kent Street and Pitt Street.
- Introduce integrated customer information and wayfinding for interchange and connections between light rail and all other modes to make the quickest route more legible.

Table 7-8: World Square Precinct Access Plan

Stop Name
World Square
Land Uses
– Residential – Commercial – Retail / food & beverage – Tourist accommodation – Entertainment
Major Trip Generators
– World Square (World Tower, Hordern Towers, Ernst & Young Centre, Rydges Hotel, World Square Shopping Centre). – Residential buildings to the east and west of World Square. – Entertainment (Event Cinemas, Metro Theatre). – Retail / food & beverage along George Street and Liverpool Street.
Multi-Modal Stop Access
Patronage
– 838 boardings and 335 alightings forecast for 2021. – 942 boardings and 400 alightings forecast for 2036.
Heavy Rail
– World Square is not forecast as a major interchange for passengers from heavy to light rail. – 400m south of Town Hall Station. – 400m west of Museum Station.
Light Rail
– 250m north of proposed Chinatown stop on CSELR line. – 200m south of proposed Town Hall stop on CSELR line.
Bus
– Estimated AM peak hour interchange patronage from bus to light rail is 343 (41%) in 2021. – 300m west of existing and proposed bus stops on Castlereagh Street. – 400m west of existing bus stop on Elizabeth Street.
Pedestrian
– Estimated AM peak hour walk up patronage of 495 (59%) in 2021.
Bicycle
– On-road routes: ▪ Two way; Goulburn Street (east-west). ▪ One way; Pitt Street (northbound), Castlereagh Street (southbound), Kent Street (northbound), Sussex Street (southbound), Liverpool Street (westbound). – Planned off-road cycle path extension: – Kent Street (extension from Druitt Street to Liverpool Street).

Figure 7-6: World Square Precinct Access Plan