Subject: Planning Proposal and Draft DCP for 472-520 Pacific Hwy, St Leonards - Post Exhibition

Record No: SU5245 - 63536/14

Division: Environmental Services Division

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Executive Summary

This report relates to a planning proposal recently exhibited for amendments to Local Environmental Plan 2009 (LEP) in relation to 472-520 Pacific Highway St Leonards, including Friedlander Place, in accordance with an approval by the NSW LEP Gateway, as follows:-

- To rezone the site from B3 Commercial Core to B4 Mixed Use for retail, commercial and residential purposes; and
- To increase the maximum building height for 472−486 Pacific Highway, St Leonards from 65 metres to 115 metres and 91 metres; and for 504−520 Pacific Highway, St Leonards from 72 metres to 138 metres.

and, in addition, amendments to the planning proposal adopted by Council on 21 July 2014 and exhibited in accordance with a process approved by the Department:-

- To increase the maximum building height for 500 Pacific Highway to 138 metres, subject to site consolidation with 504-520 Pacific Highway;
- To require a minimum FSR of 1.5:1 of non-residential floor area on all properties; and
- To require site amalgamation of each property's lots, whether developed separately or with adjacent properties, prior to development.

A Draft Development Control Plan (DCP) supporting the draft LEP, adopted by Council on 21 July 2014, was exhibited with the LEP. In response to the exhibition a total of fifty-eight submissions were received, including three from government authorities.

Draft Voluntary Planning Agreements relating to the proposal were also exhibited and are the subject of a separate report to Council.

The issues raised in submissions ranged between:-

- Support for the proposal in relation to the new Rail Plaza, Friedlander Place and Leighton plazas and other public domain improvements
- Objections to the proposal regarding building height and traffic, the impact on views, sunlight and property values and the need for master planning of the centre and other matters.

The submissions have been considered together with the broader public benefits anticipated from the proposal. Issues relating to impacts on existing properties are acknowledged, in particular regarding view loss; however these are balanced within the context of State policies as a whole relating to growth around urban rail stations and the St Leonards Specialised Centre in particular.

It is recommended that the planning proposal be endorsed by Council and submitted to the Department of Planning & Environment for finalisation as exhibited, and that Council adopt the Draft DCP subject to amendments.

The draft LEP amendments and planning proposal as exhibited are attached to the report at **AT-1.** The draft DCP is attached to the report at **AT-2.**

Background

The planning proposal was submitted to Council on 25 October 2013 by planning consultancy Urbis on behalf of Leighton Properties and Charter Hall.

Council resolved on 16 December 2013 to submit the planning proposal to the NSW Department of Planning & Environment for approval by the LEP Gateway for exhibition. Gateway determination to exhibit was given on 5 March 2014, subject to conditions that a revised traffic, parking and access study be prepared for the exhibition and that specified government department be notified. A copy of the Gateway determination is attached at **AT-3.**

In the following months, the draft LEP was amended as described above including 500 Pacific Hwy. The Development Control Plan was drafted accordingly and reviewed by independent urban planning experts, Architectus. The amended LEP and Draft DCP were then adopted by Council on 21 July 2014 for exhibition with the planning proposal edited accordingly.

Public exhibition of the LEP amendments, planning proposal including supporting studies updated as required by the Gateway, Draft DCP and related draft Voluntary Planning Agreements was undertaken for six weeks from 15 August to 26 September 2014. (The Department's required exhibition period was 28 days.) Letters of notification of the exhibition and information sheets were sent to Lane Cove residents in the vicinity of the precinct, to North Sydney and Willoughby Councils and to property owners in those local government areas to addresses identified by each council.

Notification was sent to the following authorities, as required by the Gateway:-

- Department of Education and Communities, Energy Australia, NSW Health, Sydney Trains, Roads and Maritime Services and Sydney Water

and also to:-

- Transport for NSW, Sydney Buses, Sydney Trains, Local Government and the local Members of Parliament: the Minister for Transport and the Minister for Resources and Energy and Special Minister of State.

An Information Display was held in St Leonards by the proponents and attended by Council staff on Wednesday 3 September, for residents of The Abode (apartments in North Sydney opposite the site), and on Thursday 4 and Saturday 6 September for the general public.

A total of 58 submissions was received, including those from North Sydney Council, NSW Roads & Maritime Services and an acknowledgement of notification from the Minister for Transport. A Councillor Workshop was held on 7 October to advise of the submissions received. Copies of the submissions in full, including addresses, have been circulated to Councillors, and a Submissions Summary is attached at **AT-4.** An online survey received twenty responses and these have been included in the Submissions Summary.

(Note: The terms describing locations used in this report in relation to Pacific Highway are, for consistency: East – meaning towards Crows Nest and West – towards Chatswood.)

Discussion

Key issues raised in public submissions related in particular to the following:-

Support for the Planning Proposal

Submissions supporting the proposal did so on the grounds that the public domain improvements would be welcome as contributing to the revitalisation of the St Leonards. Submissions included those made by owners in The Abode who do not have a view, that there are other significant factors in terms of:-

- The benefits to the public domain
- The proposed development will enhance capital value and capital growth for all apartments in The Abode
- Location in St Leonards and apartment design are the most important factors, regardless of whether an apartment has a pleasant view
- The majority of owners in The Abode are not affected by or concerned about the proposal
- Significant numbers of other apartment developments have occurred in the area before and since The Abode was built and it is predictable that it would occur here as well.

Views

Approximately 25 apartments in The Abode of 197 apartments have views potentially affected. A number of submissions expressed concern at loss of views from The Abode. These views, though varying according to each unit's orientation, include distant views to the Sydney Harbour Bridge, Sydney Harbour, the CBD, Botany Bay and other landmarks further to the south and west to the Blue Mountains, and it is understood that these views are enjoyed by residents not only for the individual locations but also the panoramic effect viewed as a whole. The IBM commercial building on the north side of the Highway also benefits from similar aspects.

It is recognised that many of the apartments with views would be impacted due to the restrictions to their current views. The owners' concerns are acknowledged, given that those properties have enjoyed the advantage of having significant under-development opposite them for the decade since The Abode's construction.

A number of submissions refer to the Land & Environment Court "Tenacity" case, which graded views from iconic to minor among other criteria. The Tenacity judgment stated: "The notion of view-sharing is invoked when a property enjoys existing views and a proposed development would share that view by taking away some of it for its own enjoyment."

In making the recommendations in this report for approval of the planning proposal, it is nevertheless appreciated that residents of The Abode went to certain effort to prepare detailed submissions with graphics (examples are included at **AT 5**) and inviting staff to visit their apartments.

View-sharing is just that: it does not mean that one half of a centre is to have total enjoyment of the views while the other half is unable to redevelop to benefit from the views. The images in AT 5 demonstrate this. In this context, it would be unreasonable and inequitable to expect that redevelopment would be prevented indefinitely for properties on the south side in order to preserve an unimpeded outlook held by apartments on the north side.

Some submissions have said that North Sydney Council assured prospective purchasers that their views would never be affected by buildings on the southern side. North Sydney Council would not, however, have had the power to make such a statement.

North Sydney's DCP has required "view slots" between developments in its area, with only 6 metre separation between mixed use buildings. By contrast, the DCP for this proposal far exceeds this objective in providing generous setbacks with 18-24 metre building separation to enable view lines to south and east. The most important "iconic" views from The Abode `are to the south-east rather than the south-west, and these would be maximised by the DCP for the Leighton triangular towers. To the west, the DCP for Charter Hall reduces the tower length by 17 metres less than the current buildings. These are significantly larger setbacks than would apply if the current 18-storey commercial potential were developed on those sites to the same height as The Abode and IBM as would be permissible currently.

It is acknowledged that, for many current owners on the north side, there would be an impact on current panoramic views. For the centre's users generally though, including the majority of Abode residents, the improvement to the amenity, functioning and economic stimulus of St Leonards resulting from the proposal would be expected to be positive. The new plazas would provide areas to socialise and relax in urban open space which is otherwise very limited for the existing unit-dwellers in St Leonards.

The desire to stimulate economic activity throughout the broader St Leonards CBD leads to the conclusion that delaying an inevitable intensification of St Leonards would not prevent change or be in the best interests of the majority of the centre's users from north and south.

Urban intensification is occurring in all three council areas throughout the St Leonards Centre on both sides of Pacific Highway and within 400 metres of the rail station in accordance with State policies for residential and employment growth and the integration of land use and transport.

Height, FSR and Design

Even if the planning proposal does not proceed, the current planning controls (65 metres east of Friedlander Place and 72 metres west of it) would permit buildings of comparable height with The Abode and IBM. This would have a potentially greater impact than the new planning envelope about which submissions express concerns.

The alternative would be for no change at all for the ageing buildings on the south side (e.g. Charter Hall is a 1960s building, reclad with a glass front in the 1990s) and this is not consistent with the objectives for the Specialised Centre and its sites within 400 metres of the rail station.

Submissions from The Abode refer to North Sydney's DCP Character Statement for St Leonards and Crows Nest that height should step down from the Forum's 35 storeys: "Buildings are scaled down significantly from the Forum towards surrounding areas and the lower scale on Chandos Street..." The Forum as a starting-point would still be double the height of The Abode. The 1990s building is not considered to be the final benchmark for all 21st Century development.

It is understood that North Sydney Council recently approved 545 Pacific Highway at around 16 storeys, i.e. double its otherwise-permissible height, an example of a departure by North Sydney from Strategy 2006 on acceptable grounds of providing voluntary planning agreement funds towards open space in Crows Nest. By contrast, North Sydney had objected to a proposal for only 10 storeys on the opposite corner at 448 Pacific Hwy on the Lane Cove side in 2012, which then did not proceed. It is not considered reasonable to continue to suppress building heights to the detriment of south-side owners for the benefit of north-side owners.

The Charter Hall site is a linear one extending along the Highway and site amalgamation with the 6-7 storey commercial strata building to the rear is not a realistic option.

North Sydney Council's submission states that the tower floorplates of 850m2 and 1,075m2 (excluding balconies) are excessive. For comparison, however, with what is proposed by Lane Cove, it is noted that in North Sydney the floorplate of The Abode appears to be around 950m2 (western tower) or 1,700m2 (east and west total) and the IBM oval tower 1,230m2 (approximations based on GIS data). It is also noted that The Abode's 18 storey height was approved as a variation from LEP 2001's height limit of 40 metres (13 storeys), establishing a precedent of a 38% increase above an existing height limit.

It should be noted, nevertheless, that the planning proposal and DCP provide the maximum building envelopes within which future DA plans could be designed. The DA stage would allow for development to be considerate of concerns raised in submissions and based on responsive innovative building configurations, as the Leighton proposal has shown.

Sunlight

A number of submissions from The Abode expressed concern at the loss of sunlight currently reaching them late afternoon to early evening in Spring and Summer. The NSW Residential Flat Design Code guideline of 2 hours solar access between 9am and 3pm for at least 70% of apartments in an urban area is to be complied with in future DA for the site. However it is already unachievable for The Abode's south-facing units, as confirmed in submissions. To the extent that late-day Spring and Summer sun may be provided between buildings, this would be relevant at the DA stage, but lack of solar access to these units is not a reasonable grounds to refuse the planning proposal.

Staff have prepared sunlight diagrams which indicate, nevertheless, that sunlight will to some extent be preserved under the planning proposal, below.

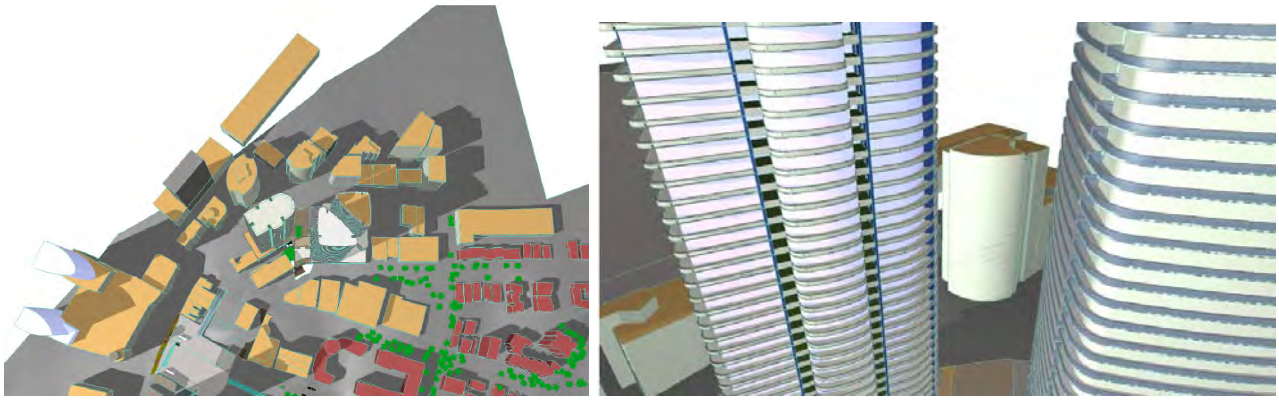


Figure1: Sunlight reaching the Abode at 3pm mid-September shown with proposed buildings

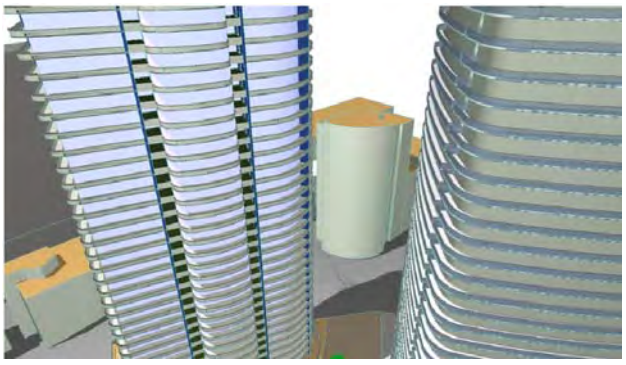


Figure 2: Sunlight at 2pm mid-December along Pacific Hwy

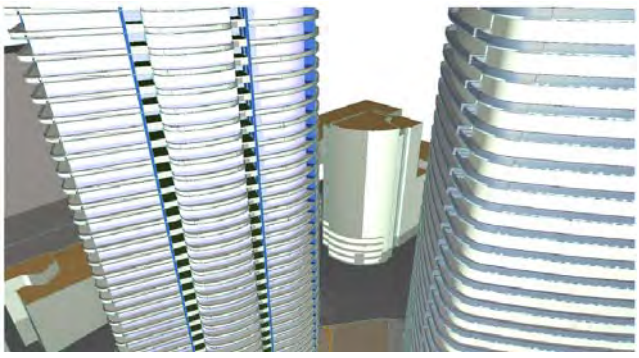


Figure 3: Sunlight at 8pm mid-December through Friedlander Place

A submission was also received from the Northmark/ Shoremark apartments in Christie Street that their unit would no longer receive sunlight before 11am and that, although this unit would still receive more than 3 hours daily mid-winter, others in the complex may not. The DCP would, however, require DAs to provide the minimum 2 hours existing sunlight to the other units in the complex and to residential areas in the precinct generally. This is acceptable under the Residential Flats Code. The tower setbacks are designed to result in fast-moving, slim-line shadows for this objective. The developments would be required to meet that guideline which applies for at least 70% of apartments on the site itself.

Privacy

Some submissions expressed concern at loss of privacy/ overlooking from the Leighton and Charter Hall apartments.

The substantial separation distance between the proposed buildings, of 22-24 metres (18 metres on the western side of 504), is at the upper level in satisfying State Environmental Planning Policy 65 and the Residential Flats Code, and The Abode is located across a six-lane Highway. In an urban setting it is not reasonable to expect that total privacy to balconies and rooms is possible and this is not a reason to refuse the proposal. It is noted that the south-western curved facade of The Abode appears to have zero boundary setbacks and that North Sydney requires separation of only 6 metres.

Property Values

New apartments on the north side of the Highway are being built presumably on the basis that they will be able to be sold and leased regardless of the lack of views for many of them, given the locational advantages of St Leonards, although it is understood that this is not an identical situation to that of units bought with existing views.

To the extent that property values are said to depend on those views, and although Council cannot quantify that issue, the southern properties should have an opportunity to share the values relating to views as well.

It is noted that the Sydney CBD is approximately six kilometres from this centre, not close to the units, and the iconic items are distant, so that it is unreasonable to expect that no development would occur between these properties and the city.

Public Domain Benefits

A submission from NSW Health - Northern Sydney Local health District relating to the St Leonards Public Domain Master Plan states: “NSW Health commends Council's intent to revitalise the centre of St Leonards. The plan to meet the present and future space needs of the community by providing appropriate public domain spaces, facilities and services will lead to a safer and healthier St Leonards to live, work and play.” The Pacific Highway planning proposal will contribute considerably to that project.

The public benefit, nevertheless, is considered to be positive for the substantial majority of the public (including users from The Abode), weighed against this aspect of the individual private units, in relation to the proposal.

Rail Plaza: The proposal, to provide 4,900m2 (6,600m2 with Friedlander Place and the Leighton Plaza) of new and enhanced urban open space, improved connectivity, transport hub functions and

upgrades of lanes and tunnel under the Highway, would be the first major public domain benefit to occur in St Leonards since the Forum in the 1990s. The south (Lane Cove) side and north (Willoughby) side will then have complementary public domain and transport infrastructure of high amenity and significant benefit to the Centre.

Friedlander Place: The north-south orientation would result in a reasonable proportion of sunlight for much of the year for a plaza in an urban high-rise environment. The 70 metre distance which Friedlander Plaza extends away from the Highway would encourage cafes, seating etc and have amenity and protection from noise. Wind tunnel effects would be minimised by a community structure at the rear as a windbreak. The Leighton plaza is angled away from the Highway and similarly reduces wind effects by having a podium at the south-eastern end. When combined with the reconfigured Friedlander Place, it will provide more than double the useable public open space currently available. Mitchell Plaza, on North Sydney's side, would have increased visual connectivity with public space on the south side with the opening out of view lines through this site.

Traffic and Transport

The Traffic, Transport and Accessibility Report by Brown consultancy was revised in accordance with the Gateway requirement for exhibition (**AT 6**).

NSW Roads & Maritime Services (RMS) provided a submission **(AT 7**) indicating that it has undertaken a review of the proposal's traffic modelling and does not object to the proposal proceeding to gazettal, subject to an updated traffic study being provided prior to gazettal. The RMS' submissions are summarised below, and are followed by staff comments:-

- *A number of key issues are identified that require further clarification/ analysis by the applicant prior to gazettal of the LEP, to be addressed in an addendum study:*

  This study would be provided to the Department with the LEP documentation for consideration prior to gazettal.

- *Traffic generation should be based on a worst-case of a supermarket tenant:*

  The proposal is for a U-shaped design surrounding three sides of an open-air public plaza. This configuration would not accommodate a supermarket. Traffic would be considered at DA stage.

- *The DCP has been updated since the traffic study was prepared and the proposed parking rates do not appear to meet the current DCP:*

  DAs would be required to meet requirements under the DCP amendment in force from 26 September and these parking rates would not increase vehicle generation affecting traffic capacity in the area. It is also noted that the proposed changes to SEPP 65 would impact on the parking rates, as it prevails Council's DCP.

- *The traffic modelling should have regard to: bus movements, grades, pedestrian numbers post-development, pedestrian crossing delay times and changes to vehicle arrival types:*

  These guidelines would be addressed by the proponents in their updated traffic study to be considered by the Department.

- *The LEP should support the objectives of NSW plans relating to reduction in car dependency and increased sustainable travel modes:*

The planning proposal's location of high density close to the rail station, and the new DCP Part R: Traffic and Transport's parking rates and sustainability objectives, support and implement these State principles: Section 5.1 has as part of its objectives:

- To promote initiatives to reduce car-based travel and
- To ensure large developments provide alternatives to car-based travel.

The broad purpose, as stated in Section 5.2, is to: "improve health through active transport choices while reducing car travel and associated greenhouse gas emissions and traffic congestion."

Any DA would be required under the DCP to reference the Lane Cove Bicycle Plan and Pedestrian Access & Mobility Plan (PAMP). The Bicycle Plan route passes directly adjacent to this site along Nicholson St to Christie St and the Pacific Hwy i.e. the Rail Plaza. In DAs bike infrastructure e.g. end-of-journey facilities etc would be required.

- *The planning proposal should be referred to Transport for NSW:*

  Council wrote to TfNSW on 14 August 2014; however no submission has been received separately from the RMS.

- *Council should ensure that a funding mechanism is in place for developer contributions towards appropriate road/ transport infrastructure improvements required as a result of the cumulative impact of additional development in the Lane Cove Local Government Area:*

  The RMS has flagged the potential need for road and transport infrastructure improvements that may be required as a result of the cumulative impact of growth.

  Council has already invested considerable funds in developing a strategic Paramics model for St Leonards in order to assess the cumulative traffic impacts of new development. This model was approved by RMS' Land Use Planning & Assessment Team on 11 April 2014 as "suitable for the testing of traffic impacts of developments". Council has already used this model to carry out preliminary analysis of the mixed use planning proposals east of the Railway line. The modelling has revealed that congestion and queuing issues are likely to arise in St Leonards if all the planned development occurs without any supporting infrastructure upgrades.

  Recently, Council commenced discussions with both North Sydney and Willoughby City Councils with a view to joint ownership of the model and potential expansion of the modelled area to capture future development at the Royal North Shore Hospital, Chandos Street and Crows Nest. The aim is to use the strategic modelling to develop and test major traffic management mitigation measures. Subject to the agreement of the respective Councils and input from RMS, these measures would form the basis of a joint developer contribution plan for St Leonards. Developers within the St Leonards study area would be required to pay a pro rata contribution for necessary infrastructure works calculated on the basis of dwelling size or commercial floor space.

  It is recommended that Council write to RMS to seek formal concurrence with this process. RMS endorsement would ensure that all three Councils and developers buy into the concept of independent, rigorous assessment of major development applications and an evidence based approach to transport infrastructure provision for St Leonards.

  The above comments have been provided by Council's Traffic Section.

It is emphasised that the proposal does not increase the floor space already permissible under the LEP. In rezoning to mixed use the commercial vehicles resultant from that floor space would be replaced by residential vehicle movements.

Submissions have raised concerns that future traffic measures need to be provided in response to any change of land use, but it is fair to say that `Lane Cove is starting from a low base, with the existing congestion they describe resulting in part from the vehicles generated by the denser development on the north side over many years. The Lane Cove vehicle generation will be lower relative to the north side, given that the 900+ residential units in this proposal would be matched by the estimated 800+ already in the pipeline north of the Highway, with further proposals also under consideration for a potential 1,300 units again immediately north of the rail station, as well as the eventual RNS Hospital redevelopments.

The State policy to increase densities around rail stations has inherent, but necessary, challenges to meet in regard to traffic and the desired modal shift towards other forms of transport. One way to facilitate this would be improved public transport infrastructure, and the Rail Plaza/ Bus Interchange would be a significant contribution in this regard.

Strategic Context

Master planning: Submissions raised the potential for a strategic master planning approach between the three councils.

It is agreed that a joint strategy would be beneficial to the continuing evolution of the centre. Lane Cove has sought to initiate this on a number of occasions. Between June and December 2013, meetings were held, at Lane Cove's request, between the Department and the three councils to discuss the planning proposal and the appropriate balance between employment and residential floor space. Although North Sydney's submission states that there was no agreement for mixed use rather than commercial-only on the south side, the four-storey commercial component referred to in their submission did in fact come directly from North Sydney's suggestion in those meetings that four storeys would be appropriately consistent with the commercial levels in the podiums below residential existing on the North Sydney side.

Lane Cove organised for a meeting nine months ago at the Department with North Sydney and Willoughby Councils to request that a joint working group be established. This proposal was, however, not supported by the Department on the grounds that the councils should wait for the subregional structure being developed in accordance with the NSW Planning Reforms. North Sydney was aware of that response, having been present at that meeting.

In September this year, with the Department's new subregional structure still awaited, Council invited the other two councils to a meeting at Lane Cove with the purpose to develop a shared approach to strategic planning, traffic and other infrastructure planning including for St Leonards.

In short, it is surprising that North Sydney Council's submission fails to acknowledge Lane Cove's initiatives towards a joint strategic approach.

North Sydney's submission that Lane Cove should maintain the commercial-only policy for the south side as in the St Leonards Strategy, finalised in December 2006 (with funding and project coordination by Lane Cove Council), does not reflect the substantial changes in NSW planning system over the eight years since then. Firstly, the Draft Inner North Subregional Strategy was issued in July 2007, and provided specific residential and employment targets that councils have subsequently been required to incorporate into comprehensive local environmental plans, considerably changing the scale of development in this and other local government areas across Sydney. Secondly, the NSW Gateway in March this year permitted the planning to proceed for mixed use zoning. Whilst North Sydney have retained the commercial core in the North Sydney

CBD, it is noted that due to the delay in them finalising their Comprehensive LEP until 2013, 3 mixed use developments were approved in the North Sydney section of St Leonards that under the 2006 St Leonards Strategy was to be Commercial Core. Thirdly, Minister Goward has clearly stated the policy that significant residential and employment growth is to be a priority around rail stations in Sydney's urban centres. In short, North Sydney's comments are not up-to-date with the current planning context. Furthermore, North Sydney's commencement in 2010 of a review of its plans for St Leonards-Crows Nest indicate its recognition that the 2006 Strategy should be subject to review, as are strategies generally.

Additionally, the revised Metropolitan Strategy for Sydney drafted in 2012 has not yet been finalised by the Department. The Department acknowledged in the above meetings that property owners need to make decisions in the interim, and subsequently gave its agreement that this planning proposal could go to exhibition. Further uncertainty regarding the St Leonards Specialised Centre results from the indefinite deferral in 2011 of the Royal North Shore Hospital Concept Plan, which had proposed additional its commercial and residential floor space within the Willoughby LGA. The effect of these policy delays is that Lane Cove Council is in the position that its revitalisation of the southern side of the centre, encouraged by North Sydney Council and others over some years, has to proceed without further indefinite delay.

A further factor relevant to the southern side is the NSW Gateway process. Once a planning proposal has been lodged, a council must comply with the legal timeframe to determine the proposal. North Sydney's statement that "it is Council's long-held position that the strategic planning framework for an area should not be dictated or determined by applications relating to an individual site that set a precedent" is inconsistent with the Gateway legislation requirements. The Gateway approval for this exhibition clears the way for mixed use on the south side of the Highway as part of the centre's strategic planning.

This redevelopment is consistent with the State Government policies for urban growth and intensification around rail stations in proximity to the Sydney CBD. The strategic framework is not static or set in the St Leonards Strategy 2006, as demonstrated by the other councils' variations from that eight year old plan. Since 2006, the State Government issued residential and employment targets under the Metropolitan Strategy and Inner North Subregional Strategy in 2007, the RNS Hospital Concept Plan was progressed then deferred in 2011, the draft Metropolitan Strategy and subregional plan review have been delayed and other factors have intervened including the LEP Gateway process being introduced enabling planning proposals to be lodged ahead of strategic plans being completed, with adjacent councils plans varying from the 2006 Strategy.

As a result the strategic planning context has been shifting over the past several years. None of these plans provides the clarity necessary to prevent the south side from stagnating to the detriment of the centre as a whole.

In short, submissions seeking the deferral of this planning proposal while a local council master plan is prepared need to recognise that, pending the State's awaited subregional strategic framework, the Gateway requirements provide a principal framework within which Council has to make its plans. Local councils are not permitted to produce subregional plans pending the lengthy but uncertain timeframe of the State's strategic reviews.

Notwithstanding the concerns raised by North Sydney Council, the subregional approach has been approved. There would be no long-term benefit for existing property owners to defer the proposal, given that redevelopment, whether commercial or mixed use, is inevitable on the southern side having regard to its role within the Specialised Centre, and approving the proposal offers the opportunity to ensure that substantial public benefit results from that redevelopment.

Employment & Residential Floor Space

The grounds for proposing a mixed use proposal in this traditionally commercial centre relate to the economic transition evidenced in St Leonards and the subregion, as indicated in the economic study provided to the December 2013 meeting and exhibited with the planning proposal:-

- Market analysis has shown that there is a consistent long term trend for lack of tenant and investor demand in St Leonards. This includes a lack of demand for newly approved A grade office space such as the Planning Assessment Commission approval in 2011 for the Winton commercial development at 88 Christie Street which has not commenced construction.
- Tenants are specifically choosing to locate in other centres rather than St Leonards, including advice received that IBM will be partially relocating its operations out of their building at 601 Pacific Highway.
- The location, pricing and quality of commercial floor space in St Leonards is currently not able to compete with Macquarie Park and North Sydney. Macquarie Park is able to provide purpose built commercial and larger floorplates to meet individual tenant needs at generally lower rents than St Leonards. North Sydney is identified as part of Global Sydney and holds a higher esteem in terms of a commercial head office location.
- There has been a long term declining tenant and investor market demand for occupation and development of new high rise commercial office space in St Leonards, in the scale contemplated under the Lane Cove LEP 2009.
- Small site configurations, fragmented ownership and stratification of office stock within St Leonards presents a barrier to redevelopment of lower grade office stock to provide the market with the floor plate/size of product being sought in other centres.
- St Leonards lacks the large sties in St Leonards to compete with Gore Hill, North Ryde and Macquarie Park for major employment growth. The building floor plates under this proposal are only 850m2 and 1,075m2, not large enough for the major commercial firms attracted to those areas.
- Health is one of the fastest growing employment sectors in NSW, and it is considered that St Leonards will continue to support employment in this sector through the utilisation of space for health and allied purposes. The ongoing redevelopment of RNSH earmarks land on this site for the purpose of health related employment. Approximately 73,000sqm of specialised commercial space has been approved in principle for health related employment on the RNSH campus.

The Department has acknowledged the changing strategic context in its Gateway approval for the proposal to proceed.

The Department's approval stated: "It is considered that the Planning Proposal is inconsistent with the Metropolitan Plan for Sydney 2036 and Draft Metropolitan Strategy for Sydney to 2031 in that the St Leonards centre is identified as an important location for employment growth and the rezoning will provide for significant residential expansion and a loss of commercial floor space and job opportunities. It is acknowledged that development of the site may act as a catalyst for further growth however the impact of this on commercial floor space should be further considered during the rezoning process.

Planning and Infrastructure indicated a general preference (not in the determination however) for a higher percentage of commercial floor space, by suggesting further height could be provided to retain the residential component. Council staff have explored the provision of additional

commercial space within the proposed height controls. The final proposal would provide 11,196m2 of commercial, an increase of 73% compared with the original planning proposal.

It is also noted that the Gateway letter states: “I have also agreed the planning proposal's inconsistencies with S117 Directions 1.1 Business and Industrial Zones and 7.1 Implementation of the Metropolitan Plan for Sydney 2036 are of minor significance. No further approval is required in relation to these Directions.” (Section 117 Directions require the Director-General’s approval to alter the amount of a location’s floor space.)

Sydney Airport Requirements

All processes at the DA stage, including Obstacle Limitation Surface investigation and others, are required to be complied with by the proponents. The Department’s attention should be drawn to this legislation to consider its implications for an LEP prior to gazettal.

Development Control Plan

The Draft DCP was prepared by Council following a review of planning controls undertaken by independent urban planning consultancy, Architectus, and was adopted by Council on 21 July 2014 for public exhibition. A copy of the Draft DCP as exhibitied is attached at **AT-8.**

The draft DCP is a site-specific plan designed to address the types of design issues raised in submissions such as view loss and building scale. At the stage of a future DA stage, issues of site relationships such as view lines and privacy would be further considered at the public notification stage.

It is proposed that a number of editing/ clarification/ compliance amendments should be made to the DCP, based on staff comments during exhibition, comprising those shown in **AT-9**.

Conclusion

The planning proposal to amend Local Environmental Plan 2009 in relation to 472-520 Pacific Highway St Leonards has been exhibited in accordance with the NSW Gateway determination, including notification of government authorities and exhibition of a revised traffic study. The RMS has reviewed the study and endorses the planning proposal proceeding subject to considerations by the Department prior to gazettal.

A supporting Draft Development Control Plan and draft Voluntary Planning Agreements were exhibited with the planning proposal.

A total of fifty-eight submissions was received. The key issues raised in submissions included:-

- support by many submissions for the proposal in particular its public benefits, in particular the new Rail Plaza, Friedlander Place and Leighton plazas and potential capital gain as a result of enhancements to the centre
- objections regarding building height and traffic, the impact on views, sunlight and property values and the need for master planning of the centre and other matters.

The submissions have been considered within the context of the St Leonards Specialised Centre as a whole. Issues relating to impacts on existing properties are acknowledged and balanced with the broader public benefits anticipated from the proposal.

Having regard to the centre’s continued poor commercial activity and prospects, it is appropriate that the economic stimulus proposed by this Planning Proposal be supported by Council, and it is

recommended that the planning proposal be submitted to the Department of Planning & Environment for finalisation and that Council adopt the Draft DCP subject to minor amendments.

RECOMMENDATION

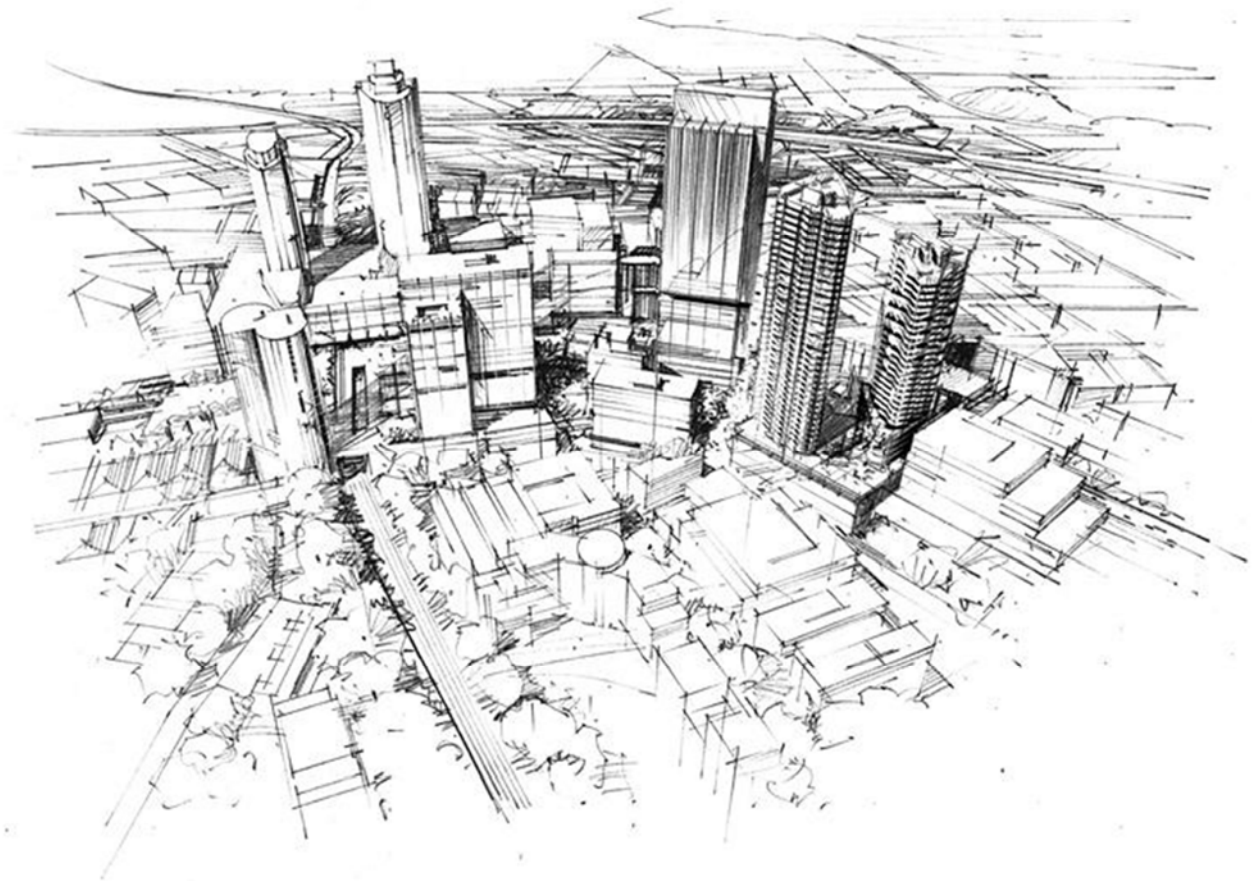
That:-

1. The LEP planning proposal for 472-520 Pacific Hwy, St Leonards be adopted and submitted to the NSW Department of Planning & Environment for finalisation.
2. The Draft Development Control Plan be approved for finalisation, subject to amendments listed in AT 9.
3. The traffic, transport and access study is to be updated in accordance with RMS recommendations of 17 October 2014 for the Department's consideration prior to gazettal.
4. Council write to NSW Roads & Maritime Services and to North Sydney and Willoughby Councils seeking their endorsement for a joint traffic modelling study relating to traffic measures and development contributions.
5. All processes at the DA stage, including Obstacle Limitation Surface investigation and others under Federal legislation and Regulation, are required to be complied with by the proponents.

Michael Mason
Executive Manager
Environmental Services Division

ATTACHMENTS:

AT-1 View	Planning Proposal Report as on Exhibition Final 15 August 2014	80 Pages
AT-2 View	Draft Development Control Plan for 472-520 Pacific Hwy - Adopted 21 July 2014	4 Pages
AT-3 View	NSW Gateway Determination - 5 March 2014	4 Pages
AT-4 View	Submissions Summary - 472-520 Pacific Hwy - October 2014	Available Electronically
AT-5 View	Examples of View Loss to The Abode - From Submissions	2 Pages
AT-6 View	Revised Traffic Study by Brown Consultants for Exhibition	98 Pages
AT-7 View	NSW RMS Submission - Planning Proposal 472-520 Pacific Highway St Leonards 17 October 2014	3 Pages
AT-8 View	Draft Development Control Plan - 472-520 Pacific Hwy - Adopted 21 JUly 2014 for Public Exhibition	5 Pages
AT-9 View	Draft DCP Editing/Clarification Amendments Proposed Post-Exhibition	1 Page



Planning Proposal

472-520 Pacific Highway, and 95 Nicholson Street, St Leonards

August 2014

Charter Hall

LEIGHTON PROPERTIES

urbis

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

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Report Number	Final - Exhibition copy

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OVERVIEW

This Planning Proposal request has been prepared by Urbis on behalf of Charter Hall and Leighton Properties (the "Proponent") seeking to initiate the preparation of a Local Environmental Plan amendment for the land at 472 - 520 Pacific Highway & 95 Nicholson Street, St Leonards.

The purpose of the Planning Proposal is:

- To respond to the long term lack of market and investor demand for commercial office space in St Leonards by introducing new planning controls that will stimulate investment and renewal within the centre.
- To leverage from the sites' strategic location to enable the development of mixed use buildings that will accommodate retail, commercial and residential uses.
- To provide a Concept Masterplan that responds to Council's vision for an iconic entry character to the centre that coordinates the planning of major sites within the precinct.

PROPOSED DEVELOPMENT CONCEPT

To assist in conceptualising the character of the envisaged development, an Urban Design Study by Urbis & Sissions Architects (and supplemented by Hassell Architects and A+ Design Group) has been prepared that will ultimately form the basis of future development applications.

The proposed urban design approach has been to create positive, engaging and legible 'entrance' points or 'gateways' to St Leonards, and to reinforce St Leonards as a key location as an activity centre through a different building form profile. Consequently, the urban design concepts incorporate the following:

- Active retail ground floor spaces and improved public domain (refer to Acadia Landscape Plan in Urban Design package)
- Commercial office space at the lower building levels offered at a discounted rate to encourage new businesses to the centre.
- Residential towers above the commercial podium levels.

The concept incorporates tall narrow towers that allow for:

- A building form with defined podium level and tower component.
- View permeability between buildings.
- Relatively fast moving shadows to minimise any prolonged overshadowing impacts.
- Adequate building setbacks and separation.

In addition, the proposal incorporates an offer from the proponents to enter into VPAs incorporating a monetary contribution that recognises the change in building forms that come with a change of use from Commercial to Mixed Use residential for Council to use at its discretion on capital works projects such as the St Leonards bus interchange project.

PROPOSED LEP AMENDMENTS

This Planning Proposal has been prepared to enable the provision of mixed use developments on the subject sites through the preparation of a site specific amendment to Lane Cove LEP 2009. The subject sites are zoned B3 Commercial Core. The proposed outcome will therefore be achieved by amending LEP 2009 as follows:

- Amending the LEP 2009 Land Zoning Map applicable to all subject landholdings to a B4 Mixed Use zone.
- Amending the LEP 2009 Height of Building Map applicable to the Proponent group's landholdings as follows:
  - A maximum permissible height of 138m applicable to 504 Pacific Highway + 95 Nicholson Street.
  - A maximum permissible height of 91m and 115m applicable to 472-494 Pacific Highway.
- An additional clause referred to as Clause 4.4(3) (i) to (iii),that requires the provision of a minimum 1.5:1 non-residential FSR for each of the development sites. Additionally, it allows in the event that the No.500 Pacific Highway site is amalgamated with Nos. 504-520 Pacific Highway (Lots 2-6 DP 3175) prior to development, the permitted building height for No.500 Pacific Highway will increase to 138m.

PLANNING OUTCOMES

In summary, the site will achieve the following key planning outcomes with resultant community benefits:

1. Change in the land use in response to long term market trends that will avoid further commercial vacancies and decline in the grade of building stock by facilitating a more viable land use mix that will positively contribute to the economic vitality and amenity of the centre.
2. The proposal is consistent with State government policy which supports growth within existing centres: The proposal seeks to facilitate redevelopment of land to a mix of uses that capitalise on the strategic position within this specialised centre that is well serviced by public transport. It provides some 7,790sqm of commercial office space incentivised for small/start-up businesses which based on current take up rates represents significant additional supply. In addition, over 3,795sqm of ground floor retail floorspace will be provided and residential towers able to accommodate approximately 992 apartments.
3. A master-planned and collaborative approach to planning a key precinct in St Leonards Specialised Centre: A collaborative process with Council, DPE and the proponent has facilitated the development of a cohesive concept plan with land uses and building scale and layout arrangements that achieve a complementary urban relationship with existing and planned development in the centre.
4. A transit oriented development outcome that incorporates a mix of uses that maximise the access to existing public transport.
5. Reinforcing the viability of St Leonards train station and Council's bus interchange vision: by increasing residential density in close proximity to the station and the planned bus interchange.
6. Improved street activation and pedestrian amenity: The proposal offers the opportunity for greater ground floor activation and permeability. This will strengthen the pedestrian links and permeability of the precinct.
7. Preserved residential amenity to the nearest residential properties on Oxley Street. The design and siting of new buildings has been informed by a comprehensive site analysis to ensure that development will not result in adverse overshadowing, privacy or view loss impacts on existing residential properties.

8. New Housing Opportunities high quality residential offering a diverse mix of housing product that will address the pressure for new housing in accessible locations.

9. Financial commitments from the proponent group through individual Voluntary Planning Agreements (VPAs) that Council can use toward its vision for the St Leonards bus interchange.

ASSESSMENT

The site has no discernible environmental constraints that would restrict its future development in accordance with this Planning Proposal. Traffic advice prepared by Brown Consulting that will be issued separately to this proposal confirms that the traffic impacts associated with the proposal can be suitably accommodated by the local road network.

Careful consideration has been given to the potential overshadowing impacts of the proposal on existing residential properties to the south. Analysis of the shadow impacts of the proposal has confirmed that compliance with applicable criteria can be achieved; access to sunlight is maintained to existing residential properties to the south between 9.30am and 3pm in mid-winter.

Similarly, view impacts on residential properties on the northern side of the Pacific Highway have been considered in the design of the scheme. Fire regulations, building setback requirements of residential towers will result in smaller floorplate slender towers that allow slot views to become available to properties to the north which would not otherwise be available should a complying development scheme be constructed.

CONCLUSION

Following our extensive analysis of the site and its surrounding context, and the applicable State and local planning policies, we believe there is a clear public benefit of proceeding with this Planning Proposal.

The Planning Proposal supports the State government's current direction of increasing density in major centres and broadening land uses in areas with good public transport and without eroding the primary employment function. Accordingly, the proposal achieves the right balance of uses with approximately 11,585sqm of commercial (office/retail) space to maintain an employment function while also recognising the benefits of providing residential development to take advantage of the locational and amenity benefits this part of the Centre can provide.

This proposal will not dilute the overarching goal of future employment growth in St Leonards which needs to continue to build on its strengths as a specialised health employment precinct. The proposal will be an investment catalyst to reinvigorate years of stagnation in the centre. It will support Council's bus interchange vision by facilitating positive reinvestment in the centre and through monetary contributions via a VPA for Council to use at its discretion on capital works projects such as the St Leonards bus interchange project.

Therefore we recommend that this Planning Proposal be favourably considered by Council; that Council resolve to forward it to the Department of Planning and Infrastructure to allow the Department of Planning and Infrastructure to consider the Planning Proposal for Gateway Determination under Section 56 of the *Environmental Planning and Assessment Act, 1979*.

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1 Introduction

This Planning Proposal has been prepared by Urbis on behalf of Charter Hall and Leighton Properties (the "Proponent Group") seeking to initiate the preparation of a Local Environmental Plan amendment for the land at 472 - 520 Pacific Highway & 95 Nicholson Street, St Leonards.

The Planning Proposal includes land known as 500 Pacific Highway (privately owned) and Friedlander Place (Council owned) that collectively form the subject precinct.

This report has been prepared to assist Council in preparing a Planning Proposal for the rezoning of the land in accordance with Section 55 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The current principal planning instrument for the subject sites is the Lane Cove Local Environmental Plan 2009 and the sites are zoned B3 Commercial Core. 'Residential flat buildings' are prohibited in the B3 zone.

Change to the controls through the Standard Instrument LEP process along with declining demand for the existing commercial developments, has led both Charter Hall and Leighton to separately carry out considerable planning, design and market investigations to explore further site opportunities. Despite extensive efforts, the trends of long term lack of tenant and investor demand means that redevelopment of these sites in accordance with the current Lane Cove Council LEP controls is not feasible. Both parties have undertaken discussions with Lane Cove Council to explore other redevelopment opportunities.

The intended outcome of this Planning Proposal is to amend the Lane Cove LEP 2009 to rezone the sites from their current B3 Commercial Core to B4 Mixed Use zone to permit mixed use development on the site as follows:

- Residential flat building: Approximately 992 apartments.
- Retail premises: Approximately 3,795sqm of retail space.
- Office premises: Approximately 7,790sqm of office space.

'Residential flat buildings' and 'commercial premises' (including office premises and retail premises) are all permitted in the B4 Mixed Use zone. An evidenced based approach has been adopted in pursuing the rezoning to allow mixed use development relying upon detailed economic research to support the broader land use opportunity but one which will not derogate against state, regional or local strategies.

The height controls of the site are also proposed to be amended to accommodate appropriate mixed use development on the site which protects views and solar access to surrounding land.

Accordingly, this Planning Proposal has been prepared to enable the provision of mixed use development on the subject site through an amendment to the Lane Cove LEP 2009. The proposed controls are shown in Table 1.

TABLE 1 – SUMMARY OF PROPOSED DEVELOPMENT CONTROLS

PROPERTY	PROPOSED ZONING	PROPSOED HEIGHT	PROPOSED FSR
504 Pacific Highway + 95 Nicholson Street	B4 Mixed Use	138m	No change
472 and 494 Pacific Highway	B4 Mixed Use	91m (tower 1) and 115m (tower 2)	No change
500 Pacific Highway	B4 Mixed Use	No change (unless site is amalgamated with No. 504 then the height increases to 138m)	No Change

PROPERTY	PROPOSED ZONING	PROPSOED HEIGHT	PROPOSED FSR
Friedlander Place	B4 Mixed Use	No change	No Change
An additional clause referred to as Clause 4.4(3) (i) to (iii), that requires the provision of a minimum 1.5:1 non-residential FSR for each of the development sites. Additionally, it allows in the event that the No.500 Pacific Highway site is amalgamated with Nos. 504-520 Pacific Highway (Lots 2-6 DP 3175) prior to development, the permitted building height for No.500 Pacific Highway will increase to 138m.			

The proposed rezoning will facilitate development which:

- Reflects the changing nature of the St Leonards precinct and potential for its focus as a key health precinct accommodating smaller scale office based health businesses in support of the Royal North Shore Hospital, North Shore Private Hospital and the Mater.
- Provides a proposal which responds to the long term lack of market and investor demand for commercial office space in St Leonards.
- Increases mixed use development on the subject sites without impacting on the achievement of overall employment targets.
- Facilitates development activity in St Leonards, supporting the diverse mixed use nature of the precinct.
- Leverages the site location which demonstrates consistency with transit oriented development (TOD) principles, being proximate to rail and bus networks which provide high levels of accessibility for residents to the broader metropolitan area.
- Acts on the opportunity to invigorate the precinct south of the Pacific Highway and east of the railway station.
- Provides opportunities for improvement in the wider public domain, as well as providing active uses at the ground floor level within the subject sites.

This Planning Proposal has been prepared having regard to the NSW Department of Planning and Infrastructure's (DPE) 'A guide to preparing Planning Proposals' and 'A guide to preparing local environmental plans' and provides the following:

- Description of the subject sites and context.
- Indicative site plans showing sufficient detail to indicate the effect of the proposal.
- Statement of the objectives and intended outcomes of the proposal.
- Explanation of the provisions of the proposal.
- A case for change detailing the need for development to respond to the changing character of St Leonards.
- Summary of the justification of the proposal.

The Planning Proposal is supported by the following documentation:

- Urban Design Report prepared by Urbis and Sissons Architects (**Appendix A**)
  - Tower Study Report by Sissions Architects, including a Concept Masterplan by Hassell Architects for No.474-494, and Landscape Plan by Arcadia.
  - Concept Design by A+ Design Group for No.504.
- Economic Impact Assessment prepared by Urbis (**Appendix B**)
- Traffic Assessment Report by Brown Consulting (**Appendix C**)

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2 Site Analysis

2.1 EXISTING SITE DETAILS

The sites which are the subject of this Planning Proposal are known as 472 - 520 Pacific Highway and 95 Nicholson Street, St Leonards. The properties are presently developed and utilised as multi storey commercial towers, fronting the Pacific Highway as follows:

- 472 Pacific Highway: A six storey commercial building in the single ownership of the Leighton Group Companies and is legally known as Lot 1 in DP628513. The site area is approximately 2,663sqm.
- 494 Pacific Highway: A six storey commercial building that is strata titled and owned wholly by Leighton Group Companies (SP73071). The site area is approximately 2,663sqm.
- 500 Pacific Highway: A six storey strataed commercial building in single ownership (SP82937).
- 504 - 520 Pacific Highway and 95 Nicholson Street: A ten storey commercial building and four storey commercial building that are owned wholly by Charter Hall and legally described as Lots 2-6 in Section 17 in DP3175. The site area is approximately 1,920sqm.
- Friedlander Place: A pedestrian way linking the Pacific Highway with Nicholson Street to the south. This site is owned by Lane Cove Council and is legally known as Lot 1 in DP1179636.

The following map shows the sites' locations. The sites form a contiguous land parcel and natural 'precinct' bound by Pacific Highway to the north and are on the border of the Lane Cove Local Government Area (LGA).

FIGURE 1 – SUBJECT SITES

The site

The sites are bound by the Pacific Highway to the north and north east, Nicholson Street to the south and south west, a five storey commercial building immediately to the west and a six storey commercial building to the west.

FIGURE 2 – SUBJECT PROPERTY ADDRESSES

The buildings to the west and south west (69 Christie Street) are strata lots with fragmented ownership. The site to the north west (524 Pacific Highway) is owned and occupied by Telstra as a telephone exchange which is unlikely to the redeveloped in the short to medium term. Accordingly, these sites create a natural boundary edge for the precinct.

2.2 IMMEDIATE VICINITY

The sites are located on the boundary of the Lane Cove LGA and are immediately adjacent to the North Sydney LGA on the northern site of the Pacific Highway and Willoughby LGA in close proximity to the north west.

Other buildings on the southern side of the Highway in this locality are multi storey and commercial in nature. Fronting the Pacific Highway opposite the sites to the north are relatively new mixed use (primarily residential apartment) buildings. A pedestrian plaza has been formed between the termination of Albany Lane and the Pacific Highway.

2.3 ST LEONARDS PRECINCT

The sites are at the eastern gateway of the St Leonards centre which is a mixed use centre on the lower north shore of Sydney. The land use character of St Leonards presents a mix of medical services, newly constructed mixed use commercial/residential buildings (with a significant number of recently approved mixed use developments currently under construction or soon to be constructed on the North Sydney LGA side of Pacific Highway) and older B and C grade commercial office stock.

St Leonards is dissected east-west by the Pacific Highway and north-south by the North Shore Railway Line which separates the current land uses which consist of:

- Transport: The St Leonards station is on the North Shore Line.
  - The subject sites are within 300 metres walking distance to St Leonards rail station.
  - The railway network links St Leonards to four primary employment districts; Macquarie Park, Chatswood, North Sydney, and Sydney CBD.
  - Research undertaken by Urbis has revealed that St Leonards station offers access to more jobs within a 20 minute commute than any other place in Australia.
- Education and Medical:
  - The Royal North Shore Hospital (RNSH), North Shore Private Hospital and the Northern Sydney Institute of TAFE are located in the north west of St Leonards centre, attracting a range of health and associated tenancies both on the hospital site and throughout the centre.
  - The Mater private hospital is also located in close proximity.
- Commercial:
  - Fronting the Pacific Highway and west of the railway line is a fringe of low grade commercial office buildings (one block deep).
  - A more focused commercially zoned precinct is located south of the highway and east of the railway line and is characterised by a mix of commercial buildings, medial and allied health premises, along with a hotel and some residential apartments.
- Mixed use: The north eastern portion of St Leonards is undergoing a change in character from commercial to mixed use with a number of recent constructions and building approvals for multi storey residential apartments above one and two storeys of retail/commercial space fronting the street.

A land use survey of the precinct has informed the following mapping exercises at Figure 3 to Figure 5 demonstrating the location and range of uses in the centre. In summary, the figures show the following:

- A large number of mixed use developments north of the Pacific Highway.
- Residential development to the south of the subject sites.
- Commercial development throughout the St Leonards precinct. What is not shown is the emerging Gore Hill technology Park at 219-247 Pacific Highway.
- Retail uses located along the Pacific Highway.
- A high proportion of medical land uses or medical land holdings including on the subject sites.
- Notably, Figure 5 shows a high commercial vacancy rate including leases which are up for renewal in the next 12 months. This represents a current day spapshot that needs to be considered in the broader context of increasing vacancies and stagnation of new office development as detailed in the Urbis Economic Assessment in **Appendix B**.

FIGURE 3 – RESIDENTIAL, COMMERCIAL AND MIXED USE SITES IN ST LEONARDS

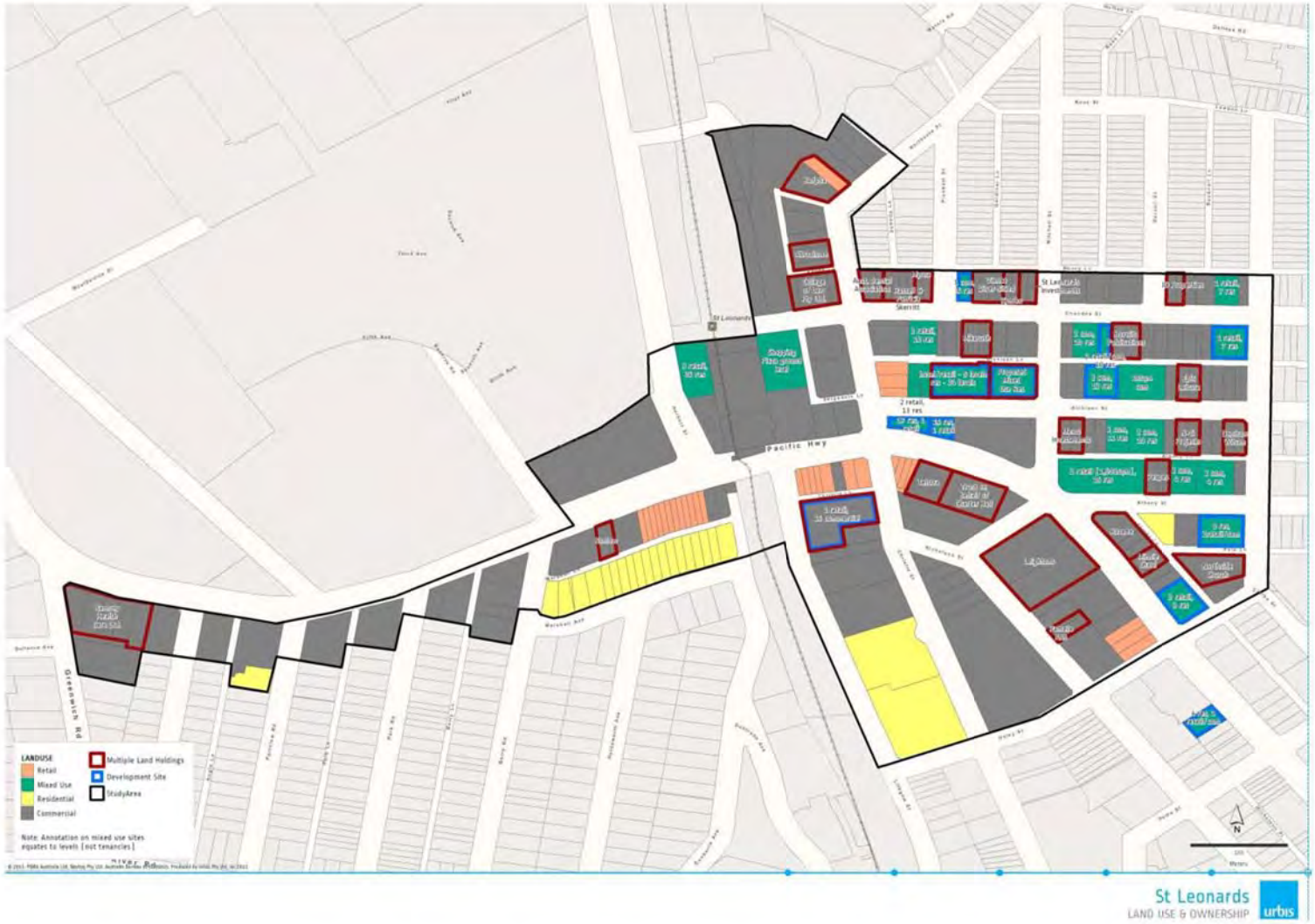


FIGURE 4 – MEDICAL PREMISES IN ST LEONARDS

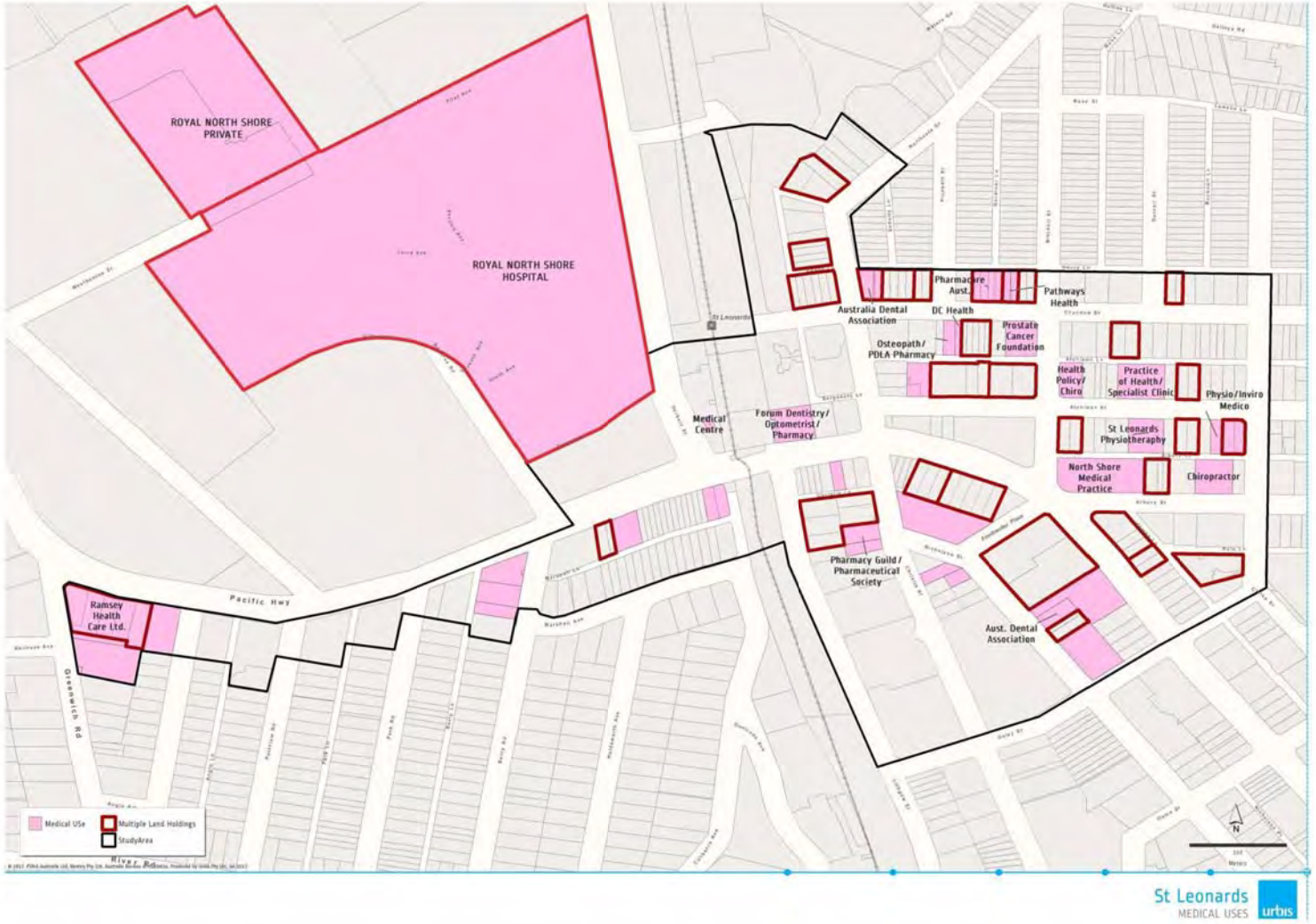


FIGURE 5 – LEASES EXPIRING WITHIN 12 MONTHS

2.4 BROADER REGIONAL CONTEXT

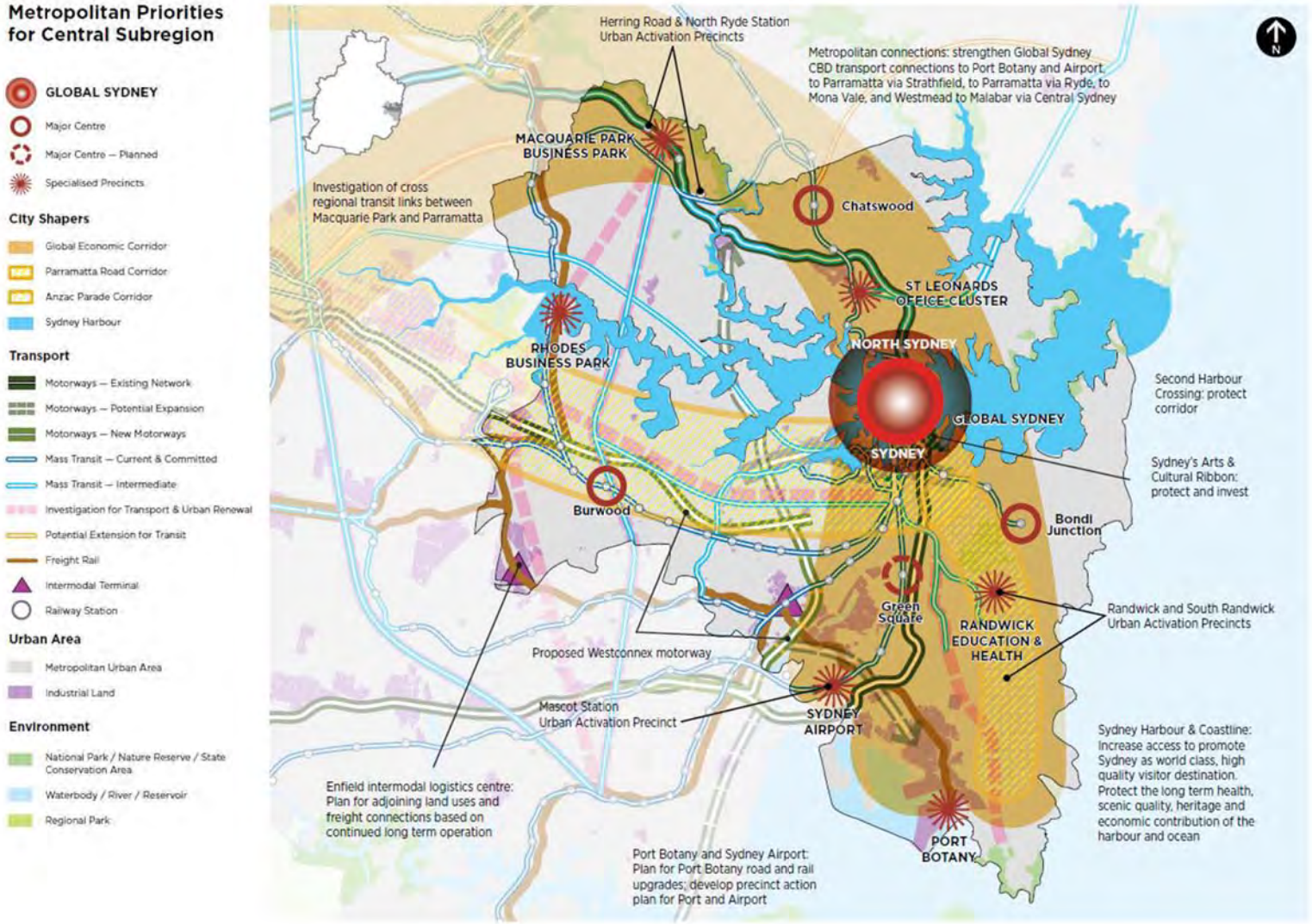
St Leonards is located 6km north of the Sydney CBD and is one of a number of major centres located on the North Shore of Sydney. The centre is in close proximity to the commercial centres of North Sydney, Chatswood and Macquarie Park. St Leonards is located within the Central Subregion of the Draft Metropolitan Strategy 2013 which identifies the following priorities for these centres (as shown in Figure 6):

- St Leonards as a Specialised Precinct Office Cluster.
- Sydney CBD and North Sydney as part of Global Sydney.
- The Major Centre of Chatswood.
- Macquarie Park Business Park as a Specialised Commercial Office and Employment Precinct.

These centres have been identified as being within the Global Economic Corridor (GEC) which is the area of focus for '*both currently funded and commenced projects and future projects*'. The purpose of the GEC is to boost productivity on the back of increased job densities and greater capacity for additional employment.

The location of these centres in close proximity to each other demonstrates the high level of competition to accommodate these additional jobs and commercial and residential development.

FIGURE 6 – METROPOLITAN PRIORITIES FOR CENTRAL SUBREGION – DRAFT METROPOLITAN STRATEGY 2031



2.5 OPPORTUNITIES AND CONSTRAINTS

As with most urban redevelopment sites, the subject land is influenced by a wide variety of opportunities and constraints which have been considered in the site analysis and concept design and are documented in detail below.

2.5.1 KEY OPPORTUNITIES

One of the key opportunities on the sites is the ability to utilise Transport Orientated Development (TOD) principles. TOD is a planning concept that promotes high quality, medium to high density mixed use development within a ten minute walk of established or planned rail and bus way stations (a radius of about 800 metres).

The attributes and opportunities presented by the site demonstrate many of the TOD principles which should be utilised by future development as shown in Table 2.

TABLE 2 – TOD PRINCIPLES AND SITE OPPORTUNITIES

TOD PRINCIPLES	KEY SITE OPPORTUNITIES
Density: Supporting transport use by providing good connections to the station and activating surrounding uses.	The sites are within 300m of the St Leonards railway station. They border the transport corridor and bus route along the Pacific Highway and are proximate to the proposed future bus interchange facility.
Housing Choice: Allowing people to remain (age) within the same location and allows the nature of the community to develop over time.	The subject sites have the ability to increase housing availability and choice within the area through provision of a range of apartment sizes.
Mix of Uses: Integrating quality retail, community facilities and other services which ensure commuters and residents of nearby suburbs utilise local services.	Mixed use development will make efficient use of existing services and infrastructure in this inner city location, and will provide sufficient housing to help meet the infill housing targets and reduce the need for land release on the metropolitan fringe for a commensurate number of dwellings. It will also provide an opportunity to accommodate retail premises to complement the existing retail offer in the locality.
Walkable Streets: Directly connecting local destinations to transport hubs.	Pedestrian access from the sites to transport and key facilities and services within St Leonards is available by: ▪ Ease of access to railway station. ▪ A variety of public transport option links including the Sydney orbital network, Pacific Highway and the North Shore Rail Line. ▪ Proximity to the proposed transport interchange at St Leonards railway station. ▪ Location in close proximity to assets such as Royal North Shore Hospital, TAFE, Artarmon Industrial Area and Gore Hill Technology Park, a number of high schools and private secondary schools. The proposal offers the opportunity for greater ground floor activation and permeability. This will complement any improvements that may be made to the broader public domain by Lane Cove Council in the future.

TOD PRINCIPLES	KEY SITE OPPORTUNITIES
Strong Public Realm: For safe, comfortable, varied and attractive places that offer opportunities for meeting people, gathering in public places. Places need to be easy to get to and integrated physically and visually with their surroundings.	There are a number of public open space areas close to the subject sites including the recreational facilities such as Gore Hill Park and Newlands Park. The proposal offers the opportunity for improved amenity and expanded ground floor activation and permeability. The sites offer opportunity to increase vibrancy in and around the St Leonards Station precinct area.
Travel Choices: Give transit a high priority by enabling it to operate on dedicated or high-priority routes and consider supporting transport options to rail.	St Leonards is highly serviced by frequent rail and bus public transport infrastructure, providing excellent linkages to the key centres of the Central Subregion including City, Chatswood, lower north shore and greater metropolitan Sydney.

2.5.2 KEY CONSTRAINTS

The site has the following key physical constraints which have been analysed and addressed in the preparation of the design concept for the sites. The constraints are identified as follows:

- View Corridors
  - The need to provide for a built form which appropriately responds to the existing view corridors from St Leonards to Sydney CBD and Sydney Harbour.
- Solar Access
  - The need to protect solar access to existing surrounding residential development.
- Topography
  - There is an established stepped topography between the Pacific Highway and Nicholson Street which provides the opportunity for secondary access to car parking.
- Vehicular access
  - Vehicular movement to and from the site area is constrained by the Pacific Highway to the north and east and the railway corridor to the west.
  - There is no vehicular access to the site directly from the Pacific Highway.
- Pedestrian access
  - Friedlander Place provides access from Nicholson Street to Pacific Highway however this path is underutilised given the quality of the existing environment.
  - There is no direct access to the site from Nicholson Street.
- Noise
  - Residential development is required to respond to noise which comes primarily from high volumes of traffic on Pacific Highway.

3 Background

3.1 NSW DEPARTMENT OF PLANNING MEETINGS

A number of meetings have been held with the NSW Department of Planning and Environment (DPE) in respect to the subject Planning Proposal.

- 14 June 2013 – meeting with DPE (Juliet Grant and Sandy Shewell) and Lane Cove Council staff (Craig Wrightson, Michael Mason and Stephanie Bashford) to introduce the substance of the joint Planning Proposal to DPE, and for Council staff to confirm their willingness to work constructively with the proponent. DPE acknowledged the complexities of the centre from a planning and market demand perspective and encouraged the proponent to prepare a comprehensive application to support the case for rezoning to assist their assessment against the Metropolitan Strategy goals and objectives.

- 8 October 2013 – meeting with DPE (Daniel Keary and Sandy Shewell) and Lane Cove Council staff (as above) to outline the content and approach to the Planning Proposal and provide a briefing on the background and key drivers of the Planning Proposal. DPE confirmed the proposed package of information intended to support the rezoning request was at the depth required for them to have a broader subregional centre consideration and that this will be important to assist in the LEP Panels gateway assessment.

3.2 DPE & COUNCIL MEETING

- We understand that following our meeting with DPE, that a meeting was convened by DPE with Lane Cove, North Sydney and Willoughby strategic planning staff to discuss a range of matters relevant to St Leonards including current development activity, significant proposals such as this project, market conditions and how this information will inform current and future subregional planning.

3.3 GATEWAY DETERMINATION

- On 5 March 2014 DPE issued a Gateway Determination to rezone the land and increase the maximum building height for the subject lands.

- The Gateway Determination provides specific conditions required to be met prior, which importantly included the requirement for public exhibition and consultation with a range of public authorities.to the public exhibition.

3.4 LANE COVE COUNCIL MEETINGS

Representatives from both Leighton Properties and Charter Hall each have had several separate meetings with Council staff over the last 18 months discussing various issues and commercial redevelopment plans for their respective assets.

After both Leightons and Charter Hall separately engaged Urbis to providing town planning advice for their respective properties it was agreed by both clients that a joint planning proposal be submitted to provide a more holistic perspective in part of the centre.

Subsequently, a number of meetings have been held with staff and Councillors of Lane Cove Council. In Summary:

- 12 August 2013 – Formal PowerPoint presentation to Lane Council Councillors that included details of the draft concepts and strategy position behind the planning proposal.

- 12 September 2013 – follow-up meeting following the Councillor presentation to gain formal feedback from the Council staff on the proposal.

- 23 September 2013 – discussion with Council staff regarding technical inputs required to support the Planning Proposal, namely traffic generation and car parking rates.

- 17th October 2013 – Formal briefing of the General Manager, Director of Planning and Manager of Strategic Planning prior to lodgement.
- Regular ongoing meetings post Lane Cove Council's decision on 16 December 2013 to resolve to forward the planning Proposal to the Department of Planning for Gateway Determination.
- 21st July, 2014 - Council resolution to proceed to exhibit the Planning Proposal, draft DCP and draft Voluntary Planning Agreement.

4 A Case for Change

4.1 OVERVIEW

The proponents land holdings were subject to changes in controls through the Standard Instrument LEP process and adopted at the gazettal of the Lane Cove LEP 2009. These related to height and density controls which resulted in uplift in the development potential from that which currently exists and which was previously achievable under the former Lane Cove LEP 1987.

The new LEP controls adopted in Lane Cove LEP 2009 prompted both Charter Hall and Leighton Properties to separately carry out considerable planning, design and market investigations to explore the potential of the increased built form controls and uses on the site. After independently examining ways to develop their respective land holdings, both parties concluded that even with the increased development potential on their respective sites, it would be unviable to seek DA approval to redevelop them to take advantage of the extra floorspace given the consistent decline in market demand for new office space in St Leonards.

This consequently led to both parties to engage in further discussions with Lane Cove Council to explore other redevelopment opportunities as the reality of providing a significant quantum of commercial floor space is not economically viable now or in the foreseeable future due to the lack of tenant and investor demand.

The strategic merits of rezoning the land to facilitate a wider mix of uses compared to that allowed under the current B3 Commercial Core zone was then explored along with the potential alignment with the strategic planning policy to support such a change.

The following sections detail the existing development environment in St Leonards which shape future built form on the site and has been informed by the following:

- Economic Impact Assessment.
- Urban Design Analysis.
- Traffic, Access and Parking Assessment.

4.2 CHANGING NATURE OF ST LEONARDS

4.2.1 DECLINE IN UPTAKE OF COMMERCIAL OFFICE SPACE

A shift in commercial market preference from St Leonards to other key centres within the Global Economic Corridor (including Macquarie Park and North Sydney) has caused a decline in take up rates of commercial floorspace in St Leonards over the last 10 years

Changes in market preference in relation to commercial floor space have resulted in a decline in uptake of floorspace within St Leonards as follows:

- Market analysis has shown that there is a consistent long term trend for lack of tenant and investor demand in St Leonards. This includes a lack of demand for newly approved A grade office space such as the July 2011-approved Winton commercial development at 88 Christie Street in proximity to the site which has not commenced construction.
- St Leonards is a diminishing office market that is no longer perceived as an attractive office location. Tenants are specifically choosing to locate in other centres rather than St Leonards, including:
  - Leighton Holdings and its subsidiaries recently agreed to consolidate its various offices in 11 different buildings into a new North Sydney office development rather than re-develop their own site because the company felt St Leonards was not an office based centre.

- IBM will be partially relocating its operations out of their building at 601 Pacific Highway in late 2013 to their Pennant Hills office.

- NSW Health we understand just renewed its office lease in North Sydney on a long term basis rather than relocate to St Leonards where they own land.

- The location, pricing and quality of commercial floorspace in St Leonards is currently not able to compete with Macquarie Park and North Sydney. Macquarie Park is able to provide purpose built commercial and larger floorplates to meet individual tenant needs at generally lower rents than St Leonards. North Sydney is identified as part of Global Sydney and holds a higher esteem in terms of a commercial head office location.

- Redevelopment of many B and C grade office space sites within the Mixed Use zone (within North Sydney LGA side on the centre) for multi storey mixed use residential developments is changing the land use character, and ultimately role of St Leonards Centre. This further demonstrates that the existing commercial floorspace is not meeting the market's expectation for quality of product or floorspace demand.

It is recognised that a balance between commercial and residential floorspace in St Leonards needs to be provided to ensure ongoing commercial/jobs focus in the Precinct. However:

- There has been a long term declining tenant and investor market demand for occupation and development of new high rise commercial office space in St Leonards, in the scale contemplated under the Lane Cove LEP 2013. Redevelopment of these sites for a higher proportion of commercial floorspace is therefore not viable having regard to the historical trends and forward market projections.

  - 88 Christie Street: An 18 storey Commercial office building approved under Part 3A in 2011 providing 32,599sqm GFA with large floor plates. Despite the approval and high quality of development this project has not commenced as, consistent with the long-term trend, there has been insufficient tenant demand for the project to proceed to date.

  - 472-494 Pacific Highway, St Leonards: Leighton Properties have been in discussions with Council with regard to a potential 40,000sqm campus style office development over two towers. Consistent with the long-term trend, there has been insufficient tenant demand for the project.

  - 207 Pacific Highway, St Leonards: This was the last large scale office development in St Leonards, providing 20,000sqm of commercial and retail floorspace within two towers adjacent to the station in St Leonards centre. This building was constructed by Charter Hall over 10 years ago.

- Conversely, there is a high demand in this location for residential accommodation. While some commercial development would be retained within the precinct, the change to a more residential focussed development better reflects market demand and enables more widespread benefits within the centre and for the structure of Sydney.

Fragmented ownership, lower quality office space and smaller office floor plates are a barrier to the success of the St Leonards office market. Competing commercial centres are increasingly attracting traditional commercial/office based industry sectors and tenants

While the commercial property boom in the 1970s and 1980s established the commercial precinct of St Leonards, aided by its access to the railway station, the market for commercial development is now limited through the following:

- Approximately 53% of the St Leonards office stock is now classified as C-D Grade, and is limiting continued attraction of investment in new office developments or major refurbishments.

- Fragmented ownership and stratification of office stock within St Leonards presents a barrier to redevelopment of lower grade office stock to provide the market with the floor plate/size of product being sought in other centres.

- The price point for asking rents is not competitive with other suburban centres, such as Macquarie Park / North Ryde which combines affordable rental rates with higher grade stocks and larger floor plates affecting the St Leonards office market's ability to attract key anchor tenants that underpin new commercial developments.

Removal of office space on the northern side of the Pacific Highway (north Sydney Council Area) has artificially reduced the vacancy rate figures for St Leonards as commercial office space is removed from the market and converted to predominantly residential buildings. Despite this, St Leonards has retained double-digit vacancy rates over time.

4.2.2 INCREASING FOCUS ON ST LEONARDS AS A HEALTH PRECINCT

There is potential to focus the St Leonards Specialised Centre on provision of health services, with the majority of jobs to meet the Metropolitan Strategy target of 8,000 to 2031 being provided in this sector

St Leonards has a significant health focus due to the presence of the only Tertiary hospital on the North Shore and one private hospital (NSPH) with another close by at Crows Nest (The Mater). There is a significant utilisation of commercial space within the centre for health related purposes (medical centres and specialist consulting rooms), which is so located to take advantage of proximity to the hospitals.

Health is one of the fastest growing employment sectors in NSW, and it is considered that St Leonards will continue to support employment in this sector through the utilisation of space for health and allied purposes. The ongoing redevelopment of RNSH earmarks land on this site for the purpose of health related employment. Approximately 73,000sqm of specialised commercial space has been approved in principle for health related employment on the RNSH campus. The shift in focus away from traditional commercial premises can be facilitated by a westward shift in employment location, centred around the railway station and RNSH, ideally placing those sites on the western periphery for mixed use development.

Office based health businesses will seek specialised office space in close proximity to health services and facilities.

Based on Bureau of Transport Statistics (BTS) forecasts, if the Draft Strategy target is to be met there will be an additional 3,980 health care and social assistance jobs within the St Leonards Specialised Centre by 2031. Urbis estimates that approximately 400 of these will be office based health jobs. This approximately equates to between 6,000 and 8,000sqm in commercial space that will ideally be co-located with health services. This agglomeration effect is a feature of other health services hubs such as the Westmead Health specialised centre.

Long-term demographic drivers will result in St Leonards being primarily a health centre servicing an ageing demographic base.

The lower North Shore (Willoughby, Lane Cove, North Sydney and Mosman LGAs) residents' age profile will change significantly between 2011 and 2031. The Retiree (65+) age group will grow from 13% to 17% of the resident population between 2011 and 2031 compared to the working age which is expected to increase by 8.4% over this period.

The net result of this is a smaller workforce driving economic production, and a larger proportion of retirees driving age related demand for health care sector services. Royal North Shore Hospital will be the focus for the services and therefore will be the focus of employment growth.

4.3 SATISFACTION OF DRAFT METROPOLITAN STRATEGY EMPLOYMENT TARGETS

Increased mixed use development on the subject site will not hinder the centre's achievement of overall employment targets

There is sufficient land towards the western portion of St Leonards Centre, focussed around the Railway Station and RNSH site to accommodate the anticipated increase in employment growth, including that related to both health and traditional commercial office use. The commercial office market is currently in declining demand and it is considered that a more concentrated commercial core centred around the railway line would more than adequately cater to the future demand for commercial tenancies in this location.

The proportion of office based employment under the Draft Strategy jobs growth targets will be sufficiently accommodated in existing or approved developments

Between 2011 and 2031 the Draft Strategy targets the growth of 8,000 additional jobs within the St Leonards Specialised Centre.

Urbis has estimated that, based on BTS industry forecasts, if achieved, this jobs target will be located in the following land-use/floorspace categories:

TABLE 3 – JOBS BY LAND-USE

LAND USE	JOBS GROWTH (2011 TO 2031)
Industrial	-354
Office	3,882
Retail	412
Education	322
Health	3,582
Other	307
Off-Site	-160
Home	8
Total	**8,000**

Source: Bureau of Transport Statistics 2012; Urbis

If this target is achieved the 3,882 office based jobs would result in demand for between 58,200 and 77,600sqm of additional office floorspace, based on an employment to floor space ratio of between 15 and 20sqm per employee.

- According to the Property Council of Australia's (PCA) January 2013 Office Market Report (OMR) St Leonards has approximately 368,596sqm of existing office floor space. With a vacancy rate of 12%, vacant floor space equates approximately to 44,231sqm. In addition to vacant stock there is a pipeline of approved commercial developments with a total of 73,052sqm office space.

- The combination of existing vacant stock and proposed commercial floorspace will be sufficient to accommodate the employment growth targeted by NSW Government's draft Metro Strategy. The withdrawal of the subject sites at 504, 472 & 494 Pacific Highway and 95 Nicholson Street equates to 21,547sqm of office space and will not result in a deficit in office supply.

TABLE 4 – SUMMARY OF OFFICE FLOORSPACE

	OFFICE FLOOR SPACE SQ.M
Vacant Existing Floor Space	44,231
Proposed Commercial Developments	73,052
Withdrawal of 504, 472 & 494 Pacific Highway	- 21,547
Existing and Approved Supply	**95,736**
Demand for Office Floor Space (by 2031)	58,200 – 77,600
Surplus/Deficit (by 2031)	**18,100 – 37,500**

Source: BTS 2012; draft Metro Strategy; PCA Office Market Report January 2013; Urbis

This does not take into account proposed/planned commercial developments that have not yet received development approvals such as the RNHS redevelopment or the expansion of the forum south of Pacific Highway that could yield office floorspace beyond the identified approved pipeline.

Based on the current redevelopment for the precinct, relocation of much of the health services into the new Clinical Services building on RNSH will allow for potential redevelopment of existing health services buildings into commercial development to support heath related business and services.

Estimated historic employment growth does not validate expected employment growth in the Draft Strategy. The future expansion of the RNSH in would in part change this.

While this assessment tests the targeted jobs growth for the St Leonards Specialised Centre outlined in the Draft Strategy, historic low absorption rates indicate historic low demand for new office space within the St Leonards CBD. Since January 2003 only 18,611sqm of new office space has been taken up by the market, which equates to 1,861sqm per annum over the last 10 years.

Based on Urbis employment to floor space benchmarks this is estimated to have approximately accommodated between 150 and 200 jobs per annum, aggregating to 930 to 1,240 new office jobs over the last 10 years.

This is reflected in the lack of tenant pre-commitments to the proposed commercial developments identified within the St Leonards centre discussed previously. Given the historically low absorption rate, it indicates that office development is unlikely to be the key driver of employment growth, whereas health based employment will be the largest driver. This aligns with the RNSH redevelopment which in addition to an expansion of health services will increase potential commercial development capacity by approximately 9,530sqm.

4.4 SITE SPECIFIC URBAN DESIGN OPPORTUNITIES

The site is ideally located for residential development demonstrating consistency with TOD - principles being proximate to rail and bus networks which provide high levels of accessibility for residents to the broader metropolitan area

The subject precinct is within 300m walking distance of St Leonards Railway Station and bus stops on the Pacific Highway which provide frequent public transport links to the broader metropolitan area. High levels of accessibility are afforded to:

- Multiple employment centres including Chatswood, Sydney CBD, North Sydney and Macquarie Park.
- Educational facilities such as Macquarie University, University of Sydney and UTS.
- Destination retail and entertainment facilities.
- Access via the rail network is supplemented by bus services across the north shore and into the city.

The site's proximity to transport and ease of access to the wider metropolitan region will go a long way to reducing dependence on cars for journey to work travel and also for recreational travel for residents of the precinct. Urbis research undertaken revealed that St Leonards Station offers access to more jobs within a 20 minute commute than any other location in all of Australia.

Building massing analysis shows that the height and FSR contemplated for the land can achieve building forms that accommodate a significant number of residential dwellings without adversely impacting views from or solar access to surrounding residential sites

Substantial analysis has been undertaken on a precinct basis (urban design) and site basis (architecture) to understand the potential impacts of the proposed building forms. This has informed the height controls being sought for the sites. The design principle is to create a positive, engaging and legible 'entrance' point or 'gateway' to St Leonards, and to reinforce St Leonards as a key location as an activity centre.

The design principles facilitate view sharing, in particular southern views to Sydney CBD and the Harbour and northern views to Chatswood and Macquarie Park, and also ensure sufficient solar access is maintained to the surrounding residential neighbourhood south of Oxley Street. This is achieved through towers that allow for:

- View permeability.
- More narrow shadow bands that improve shadow impacts on any individual property.

The Urban Design Report at **Appendix A** shows that the increased height but slender building forms promote view sharing across the sites from residential buildings to the north of the Pacific Highway. Presently the built form controls completely block any opportunity for southern views from buildings such as Abode at 599 Pacific Highway. By elongating the building forms, view lines are afforded to Abode and other residential dwellings at lower levels where they would not currently be available.

- **The proposed shadows cast from the indicative built forms track generally along Oxley Street with a minimum of 3 hours of direct sunlight provided to each residential zone between the hours of 9.00am and 3.00pm at midwinter.** Late afternoon shadows between 2.00pm and 3.00pm track along the commercially zoned Pacific Highway edge with limited impacts upon residential amenity. This analysis demonstrates that the indicative concept provides for built form that ensures that the existing residential neighbourhoods achieve the minimum 3 hours of solar access between 9am and 3pm in mid-winter.

The proposal offers an opportunity to invigorate the precinct south of the Pacific Highway and east of the railway station through improved public domain treatment

A mixed use development on the subject sites will create an iconic entry character to St Leonards when approaching via the Pacific Highway from the east.

The sites offer the ability to provide an improved and activated public realm that could incorporate a variety of publicly accessible places for visitors and residents. Retail activity that is street-based will be encouraged through positive frontages to primary streets and movement routes, minimum or zero setbacks to these streets, and high quality public realm design which encourages pedestrian movement.

The proposal will help create opportunities for a visual connection between the precinct and the Mitchell Street pedestrian plaza on the northern side of the Pacific Highway, helping to create a sense of place surrounding this busy intersection.

Friedlander Place has the potential to be improved as a plaza that can be fully integrated as part of the ground level plan for the precinct, but we recognise that Lane Cove Council as owner of the land may prefer an alternative outcome.

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5 Development Concept

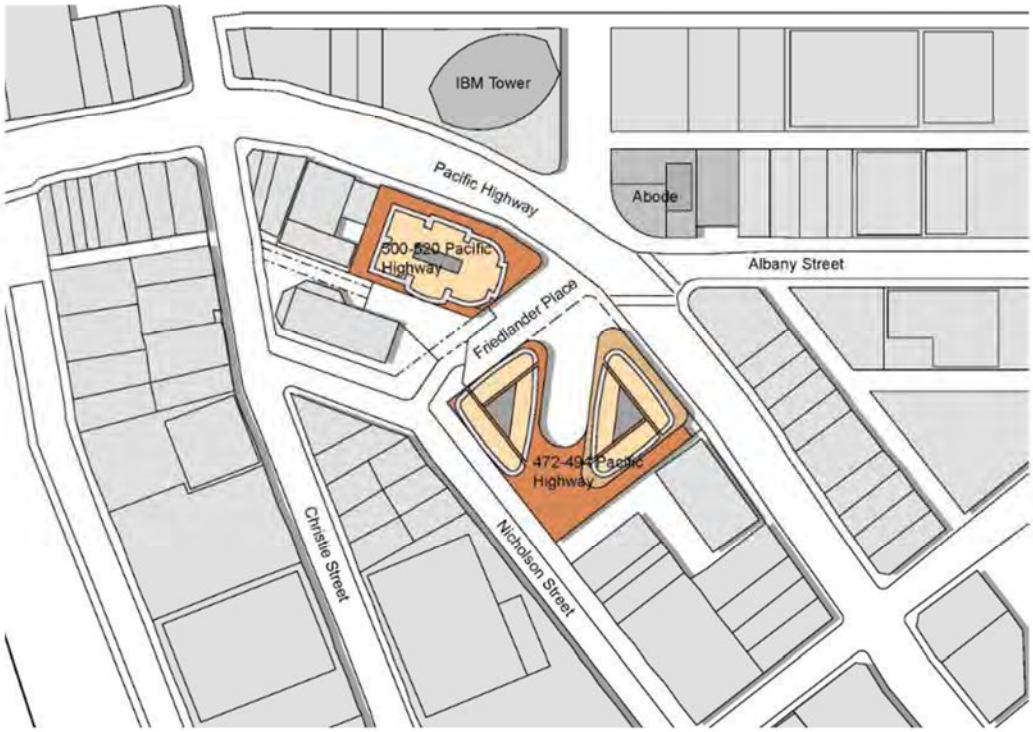
5.1 DESCRIPTION OF THE DEVELOPMENT CONCEPT

This Planning Proposal seeks to amend the Lane Cove LEP 2009 to support mixed use development on the site and will support the subsequent lodgement of Development Applications (DAs) for construction and use of these developments.

The future mixed use development concept will include lower floor commercial and retail uses with residential apartments in a tower forms above. It is noted that the concepts detailed below are indicative and do not intend to lock in design or yield. The future development concept facilitated by the Planning Proposal will:

- Provide a range of housing options.
- Deliver appropriately sized and supported commercial space relevant to the St Leonards market.
- Provide local retail stores, cafes and services, to promote greater ground plane activation and services in the immediate St Leonards area.
- Provide public domain that encourages improved walkability and vibrancy.
- Encourage uses which operate during evening and early morning hours in activity centres, such as cafes and restaurants, cinemas, community facilities.
- Improve the patronage of public transport services and the integration of public transport services by developing high-density housing proximate to existing transport infrastructure.

FIGURE 7 – CONCEPT MASTER PLAN



5.2 LAND USE MIX

The planning proposal seeks to rezone the subject land to B4 Mixed Use to facilitate future mixed use development on the site. Development concepts have been prepared for sites at 472-494 Pacific Highway, 504 Pacific Highway and 95 Nicholson Street and are summarised as follows:

504 Pacific Highway and 95 Nicholson Street (Charter Hall)

The design concept is for retail use at ground floor with commercial at levels 1 to 3 with residential units in levels 4-38 of the tower.

500 Pacific Highway

The development of this site could take either of two paths. The development of a mixed use residential tower with a zero setback to the boundary of No.504 Pacific Highway, build to a building height of 72m.

The alternate option is for No.500 and 504 to amalgamate and for a large consolidated tower form to straddle both sites but to maximum building height of 138m

472-494 Pacific Highway (Leighton Properties)

The design concepts are for two towers as follows:

- Tower 1(fronting Pacific Highway): Providing retail use at ground floor and commercial within the lower two levels of the tower, with residential units in levels 4 - 34 of the tower.
- Tower 2 (rear): Providing ground floor retail with residential units on levels 2 - 23 of the tower.

The key components of the design concepts are provided in Table 5.

TABLE 5 – KEY INDICATIVE DEVELOPMENT CONCEPT COMPONENTS

KEY PROPSOED DEVELOPMENT COMPONENTS	472 & 494 PACIFIC HIGHWAY (LEIGHTON)		504 PACIFIC HIGHWAY + 95 NICHOLSON ST (CHARTER HALL)	500 PACIFIC HIGHWAY	TOTAL
	Tower 1	Tower 2			
Height	91m	115m	138m	72m	
FSR	10:1:1 (across both land parcels) (*permitted FSR 12:1*)		17:1 (*permitted FSR 17:1*)	17:1	
Indicative Apartment Yield	530		390	72	992
Total GFA	51,285sqm		32,545	8,000	91,830sqm
Indicative Residential GFA	43,550sqm		30,195	6,500	80,245 sqm
Indicative Retail/Office GFA	7,735 sqm		2,350sqm	1,500	11,585 sqm

Indicative designs for these sites have been prepared by Sissons Architects and A+ Design Group and are provided in **Appendix A**. These designs will be subject to a detailed design process at DA stage. Extracts from the Urban Design report are provided in Figures 8-10 below.

5.3 SITE AMALGAMATION

In accordance with Council's DCP Section B.3 Site Amalgamation and Development on Isolated Sites, the Planning Proposal contemplates the option to amalgamate 500 Pacific Highway and 504 Pacific Highway to encourage the orderly and economic use and development of land and avoid the isolation of the 500 Pacific Highway site.

Together, both sites can achieve a greater development outcome through the imposition by Council of a maximum GFA per floor for 504 Pacific Highway of 800sqm, however an amalgamated site including 500 Pacific Highway can achieve a 1,075sqm maximum GFA per floor. This will then enable a height control for 500 Pacific Highway to 138m.

It is considered that an amalgamated site provides a number of benefits, namely:

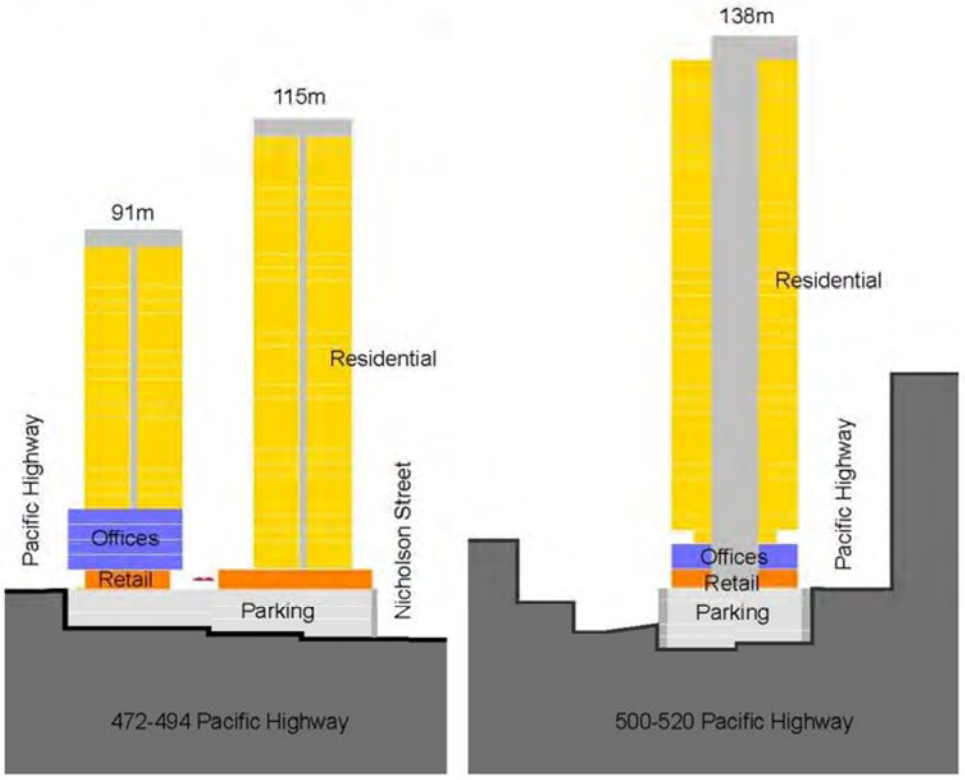
A better built form consistency should the sites be developed together, rather than ad hoc outcomes. It is doubtful that 500 Pacific Highway is independently viable for redevelopment which would result in an out-dated 6 storey building of low building quality adjacent a contemporary building to 138m.

A positive urban design outcome will be achieved if the site is developed together. It is doubtful that 500 Pacific Highway is independently viable for redevelopment, which would leave that frontage to Friedlander as an inactivated, poorly articulated frontage.

There is potential to provide improved traffic management to/from the sites.

The overall constructability of a combined site is far more desirable.

FIGURE 8 – INDICATIVE DEVELOPMENT SECTIONS



5.4 URBAN DESIGN

The concept master plan process began with an analysis of the existing built form controls for the subject sites (Lane Cove LEP 2009 and DCP 2010). Analysing the Charter Hall and Leighton Properties sites, a significant discrepancy was found between each of the site's commercial office development potential and the associated built form impact to the surrounding built environment. Specifically, the typical large office floorplate poses a significant negative impact to the visual and solar permeability to the existing surrounding towers and the street level public domain. This and the serious lack of commercial office space demand within the precinct lead to exploring the sites' potential with a change in land use to residential.

Furthermore, the urban design analysis has identified that the current FSR and Building Height LEP controls do not work together to deliver building form's envisaged. That meaning, building height compliant schemes would dramatically underutilise the allowable floorspace for the site and conversely, an FSR compliant scheme would significantly vary the existing building height controls.

Therefore the proposed urban design approach has been to commence from first principles of urban design having regard to the surrounding context, the intent of Councils controls and the opportunities and constraints of the sites. As such the urban design concept has sought to create positive, engaging and legible 'entrance' points or 'gateways' to St Leonards, and to reinforce St Leonards as a key location as an activity centre through a different building form profile. Consequently, the urban design concepts incorporate the following:

- Narrow towers that allow for:
  - A building form with defined podium level and tower component.
  - View permeability between buildings.
  - Relatively fast moving shadows to minimise any prolonged overshadowing impact.
- Providing reasonable side setbacks to adjoining sites.
- Separation of 22m between Tower 1 and Tower 2 on the Leighton's property that generally meets SEPP 65 controls.

A comprehensive Urban Design Analysis report has been prepared by Urbis and Sissions Architects and is included at **Appendix A**.

FIGURE 9 – DESIGN CONCEPT SKETCH

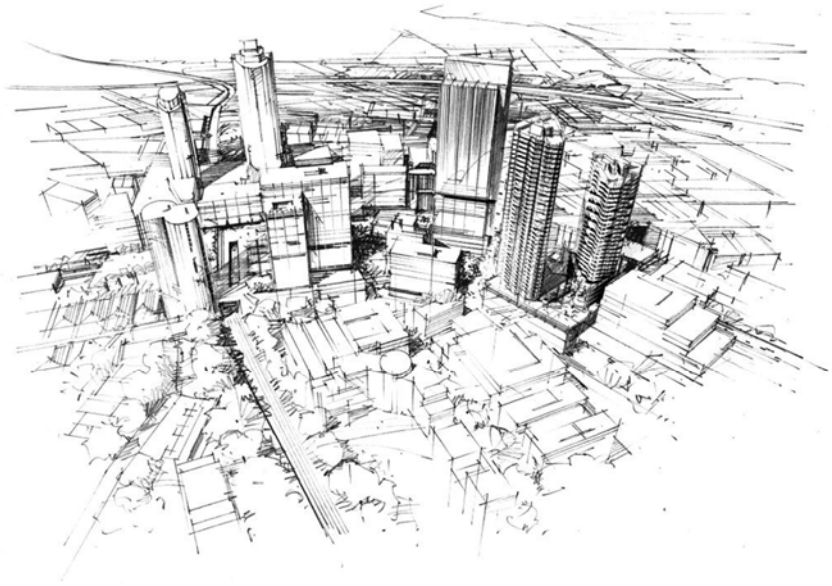


FIGURE 10 – INDICATIVE SITE SKETCHES

PICTURE 1 – 472-494 PACIFIC HWY

PICTURE 2 – 504 PACIFIC HWY + 95 NICHOLSON ST

5.4.1 VIEW SHARING

The proposal represents an enhanced view sharing opportunity than would be the case through a complying commercial development (with wider floor plates and narrower side setbacks) by proposing taller, more slender buildings which allow for view sharing across the site. This ensures the provision of views from existing residential dwellings to the north of the site that would not otherwise be available should a complying scheme be realised on the subject site.

5.4.2 SHADOW IMPACT

As previously outlined, the shadow analysis demonstrates that the indicative concept provides for built form that ensures that the existing residential neighbourhoods maintain a minimum 3 hours of solar access between 9am and 3pm in mid-winter.

5.4.3 FLOOR SPACE RATIO

The design concepts have been informed by urban design principles of achieving improved public domain outcomes, improved view sharing opportunities and minimising environmental impacts. The studies have determined that the resultant building forms fall under the currently allowable Floor Space Ratios. Consequently, this planning proposal does not seek to amend the current statutory FSR controls.

The future detailed design of these buildings will ensure compliance with SEPP 65 for apartment design and will achieve good building separation for privacy between dwellings.

5.4.4 PROPOSED USES

Both sites constitute vertically integrated mixed use developments with a retail activated ground floor, office space at the lower levels and residential apartments above.

5.4.5 SEPP 65 COMPLIANCE

The Concept Masterplan has been developed along the principles of SEPP 65 with regard to amenity and impacts upon both residents and neighbouring buildings.

During the future design development of the project, specific issues related to SEPP 65 compliance can be addressed in detail to ensure satisfactory compliance.

This exercise will be completed with assistance from expert consultant teams during the Development Application process. It is anticipated that these aspects can be addressed to the satisfaction of the consent authorities during the assessment stage.

5.5 ACCESS AND PARKING

Brown Consulting has prepared a traffic assessment which in included in **Appendix C**. The assessment has considered the estimated traffic demand for the concept based on a complying car parking schemes.

The assessment had regard to the relevant RTA Guide for Traffic Generating Developments to determine the estimated trip rates per vehicle. Consideration was also given to access to and from the precinct. By applying traffic counts and traffic signal data a worst case scenario was modelled. The assessment has found that the proposal will generate an acceptable modest increase in traffic volume.

The proponent group are committed to implementing measures to encourage reduced car usage. As such, the concept also will incorporate a car share scheme with arrangements with operators such as GoGet to place a number of cars on-site for the convenient use of residents and workers.
Brown Consulting advise that for every car sharing vehicle, 9 private cars are taken off the road.

The assessment of car parking and traffic impacts is ultimately a matter for consideration at the next stage during the drafting of a site specific DCP and lodgement of Development Applications when there will be certainty with respect to the built form controls and clarity with respect to the apartment mix.

5.6 VOLUNTARY PLANNING AGREEMENT

Discussions between the proponents and Council have commenced with regard to the offer for a Voluntary Planning Agreement (VPA) to be prepared as part of the draft LEP under Section 93F of the *Environmental Planning & Assessment Act 1979.*

Under section 93F of the Act, a proponent may enter into a VPA where a change is sought to an environmental planning instrument, under which the developer is required to pay a monetary contribution or provide a material public benefit to be used or applied towards a public purpose.

Accompanying this Planning Proposal are separate draft VPAs offered by the individual proponents to provide "additional" public benefits to Council via monetary contributions or a combination of public domain embellishment and monetary contributions.

- The VPA do not encompass Section 94 contributions, therefore the requirement to pay the requisite Section 94 contributions will still remain to be paid when development applications are submitted.

5.7 SUMMARY OF BENEFITS OF THE PROPOSAL

The Planning Proposal provides a range of benefits to the St Leonards and local community. These are summarised as follows:

- The proposal takes advantage of St Leonards' excellent public transport access and the excellent accessibility provided to major employment, entertainment and shopping locations in Sydney. The site has access to the highest number of jobs within a 20 minute commute than any other centre in Australia.
- The proposal is consistent with the directions of the Metropolitan Strategy, yet recognises the shift in employment focus from transitional commercial to health in St Leonards.
- The proposal provides an opportunity for significant investment in St Leonards, of a scale not seen on the southern side of the Pacific Highway in over a decade.
- The proposal responds to the long term trend of declining commercial office investment in St Leonards and provides viable market investment opportunities for significant residential accommodation.
- The proposal provides an opportunity for the provision of new flexible use office floor space in the lower levels of the buildings that can play an important role in catering to the needs of start-up businesses.
- The proposal includes an offer to provide financial commitments to Council that will contribute to Council's investment plans to enhance the centre.
- The proposal will facilitate development activity in St Leonards, supporting the diverse mixed use nature of the precinct.

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6 Planning Proposal

The following section is structured generally in accordance with the document "A Guide to Preparing Planning Proposals" (DPE, 2009).

6.1 OBJECTIVES AND INTENDED OUTCOMES

The key objective of this Planning Proposal is to obtain the necessary rezoning of the subject site by amending the provisions of the Lane Cove LEP 2009 to facilitate multiple mixed use developments comprising ground and lower floor commercial (office and retail premises) and residential towers above.

The proposed amendments to zoning and built form controls have the objective of facilitating development which achieves the following:

- Positively responding to the changing nature of the St Leonards precinct as a mixed use centre and its focus as a specialist health precinct accommodating smaller scale office based health businesses supporting RNSH, NSPH and the Mater.
- Provides a proposal which responds to stagnation of development in the centre in the Lane Cove LGA which is a long term market trend of low office tenant and investor demand that has fails to capitalise on the current height and FSR controls.
- Establishes mixed use development on the subject sites without impacting on the potential achievement of overall employment targets for the centre.
- Facilitates development activity in St Leonards, supporting the diverse mixed use nature of the precinct to act as a catalyst for investment interest in Council's nearby bus interchange vision.
- Leverages the sites strategic location proximate to rail and bus networks by demonstrating consistency with TOD principles and providing high levels of accessibility for residents to the broader metropolitan area.
- Acts on the opportunity to invigorate the precinct south of the Pacific Highway and east of the railway station through improved public domain treatment, at the discretion of Council.

The intended outcome of this Planning Proposal is to amend the Lane Cove LEP 2009 to permit development on the land at 472-494 Pacific Highway, 500 Pacific Highway, 504 Pacific Highway and 95 Nicholson Street for residential apartments, commercial office, retail and associated car parking.

Conceptual designs for future development of the sites for mixed use has been prepared and discussed in **Section 5** and accompany this Planning Proposal in **Appendix A**. However, the scheme will be refined as part of the DA process once the Planning Proposal has been endorsed by Council and the DPE 'Gateway' issue a determination that supports the preparation of an LEP amendment.

6.2 EXPLANATION OF PROVISION

It is proposed that the subject sites be rezoned to reflect the following land use and density controls:

TABLE 6 – PROPOSED CONTROLS

PROPERTY	PROPSOED ZONING	PROPSOED HEIGHT	FSR
504 Pacific Highway & 95 Nicholson Street	B4 Mixed Use	138m	17:1 (no change from existing)
472-494 Pacific Highway	B4 Mixed Use	91m + 115m	12:1 (no change from existing)

PROPERTY	PROPSOED ZONING	PROPSOED HEIGHT	FSR
500 Pacific Highway	B4 Mixed Use	No change (unless site is amalgamated with No. 504 then the height increases to 138m)	No change from existing
Friedlander Place	B4 Mixed Use	No change	No change from existing

In addition to the above, the following clause is to be added: to Lane Cove LEP 2009.

Clause 4.4(3):

In relation to 474-520 Pacific Highway, St Leonards:-

(i) Floor space ratio:

a. The floor space ratio for 474-494 Pacific Highway (Lot 1 DP 628513 and SP 73071 respectively) is to comprise a minimum of 1.5:1 non-residential floor area within the total FSR of 12:1.
b. The floor space ratio for 500 and 504-520 Pacific Highway, whether developed separately or following amalgamation, is to comprise a minimum of 1.5:1 non-residential floor area within the total FSR of 17:1.

(ii) Height:

The height of No.500 Pacific Highway, St Leonards (SP 82937) may be a maximum of 138 metres subject to a condition of development consent that the site is to be amalgamated with Nos. 504-520 Pacific Highway (Lots 2-6 DP 3175) prior to development.

(iii) Site amalgamation:

The LEP amendments to amend the zoning, floor space ratio and height for these properties are permitted to be applied only if a condition of development consent for each property is approved that:-

a. Lot 1 DP 628513 and SP 73071, known as Nos. 472-494 Pacific Highway, are to be amalgamated prior to development.
b. Lots 2-6 DP 3175, known as 504-520 Pacific Highway, are to be amalgamated prior to development.

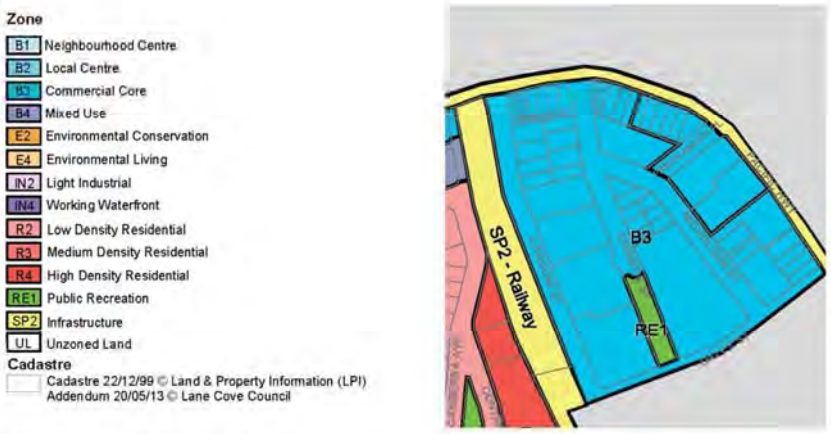
6.3 LAND TO WHICH THE PLAN WILL APPLY

Figure 1 identifies the land that is proposed to be included in the site specific LEP amendment known as 472 - 520 Pacific Highway, and 95 Nicholson Street, St Leonards. It is legally described as:

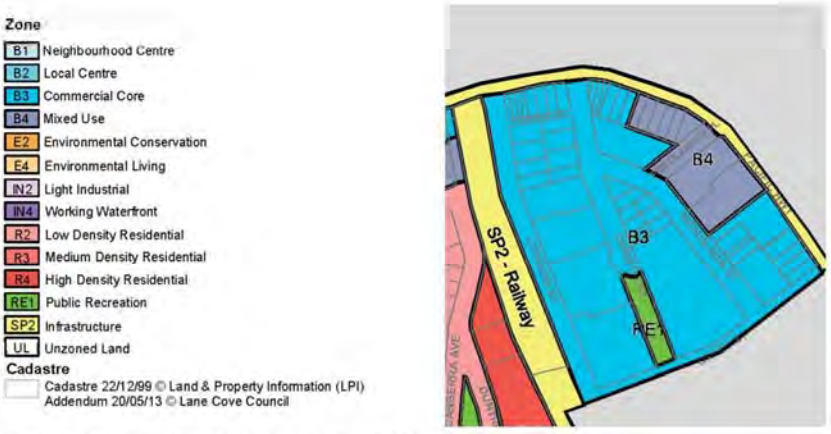
- 472 Pacific Highway (Lot 1 in DP628513)
- 494 Pacific Highway (SP73071)
- Friedlander Place (Lot 1 in DP1179636)
- 500 Pacific Highway (SP82937)
- 504 Pacific Highway and 95 Nicholson Street (Lots 2-6 in DP3175)

6.4 PROPSOED MAP AMENDMENTS

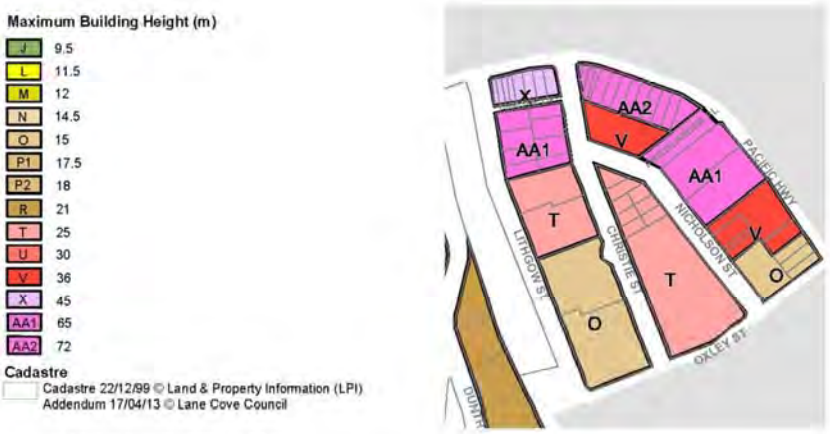
The following LEP map amendments reflect the proposed changes to the Lane Zoning and Building Height provisions.



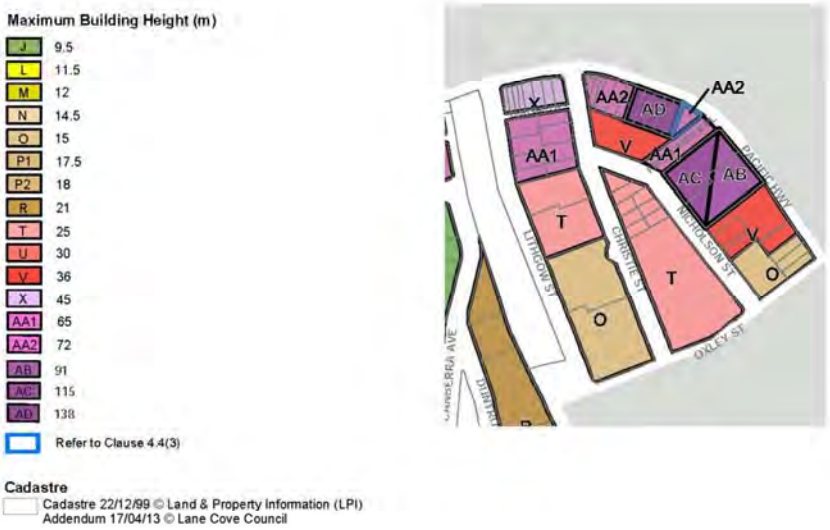
Current Land Zoning Map
Map: LZN_004
Lane Cove Local Environmental Plan 2009 (Amendment No 12)



Proposed modifications to the Land Zoning Map



Current Height of Buildings Map
Map: HOB_004
Lane Cove Local Environmental Plan 2009 (Amendment No 11)



Proposed modifications to the Height of Buildings Map

6.5 SAVINGS PROVISIONS

It is not considered necessary to include a savings provision.

7 Planning Context

7.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

A rezoning application must have consideration of the objects of the *Environmental Planning and Assessment Act* (the EP&A Act). This proposal has considered the objects of the EP&A Act which have been addressed in the various sections of this report and are summarised as follows:

- The subject sites are currently occupied by commercial developments and future development facilitated by the proposed rezoning will not impact on any existing natural environments or ecological communities.
- The proposed B4 Mixed Use zoning will provide for more sustainable economic uses on the site and facilitate development in the short- medium term. The proposal will promote orderly development and is consistent with adjacent mixed use development to the north of the Pacific Highway.
- The proposal provides the opportunity to increase ground floor activation to the Pacific Highway.
- Mixed Use development will make efficient use of existing services and infrastructure and promote use of the frequent rail and bus public transport infrastructure which are highly accessible from the site.

7.2 SECTION 117 DIRECTIONS

There are three Ministerial Directions under s117 of the EP&A Act that provide guidance in the assessment of Planning Proposals and making of LEPs that pertain to the land and / or type of mixed use development contemplated on the subject sites. The applicable Section 117 Directions are discussed in Table 7.

TABLE 7 – SECTION 117 DIRECTIONS

DIRECTION AND OBJECTIVE	COMMENT
Direction 1.1 Business and Industrial Zones The objectives of this direction are: (a) encourage employment growth in suitable locations. (b) protect employment land in business and industrial zones. (c) support the viability of identified strategic centres.	The proposal meets the objectives of Direction 1.1 as follows: ▪ A long term sustained shift in commercial market preference from St Leonards to other key centres within the Global Economic Corridor (such as Macquarie Park) has caused a decline in take up rates of commercial floorspace in St Leonards over the last 10 years. Factors such as fragmented land patterns, high land cost, lack of identity as a CBD centre and greater flexibility in other centres has contributed to the decline of St Leonards as a commercial centre for traditional office space. The proposal will be an investment catalyst to reinvigorate years of stagnation in the centre. ▪ The proposal will not dilute the overarching goal of future employment growth with target growth of 8,000 additional jobs to 2031 in St Leonards which needs to continue to build on its strengths as a specialised health employment precinct. The market analysis has identified that this is the future employment profile of the centre and thus should be the focus of government to strengthen its position as a 'specialised' office centre – its key differential to other centres. ▪ There is sufficient land to accommodate the anticipated increase in employment growth including health and traditional commercial office use. The proportion of office based employment under the Draft Strategy jobs growth targets will also be sufficiently accommodated in existing or approved developments. ▪ The proposal seeks to rezone the site from a B3 Commercial Core zone to B4 Mixed Use zone. While the rezoning will reduce the amount of purely business and employment focussed zoning in the centre, it allows for the continued provision of business uses through accommodation of mixed uses. In accordance with the objectives of

DIRECTION AND OBJECTIVE	COMMENT
	the B4 zone, the proposed development integrates suitable office, retail and residential uses. Over 6,000sqm of commercial space is proposed to maintain an employment function. ▪ The proposal recognises the benefits of providing residential development to take advantage of the locational and amenity benefits this part of the Centre can provide. The proposal supports the State government's current direction of increasing density in major centres and broadening land uses in areas with good public transport and without eroding its primary employment function.
Direction 3.1 Residential Zones (1) The objectives of this direction are: (a) to encourage a variety and choice of housing types to provide for existing and future housing needs, (b) to make efficient use of existing infrastructure and services and ensure that new housing has appropriate access to infrastructure and services, and (c) to minimise the impact of residential development on the environment and resource lands.	The proposal will seek to broaden the range of housing provided in St Leonards and Lane Cove LGA more broadly, through accommodation of a mixed use development containing residential apartments. The subject site is well placed to accommodate this type of residential accommodation. The proposed mixed use development will make efficient use of existing services and infrastructure and will provide sufficient housing to help meet infill housing targets and reduce the need for land release on the metropolitan fringe for a commensurate number of dwellings. Residential accommodation in this location will have minimal impact on the natural environment or resource lands as the precinct and sites are already developed.
Direction 3.4 Integrating Land Use and Transport (1) The objective of this direction is to ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives: (a) improving access to housing, jobs and services by walking, cycling and public transport, and (b) increasing the choice of available transport and reducing dependence on cars, and (c) reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, and	St Leonards is highly serviced by frequent rail and bus public transport infrastructure, providing excellent linkages to key centres and destinations within the lower north shore and greater metropolitan Sydney. The subject precinct is located within 300m walking distance of St Leonards Station and the nearby bus stops on the Pacific Highway. The station offers access to Chatswood, North Sydney, Sydney CBD and Macquarie Place within 20 minutes commute. The proximity of these transport services will encourage public transport use and discourage use of private transport. The site and proposed mixed use development is highly consistent with the objectives of this Direction.

DIRECTION AND OBJECTIVE	COMMENT
(d) supporting the efficient and viable operation of public transport services, and (e) providing for the efficient movement of freight.	
Direction 7.1 Implementation of the Metropolitan Plan (1) The objective of this direction is to give legal effect to the vision, transport and land use strategy, policies, outcomes and actions contained in the Metropolitan Plan for Sydney 2036.	Consistency with the Metropolitan Plan for Sydney 2036 and Draft Metropolitan Plan for Sydney 2031 is discussed in Section 7.5 and Section 7.6.

7.3 A NEW PLANNING SYSTEM FOR NSW – WHITE PAPER

The White Paper, outlining the principles and content of the Draft Legislation for the new NSW Planning System, was recently placed on public exhibition by the NSW Government. The focus of the new planning system is to facilitate the economic and employment growth of the State in an environmentally and socially sustainable manner.

The new system will have a greater focus on **evidenced based strategic planning** to frame the long term development framework recognising that increased emphasis should be placed on **market demand for individual proposals to stimulate development and economic growth**.

The key directions of the White Paper include:

- **Evidence based strategic planning** with emphasis on improved community participation and 'buy-in' at the early stage by all stakeholders associated in the planning process.
- **Precinct wide focus to deliver large scale urban renewal**.
- **Focus on changing the planning culture**, with an emphasis on outcomes, not process, and taking a 'can-do' attitude.
- **A clear and linked hierarchy of planning policies** and controls.
- An open and **performance based zoning and planning control system**.
- **Improved DA processes and approval pathways** to create a more efficient approvals system for both applicants and administrators.
- **Linking strategic growth areas to the provision of infrastructure**.
- The Government's commitment to **an ambitious timeframe for implementation of the new system**.

The White Paper sets out a new approach for the creation of robust Metropolitan and Subregional Plans informed by empirical research and linked to infrastructure funding commitments and priorities.

The key aspect of the proposal is its response to market conditions by acknowledging and responding to the changing nature of St Leonards and providing for increased residential accommodation in a locality well serviced by transport and other community infrastructure. The decline in demand for commercial development has been established through the detailed Economic Impact Assessment which provides an evidence base to which this development provides an appropriate response.

Accordingly, the proposal is generally consistent with the direction for planning in NSW as outlined in the White Paper.

7.4 NSW 2021 – STATE PLAN

NSW 2021 replaces the NSW State Plan as the government's ten year strategic business plan setting priorities for action and guiding resource allocation. The key objectives of NSW 2021 are to rebuild the economy, provide quality services, renovate infrastructure, restore government accountability, and strengthen the local environment and communities.

The proposed development is consistent with the following goals:

Place downward pressure on the cost of living

The proposed development will contribute to housing choice within the area with a range of apartment sizes within a Specialised Centre.

Grow patronage on public transport by making it a more attractive choice

The site is well located close to a wide range of major transports services. The proposed development will increase the availability and diversity of housing within walking distance of a railway station and major bus routes. This will positively contribute to the objective of growing patronage on public transport.

Build liveable cities

The site is well located close to a wide range of major transport services and is in close proximity to the North Sydney CBD. This will positively contribute to the objective of growing cities and centres as functional and attractive places to live, work and visit.

Overall, it is considered that the proposed development meets the objectives outlined in NSW 2021.

7.5 METROPOLITAN PLAN FOR SYDNEY 2036 (DECEMBER 2010)

The Metropolitan Plan for Sydney 2036 focuses on transforming Sydney from a single centred to a connected multi centred city. The strategy identifies Specialised Centres (one being St Leonards), several of which are located in the Global Economic Corridor stretching from Sydney Airport and Port Botany through the city centre, North Sydney to Macquarie Park in the north.

Specialised Centres are identified as places that will grow and emerge in response to blossoming business sectors, developing specific characteristics around research, logistics, education or health sciences.

In conjunction, the Strategy states that at least 70% of future population growth in Sydney will occur in established areas. It is identified that infill residential development should best utilise existing public transport networks which provide access to key strategic centres within 30 minutes travel time by public transport.

The proposal is consistent with these identified objectives.

7.6 DRAFT METROPOLITAN PLAN FOR SYDNEY 2031

The Draft Metropolitan Strategy for Sydney to 2031 (the Draft Strategy) was exhibited in June 2013 and builds on the Metropolitan Plan for Sydney 2036. The Draft Strategy reflects the change in approach to strategic planning and development assessment as framed in the White Paper (*refer* ***Section 7.3***) *and* places greater emphasis on market demand as a driver for development proposals.

The key areas of change from the current Metropolitan Strategy 2036 include:

- Re-distribution of subregional boundaries.
- Inclusion of minimum housing and employment targets for each sub region to 2031, with interim targets also set to 2021.
- Consideration of planning and development outcomes based on a more commercial basis, reflecting market demand.

- St Leonards Centre retains its status as a Specialised Precinct within the expanded Global Economic Corridor, the focus of the precinct being to support office-based hub for health and education facilities and the emerging technology cluster at Gore Hill.

The Draft Strategy sets out policy directions for the five identified key outcomes, underpinned by objectives and actions.

7.6.1 FIVE KEY OUTCOMES

The Draft Strategy sets out the new State Government's strategy for metropolitan growth and is built around achieving five key outcomes for Sydney being:

- Balanced growth.
- A liveable city.
- Productivity and prosperity.
- Healthy and resilient environment.
- Accessibility and connectivity.

Each of these is addressed below as they relate to St Leonards and the subject sites.

7.6.1.1 BALANCED GROWTH

The key policy directions to achieve balanced growth that relate to St Leonards include:

1(B) GROWTH WILL BE ENCOURAGED WITHIN THE METROPOLITAN URBAN AREA TO REFLECT MARKET DEMAND.

1(c) Increases in housing and employment will be encouraged in transport accessible centres and where existing infrastructure like schools are underutilised.

2(a) Plan for housing growth in centres of all sizes.

2(c) Encourage growth in all centres and Specialised Precincts within the Global Economic Corridor and extend its overall reach to Norwest and Parramatta.

2(d) Mixed use development will be encouraged in all centres including central commercial core areas where there is market demand and complementary land uses.

2(f) Plan commercial cores for Major Centres and Specialised Precincts where there is market demand and investment opportunities.

2(g) Maintain a strong employment focus in Specialised Precincts.

2(h) Locate larger commercial premises in Strategic Centres.

These policy areas to achieve balanced growth reflect a willingness of the Government to consider increasing housing supply in all centres that reflects market demand and investment opportunities. Given St Leonards' proximity to Sydney CBD, North Sydney and Chatswood, development in this area is able to contribute significantly to improved centre accessibility.

The minimum employment numbers for the centre identified in the Draft Strategy will be achievable without the need to construct any additional commercial tenancy space. Given the trend of declining office floorspace takeup in St Leonards, and the identified increase in current and future demand for health services and associated jobs, current employment trends suggest that the main proportion of job increases will be in the health sector. Indeed this seems an appropriate sectoral focus for St Leonards given the proximity of the North Shore's only Tertiary hospital, along with two private hospitals, and the declining attractiveness of St Leonards as a commercial office address.

The employment profile of heath sector jobs is not suited to high rise commercial towers, and would be best suited to smaller scale medical consulting rooms within the lower level podiums of mixed use buildings along with smaller stand-alone office suites which are anticipated to be provided through redevelopment opportunities on the RNSH site. The type of accommodation preferred by medical providers is reflected in the location and character of the current heath related services in St Leonards as shown at **Figure 4**.

7.6.1.2 A LIVEABLE CITY

The key policy directions to achieve a liveable city that relate to St Leonards include:

5(B) NEW HOUSING WILL BE ENCOURAGED IN AREAS CLOSE TO EXISTING AND PLANNED INFRASTRUCTURE IN BOTH INFILL AND GREENFIELD SITES.

5(e) The supply of housing in established urban areas and zoned release areas will be fast tracked.

6(a) We will plan for a range of housing types in Sydney to meet demand.

7(a) Existing centres will grow and change and new centres will be supported.

The minimum housing target for the Central Subregion is 82,000 additional homes to 2021 and 138,000 to 2031.

The Central Subregion is tasked with accommodating, at a minimum, an additional 82,000 homes to 2021 and 138,000 to 2031. St Leonards is ideally placed to accommodate an increase in apartment provision to address some of the anticipated increase in housing in both the Lane Cove LGA and the Central Subregion.

It is anticipated that realisation of a mixed use development on both 472-494 and 504-520 Pacific Highway St Leonards will provide approximately 850-900 new dwellings that are located in close proximity to urban services, frequent bus and train services, parks and open space. Location of mixed use premises in this location will encourage use of public transport by future residents, and will create a balanced mixed use focus along this section of the Pacific Highway east of St Leonards Station.

As discussed in **Section 4** of this report, St Leonards' attraction as a prime office location has significantly diminished in recent years with growth of opportunities at Macquarie Park for large floorplate, lower rent, purpose designed commercial offices for large tenants. North Sydney is also an attractive option for head office locations, with substantial oversupply for existing floorspace and low demand for new commercial floorspace. The relative attraction of these two competing commercial centres has dragged investment from St Leonards, resulting in a depressed commercial office market of low quality and often aged floorspace. The reality of St Leonards focus as a centre for employment growth in the health sector should be recognised, and land peripheral to this new focus must be made available to achieve other significant policy areas of the Draft Metropolitan Strategy, as is contemplated by this proposal.

7.6.1.3 PRODUCTIVITY AND PROSPERITY

The key policy directions to achieve productivity and prosperity that relate to St Leonards include:

10(A) WE WILL PLAN FOR AT LEAST 339,000 ADDITIONAL JOBS BY 2021 AND 625,000 ADDITIONAL JOBS BY 2031

10(b) subregional employment growth will aim to achieve minimum employment targets.

10(c) we will plan for Strategic Centre and Specialised Precinct employment growth in line with minimum employment targets.

11(b) Strategic Centres and Specialised Precincts will be the prime location for new clusters and agglomeration economies.

14(a) Strategic Centres and Specialised Precincts that contain business parks / office clusters will be the primary location for office space.

15(a) centres of all sizes will be the primary location of retail, at a scale reflecting the level of public transport accessibility.

16(b) leveraging off existing and planned infrastructure investment will improve capacity for housing and employment growth.

The minimum jobs target for St Leonards is given as follows:

TABLE 8 – MINIMUM JOB TARGETS – ST LEONARDS

2011	2021	2031	2011-2021	2011-2031
37,000	41,000	45,000	4,000	8,000

The Draft Strategy sets out jobs targets for St Leonards, showing a minimum increase of 4,000 jobs to 2021 and 8,000 to 2031.

It is imperative that the jobs targets are robust and achievable, and established on a detailed market assessment.

The Metropolitan Plan for Sydney 2036 provided employment capacity targets for strategic and specialised centres. St Leonards was set a target employment growth of 5,000 jobs between 2006-2036 – a 30 year period. The current Draft Strategy for St Leonards now sets a minimum target of 4,000 jobs between 2011-2021 and another 4,000 jobs between 2021 to 2031 – a total of 8,000 new jobs over 20 years.

The Draft Strategy assumes St Leonards Centre has far greater potential for employment growth than the previous Metropolitan Plan for Sydney 2036 with a revised target of 3,000 extra jobs to be facilitated in 10 less years than the previous strategy. Without any background market information to review, it is difficult to understand on what basis these forecasts have been made when our preliminary market findings indicate historical trends that could not be a basis to inform such a projection.

The anticipated employment growth in St Leonards is substantially lower than in Macquarie Park (16,000 over the next 20 years), Norwest (15,000) and Sydney Olympic Park (14,000). Other specialised centres will experience much greater proportionate employment growth over the next 20 years, in particular Randwick (43%) and Westmead (41%).

Given the ongoing stagnation in the St Leonards commercial market, it is unlikely that employment growth in the centre in the short and medium term will come from office development. It is considered that the jobs growth target may be able to be met through an ongoing focus on health employment in St Leonards which will be best located in podium level commercial space and purpose built smaller scale professional suites located in and around the RNSH site.

While the proposed mixed use zoning will reduce the quantum of commercial floorspace and jobs created across the site compared to a purely commercial development, it will facilitate sustainable residential development which will assist in meeting dwelling targets.

7.6.1.4 ACCESSIBILITY AND CONNECTIVITY

The key policy direction to achieve accessibility and connectivity that relate to the site include:

> *28(B) RESIDENTIAL AND COMMERCIAL DEVELOPMENT WILL BE ENCOURAGED AND FACILITATED IN CENTRES ALONG CORRIDORS IDENTIFIED AS HAVING POTENTIAL TO SUPPORT FUTURE URBAN RENEWAL.*

As previously discussed, St Leonards is ideally serviced by bus and rail transport infrastructure, providing linkages to key employment nodes, educational and recreational facilities throughout the metropolitan region. The Centre has the capacity to increase residential accommodation to maximise use of this infrastructure and provide a high quality development which exhibits the key principles of a TOD.

The subject precinct provides access to the key commercial centres of Sydney CBD, North Sydney, Chatswood and Macquarie Park within twenty minutes commute by train making it an ideal location for residential development.

7.6.2 CENTRAL SUBREGION

St Leonards is located within the Central Subregion. The key policy directions noted for this Subregion and Specialised Precinct include:

> **METROPOLITAN PRIORITIES**
>
> *Enable housing intensification throughout the subregion, particularly around established and new centres, key corridors and along the … North Shore line.*
>
> **St Leonards Specialised Precinct**
>
> *Support office based hub and health and education facilities at Royal North Shore Hospital, North Shore Private Hospital, Mater Hospital, Northern Sydney TAFE and the emerging technology cluster at Gore Hill.*
>
> *Provide capacity for 8,000 additional jobs to 2031.*

These policy directions support increased housing in centres, as well as an employment base focussed on health and related industries leveraging off RNSH, NSPH and the Mater. This is consistent with the approach considered by this proposal.

The key directions for St Leonards as a Specialised Precinct relate to the clustering of medical and high-tech industrial activity, suggesting that the hub of activity in the centre has moved north and west along the Pacific Highway, away from the aging commercial centre. As such, with emphasis placed on these activities, it can be reasonably anticipated that most jobs growth in St Leonards will come from such industries, such as the growth of RNSH and Gore Hill Technology Park and their surrounds.

7.6.2.1 SPECIALISED PRECINCTS CRITERIA

The key criteria for Specialised Precincts include:

THE PRIMARY SIGNIFICANCE OF SPECIALISED PRECINCTS IS AS EMPLOYMENT DESTINATIONS AND/OR AS THE LOCATION OF ESSENTIAL URBAN SERVICES.

Specialised precincts are areas containing major airports, ports, hospitals, universities and metropolitan business parks and office clusters that perform vital economic, research and employment roles across the metropolitan area.

Have a minimum of 8,000 jobs, with the potential for more than 12,000 jobs.

Specialised Precincts have an amount of employment that is of metropolitan significance, but other uses in the precinct are not necessarily at a scale currently of metropolitan significance.

Over time, particular Specialised Precincts such as Sydney Olympic Park may assume a greater mix of residential, retail and service uses, and assume the role of Major Centre. The emergence of these other uses in Specialised Precincts needs to be balanced to ensure the employment function is not compromised.

The way specialised Precincts interact with the rest of the city is complex and growth and change in and around them must be carefully planned to ensure they continue to serve their primary employment and economic development functions.

Potential Specialised Precincts are areas which have the potential to become significant locations for concentrated employment growth. Potential Specialised Precincts would need to be located near existing public transport and/or be supported by public transport improvements. They would complement existing Specialised Precincts and Strategic Centres.

Specialised functions must be protected for the long term and residential and other non-specialised but competing uses must not override the core employment activities in these precincts. Some, however, will plan for ancillary uses, which are suitable such as student or staff accommodation near universities and hospitals.

Need high quality public places and parks for workers and nearby residents.

The St Leonards Specialised Precinct is the location of the North Shore's only tertiary hospital, is in close proximity to two private hospitals and North Sydney TAFE. As previously discussed, the precinct is well serviced by train and bus transport routes, and provides a mix of retail, commercial and residential development. Given the centre is anchored by RNSH and advanced industry to the northwest, the designation of an 'office' cluster in the Draft Metro Strategy seems incongruent with its character.

The development of a specialised precinct focusing on health and technology activities would not be affected by non-employment generating development to the east of the station area. There remain significant opportunities for associated and supporting commercial floor space along Pacific Highway in the Willoughby area of the centre.

The designation of St Leonards as a Specialised Precinct should be considered with regard to the changing metropolitan context. Its reduced competitiveness in the commercial market reduces its capacity for industry clustering, as businesses begin to depart the centre and the benefits of agglomeration are reduced.

Given the lack of commercial investment in St Leonards, and the existing health focus, the centre is well placed to grow and change its employment focus to leverage off its proximity to RNSH, NSPH and the Mater, as well as the existing range of health providers in the locality, and facilitate employment growth in the health industry and associated services. Urbis' economic analysis has demonstrated that a core of commercially zoned land can be retained for the non-medical related uses; however the focus of health related employment would be best accommodated in smaller buildings, the podium level of mixed use buildings and on the hospital land itself.

This approach will ensure that the employment targets for the centre can be met whilst freeing up sites suitable for mixed use development (including those along the Pacific Highway) for this purpose, to ensure 24 hour activation of the precinct. The mixed use precinct and the periphery of St Leonards will provide a transition from the surrounding residential areas whilst ensuring the protection of a core commercial precinct that can accommodate traditional commercial premises as the demand arises.

As discussed in **Section 7.3**, the direction of the NSW Planning System is to be responsive to the market and promote sustainable economic growth in key centres. The lack of demand in St Leonards for commercial office space makes mixed use development such as those proposed on the subject site a more viable option for the centre. While the proposed rezoning to mixed use may be considered contrary to the designation of St Leonards as an office based hub, it will in fact provide appropriate development which is evidence based and will allow the market to focus on health and education facilities as is currently the case.

7.7 DRAFT INNER NORTH SUBREGIONAL STRATEGY

The site falls within the draft Inner North Subregion of Sydney. The Draft Inner North Subregional Strategy was prepared to guide the long term development of this subregion in which St Leonards is located. The policy has never been finalised and will be replaced by the Central Subregional Strategy.

An assessment of the Subregional Strategy concludes that the planning proposal is consistent with the objectives and actions in the following respects:

- ***A3.2 - Integration of Employment and Housing Markets:*** The proposed residential use will offer diversity in product from the established detached housing in St Leonards and would appeal to a wider market including key workers at surrounding facilities (RNSH, North Sydney TAFE, schools).
- ***B2.1 – Plan for Housing in Centres with their Employment Role:*** The site is highly appropriate for mixed use residential and will not undermine the commercial office role. The redevelopment of major sites such as RNSH will provide additional commercial office and specialised office floorspace that will support the unique character of St Leonards.
- ***C1.3 - Plan for increased housing capacity targets in existing areas:*** Council has a target of 5,500 new dwellings to be provided by 2031. The proposed rezoning of the site to permit residential development will positively contribute to this goal. This will not impact on the character or current amenity of residents in St Leonards.
- ***C2.1 – Focus Residential Development around Town Centres, Villages and Neighbourhood Centres:*** The site is in a highly appropriate location to support a mixed of land uses within St Leonards Specialised Centre. Its proximity to rail transport services makes it an attractive and convenient location to encourage high levels of public transport use.
- ***C2.3 – Provide a Mix of Housing:*** The proposal aligns with other aims of the strategy to provide higher density housing in centres which have services and public transport. The proposal will provide a housing product that will attract a diversity of households which will enrich the social fabric of the local community.
- ***C3.1 – Renew Local Centres to Improve Economic Viability and Amenity:*** The proposal will facilitate the renewal of the site through the development of mixed use buildings that will significantly enhance the presentation and activation of the site to the surrounding streets as well as utilising the economic potential of this site.
- ***F4.2 – Protect Entertainment and Night Time Clusters:*** The proposed introduction of residential development will not place pressure on the ongoing operation of the surrounding night time economy areas but rather will provide valuable additional support. This additional support to the night time economy will be provided by the future residents of the proposed development.

7.8 DRAFT NSW CENTRES POLICY MAY 2010

The NSW Draft Activities Centres Policy (Draft Centres Policy) sets out the fundamental aims and principles to guide the formulation of regional and local planning strategies and the consideration of new development proposals.

The Draft Policy Centres is based on six key planning principles to guide future development in and around activity centres and to provide for the emergence of new entrants as follows.

- ***Principle 1*** *– Retail and commercial activity should be located in centres to ensure the most efficient use of transport and other infrastructure, proximity to labour markets, and to improve the amenity and liveability of those centres.*
- ***Principle 2*** *– The planning system should be flexible enough to enable centres to grow, and new centres to form.*
- ***Principle 3*** *– The market is best placed to determine the need for retail and commercial development. The role of the planning system is to regulate the location and scale of development to accommodate market demand.*
- ***Principle 4*** *– The planning system should ensure that the supply of available floorspace always accommodates the market demand, to help facilitate new entrants into the market and promote competition.*
- ***Principle 5*** *– The planning system should support a wide range of retail and commercial premises in all centres and should contribute to ensuring a competitive retail and commercial market.*
- ***Principle 6*** *– Retail and commercial development should be well designed to ensure it contributes to the amenity, accessibility, urban context and sustainability of centres.*

The Draft Centres Policy states that 'centres' are generally located in B1-B7 zones and applies to St Leonards and the subject precinct.

The proposal is consistent with the Draft Centres Policy for the following reasons:

- The rezoning will achieve mixed uses with commercial and retail uses on the lower floors ensuring activation of the Pacific Highway and being located close to medical clusters and transport links.
- The proposal responds to the long history of the lack of tenant and investor demand for commercial office development in the centre.
- There is high commercial vacancy rates in the St Leonards precinct and represents an oversupply of office space which this proposal addresses. This coupled with undeveloped approved commercial space translates into over 20 years of future office employment land supply hence the proposal will not undermine the Metro Strategy employment targets.
- The proposal is responsive to the changing nature of St Leonards into a high density mixed use residential precinct, with multiple new residential developments and approvals occurring on the northern side of Pacific Highway.
- The introduction of residential uses in the centre will complement the 'specialised' health focuses role of St Leonards, offering potential affordable and convenient accommodation for key works, supporting the functionality of St Leonards as a specialised centre.

7.9 METROPOLITAN TRANSPORT PLAN

The Metropolitan Transport Plan – Connecting the City of Cities (Metropolitan Transport Plan) has four key policy objectives as follows:

- Commuting to work easily and quickly.
- Transport and services accessible to all members of the community.
- An efficient, integrated and customer focused public transport system.
- Revitalized neighbourhoods with improved transport hubs.

The Metropolitan Transport Plan provides a target of 28% of trips to work in the Sydney Metropolitan Region to be undertaken by public transport by 2016, compared to some 22% in 2006. The Metropolitan Transport Plan aims to ensure that urban structure, building forms, land use locations, development designs, subdivision locations and street layouts help achieve the following planning objectives:

(a) improve accessibility to housing, employment and services by walking, cycling, and public transport;

(b) improve the choice of transport and reducing dependence solely on cars for travel purposes;

(c) moderate growth in the demand for travel and the distances travelled, especially by car; and

(d) support the efficient and viable operation of public transport services.

The proposed rezoning is consistent with the objectives of the Metropolitan Transport Plan by providing high density residential development in close proximity to train and bus systems which provide excellent linkages to key employment centres.

7.10 STATE ENVIRONMENTAL PLANNING POLICY 55 (REMEDIATION OF LAND)

State Environmental Planning Policy No. 55 (Remediation of Land) provides that land must be remediated to an appropriate level to cater for its proposed use.

The sites which are the subject of this proposal have had a long history of residential use (pre-1930) and them commercial uses since. Accordingly, the potential for contamination is considered to be minimal.

Argus Pty Ltd were engaged by Leighton Properties to undertake a Phase 1 assessment of their properties. A copy of this report can be provided if required.

The phase 1 assessment concluded that of the potential contaminants that may be present on the site these were considered to be of low significance in terms of risk to the human or environmental receptors. The report recommends that further investigations be carried out at the appropriate time (during the DA phase) to address the data gaps and develop remediation strategies if required. A similar investigation process will be carried out for the Charter Hall site in due course.

7.11 STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2008

State Environmental Planning Policy (Infrastructure) 2008, sets out requirements for various public authority and infrastructure works throughout the state. In addition, it requires the referral of certain traffic generating development to the RMS during the DA assessment process.

Any required referral will be triggered at DA stage and does not impact a land rezoning.

7.12 LANE COVE LOCAL ENVIRONMENTAL PLAN 2009

7.12.1 EXISTING CONTROLS

All three properties are subject to zoning provisions under Lane Cove LEP 2009. The key land use and density controls are shown for each of the properties in the following table:

TABLE 9 – EXISTING KEY LEP CONTROLS

PROPERTY	ZONING	HEIGHT	FLOOR SPACE RATIO
504 Pacific Highway + 95 Nicholson Street	B3 Commercial Core	72m	17:1
494 Pacific Highway	B3 Commercial Core	65m	12:1

PROPERTY	ZONING	HEIGHT	FLOOR SPACE RATIO
472 Pacific Highway	B3 Commercial Core	65m	12:1
500 Pacific Highway	B3 Commercial Core	72m	17:1
Friedlander Place	B3 Commercial Core	65m	12:1

7.12.2 PROPOSED CONTROLS

This Planning Proposal seeks rezoning of the subject land to B4 Mixed Use.

Proposed Zoning

The following uses are permissible with consent in the B4 Mixed Use zone under Lane Cove LEP 2009:

> *Boarding houses; Car parks; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Multi dwelling housing; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Residential flat buildings; Respite day care centres; Restricted premises; Roads; Seniors housing; Shop top housing; Signage*

All other development is prohibited in the zone. 'Residential flat buildings' are permissible in the B4 zone and are defined as follow:

> ***Residential flat building*** *means a building containing 3 or more dwellings, but does not include an attached dwelling or multi dwelling housing.*

The B4 zone would allow for the delivery of residential uses on the site while ensuring continued provision of commercial premises.

The aims of the B4 zone are as follows:

- *To provide a mixture of compatible land uses.*
- *To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.*
- *To encourage urban design maximising attractive public domain and adequate circulation space for current and future users.*
- *To maximise sunlight for surrounding properties and the public domain.*

The design concepts for the site are consistent with the objectives of the B4 zone in the following ways:

- Provides a mixed use development which includes lower floor commercial (office and retail) development with residential above.
- The commercial development remains consistent with the located adjacent to the Pacific Highway while the residential development utilises its location in close proximity to the railway and other key transport networks.
- Provide for built form which ensures that the existing residential neighbourhoods maintain a minimum 4 hours of solar access between 9am and 3pm in mid-winter.

Furthermore, we note that the proposed rezoning of the landholdings outside the proponent groups ownership will in no way prejudice the current land use development potential of the respective sites. In fact the proposed zoning will increase the range of permitted land uses that could be accommodate on these lands in future.

Proposed Height and FSR

- It is proposed that 504 Pacific Highway and 95 Nicholson Street have a height control of 138m. No amendment is proposed to the FSR.
- It is proposed that 472-494 Pacific Highway have two height controls of 91m and 115m. No amendment is proposed to the FSR.
- For reasons previously identified, the building height at No.500 Pacific Highway can increase to 138m in the event that the site is amalgamated with 504 Pacific Highway to enable an integrated development.
- For reasons previously identified, this Planning Proposal seeks no changes to the building height and FSR on Council's land known as Friedlander Place.

8 Rezoning Justification

8.1 NEED FOR THE PLANNING PROPOSAL

Is this Planning Proposal a result of any Strategic Study or Report?

The Planning Proposal is not the result of a strategic study or report prepared by Council but is supported by detailed analysis prepared by the proponent.

In addition, there are a number of strategic documents which have been reviewed and relate to the proposal. These are discussed in **Section 7**.

Is the Planning Proposal the best means of achieving the objective?

It is considered that the Planning Proposal is the best means of achieving the objectives and outcomes stipulated in **Section 5.1**.

As the sites are zoned B3 Commercial Core, the proposed residential uses are prohibited. Accordingly, an amendment to the Lane Cove LEP 2009 is required to accommodate a mixed use development on the subject site. The B4 Mixed Use zone will support the proposed commercial uses (retail and office premises) and residential uses enabling the site to achieve the proposed objective.

Further, an amendment to the height control is required to accommodate a high quality design outcome which responds to the site and surrounding land uses.

Is there any Net Community Benefit?

Table 10 addresses the evaluation criteria for conducting a "Net Community Benefit Test" within the Draft Centres Policy (May 2010) as required by the guidelines for preparing a Planning Proposal.

TABLE 10 – NET COMMUNITY BENEFIT ASSESSMENT

EVALUATION CRITERIA	Y/N	COMMENT
Will the LEP be compatible with agreed State and regional strategic direction for development in the area (e.g. land release, strategic corridors, development within 800m of a transit node)?	Partially	The proposal is generally consistent with the objectives of the Metropolitan Plan for Sydney 2036 and the Draft Metropolitan Plan for Sydney 2031. The proposal promotes development which will demonstrate key TOD characteristics and will provide residential development within 300m of a train station. A review against State and Regional strategic objectives for the area is provided in Section 6. Despite the allocation of St Leonards as an office and health precinct by the Draft Strategy, the proposal seeks to reduce the commercial component on the site responding to the lack of demand in the precinct which is consistent with the NSW White Paper and new planning system directive. The increase of residential development is consistent with the need to provide mixed use development within centres.
Is the LEP located in a global/regional city, strategic centre or corridor nominated within the Metropolitan Strategy or other regional/subregional strategy?	Partially	As above and discussed in **Section 7.5** and **Section 7.6**. .

EVALUATION CRITERIA	Y/N	COMMENT
Is the LEP likely to create a precedent or create or change the expectations of the landowner or other landholders?	N	This proposal responds to the development environment of the area. The proposed rezoning is unlikely to create a precedent or change the expectations of the site as its location provides a unique opportunity to deliver appropriate and compatible mixed use development consistent with development to the north of the Pacific Highway.
Have the cumulative effects of other spot rezoning proposals in the locality been considered? What was the outcome of these considerations?	N	– There are no other known spot rezonings in the locality that are currently being considered.
Will the LEP facilitate a permanent employment generating activity or result in a loss of employment lands?	N	The proposal seeks a B4 Mixed Use zone and will continue to accommodate commercial uses on the site. While the proposal will reduce the amount of commercial and employment generating activity, there is sufficient land towards the western portion of St Leonards, focussed around the Railway Station and RNSH site, to accommodate the anticipated increase in employment growth, including that related to both health and traditional commercial office use. The proposal will not undermine the achievement of employment targets and the desired role and function of St Leonards as a specialised health and employment based precinct.
Will the LEP impact upon the supply of residential land and therefore housing supply and affordability?	N	The proposal will increase the availability of housing in close proximity to transport links and employment areas.
Is the existing public infrastructure (roads, rail, utilities) capable of servicing the proposed site? Is there good pedestrian and cycling access? Is public transport currently available or is there infrastructure capacity to support future transport?	Y	A Traffic Report has been prepared by Brown Consulting and has been provided separately. The site is ideally located for residential development, being proximate to rail and bus networks which provide high levels of accessibility for residents to the broader metropolitan area.
Will the proposal result in changes to the car distances travelled by customers, employees and suppliers? If so, what are the likely impacts in terms of greenhouse gas emissions, operating costs and road safety?	N	The proposal will enhance the use of public transport through its transit orientated location. The site is within 20 minutes commuter distance to other employment, retail and entertainment destinations and centres such as Sydney CBD, North Sydney and Chatswood.

EVALUATION CRITERIA	Y/N	COMMENT
Are there significant Government investments in infrastructure or services in the area where patronage will be affected by the proposal? If so, what is the expected impact?	N	The proposal does not require further government investment in public infrastructure.
Will the proposal impact on land that the Government has identified a need to protect (e.g. land with high biodiversity values) or have other environmental impacts? Is the land constrained by environmental factors such as flooding?	N	The project will not impact on land identified as having high biodiversity values. There are no significant environmental constraints on the site.
Will the LEP be compatible/ complementary with surrounding adjoining land uses? What is the impact on the amenity in the location and wider community? Will the public domain improve?	Y	The proposal is compatible with the north eastern portion of St Leonards which is undergoing a change in character from commercial to mixed use with a number of recent constructions and building approvals for multi storey residential apartments above one and two storeys of retail/commercial space fronting the street. The potential building forms that will sit within the proposed building envelope have been tested for shadow impact on properties to the south. The taller building forms create a longer but faster moving shadow which has a smaller impact footprint on neighbouring residential properties to the south. The potential shadow impact will have a maximum reduction in solar access to any property and as such is considered acceptable. The proposal will help realise a revitalisation of the surrounding public realm and create opportunities for a visual connection with the pedestrian plaza north of the Pacific Highway at the termination of Albany Place.
Will the proposal increase choice and competition by increasing the number of retail and commercial premises operating in the area?	N	The proposal will decrease the quantum of commercial space on the site which responds to long term trend of low demand for this use in the St Leonards Precinct.
If a stand-alone proposal and not a centre, does the proposal have the potential to develop into a centre in the future?		The proposal is located within the existing St Leonards Specialised Precinct.

EVALUATION CRITERIA	Y/N	COMMENT
What are the public interest reasons for preparing the draft plan? What are the implications of not proceeding at that time?		The proposal is in the public interest as follows: ▪ Opportunity to provide a residential corridor along the Pacific Highway east of the railway line ▪ The site is ideally located for residential development, being proximate to rail and bus networks which provide high levels of accessibility for residents to the broader metropolitan area ▪ The proposal will assist in place making within St Leonards. ▪ The proposal will realise short term development potential and investment in St Leonards. ▪ The proposal will facilitate development activity in St Leonards, supporting the diverse mixed use nature of the precinct. ▪ The proposal is consistent with the directions of the Metropolitan Strategy, yet recognises the shift in employment focus from transitional commercial to health in St Leonards. ▪ The proposal is responding to market demand, a key consideration of the Draft Metropolitan Strategy to encourage economic growth and development.

8.2 RELATIONSHIP WITH STRATEGIC PLANNING FRAMEWORK

Is the Planning Proposal consistent with the Objectives and Actions of the applicable regional or sub-regional strategy?

In summary, the proposal is consistent with the objectives of the Metropolitan Plan for Sydney 2036 and the Metropolitan Plan for Sydney 2031 in the following ways:

- Encourages growth in a Specialised Precinct located in the Global Economic Corridor and Metropolitan Urban Area to reflect market demand. The proposal is to be responsive to the market and promote sustainable economic growth in key centres.
- Encourages mixed use development adjacent to complementary land uses such as transport links, open space areas, adjacent mixed use development and other residential uses.
- Provides new housing in an area close to existing and planned infrastructure in infill sites.
- Facilitates residential and commercial development in centres along the Pacific Highway and north shore railway transport corridor.

Consistency with the Metropolitan Plan and Subregional Strategy is discussed in full in **Section 7.5, Section 7.6** and **Section 7.7.**

Is the Planning Proposal consistent with Council's local Strategy or other local strategic plan?

Relevant strategic studies for the Lane Cove LGA relating to the St Leonards precinct and anticipated future development have been considered against the proposed rezoning. These are discussed in detailed below.

St Leonards Strategy 2006

The St Leonards Strategy was prepared by David Lock Associates on behalf of Willoughby, Lane Cove and North Sydney Councils as well as DPE. It set out an agreed approach to guide the coordinated development of this centre, and supported the direction of the Metropolitan Strategy for Sydney 2036.

The St Leonards Strategy states the precincts and other key features relevant to the site:

> ***The business district east of the rail line and south of the Pacific Highway (in the Lane Cove Council part of the centre)***
>
> *The larger lots in this area have mainly been developed into substantial office buildings. However, the smaller lots have seen relatively little development in recent times, resulting in outdated buildings, struggling shops and a somewhat shabby appearance. Anecdotal evidence suggests that the development potential allowed by the planning controls for this area is insufficient to promote amalgamation, which is necessary for redevelopment to occur. As a consequence, the area remains underdeveloped for such a prime location*

The site is located on the boundaries of 'the centre', and the 'southern business district' and the 'eastern gateway' of the precinct as shown below.

FIGURE 11 – ST LEONARDS STRATEGY 2006: PRECINCT PLAN

The changes to the role and character of each of the existing parts of St Leonards are documented in the Strategy as follows:

TABLE 11 – ROLE AND RECOMMENDATIONS OF PRECINCTS

PRECINCT	ROLE	KEY RECOMMENDATIONS
The centre: The heart of the centre, focused on the station and Forum Plaza	A vibrant focal point for the centre, generated by a concentration of public transport services, convenience shops, eateries, entertainment venues, professional and personal services, community facilities, educational institutions, commercial offices, apartments and high quality public open space. This will provide opportunities for businesses and residents seeking high public transport accessibility, and 'CBD-type' amenities to serve the whole centre and surrounding area.	▪ Replace FSR control south of Highway with height limit and performance controls in relation to overshadowing. ▪ Promote convenience shops, small-scale specialty shops, retail services, bars, cafes and restaurants. ▪ Prohibit large-scale comparison retail outlets.

PRECINCT	ROLE	KEY RECOMMENDATIONS
The Southern Business District: South of the Pacific Highway and east of the railway line, extending to Oxley St	A purely business precinct, with the exception of sandwich shops and cafes serving its workers. In particular, this precinct will provide the right 'prestige' image and type of large-floorplate, premium accommodation to attract new businesses in the electronics, scientific research and information technology sectors, strengthening that cluster.	▪ FSR controls to be supplemented with performance controls to minimise impacts on amenity. ▪ Introduce controls to encourage premium-quality buildings with larger floorplates. ▪ Prohibit large-scale comparison retail outlets ▪ Redevelop Friedlander Place to ensure its upgrade.
Eastern Gateway: Both sides of the Pacific Highway, east of the railway line	A mixed retail and office precinct, with the potential for hotels. In particular, this precinct will provide for the continuation of small-medium scale showrooms for household goods at ground floor level with offices above, or hotels, capitalising on the high profile location.	▪ Replace FSR control on Lane Cove part of corridor with height limits stepping down from northwest of precinct to southeast, and performance controls in relation to overshadowing. ▪ Promote medium-scaled household goods showrooms, convenience shops, small-scale specialty shops, retail services, bars, cafes and restaurants. ▪ Redevelop Friedlander Place to ensure its upgrade.

The St Leonards Strategy recommends that the FSR control south of Pacific Highway be reduced with height limit and performance controls in relation to overshadowing. The St Leonards Strategy predates the preparation and introduction of the Standard Instrument LEP which recognised that increased heights and FSR are appropriate on the subject sites.

Impacts on amenity from built form anticipated under the proposed controls have been comprehensively evaluated as part of this evaluation with no unacceptable impact on surrounding residential uses. Further, the proposal offers the opportunity to redevelop Friedlander Place in accordance with the key recommendations for the southern business district and eastern gateway.

The St Leonards Strategy overlooks key market trends and is therefore out-dated in the context of the proposal as follows:

- Notwithstanding an uplift in development potential, commercial redevelopment of this land is not viable.
- The report was prepared in November 2006, prior to the completion of the Epping-Chatswood Rail Link and the completion of the RNSH Part 3A assessment. The Strategy does not adequately anticipate the outcomes of these major projects.
- The strategy does not recognise that the railway line makes Macquarie Park more accessible across the metropolitan area and attractive for new commercial and business park development.
- Similarly, the strategy is made without foreseeing the impact of the RNSH redevelopment as a significant concentration of new jobs.
- While the former ABC site is included in the study area, little comment is made on its potential job growth and its potential impact on the St Leonards office market.

- Further, the strategy recognises a reduction in commercial floorspace in the North Sydney portion of St Leonards as a consequence of site conversion to mixed use development. The loss of commercial space is not considered of '*significance for employment since the existing offices on the sites to be converted are depreciated and in many cases vacant'*.

The proposed rezoning is supported by an Economic Impact Assessment which provides justification for the change in zoning to a mixed use zone.

Is the Planning Proposal consistent with applicable State Environmental Planning Policies?

The Planning Proposal is consistent with the applicable State Environmental Planning Policies as summarised in Table 12.

TABLE 12 – APPLICATION OF STATE ENVIRONMENTAL PLANNING POLICIES

SEPP TITLE	CONSISTENCY	CONSISTENCY OF PLANNING PROPOSAL
SEPP 1 – Development Standards	Yes	The Planning Proposal will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP 4 – Development Without Consent and Miscellaneous Exempt and Complying Development	Yes	The Planning Proposal will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP 6 – Number of Storeys in a Building	Yes	The Planning Proposal will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP 22 – Shops and Commercial Premises	Yes	The Planning Proposal will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP 55 – Remediation of Land	Yes	Phase 2 contamination report will be prepared for the DA stage and any necessary remediation will be proposed and carried out in accordance with SEPP 55.
SEPP 60 – Exempt and Complying	Yes	The Planning Proposal will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP 65 – Design Quality of Residential Flat Development	Yes	The Planning Proposal will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP (Infrastructure) 2007	Yes	The proposal has considered the relevant part of the SEPP (Infrastructure) 2007, namely traffic generating developments and is considered consistent.

Is the Planning Proposal consistent with applicable Ministerial Direction's (S.117 Directions)?

As previously discussed at **Section 7.2**, the Planning Proposal is generally consistent with the relevant s.117 Directions.

8.3 ECONOMIC, SOCIAL AND ECONOMIC IMPACT

Economic Impact

The Economic Impact Assessment prepared by Urbis and located in **Appendix B** considers whether the withdrawal of the subject site from the office market could constrain the St Leonards Centre's capacity to accommodate this jobs growth target.

The EIA makes the following key points:

- Demand for traditional office space is better accommodated in competing commercial centres that can provide either more affordable or better located office stock:
  - St Leonards has a high percentage of office stock classified as C-D Grade.
  - Fragmented ownership and stratification of office stock within St Leonard presents a barrier to redevelopment of lower grade office stock.
  - The price point for rents in St Leonards is not competitive with other suburban centres.

  There is also a lack of tenant interest in new developments within St Leonards.
- There is sufficient supply of existing vacant and proposed office stock to accommodate the office component of the draft Metropolitan Strategy's employment target.
- Specialised health based office space will seek to collocated within the RNSH redevelopment, closer to the delivery of health services.
- The provision of additional dwellings likely to attract workers could improve the proportion of workers employed in the Centre also living locally. This does not take into account proposed/planned commercial developments that have not yet received development approval.

The proposed development will result in the following direct and indirect employment benefits:

- The proposed redevelopment has been estimated to generate 821 construction jobs.
- The total Capital Investment Value of the project is in the vicinity of $400 million.
- The ongoing employment yield from the commercial / retail component of the proposed development is expected to generate between 540 - 670 jobs. This equates to an expected annual wages by the proposed retail and commercial floorspace between $36.7million and $47.3 million per annum.

In summary, the EIA states that the rezoning of the site to a B4 zone will not have a detrimental impact on jobs growth within the St Leonards Centre or the supply of existing vacant and proposed office stock in St Leonards. Further, the concept designs demonstrate an ability to provide a significant benefit through direct and indirect employment benefits and through appropriate provision of residential uses that are consistent with best practice TOD principles.

Traffic, Access and Parking

As outlined previously, a traffic report prepared by Brown Consulting provided separately to this proposal confirms that the traffic impacts associated with the proposal assuming a fully compliant parking scheme can be suitably accommodated by the local road network.

8.4 STATE AND COMMONWEALTH INTERESTS

Adequacy of Public Infrastructure and Transport Infrastructure

The adequacy of the road network has been discussed in **Section 8.3** and necessary road works have been proposed.

State and Commonwealth Public Authorities Consultation

The applicant has sought early engagement with both Lane Cove Council and NSW Department of Planning & Infrastructure and this proposal responds to comments received during these meetings.

Consultation with other stakeholders such as RMS will be undertaken as part of the assessment process.

8.5 COMMUNITY CONSULTATION

No formal public community consultation has been undertaken as at this date in regard to this Planning Proposal. It is expected that this Planning Proposal will be formerly exhibited and that direction as to the nature and extent of the public exhibition after receiving a Gateway Determination. As part of the formal exhibition, the proponents will convene a community information session for interested residents to understand more about the proposal in an open forum to be arranged during the exhibition period.

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9 Conclusion

This Planning Proposal has been prepared to enable the provision of residential, retail and office uses on the sites at 472 - 520 Pacific Highway and 95 Nicholson Street, St Leonards.

The proposed amendment to Lane Cove LEP 2009 is to rezone the sites from their current B3 Commercial Core to B4 Mixed Use zone to permit mixed use development. The height controls currently applicable to the site are also proposed to be amended to accommodate appropriate mixed use development on the site which protects views and solar access to surrounding land users. Urban Design and architectural analysis of the site and potential built forms have demonstrated that there is no need to change the current FSR controls applicable to the sites.

It is considered that there is a case for change for the proposed rezoning to accommodate mixed use development on the subject sites under the Lane Cove LEP 2009 as it:

- Responds to the long term trend of declining take up rates of commercial floorspace in St Leonards over the last 10 years without hindering the centre's achievement of overall employment targets. The Planning Proposal encourages growth in a Specialised Precinct located in the Global Economic Corridor and Metropolitan Urban Area to reflect market demand which is not strong enough to support the extent of commercial floorspace allowable by the existing controls.

- Reflects the changing nature of the St Leonards precinct and its potential as a key health precinct accommodating smaller scale office based health businesses supporting RNSH, NSPH and the Mater.

- Encourages mixed use development adjacent to complementary land uses such as transport links and other commercial centres, open space areas, adjacent mixed use development and other residential uses.

- Leverages the sites' location which demonstrates consistency with TOD principles, being proximate to rail and bus networks and providing high levels of accessibility for residents to the broader metropolitan area.

- Demonstrates that appropriate built form can be achieved providing significant number of residential dwellings without significantly impacting views from or solar access to surrounding residential sites.

- Provides additional dwellings likely to attract workers which could improve housing choice for workers employed in the Centre but also working in other major locations that are easily accessible by rail or bus from St Leonards.

- Facilitates development activity in St Leonards, supporting the diverse mixed use nature of the precinct.

- Provides an opportunity to invigorate the precinct south of the Pacific Highway and east of the railway station through improved public domain treatment.

The proposed concept designs demonstrate a high level of consistency with the proposed B4 zone objectives by providing mixed use development including lower floor commercial (office and retail) development with residential above. The commercial development remains consistent with adjacent uses located adjacent to the Pacific Highway while the residential development utilises its location in close proximity to the railway and other key transport networks.

In summary, the Planning Proposal is suitable for the site and should be supported for the following reasons:

- From a strategic perspective: Given the lack of demand for commercial office space to support the B3 Commercial Core zoning, the B4 Mixed Use zoning is considered to be an appropriate response to long term market demand trends, in accordance with the new planning system directive for NSW. The use will also appear visually compatible in scale and built form with surrounding development.

- From an environmental perspective: The site is currently developed and its future redevelopment will not result in the loss of a site which contributes to the visual or ecological environment of surrounding sites.

- From a social and economic perspective: There is sufficient land to accommodate the anticipated increase in employment growth, including that related to both health and traditional commercial office use. The proposal provides a significant benefit through direct and indirect employment benefits and through appropriate provision of residential uses.

For the reasons above, we request that Lane Cove Council support the progress of the Planning Proposal.

Disclaimer

This report is dated August 2014 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (Urbis) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Charter Hall and Leightons (Instructing Party) for the purpose of Planning Proposal (Purpose) and not for any other purpose or use. Urbis expressly disclaims any liability to the Instructing Party who relies or purports to rely on this report for any purpose other than the Purpose and to any party other than the Instructing Party who relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events including wars, civil unrest, economic disruption, financial market disruption, business cycles, industrial disputes, labour difficulties, political action and changes of government or law, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or made in relation to or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

Urbis has made all reasonable inquiries that it believes is necessary in preparing this report but it cannot be certain that all information material to the preparation of this report has been provided to it as there may be information that is not publicly available at the time of its inquiry.

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Appendix A Urban Design Report

Appendix B Economic Impact Assessment

Appendix C Traffic Report

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Part D – Commercial Development and Mixed Use Localities

- **472-520 Pacific Highway, St Leonards**
    - Number 500 Pacific Highway refers to SP 82937.
    - Numbers 472-494 Pacific Highway refers to Lot 1 DP 628513 and SP 73071.
    - Numbers 504-520 Pacific Highway refers to Lots 2-6 DP 3175.

This precinct is located in the precinct area bound by Pacific Highway on the north and east, Nicholson Street to the south, the eastern boundary of 472 Pacific Highway and the western boundary of 504-520 Pacific Hwy.

Note: This DCP section prevails over the remainder of DCP 2010 where inconsistency occurs.

Objectives

1. Create a landmark precinct including taller and slender towers, of triangular form on 472-494 Pacific Hwy and rounded on 500 Pacific Hwy fronting Friedlander Place, at this prominent corner of the Pacific Highway to provide visual interest upon approach from all directions.

2. Achieve design excellence and iconic new development in the centre of St Leonards.

3. Create a distinctive architectural character to the Pacific Highway frontage with engaging and legible 'entrance' points to reinforce St Leonards as a key location as an activity centre.

4. Provide a new public space integrated with Friedlander Place to create a distinctive sense of place for residents, workers and visitors.

5. Activate and integrate existing and new public spaces with appropriate ground floor retail and other uses, specifically Friedlander Place and the new retail plaza on 472-4994 Pacific Hwy and the colonnade fronting No.500.

6. Increase the amenity of Nicholson Street and the adjoining public access ways, maximising casual surveillance and activation.

7. Provide viewlines through Friedlander Place, the new plaza on 472-494 Pacific Hwy and the new towers on that site.

8. Promote site amalgamation to avoid the creation of isolated sites within the precinct.

Tables

Notes:

- Controls in all tables below are to be applied to the relevant properties.
- Setbacks are to apply to the outer edge of balconies.
- "Friedlander Place" refers to Lot 1DP 1179636.
- GFA: The GFA / building floor plates being referenced include cores ie all area contained by external walls but excluding balconies. (*)

Numbers 504 and 500 Pacific Hwy (regardless of amalgamation)

CONTROL	PROVISION	NOTES
Floor Space Ratio	1.5:1 min. (non-residential) 15.5:1 max (residential) 17:1 max (total)	
Setbacks – Ground Level Retail	4.0 m min.	Colonnade form to Pacific Hwy and Friedlander Place
Setbacks – Non-Residential Podium	0 m from all boundaries	All commercial, except where retail colonnade provided

CONTROL	PROVISION	NOTES
Setbacks – Residential Tower	4.0 m min. from Pacific Hwy	
Setbacks – All Levels	0 m	Along common boundary between 500 & 504
Levels – Non-Residential (Including Retail)	4 levels min.	To be floorplates above Pacific Hwy extending across the entire site area for buildings fronting Pacific Hwy
Floor to Floor Height - Non-Residential - Ground Level - Non-Residential - Each Level, Other Than Retail	4.8 m min. 3.6 m min.	Above ground level Pacific Hwy
Balcony Area	10.0 m2 min.	
Balcony Articulation Zone	2.0 m min.	Behind all building setbacks
Building Separation	24 m min.	To residential towers east of Friedlander Place.
Vehicle Access	From Nicholson St/ rear lane/ Friedlander Place	Via rights of way as necessary
Pedestrian Link	Within private property at rear of site. Rear lane to be redesigned to provide clear line of sight.	From rear lane to Friedlander Place

No. 504 (Charter Hall) – not amalgamated

CONTROL	PROVISION	NOTES
Site Area Approx.	1,834 m2	
Height	138 m	Above ground level Pacific Hwy
Building Floor Plate	800 m2 max. (*)	Excluding balconies
Setbacks –Residential Tower	9.0 m min.	From western boundary with No.530 (Telstra) - to edge of balconies
Setbacks – Residential Tower	4.0 m min.	From rear lane
Building Length	40.0 m max.	

No.500 Pacific Hwy – not amalgamated

CONTROL	PROVISION	NOTES
Site Area Approx.	435m2	From SP
Height	72 metres max.	Above ground level Pacific Hwy
Setbacks – All Levels	0 m	All boundaries

Numbers 504-520 and 500 Pacific Hwy - if amalgamated

These two sites must be amalgamated as a condition of development consent in order for the controls below to apply.

CONTROL	PROVISION	NOTES
Site Area Approx.	2,268 m2	
Height	138 metres max.	Above ground level Pacific Hwy
Building Floor Plate	1,075 m2 max. GFA (*)	Excluding balconies
Setbacks – All Levels	0 m min. from rear lane	
Setbacks - Residential	4.0 m min from Pacific Hwy 7.0 m min. from western boundary with No.530	
Building Length	51 m max. measured along the central east-west axis of the amalgamated site.	To a max. of 10 m from eastern boundary of 504. Rounded or stepped building form required – see diagrams.

Numbers 472-494 (Leighton)

These two sites must be amalgamated as a condition of development consent in order for the controls below to apply.

CONTROL	PROVISION	NOTES
Floor Space Ratio	1.5:1 min. (non-residential) 10.5:1 max (residential) 12:1 max (total)	
Building Height	91m max. – building at front (Pacific Hwy) 115 m max. – building at rear (Nicholson St)	Above ground level Pacific Hwy
Floor to Floor Height - Non-Residential - Ground Level - Non-Residential - Each Level, Other Than Retail	4.8 m min. 3.6 m min.	Above ground level Pacific Hwy
Building Floorplate of Each Residential Tower	850 m2 max. GFA (*)	Excluding balconies
Levels – Non-Residential	4 levels min.- front building	To be entire levels of the building fronting Pacific Highway
Setbacks – Ground Level	4.0 m min. from Pacific Hwy 2m min. elsewhere in site	Colonnade form
Setbacks – Non-Residential Podium	0 m from all boundaries, except:- 20 m min from Friedlander Place – front building	All commercial, except where retail colonnade provided
Setbacks – Residential Tower	4.0 m min. from Pacific Hwy - front building 0 m min. from Nicholson St – rear building 7.0 m min. from side boundary with No.470 0 m from side boundary with Friedlander Place	
Balcony Area	10.0 m2 min.	
Balcony Articulation Zone	2.0 m min.	Behind all building setbacks
Building Separation	22 m min. between balconies	
Retail Plaza Width	22 m min.	
Vehicle Access	From Nicholson St/ Friedlander Place	Via rights of way as necessary
New Public Open Space	The proposed new public open space at the northern end of the site is to have a minimum area of 325sqm.	To ensure that the new public open space is provided at that location and contributes a desirable quality of public amenity.
Pedestrian Link	2.0. m min. within the property	To boundary with No.470 Pacific Hwy

All Developments

CONTROL	PROVISION	NOTES
Uses	Encourage uses which operate during evening and early morning hours, such as local retail convenience stores, cafes and restaurants, community facilities, gymnasiums and other facilities, to encourage activity and safety outside of office hours. Provide active uses at street level, and flanking public spaces. In the tower form, provide a range of housing options, including more affordable housing with less required parking.	Ground level floor heights must allow for commercial or retail uses. Upper level non-residential uses may include gymnasium and child care.
Podium Form	Podium height to be expressed through external façade material changes to reinforce commercial land use character	
Car Parking	Parking rates to comply with applicable rates in Table 2 of Part R, Draft DCP amendment, as at 31 August 2014.	
Landscaping/ Open Space	New street trees, paving and verge upgrades to be incorporated into the site development.	Tree species and paving design upgrades and specifications to be agreed on with Council.
Pedestrian Network/ Mid-Block Connections	Future development to satisfy the precinct plan to provide new and enhanced connections in the precinct	
Public Domain	A public domain plan is required to be submitted ensuring that development contribute positively to the overall precinct wide public domain outcome. The plan is to include details of materials and the like in consultation with Council.	
Façade Colours and Materials	A mixture of non-reflective façade materials and colours are required to emphasis the podium level non-residential form and residential towers as separate elements. External materials to be durable with a high quality finish. Façade detailing to also address shading, wind protection and solar access considerations.	
Facade Articulation	Articulation of façades is to be designed to express a base and top, with layering of levels of the building complemented by the composition of rhythm, texture, and materials. Roof form should be integrated with the overall design of the building. The elements comprise balconies, sun-shading devices, bay windows and other similar elements, depending on internal programme and orientation	The intent of the building wall articulation control is to incorporate sufficient modulation in the architectural façade to reduce the scale and massing of the building form, adding visual interest and diversity to the overall design.
Balconies Floor Space	An LEP cl.4.6 objection may be favourably considered for balconies with potential to be fully enclosed as noise control, to increase floor space for balconies of apartments in a direct line of sight of Pacific Hwy. These should have fully enclosable balconies, double glazed/thick glass windows and acoustic treatment measures for internal amenity.	

CONTROL	PROVISION	NOTES
Solar Access	The guideline that new developments should achieve 2 hours direct sunlight for at least 70% of apartments, under the NSW Residential Flat Design Code, should be applied as a rule of thumb with discretion in Major Centres/ Specialised Centres where densities are high.	

NSW GOVERNMENT | Planning & Infrastructure

Contact: Helen Wilkins
Phone: (02) 8575 4110
Email: Helen.Wilkins@planning.nsw.gov.au
Postal: GPO Box 39 Sydney NSW 2001

Our ref: PP_2014_LANEC_001_00 (14/01007)
Your ref: 67168/13

Mr Craig Wrightson
General Manager
Lane Cove Municipal Council
PO Box 20
LANE COVE NSW 1595

Dear Mr Wrightson,

Planning proposal to amend Lane Cove Local Environmental Plan 2009

I am writing in response to your Council's letter dated 23 December 2013 requesting a Gateway determination under section 56 of the Environmental Planning and Assessment Act 1979 ("EP&A Act") in respect of the planning proposal to amend the Lane Cove Local Environmental Plan (LEP) 2009 to:

- Rezone 5 sites that comprise 472-520 Pacific Highway and 95 Nicholson Street, St Leonards from B3 Commercial Core to B4 Mixed Use for retail, commercial and residential purposes; and
- Increase the maximum building height for land at 472-486 Pacific Highway, St Leonards from 65m to 115m and 91m; and for land at 504-520 Pacific Highway, St Leonards from 72m to 138m.

As delegate of the Minister for Planning and Infrastructure, I have now determined the planning proposal should proceed subject to the conditions in the attached Gateway determination.

It is considered that the Planning Proposal is inconsistent with the Metropolitan Plan for Sydney 2036 and Draft Metropolitan Strategy for Sydney to 2031 in that the St Leonards centre is identified as an important location for employment growth and the rezoning will provide for significant residential expansion and a loss of commercial floor space and job opportunities. It is acknowledged that development of the site may act as a catalyst for further growth however the impact of this on commercial floor space should be further considered during the rezoning process.

Planning and Infrastructure would prefer a higher percentage of commercial floorspace be provided, possibly in the order of 50% of the current commercial floorspace capacity. This could, if necessary and considered appropriate, be provided by allowing additional height beyond that proposed to ensure no loss of residential floorspace.

It is noted that the planning proposal identifies a draft Voluntary Planning Agreement and site specific Development Control Plan is to be prepared. Council should consider including these documents with the planning proposal for the purposes of public exhibition.

I have also agreed the planning proposal's inconsistencies with S117 Directions 1.1 Business and Industrial Zones and 7.1 Implementation of the Metropolitan Plan for Sydney 2036 are of minor significance. No further approval is required in relation to these Directions.

The amending Local Environmental Plan (LEP) is to be finalised within 12 months of the week following the date of the Gateway determination. Council should aim to commence the exhibition of the planning proposal as soon as possible. Council's request for Planning & Infrastructure to draft and finalise the LEP should be made 6 weeks prior to the projected publication date.

The State Government is committed to reducing the time taken to complete LEPs by tailoring the steps in the process to the complexity of the proposal, and by providing clear and publicly available justification for each plan at an early stage. In order to meet these commitments, the Minister may take action under section 54(2)(d) of the EP&A Act if the time frames outlined in this determination are not met.

Should you have any queries in regard to this matter, I have arranged for Ms Helen Wilkins of the Planning & Infrastructure regional office to assist you Ms Wilkins can be contacted on (02) 8575 4110.

Yours sincerely,

5/3/14

Richard Pearson
Deputy Director General
Growth Planning & Delivery

Encl:
Gateway Determination

NSW GOVERNMENT | Planning & Infrastructure

Gateway Determination

***Planning proposal (Agency Ref: PP_2014_LANEC_001_00)**: to rezone land and increase the maximum building height for land in Pacific Highway, St Leonards.*

I, the Deputy Director General, Growth Planning and Delivery at Planning and Infrastructure as delegate of the Minister for Planning and Infrastructure, have determined under section 56(2) of the EP&A Act that an amendment to the Lane Cove Local Environmental Plan (LEP) 2009 to:

- rezone 5 sites that comprise 472-520 Pacific Highway and 95 Nicholson Street, St Leonards from B3 Commercial Core to B4 Mixed Use for retail, commercial and residential purposes; and

- increase the maximum building height for land at 472-486 Pacific Highway, St Leonards from 65m to 115m and 91m; and for land at 504-520 Pacific Highway, St Leonards from 72m to 138m

should proceed subject to the following conditions:

1. Prior to public exhibition, Council is to revise the planning proposal to ensure that all matters identified in *A Guide to Preparing planning proposals* are adequately addressed.

2. Prior to public exhibition, a revised traffic, parking and access study is to be prepared to identify pedestrian and vehicular access to and from the land at 504-520 Pacific Highway, St Leonards considering the potential for future development of the surrounding areas. The study is to address all issues raised by Lane Cove Council and be included as part of the exhibition material.

3. Community consultation is required under sections 56(2)(c) and 57 of the Environmental Planning and Assessment Act 1979 ("EP&A Act") as follows:

   (a) the planning proposal must be made publicly available for a minimum of **28 days**; and
   (b) the relevant planning authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available along with planning proposals as identified in section 5.5.2 of *A Guide to Preparing LEPs (Planning & Infrastructure 2013)*.

4. Consultation is required with the following public authorities under section 56(2)(d) of the EP&A Act and/or to comply with the requirements of relevant S117 Directions:

   - Department of Education and Communities
   - Energy Australia
   - NSW Health
   - Sydney Trains
   - Roads and Maritime Services
   - Sydney Water
   - Adjoining LGA's

   Each public authority is to be provided with a copy of the planning proposal and any relevant supporting material, and given at least 21 days to comment on the proposal.

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5. A public hearing is not required to be held into the matter by any person or body under section 56(2)(e) of the EP&A Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).

6. The timeframe for completing the LEP is to be **12 months** from the week following the date of the Gateway determination.

Dated 5 day of March 2014.

Richard Pearson
Deputy Director General
Growth Planning & Delivery
Planning & Infrastructure

Delegate of the Minister for Planning & Infrastructure

LANE COVE PP_2014_LANEC_001_00 (14/01007)

Examples of view loss to apartments in The Abode West - from submissions

Figure 1: Staff photo from south side of The Abode Level 18 (top) and view line photomontage

Figure 2: Staff photo from south-west side of The Abode

Figure 3: Existing buildings to boundaries: Nos 500-520

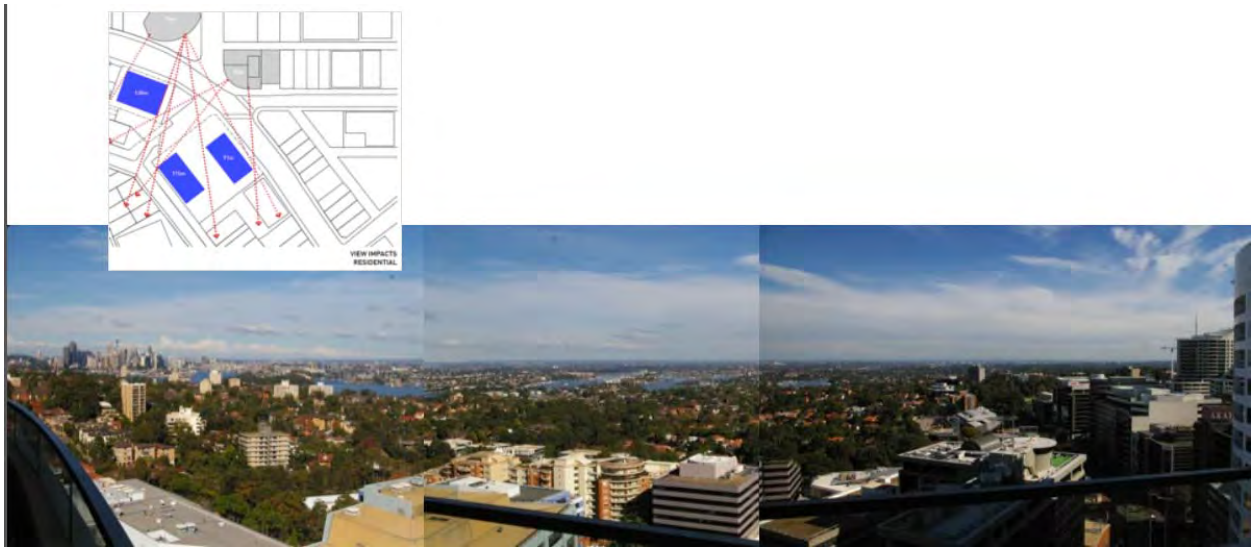
VIEW IMPACTS
RESIDENTIAL

Figure 4: Photomontages in a submission from The Abode

64131/14

BROWN

Traffic, Parking and Accessibility Report

472 - 486, 500 and 504 - 520 Pacific Highway, St Leonards

LEIGHTON PROPERTIES

Charter Hall

Prepared for Leighton Properties and Charter Hall

May 2014

X13318

Traffic & Roads Division

Smart Consulting

BROWN
Smart Consulting

COMMERCIAL IN CONFIDENCE

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2014

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Smart Consulting

DOCUMENT CONTROL - X13318

Issue	Date	Issue Details	Author	Checked	Approved
A	16/05/14	Traffic, Parking and Accessibility Report	FR	JA	JA
B	20/05/14	Traffic, Parking and Accessibility Report	FR	JA	JA
C	13/08/14	Traffic, Parking and Accessibility Report	FR	JA	JA

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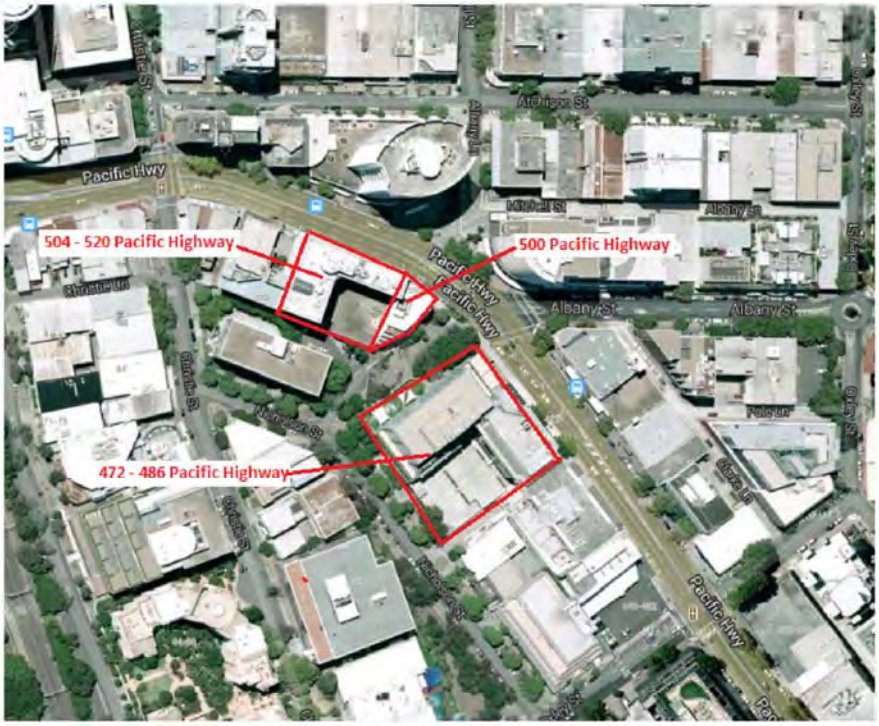
1 Introduction

1.1 Background and Current Site Development

St Leonards built form is undergoing redevelopment as developers are taking advantage of the development opportunities associated with the strategic planning of St Leonards as a Specialised Precinct, as identified in the NSW Government's Metropolitan Strategy for Sydney. The advantages of this area's accessibility to public transport makes this area prime for development. This redevelopment is occurring on existing sites used for commercial and services industry purposes to mixed use residential developments, which also transform the area in terms of built form and connectivity. This Traffic, Parking and Accessibility Report supports the Planning Proposal to rezone no. 472-486, no.500 and no. 504-520 Pacific Highway, St Leonards (subject sites) to a mixed land use zone. This report incorporates part of the findings of the Traffic Report prepared by Brown on November 2013 and expands it to provide response to comments by Lane Cove Council and NSW Department of Planning and Infrastructure.

The subject sites are located on the southern side of the Pacific Highway (as shown in Figure 1) and are highly accessible by public transport, being within 400 metres walking distance from St Leonards station and are favourable for redevelopment for mixed use purposes to take advantage of this accessibility. This report assesses the traffic, parking and accessibility impacts associated with the rezoning of the subject sites to a mixed land use zone on the basis of an indicative mixed use development that may result from the rezoning on these sites.

Figure 1-1:Location of Sites



(Source: Google Maps)

2 Existing Conditions

2.1 Road Network

1.1.1 Classification Criteria

It is usual to classify roads according to a road hierarchy in order to determine their functional role within the road network. Changes to traffic flows on the roads can then be assessed within the context of the road hierarchy. Roads are classified according to the role they fulfil and the volume of traffic they should appropriately carry. The RTA has set down the following guidelines for the functional classification of roads.

» Arterial Road – typically a main road carrying over 15,000 vehicles per day and fulfilling a role as a major inter-regional link (over 1,500 vehicles per hour);
» Sub-arterial Road – defined as secondary inter-regional links, typically carrying volumes between 5,000 and 20,000 vehicles per day (500 to 2,000 vehicles per hour);
» Collector Road – provides a link between local roads and regional roads, typically carrying between 2,000 and 10,000 vehicles per day (250 to 1,000 vehicles per hour). At volumes greater than 5,000 vehicles per day, residential amenity begins to decline noticeably; and
» Local Road – provides access to individual allotments, carrying low volumes, typically less than 2,000 vehicles per day (250 vehicles per hour).

1.1.2 Existing Road Network

The existing road network in the vicinity of the proposed development is described below.
» Pacific Highway – is a divided six-lane, two-way arterial road with parking permitted on each side of the road outside of peak periods. This State Road has a posted speed limit of 60km/h in the vicinity of the study area. The main function is to provide a thoroughfare for commuters to and from the CBD during peak periods as well as distributing traffic to and from the local road network;
» Albany Street – it predominantly operates as a non-divided four-lane, two-way collector road with parking permitted on each side. Albany Street runs from the Pacific Highway to the east and predominantly provides a link between local roads and the Pacific Highway. The signalised intersection of Albany Street and the Pacific Highway is a key intersection in terms of the operation of the local road network. The road is subject to 50km/h speed limit;
» Oxley Street – is predominantly a non-divided four-lane, two-way collector road with parking permitted on each side outside of peak periods. Oxley Street crosses the Pacific Highway as well as Albany Street and predominantly provides a link between local roads and the Pacific Highway. The road is subject to 50km/h speed limit;
» Christie Street – predominantly operates as a non-divided four-lane, two-way collector road with parking permitted on each side. Christie Street crosses the Pacific Highway from north to south and predominantly provides a link between local roads and the Pacific Highway. The road is subject to 50km/h speed limit;

» Nicholson Street – predominantly operates as a non-divided four-lane, two-way local road with parking permitted on each side. Nicholson Street runs parallel to the Pacific Highway on the western side from Christie Street to Oxley Street. It operates under a 50km/h speed limit with its primary purpose of providing vehicular access to adjoining properties; and

» Friedlander Place – is a short local road adjoining Nicholson Street to the east. Friedlander Place is currently solely used for vehicular access to several buildings.

2.2 Existing Land Uses & Site Access

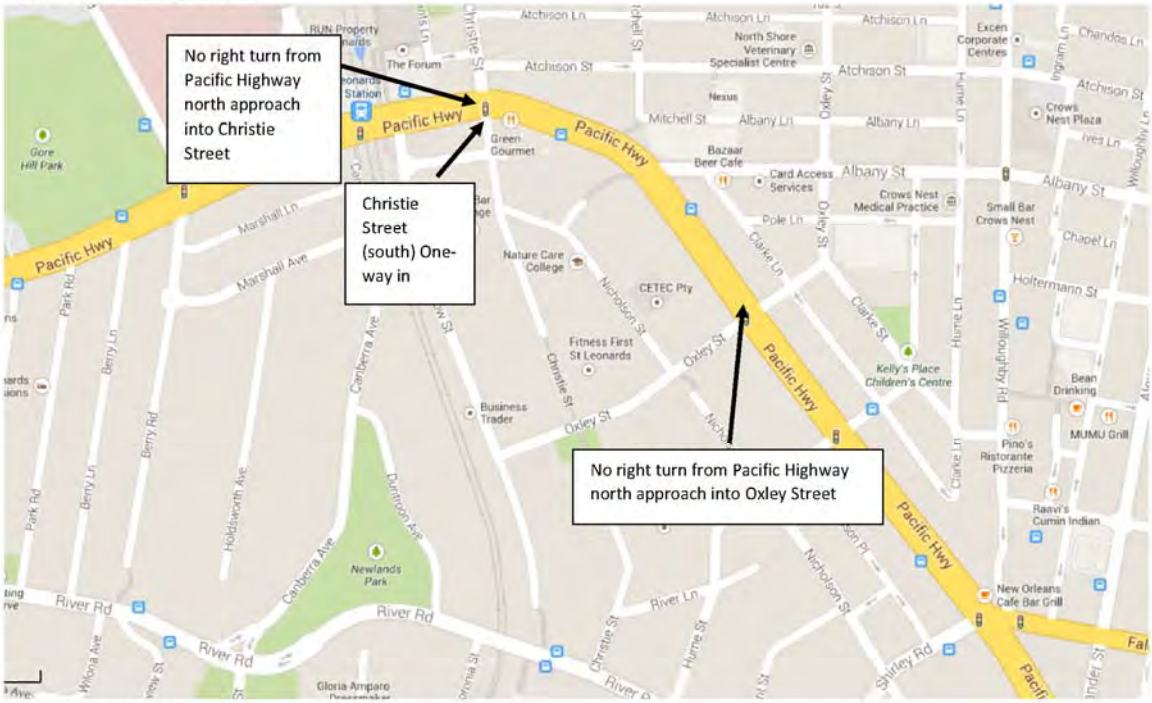
The existing sites are located at 472-486, 500 and 504-520 Pacific Highway, St Leonards. The sites are currently composed of offices and retail, as illustrated in the table below.

Table 2-1: Existing Buildings

Address	Land Use	Area (m^2)
472 - 486 Pacific Highway	Retail	1120
	Office	10688
504 Pacific Highway	Retail	575
	Office	9715
500 Pacific Highway	Retail	285
	Office	1515
Total		**23898**

Due to the nature of the Pacific Highway and its limited access functionality the development site is presented with limited access and egress options for vehicular movements. As such, all vehicular access is provided via Nicholson Street. Figure 2-1 illustrates the existing access restrictions associated with the “No Right Turns” on Princes Highway and the one-way traffic along Christie Street.

Figure 2-1:Site Access Constraints



(Source: Google Maps)

2.3 Existing Site Accessibility

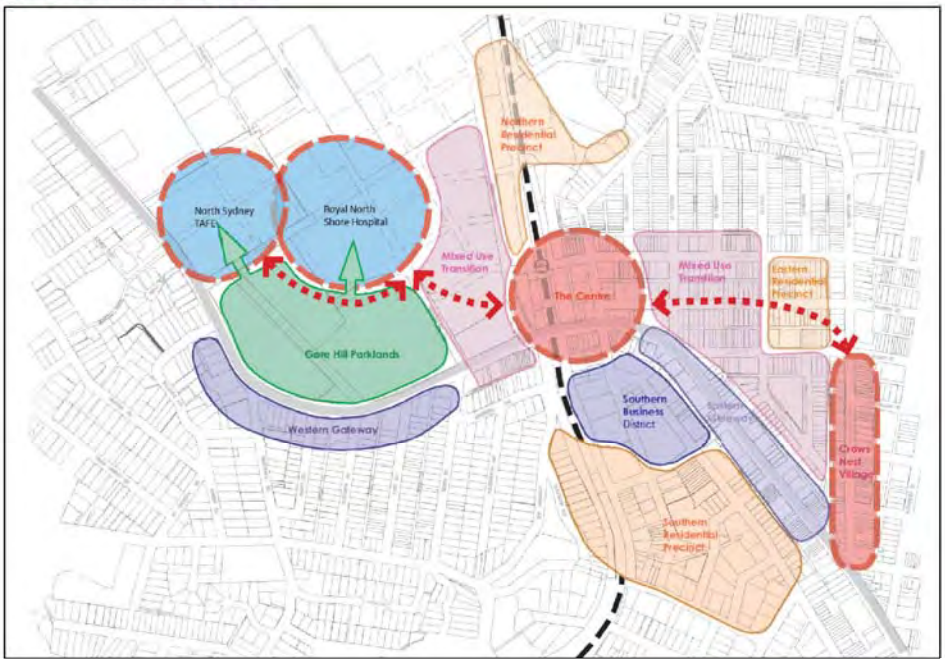
St Leonards is highly accessible by public transport including both rail and bus services and acts as a transport node with rail services to Sydney's CBD, upper and lower north shore suburbs and bus services to Lane Cove, Crows Nest, Chatswood and surrounding suburbs. The subject sites are within walking distance – 250 metres to 350 metres - of St Leonards public transport interchange. This accessibility supports the continued growth of the area as a commercial centre, major employment area including health services, and an opportunity for increased residential population around the station.

The future of St Leonards has been influenced by the highly accessible nature of this area and is specifically identified in the NSW Metropolitan Strategy as a 'Specialised Centre', acknowledging St Leonards as part of Sydney's growth corridor. A Specialised Centre aims to reduce the travel distance to access employment and services by having jobs, services and new housing clustered in a central location. The combination of these land uses near public transport would reduce an individual's car dependence and have the flow on effect of reducing congestion, emissions and energy use in the area. Specialised centres intentionally encourage liveability and walkability within a 400 metre radius of public transport through proposing mixed use developments in areas that are highly accessible, such as St Leonards. Figure 2-2 identifies a 400 metre radius of St Leonards that would support the aims of a specialised centre that is focused around the public transport node.

Figure 2-2: Locality Plan – 400m Radius around St Leonards Station

This concept is reinforced in the 2006 St Leonards Strategy, prepared by Lane Cove, Willoughby and North Sydney Councils, which identifies a range of land uses in St Leonards, as shown in Figure 2-3, and promotes the ease of residents to access most of their needs within their local suburb.

Figure 2-3: Urban Structure Diagram



(Source: St Leonards Strategy, 2006 p. 32)

The proposed rezoning of the subject sites to a mixed land use is in accordance with aims and objectives for a Specialised Centre, as identified in the Sydney Metropolitan Strategy, and the 2006 St Leonards Strategy, placing the focus of accessibility to the highly serviced town centre and mass transport services that are provided through the public transport infrastructure.

The following sections of the report will provide the in-depth studies into the high levels of public transport accessibility for both rail services and bus services and how this should impact the future car parking provision of the subject site.

2.4 Traffic Survey Data

Traffic count data for the purposes of the analysis was sourced from two previous studies, namely the *St Leonards South Strategy, Paramics Base Model – AM Peak, Calibration and Validation Report* and *St Leonards South Strategy, Paramics Base Model – PM Peak, Calibration and Validation Report* for this section of the Pacific Highway (Source: Lane Cove Council, 2013). This data was used for the Pacific Highway / Oxley Street intersection. Additional data was obtained for the Pacific Highway / Christie Street intersection and the Pacific Highway / Albany Street intersection.

In addition to the above, traffic surveys were undertaken on Nicholson Street to capture the through movements as well as the current traffic generation associated with the subject sites and neighbouring sites during the

morning and evening peak periods. This data also incorporated a survey of the site's car parks in order to observe the current parking supply and demand.

The midblock traffic volumes are summarised in the following two tables. The traffic and parking surveys are presented in Appendix A and a diagrammatic summary of traffic movementsis provided in Appendix B.

2.5 Parking Occupancy Survey Data

Parking occupancy surveys were conducted on Tuesday 15th April, 2014 at the car parks within the sites.

The following sub-sections provide details regarding the occupancy at the car parks during a typical day.

2.5.1 472-486 Pacific Highway

The parking survey data for the two buildings were compiled and summarised in the following two figures.

Figure 2-4: 472-486 Pacific Highway – Parking Occupancy (Spaces)

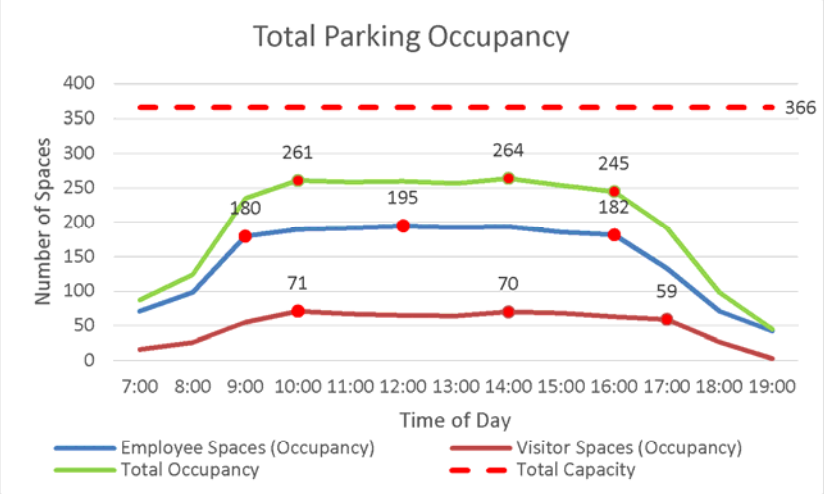
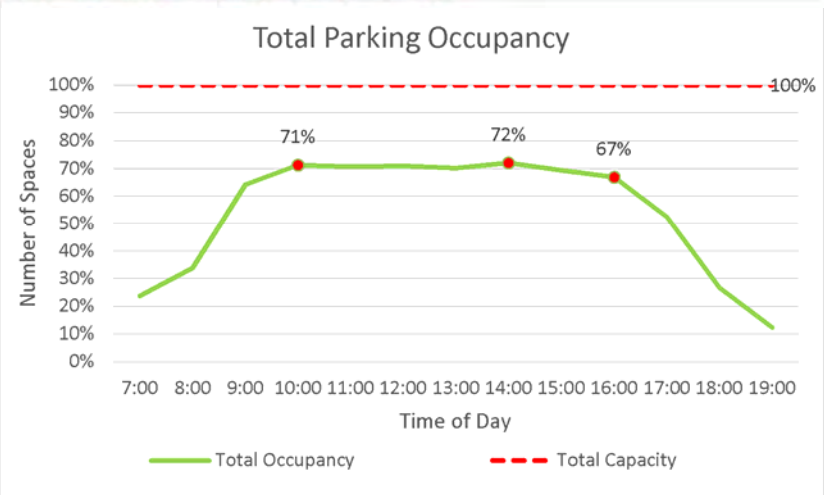


Figure 2-5:472-486 Pacific Highway – Parking Occupancy (%)



Of the 366 spaces provided, 250 spaces were for employees (i.e. long-term parking) and 116 spaces were for short-term visitor parking. Wilson Car Park, with a total of 180 parking spaces is located in Basements 1, 2 and 3 of the site, representing a significant parking supply for the local area given that it is open to the public. The maximum occupancy of these basements is 77%. Basement 4 of the site is a private car park for the building supplying 40 spaces, with a maximum occupancy of 63%. Appendix A provides more information regarding the parking surveys undertaken.

Parking occupancy peaked at 71% during the morning hours and 72% for PM hours. This level of occupancy was maintained during the typical working hours (i.e. 9am-5pm, which is very clear for the "employees curve"), steadily decreasing until the end of the survey period. Figures 2.4 & 2.5 show that there is some non-utilised capacity during the day, of approximately 30%, which represents an over-supply of parking. It is clear that there is no spill-over to the road network.

2.5.2 504-520 Pacific Highway

The parking survey data was compiled and summarised in the following two figures.

Figure 2-6:504-520 Pacific Highway – Parking Occupancy (Spaces)

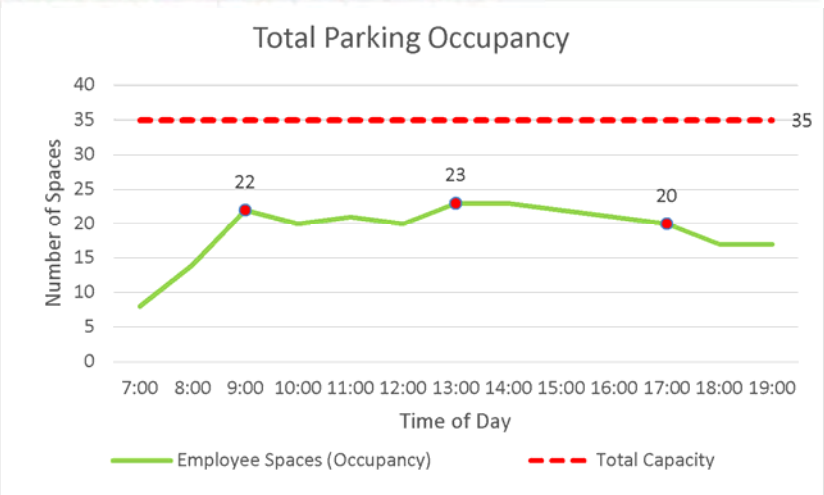
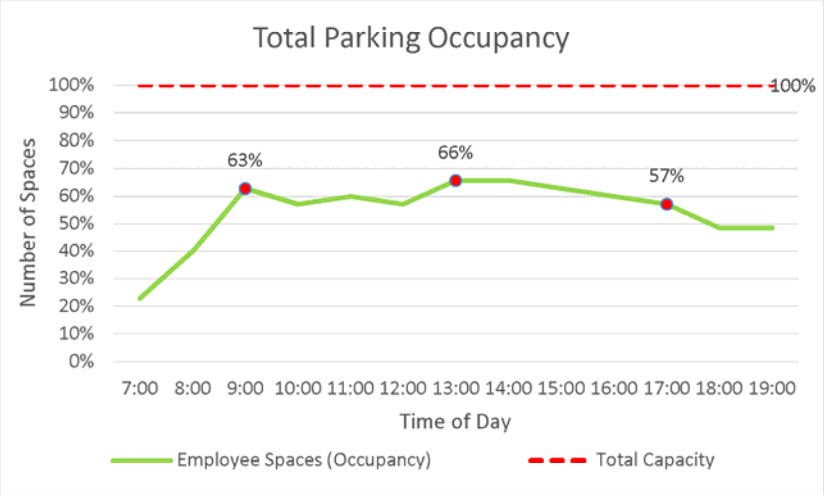


Figure 2-7:504-520 Pacific Highway – Parking Occupancy (%)



All 35 spaces cater for employees (i.e. long-term parking), which is clearly illustrated in the above graphs (i.e. 9am-9pm). Parking occupancy peaked at 63% during the morning hours and 66% for PM hours. This level of occupancy was reasonably maintained during the typical working hours. Figures 2.6 & 2.7 show that there is some non-utilised capacity during the day, of approximately 35%, which represents an over-supply of parking. It is clear that there is no spill-over to the road network.

2.5.3 Combined Parking Occupancy

The parking survey data was compiled and summarised in the following two figures.

Figure 2-8: Combined Parking Occupancy (Spaces)

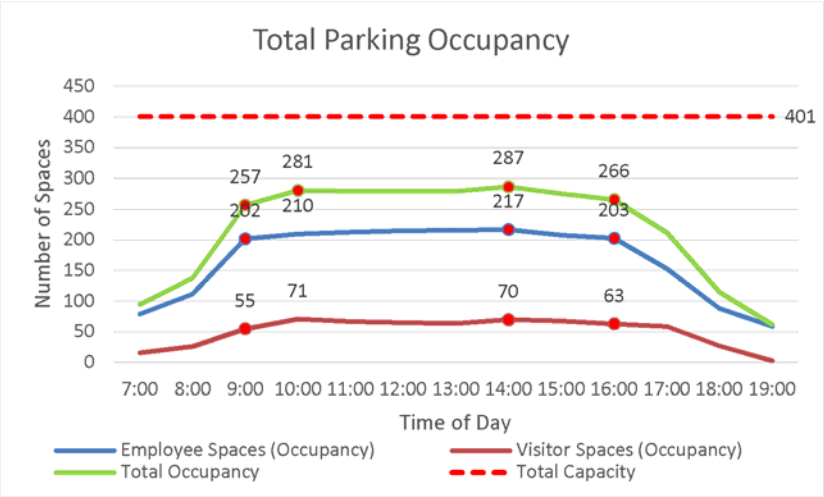
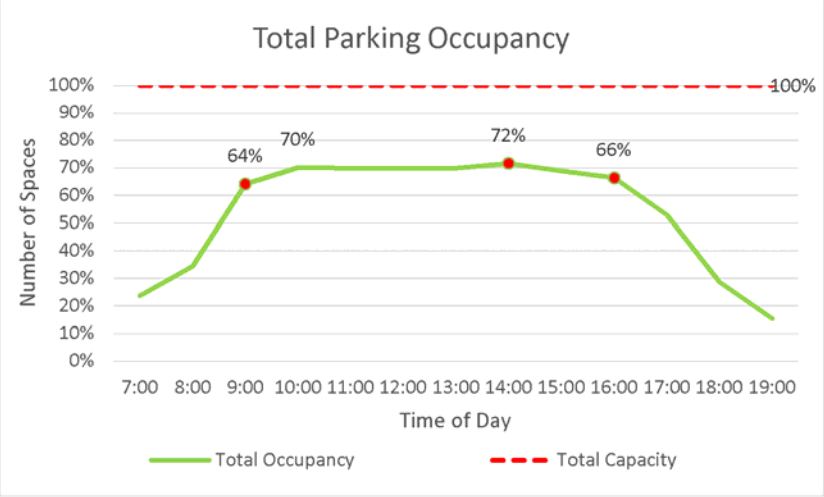


Figure 2-9: Combined Parking Occupancy (%)



The graphs for the combined parking supply shows that of the 401 spaces provided, 285 spaces were for employees (i.e. long-term parking) and 116 spaces were for short-term visitor parking.

Parking occupancy peaked at 70% during the morning hours and 72% for PM hours. This level of occupancy was maintained during the typical working hours (i.e. 9am-5pm, which is very clear for the "employees curve"), steadily decreasing until the end of the survey period. The surveys undertaken indicate that there is currently an oversupply of parking both within the site and for the surrounding local area.

2.5.4 Existing Traffic Volumes

The following tables illustrate the relevant midblock traffic volumes on the local road network.

Table 2-2: Existing Morning Peak Traffic Volumes (vph)

Location	Approximate Travel Direction				
	East	West	North	South	Total
Pacific Highway					
West of Christie St	2201	1949			4150
Between Christie St & Albany St	1746	1697			3443
Between Albany St & Oxley St	1325	1412			2737
South of Oxley Street	1482	1353			2835
Christie Street					
North of Pacific Hwy			525	496	1021
South of Pacific Hwy			0	174	174
Albany Street					
East of Pacific Hwy	501	534			1035
Oxley Street					
East of Pacific Hwy	143	248			391
West of Pacific Hwy	171	439			610
Nicholson Street					
South of Accesses			219	79	298

Table 2-3: Existing Evening Peak Traffic Volumes (vph)

Location	Approximate Travel Direction				
	East	West	North	South	Total
Pacific Highway					
West of Christie St	1861	1927			3788
Between Christie St & Albany St	1492	1682			3174
Between Albany St & Oxley St	1279	1174			2453
South of Oxley Street	1190	1270			2460
Christie Street					
North of Pacific Hwy			420	370	790
South of Pacific Hwy			0	74	74
Albany Street					
East of Pacific Hwy	457	571			1028
Oxley Street					
East of Pacific Hwy	257	192			449
West of Pacific Hwy	462	217			679
Nicholson Street					
South of Accesses			43	308	351

2.6 Existing Mid-Block Performance

The capacity to carry traffic on the surrounding road network is considered to be best measured by assessing the operating performance of key intersections rather than the midblock capacity. A mid-block performance assessment is considered suitable to assess the performance of Nicholson Street.

An assessment of Nicholson Street's capacity has been undertaken in accordance with the RTA Guide to Traffic Generating Developments (2002) and the AUSTROADS Guide to Traffic Engineering Practice – Part 2: Roadway Capacity (1988). The correlation between mid-block Level of Service (LOS) and capacity in accordance with the AUSTROADS guide is shown in the table below.

Table 2-4: Correlation between Road Type & Mid-Block Capacity

Road Type	One-Way Mid-block Lane Capacity (pcu/hr)	
Median or inner lane	Divided Road	1000
	Undivided Road	900
Outer or kerb Lane	With Adjacent Parking Lane	900
	Clearway Conditions	900
	Occasional Parked Cars	600
4 lane undivided	Occasional Parked Cars	1500
	Clearway Conditions	1800
4 lane divided	Clearway Conditions	1900

Table 2-5: Correlation between Mid-Block Level of Service and Capacity

LOS	Operation	Flow / Hour 1 Lane	Flow / Hour 2 Lanes	VCR Range
A	Primarily free flow operations at average travel speeds, usually about 90% of the FFS (free flow speed) for the given street class. Vehicles are completely unimpeded in their ability to manoeuvre within the traffic stream. Control delay at signalised intersections is minimal.	200	900	VCR < 0.34
B	Reasonably unimpeded operations at average travel speeds, usually about 70% of the FFS for the street class. The ability to manoeuvre within the traffic stream is only slightly restricted, and control delays at signalised intersections are not	380	1400	0.35 < VCR < 0.50
C	Stable operations; however, ability to manoeuvre and change lanes in midblock locations may be more restricted than at LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50% of the FFS for the street class.	600	1800	0.51 < VCR < 0.74
D	A range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40% of FFS.	900	2200	0.75 < VCR < 0.89
E	Characterised by significant delays and average travel speeds of 33% of the FFS or less. Such operations are caused by a combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.	1400	2800	0.90 < VCR < 0.99
F	Characterised by urban street flow at extremely low speeds, typically 25% to 33% of the FFS. Intersection congestion is likely at critical signalised locations, with high delays, high volumes, and extensive queuing.	>1400	>2800	VCR > 1.0

The existing two-way traffic volumes on Nicholson Street and level of service are summarised in the following two tables.

Table 2-6: Conservative Estimate of Mid-Block Traffic Volumes (vph)

Road	AM Peak	PM Peak
Nicholson Street	298	351

Table 2-7: Anticipated Mid-Block Level of Service

	AM Peak		PM Peak	
Road	VCR	LOS	VCR	LOS
Nicholson Street	0.33	A	0.39	A

In light of the above, the traffic volumes along Nicholson Street are considered to be well within its capacity.

2.7 Existing Intersection Performance

2.7.1 Intersection Assessment Methodology

The performance of the existing road network is largely dependent on the operating performance of key intersections, which are critical capacity control points on the road network. The SIDRA Intersection Analysis model has been used to assess the existing peak hour operating performance of both surveyed intersections.

The 'Level of Service' (or LoS) is the standard used to measure the performance of the intersection operation. This is defined as the qualitative assessment of the quantitative effect of factors such as speed, traffic volume, geometric features, delays and freedom of movement. The level of service concept is applied to intersections through measures of effectiveness, as summarised in the table below.

Table 2-8: Intersection Performance Indicators

Intersection Control	Measure of Effectiveness
Sign or merge control	Average Delay (sec / vehicle)
	Delay to critical movements
	Queue length for critical movements
Traffic Signals	Average Delay (sec / vehicle)
	Delay to critical movements
	Degree of Saturation
	Cycle Length
	Queue length for critical movements
Roundabout	Average Delay (sec / vehicle)
	Delay to critical movements
	Degree of Saturation
	Queue length for critical movements

The criteria for evaluating the operational performance of intersections are provided by the Guide to Traffic Generating Developments (RTA 2002). The table below presents the equivalent Level of Service thresholds based on the RTA Guide. The boundary values for average vehicle delays for each Level of Service category as used in the SIDRA intersection modelling is also provided. These boundary values are used in the assessment of intersection operational performance.

Table 2-9: Performance Criteria at Intersections

Level of Service	Average Delay (sec / vehicle) RTA Guide	Sidra Boundary	Traffic Signals / Roundabouts	Give-Way & Stop Signs
A	less than 14	AVD ≤ 14.5	Good Operation	Good Operation
B	15 to 28	14.5 < AVD ≤ 28.5	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	28.5 < AVD ≤ 42.5	Satisfactory	Satisfactory but accident study required
D	43 to 56	42.5 < AVD ≤ 56.5	Operating near capacity	near capacity and other accident study required
E	57 to 70	56.5 < AVD ≤ 70	At capacity; at signals incidents will cause excessive delays	at capacity and requires other control mode
F	Greater than 70	AVD > 70	Roundabouts require other control mode	Unsatisfactory. Excessive delays requires other control mode

(Source: RMS Guide to Traffic Generating Developments (Version 2.2, October 2002))

The average delay assessed for signalised intersections is over all movements. For roundabouts and priority control intersections (with Stop and Give Way signs or operating under the T-junction rule), the critical criterion for assessment is the movement with the highest delay per vehicle. Average delay is expressed in seconds per vehicle.

2.7.2 Traffic Signal Data

In addition to traffic count data traffic signal datasets were also required for the purposes of conducting the analysis. These datasets were acquired from Roads and Maritime Services (RMS) for the signalised intersections. The outcome from a review of this dataset is as follows:

Pacific Highway / Albany Street Intersection

» AM Peak Hour Period – three-phase, total cycle time 136s, with a split of 86 seconds for Phase A (Pacific Highway), 19 seconds for Phase B (Southern leg of the Pacific Highway) and 31 seconds for Phase B (Albany Street); and

» PM Peak Hour Period – three-phase, total cycle time 123s, with a split of 74 seconds for Phase A (Pacific Highway), 18 seconds for Phase B (Southern leg of the Pacific Highway) and 31 seconds for Phase B (Albany Street).

Pacific Highway / Oxley Street Intersection

» AM Peak Hour Period – two-phase, total cycle time 138s, with a split of 115 seconds for Phase A (Pacific Highway) and 23 seconds for Phase B (Oxley Street); and

» PM Peak Hour Period – two-phase, total cycle time 132s, with a split of 109 seconds for Phase A (Pacific Highway) and 23 seconds for Phase B (Oxley Street).

Pacific Highway / Christie Street Intersection

» AM Peak Hour Period – two-phase, total cycle time 135s, with a split of 103 seconds for Phase A (Pacific Highway) and 32 seconds for Phase B (Christie Street); and

» PM Peak Hour Period – two-phase, total cycle time 124s, with a split of 94 seconds for Phase A (Pacific Highway) and 30 seconds for Phase B (Christie Street).

The above values were used as the basis for undertaking the assessment of these intersections both with and without the development. Section 3 of this report provides more details in relation to the outcomes from this assessment.

2.7.3 Christie Street / Pacific Highway Intersection Current Performance

The current performance of the intersection was assessed using the Sidra software and adopting the signal phasing data listed above. The results of the analysis are presented in the table below.

Table 2-10: Existing Christie St / Pacific Highway Intersection Performance

Performance Indicator	Average	Worst
Existing AM Peak - (Phase A=103, Phase B=32)		
DOS	-	95.1 (Right from Christie St)
Avg Delay (sec)	12.7	92.3 (Right from Christie St)
LOS	A	F
95th %ile Queue	-	195.4 (Right from Christie St)
Existing PM Peak - (Phase A=94, Phase B=30)		
DOS	-	82.3 (Right from Christie St)
Avg Delay (sec)	9.2	65.7 (Right from Christie St)
LOS	A	E
95th %ile Queue	-	130.6 (right from Christie St)

The results of the analysis indicate that the intersection is operating at an acceptable level, with the exception of the right turn movement from Christie Street during the morning peak period. The same movement during the afternoon peak is nearing capacity. The average LoS for the intersection is satisfactory during AM and PM peak periods. The detailed Sidra results are presented in Appendix C.

2.7.4 Albany Street / Pacific Highway Current Intersection Performance

The current performance of the intersection was assessed using the Sidra software and adopting the signal phasing data listed above. The results of the analysis are presented in the table below.

Table 2-11: Existing Albany Street / Pacific Highway Intersection Performance

Performance Indicator	Average	Worst
Existing AM Peak - (Phase A=80, Phase B=19, Phase C=31)		
DOS	-	81.1 (Left from Albany St)
Avg Delay (sec)	20.1	80.4 (Right from Pacific Hwy (east))
LOS	B	F
95th %ile Queue	-	151.7 (from Pacific Hwy (west))
Existing PM Peak - (Phase A=74, Phase B=18, Phase C=31)		
DOS	-	78.9 (Right from Pacific Hwy (east))
Avg Delay (sec)	20.4	74.3 (Right from Pacific Hwy (east))
LOS	B	F
95th %ile Queue	-	126.9 (Right from Albany St)

The results of the analysis indicate that the intersection is currently at capacity during both peak periods with the exception of the right turn movement from the Pacific Highway eastern leg, operating at level of service F. The average LoS for the intersection is satisfactory during AM and PM peak periods.

2.7.5 Oxley Street / Pacific Highway Current Intersection Performance

The current performance of the intersection was assessed using the Sidra software and adopting the signal phasing data listed above. The results of the analysis are presented in the table below.

Table 2-12: Existing Oxley Street / Pacific Highway Intersection Performance

Performance Indicator	Average	Worst
Existing AM Peak - (Phase A=115, Phase B=23)		
DOS	-	75.2 (Through / Right from Oxley St (west))
Avg Delay (sec)	10.7	81.9 (Right from Oxley St (west))
LOS	A	F
95th %ile Queue	-	60.2 (through from Oxley St (east))
Existing PM Peak - (Phase A=109, Phase B=23)		
DOS	-	172.6 (Through / Right from Oxley St (west))
Avg Delay (sec)	70.1	742.3 (Right from Oxley St (west))
LOS	E	F
95th %ile Queue	-	433 (through / Right from Oxley St (west))

The results of the analysis indicate that the intersection is currently operating beyond its notional capacity during the evening peak period. The Oxley St movements are operating with a level of service F during both morning and afternoon peak periods. The average LoS for the intersection is satisfactory during AM peak period. The LoS is close to capacity (LoS E) during PM peak hour.

2.8 Existing & Future Rail Services

St Leonards railway station is the primary form of public transport in the area. The service is located on the North Shore Line which plays a key role of linking the Northern stations such as Chatswood and Hornsby to the CBD and to the southern and western line stations. The subject sites are within an easily walkable area to the station being only 250 metres and 350 metres from this transport node. It is considered that a walkable radius to a high service transport station is 400 – 600 metres, and the subject sites are well within this distance.

St Leonards station provides access to the major station of the north including Chatswood, Hornsby and Epping along with other stations. To the south there is easy to access North Sydney, CDB stations and the other lines that connect to the city via Central Station. The table below provides a summary of the train services that are currently servicing St Leonards Station.

Table 2-13: St Leonards Station – Train Service Summary

Hour Commencing	Northbound			Southbound		
	North Shore	via MQP	Trains / hr	North Shore	via MQP	Trains / hr
Morning						
7	9	4	13	11	4	15
8	12	4	16	13	4	17
9	7	4	11	7	4	11
Afternoon						
3	7	4	11	7	4	11
4	10	4	14	9	4	13
5	12	4	16	9	4	13
6	6	4	10	8	4	12
7	6	4	10	5	4	9
first	4:41:00 AM			4:34:00 AM		
last Mon-Thurs	23:51:00 PM			12:44:00 AM		
last Fri	12:51:00 AM			13:42:00 AM		

(Source: North Shore Line, City Rail, updated April 2013)

Table 2-14: Weekday Rail Services - St Leonards Station

	Time Period	
Direction	Morning 7-9 am	Friday 3-7 pm
Southbound	40	61
Northbound	43	58
Total	**83**	**119**

Not only are there a large amount of services that are available, there are a large amount of patrons to the station itself. St Leonards is ranked as the 14th busiest station on the CityRail network with 30,000 rail network accesses per day. It is evident from this amount of patronage and the station's ranking that rail is a key piece of infrastructure for St Leonards.

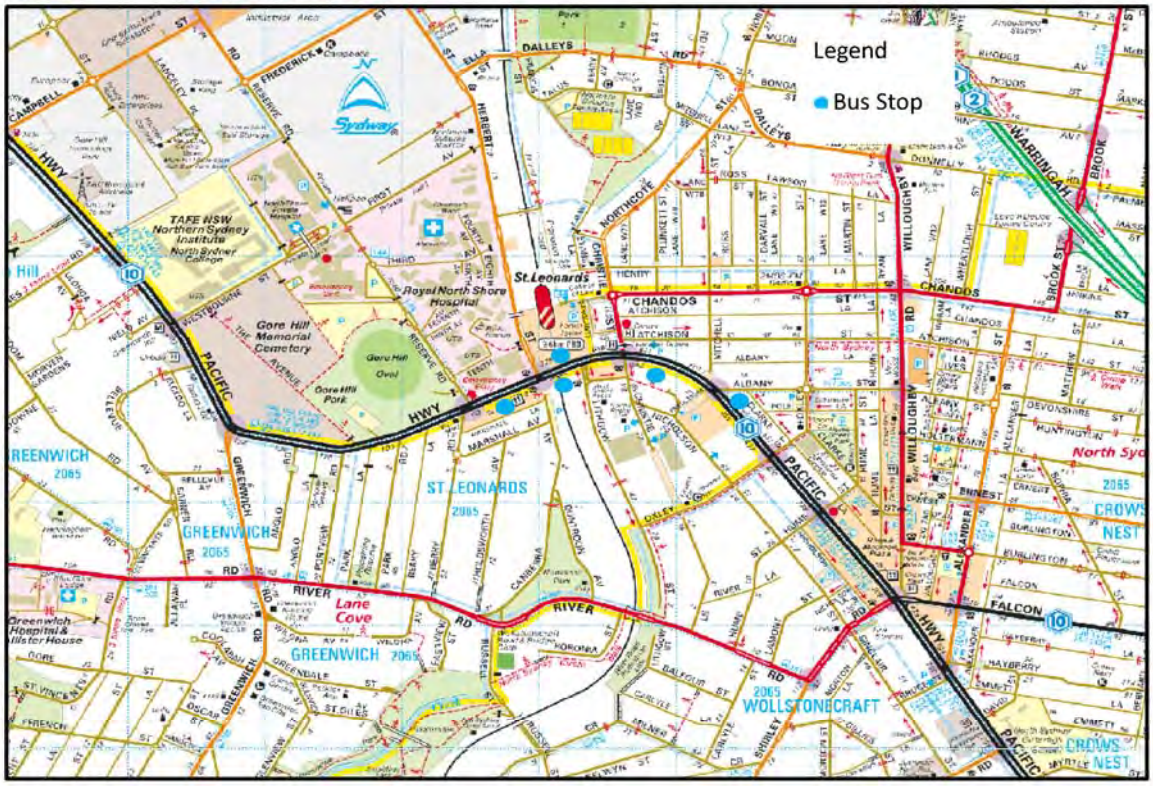
In terms of future rail service there are projects that will enhance accessibility to the area. These include the North West Rail Line, the Opal integrated ticketing service (already integrated to the station's ticketing system) and potentially the Chatswood-Epping line to Parramatta.

2.9 Existing & Future Bus Services

Along the Pacific Highway is the main access point for the bus routes that service St Leonards area. There are bus stops at the train station as well as on the near Christie Street and Albany Street. These five bus stops (see Figure 4) have a total of 15 routes which are within 50 m and 400 m from the subject site. Figure 5 depicts some of the bus services that are available along the Pacific Highway and in the greater St Leonards area. As shown in Figure 5 the bus service connects St Leonards to a multitude of locations including Manly, Chatswood, Lane Cove and

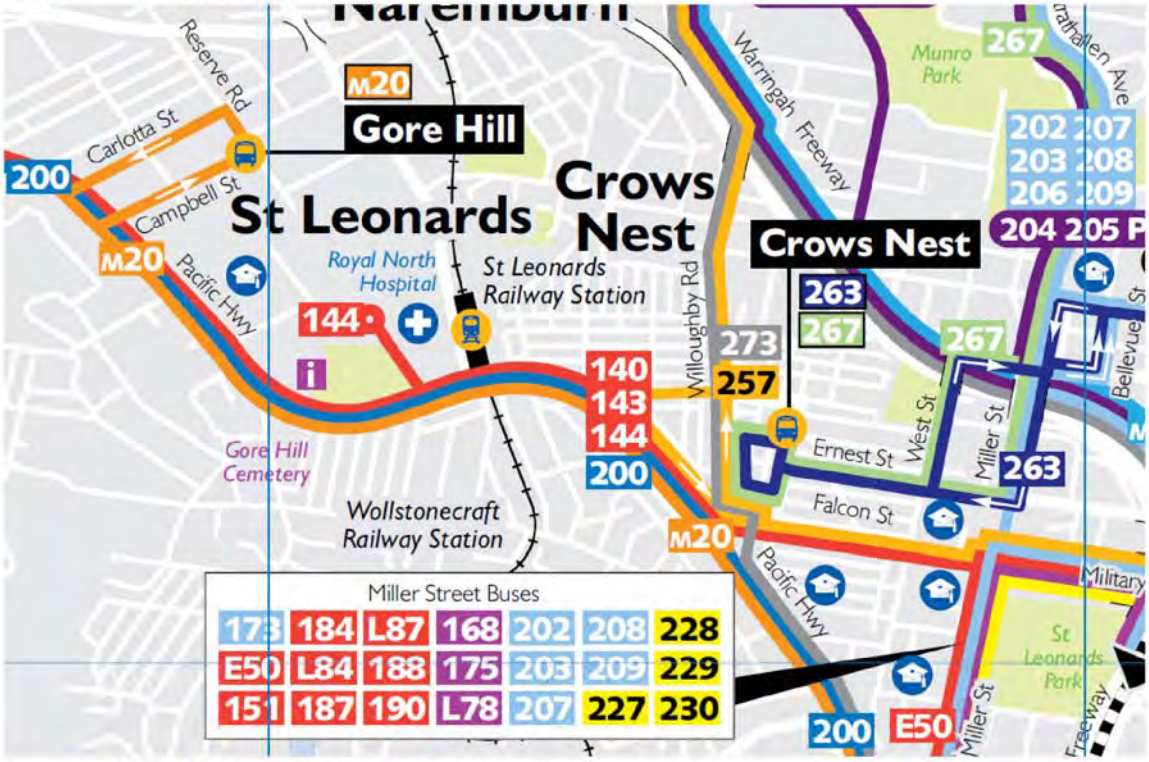
Macquarie Park for example. The table below summaries these routes by displaying the basic destinations and the description of the service (Table 3).

Figure 2-10: Bus Stop Map (within 400m)



The amount of trips undertaken by bus is substantially less that the trips taken by rail, however they still play an important role in providing accessibility to the centre. Investigations into the daily trips made from the 5 noted bus stops have been carried and are summarised by routes in Table 3 below. It is interesting to note that M20 route, is the most utilised bus route which comes at 10 min intervals during weekday peaks; 15min intervals during weekdays and 20min at other times. It should also be noted that the bus stops with more services are located closest to the station which is within easy walking distance to the subject site.

Figure 2-11: Bus Route Map



(Source: www.131500.info) Note: other bus services operate in this area and may not be shown on this map.

Table 2-15: Pacific Highway Bus Routes – Characterisation of Market & Service Type

Route	Market	Service Description
140	Manly and Macquarie University	Monday to Friday peak hours service with limited
143	Chatswood and Manly via St Leonards	Daily daytime service
144	Chatswood and Manly via Royal North Shore Hospital	Daily full time service
200	Chatswood to Bondi Junction via North Sydney and City	Monday to Friday peak hours service with limited stops
252	Lane Cove West and City via Pacific Highway	Daily full time service
254	Riverview and City via Pacific Highway	Daily full time service
265	McMahons Point and Lane Cove via Greenwich Wharf	Monday to Saturday service
286	Denistone East and City via Pacific Highway	Monday to Friday peak hour service
287	Ryde and Milsons Point via Pacific Highway and North Sydney	Monday to Friday peak hour service
290	Epping and City via Macquarie Centre and Pacific Highway	Daily full time service
602	Rouse Hill and North Sydney	Peak period peak direction service
612	Kellyville and Milsons Point via Castle Hill	Peak period peak direction service
622	Dural and Milsons Point	Peak period peak direction service
653	West Pennant Hills and Milsons Point	Peak period peak direction service
M20	Botany and Gore Hill	Daily full time service – 10min weekday peaks; 15min weekdays and 20min at other times

Source: Sydney Buses website and Hills Bus website

Table 2-16: Daily Trips by Direction & Route & Bus Routes along the Pacific Highway

	Eastbound		Westbound	
Route	206525	206523	206521 & 2065135	206528
140		2	2	
143	28	28	31	31
144	30	50	48	29
200		24	24	
252	31	31	31	31
254	28	28	25	25
265	20	20	18	18
286	5	5	7	7
287	6	6	4	4
290	33	33	31	31
602		8	9	
612		26	26	
622		6	7	
653		6	5	
M20	67	67	66	66
Total eastbound	**248**	**340**	**334**	**242**

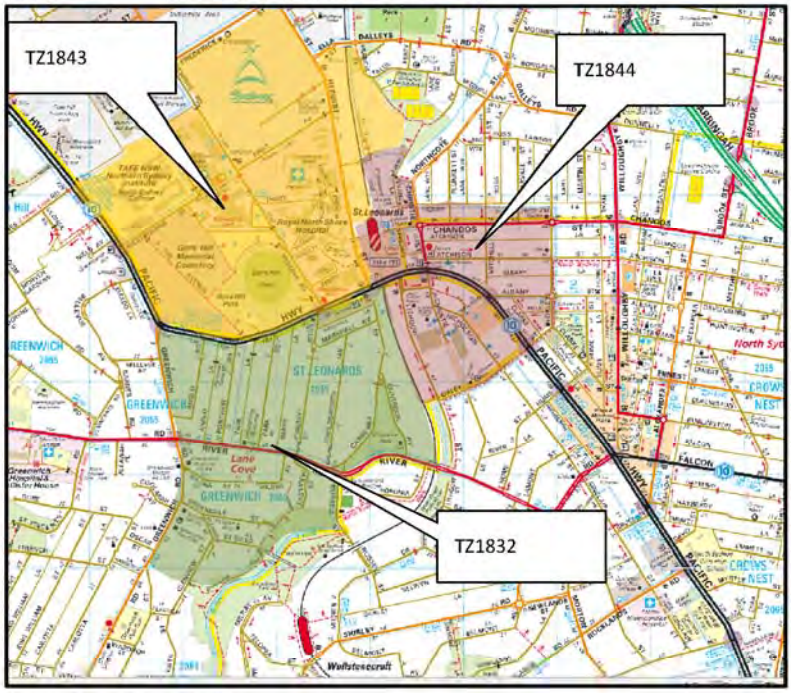
Source: www.131500.info

In summary, St Leonards Station precinct has been heavily invested in rail and bus infrastructure resulting in a highly accessible centre. Considering that the precinct is not one of the major transport interchanges such as North Sydney, Strathfield or the CBD Stations, it is still a highly utilised centre. Further upgrading of the public transport system continue to ensure St Leonards high accessibility and public transport use into the future.

2.10 Journey to Work Analysis

Census 2011 provides information about how people travel to work for small areas. This information is a useful indicator with which to characterise the relative attractiveness of particular modes in reasonably small areas for the commute. The Bureau of Transport Statistics within TfNSW undertakes additional processing of Census data to prepare this information coded to 'travel zones', which are small areas defined to reflect reasonably homogenous accessibility characteristics and similar land use. These travel zones are generally larger than individual SA1s. The following figure identifies three travel zones that either cover the study area or adjoin it.

Figure 2-12: Travel Zones Over & Near the Study Area



(Source: 2011 TZ shapefile, BTS)

These travel zones are:

- Travel zone 1832 to the west of the study area and west of the rail line and includes some residential areas to the south of River Road.
- Travel zone 1843 covers Royal North Shore Hospital and the lands around it.
- Travel zone 1844 covers most of the commercial employment area of St Leonards, including the study area.

2.10.1 Resident Workers' Mode Shares

The journey to work mode shares of resident workers of the above travel zones are shown in the following table.

Table 2-17: Resident Workers' Mode Share for Journey to Work for Selected Zones

TZ description	TZ num	Train	Bus	Vehicle Driver	Vehicle Pass.	Other Mode	Walked Only	Total
'West of study area'	1832	43.8%	5.5%	34.2%	5.0%	2.1%	9.4%	100.0%
'RNSH & surrounds'	1843	48.7%	4.8%	26.1%	2.3%	2.4%	15.8%	100.0%
St Leonards commercial – incl study area'	1844	49.3%	6.6%	23.9%	2.6%	2.1%	15.5%	100.0%

(Source: JTW table 13, 2011 JTW, BTS)

The above analysis indicates that residents of the above zones rely primarily on public transport for their journey to work. Of note is that residents of the two zones north of the study area, which are mainly commercial uses with a mix of residential, have a higher proportion (16%) of people who walk to work than resident workers of the area to the west of the study area (9%). For context, the mode shares for resident workers in local government areas in the 'North Sydney and Hornsby' SA4 are provided below.

Table 2-18: Resident workers' mode shares for journey to work by local government area in 'North Sydney and Hornsby' SA4

LGA	Train	Bus	Ferry/Tram	Vehicle driver	Vehicle passenger	Other mode	Walked only	Total
Hornsby	30.4%	0.8%	0.1%	59.6%	4.0%	1.0%	4.1%	100.0%
Ku-ring-gai	26.1%	2.1%	0.0%	63.4%	4.1%	1.6%	2.8%	100.0%
Lane Cove	14.6%	19.9%	1.3%	51.2%	4.0%	2.5%	6.6%	100.0%
Mosman	4.4%	25.8%	5.5%	51.7%	4.0%	2.7%	5.9%	100.0%
North Sydney	19.1%	20.4%	2.7%	37.9%	3.4%	3.0%	13.6%	100.0%
Willoughby	22.0%	13.4%	0.1%	49.7%	4.4%	2.4%	8.1%	100.0%
Total SA4	***22.2%***	***10.9%***	***1.1%***	***53.1%***	***4.0%***	***2.1%***	***6.7%***	***100.0%***

(Source: JTW table 13, 2011 JTW, BTS)

The average vehicle mode share (vehicle driver and vehicle passenger) for the study area of 39% is well below those of Lane Cove (55%), and the adjoining LGA of Willoughby (53%). It is also lower than the mode share to vehicles of North Sydney (42%).

2.10.2 Local Employment Mode Shares

For people who work in the above travel zones, their mode shares for the journey to work are shown in the following table.

Table 2-19 – Local employment mode shares for journey to work for selected zones

TZ description	TZ num	Train	Bus	Ferry/Tram	Vehicle driver	Vehicle passenger	Other mode	Walked only	Total
'West of study area'	1832	26.9%	5.7%	0.0%	56.6%	4.2%	1.4%	5.3%	100.0%
'RNSH & surrounds'	1843	26.0%	5.2%	0.1%	59.1%	3.5%	0.9%	5.2%	100.0%
'St Leonards commercial – incl study area'	1844	37.2%	7.8%	0.2%	44.2%	2.9%	2.0%	5.5%	100.0%

Source: JTW table 12, 2011 JTW, BTS

Around 47% of people working within the study area zone use vehicles for the journey to work, which is less than in the RNSH & surrounds zone (63%) and less than the west of stud area zone (60%). The following table provides a sub-regional scale context in which to compare the above mode shares.

Table 2-20 – Local employment mode shares for journey to work by local government area in 'North Sydney and Hornsby' SA4

LGA	Train	Bus	Ferry/Tram	Vehicle driver	Vehicle passenger	Other mode	Walked only	Total
Hornsby	12%	1%	0%	74%	6%	1%	6%	100%
Ku-ring-gai	10%	1%	0%	79%	5%	1%	4%	100%
Lane Cove	9%	5%	0%	74%	5%	2%	5%	100%
Mosman	8%	10%	0%	67%	4%	2%	8%	100%
North Sydney	39%	11%	1%	37%	3%	2%	7%	100%
Willoughby	26%	6%	0%	58%	4%	1%	6%	100%
Combined	***24%***	***6%***	***0%***	***57%***	***4%***	***2%***	***6%***	***100%***

Source: JTW table 12, 2011 JTW, BTS

The above indicates that Lane Cove LGA has a high level of vehicle use at 79%, which is well above the study area's 47%. Willoughby LGA has about 62% share to vehicle, whilst North Sydney has about 40% to vehicle.
In summary, the journey to work public, private and active transport were the three key modes within the study area. From the analysis it is clear that residents in the study area rely heavily on public transport for their journey to work. Within the 'St Leonards commercial – including study area' Public transport makes up 55.9% of all trips to work with 49.3% of these trips by train. Combined car use makes up 26.5% of trips. An unusually high proportion of people walked to work only, making up 15.5% of the population. When compared to other LGA areas the study areas average mode share for private vehicular transport (39%) is well below those of Lane cove (55%) and the adjoin LGA of Willoughby (53%). It is also lower that the mode share of vehicles for North Sydney (42%).

The Journey-to-Work analysis provides a clear picture about the travel patterns of local residents and employees. The St Leonards precinct is well provided with public transportation, in the form of the local train station and a significant number of bus stops and services. The high utilisation of these services is reflected in the JTW analysis. This information illustrates the attraction of existing and potentially future residents and employees for the train and bus services provided in the area. It is envisaged that many of these local users would prefer the public transport travel mode to private car usage when travelling to and from work.

3 Proposed Redevelopment

The scale of the proposed redevelopment for each block is summarised in the table below.

Table 3-1: Proposed Redevelopment

Address & Land Use	Units	Area (m^2)
472 - 486 Pacific Highway		
Residential Units	530	-
Office Space	-	4875
Retail Space	-	3000
504 Pacific Highway		
Residential Units	375	-
Office Space	-	2775
Retail Space	-	750
500 Pacific Highway		
Residential Units	85	
Office Space		1720
Retail Space		350
Total	**990**	**13470**

3.1 Car Parking Requirement

The adopted parking rates for both non-residential and residential components of the development have been taken from the existing Lane Cove DCP Part D: Commercial Development and Mixed Use, Sub-section 1.4.1 Car parking - St. Leonards Centre, as follows:

a) Off-street car parking shall be provided at a rate of:

I. A maximum of 1 car space per 110m² of gross floor area for non-residential developments within a radius of 800m from St. Leonards Railway Station,

II. A minimum of 1 space per 23.8m² of gross floor area for supermarkets.

b) Residential component of Mixed Use (minimum rates):

I. Studio and 1 bedroom apartment = 0.5 space

II. 2 bedroom apartment = 1 space

III. 3 and more bedroom apartment = 1.5 spaces

IV. Visitors = 1 space per 4 dwellings

The parking requirements in accordance with the above are summarised in the following two tables.

Table 3-2: Residential Car Parking Requirements

Address & Land Use	No. of Units	Car Parking Rate	Car Parking Required	Car Parking Proposed
472 - 486 Pacific Highway				
Studio	148	0.5 spaces / unit	74	74
1 Bedroom	128	0.5 spaces / unit	64	64
2 Bedrooms	200	1 space / unit	200	200
3 Bedrooms	54	1.5 spaces / unit	81	81
Sub -Total	**530**		**419**	**419**
504-520 Pacific Highway				
Studio	105	0.5 spaces / unit	53	53
1 Bedroom	90	0.5 spaces / unit	45	45
2 Bedrooms	143	1 space / unit	143	143
3 Bedrooms	37	1.5 spaces / unit	56	56
Sub -Total	**375**		**297**	**297**
500 Pacific Highway				
Studio	**10**	0.5 spaces / unit	5	5
1 Bedroom	**20**	0.5 spaces / unit	10	10
2 Bedrooms	**45**	1 space / unit	45	45
3 Bedrooms	**10**	1.5 spaces / unit	15	15
Sub -Total	**85**		**75**	**75**
Visitors		1 space / 5 units	198	198
Accessible		1 accessible space / 50 visitor spaces	4	4
Sub -Total			**202**	**202**
Total			**918**	**918**

Table 3-3: Commercial Car Parking Requirement

Address & Land Use	Area (m2)	Car Parking Rate (max.)	Car Parking Required	Car Parking Proposed
472 - 486 Pacific Highway				
Office	4875	1 space / 110m2	45	45
Retail	3000		28	28
Sub -Total	**7875**		**73**	**73**
504-520 Pacific Highway				
Office	2775	1 space / 110m2	26	26
Retail	750		7	7
Sub -Total	**3525**		**33**	**33**
500 Pacific Highway				
Office	1720	1 space / 110m2	16	16
Retail	350		4	4
Sub -Total	**2070**		**20**	**20**
Total	**13470**		**126**	**126**

In light of the above, the proposed car parking supply is sufficient to meet the minimum requirements as stipulated in the Lane Cove DCP.

3.2 Traffic Generation

3.2.1 Traffic Generation for Residential Units

RMS technical directions (TDT 2013/04a) Guide to Traffic Generating Developments Updated Traffic Surveys specifies applicable trip generation rates for the residential units as shown below:

Figure 3-1:RMS Parking for Residential Units

AM Peak			PM Peak		
Average	Range		Average	Range	
0.19	0.07	0.32	0.15	0.06	0.41

The subject location is within a predominantly commercial area in which a significantly large proportion of residents are likely to walk to work. In addition, St Leonards railway station is within relatively short distance such that residents commuting to work, particularly to the CBD, are more likely to use public transport given that it provides a more convenient and faster travel mode. As such, it is considered more appropriate to adopt the lowest trip generation rate from the range provided in the Technical Directions. Nevertheless, the rate that has been conservatively adopted is midway between the average rate and the lower limit as follows:

- AM Peak: 0.13 trips / unit; and
- PM Peak: 0.105 trips / unit.

The anticipated trip generation for the residential component of the proposed development based on the above rates during the morning and evening peak periods is summarised in the table below.

Table 3-4: Estimated Total Residential Trip Generation Post Development (vph)

Address	Units	AM Peak	PM Peak
rate (trips / unit)		0.13	0.105
472 - 486 Pacific Highway	530	69	56
504 Pacific Highway	375	49	40
500 Pacific Highway	85	12	9
Total	**990**	**130**	**105**

3.2.2 Traffic Generation for Commercial Component

The anticipated traffic generation for the commercial component of the development has been estimated by undertaking a direct comparison of the current GFA and observed traffic generation for each site based to the proposed GFA.

It is acknowledged that the RMS Technical Directions provide traffic generation rates that are applicable to the office component of the proposed development. However, the rates in the Technical Directions were derived from surveys of similar sites and are therefore to be used as a guide in the absence of more detailed estimates. Given that the site consists of the same land uses as the proposed development, it is deemed more appropriate to estimate the traffic generation based on traffic surveys at the same location. The observed current traffic generation was taken from surveys that are presented in Appendix A. The estimate is shown in the table below.

Figure 3-2: Estimated Total Commercial Trip Generation Post Development

Address	Existing GFA (m^2)	Existing Trips (vph) AM Peak	Existing Trips (vph) PM Peak	Proposed GFA (m^2)	Anticipated Trips (vph) AM Peak	Anticipated Trips (vph) PM Peak
472 - 486 Pacific Highway	11808	100	93	7875	67	62
504-520 Pacific Highway	10290	17	21	3525	6	7
500 Pacific Highway	1800	29	3	2070	33	3
Total	**23898**	**146**	**117**	**13470**	**106**	**72**

The difference between the existing traffic generation and the future traffic generation is summarised in the table below.

Figure 3-3: Estimated Additional Commercial Trip Generation Post Development

Address	Difference AM Peak (vph)	Difference PM Peak (vph)
472 - 486 Pacific Highway	-33	-31
504-520 Pacific Highway	-11	-14
500 Pacific Highway	4	0
Total	**-40**	**-45**

The table above highlights the anticipated reduction in the traffic generation associated with the commercial component of the proposed development. This is a direct result of the proposed reduction in GFA for the commercial component of the development. It is acknowledged that the proportion of retail to office will change and that this may affect the final traffic generation. However, the difference is anticipated to be minor with no significant bearing on traffic impact.

3.2.3 Traffic Generation (In / Out Split)

It is anticipated that the residential traffic will follow a similar pattern to all other residential trips throughout Sydney, such that the vast majority of trips will be outbound during the morning peak period and inbound during the evening peak period.

The anticipated in / out split for the commercial component is based on the existing in / out split as observed in the traffic surveys. The estimated in / out split for each component is summarised in the table below.

Table 3-5: Anticipated Total Trip Generation (Including in / out split)

	AM Peak			PM Peak		
	Total (vph)	Inbound	Outbound	Total (vph)	Inbound	Outbound
Residential Units	130	20%	80%	105	80%	20%
		26	104		84	21
Commercial Area	106	75%	25%	72	30%	70%
		80	26		22	50
Total	**236**	**106**	**130**	**177**	**106**	**71**

3.2.4 Estimated Total Additional Trips

The traffic data collected included the number of trips in and out of the subject sites during the morning and evening peak periods. Given that these trips will no longer be made post development, subtracting the observed existing traffic generation from the anticipated total traffic generation post development provides the anticipated total trips associated with the proposed development. The estimated additional trips are shown in the table below.

Table 3-6: Anticipated Total Additional Trips (Residential & Commercial) (vph)

	AM Peak (vph)			PM Peak (vph)		
	Total	Inbound	Outbound	Total	Inbound	Outbound
Total Trips Post Development	237	106	131	177	106	71
Existing Trips	146	110	36	117	48	69
Additional Trips Post Development	**91**	**-4**	**95**	**60**	**58**	**2**

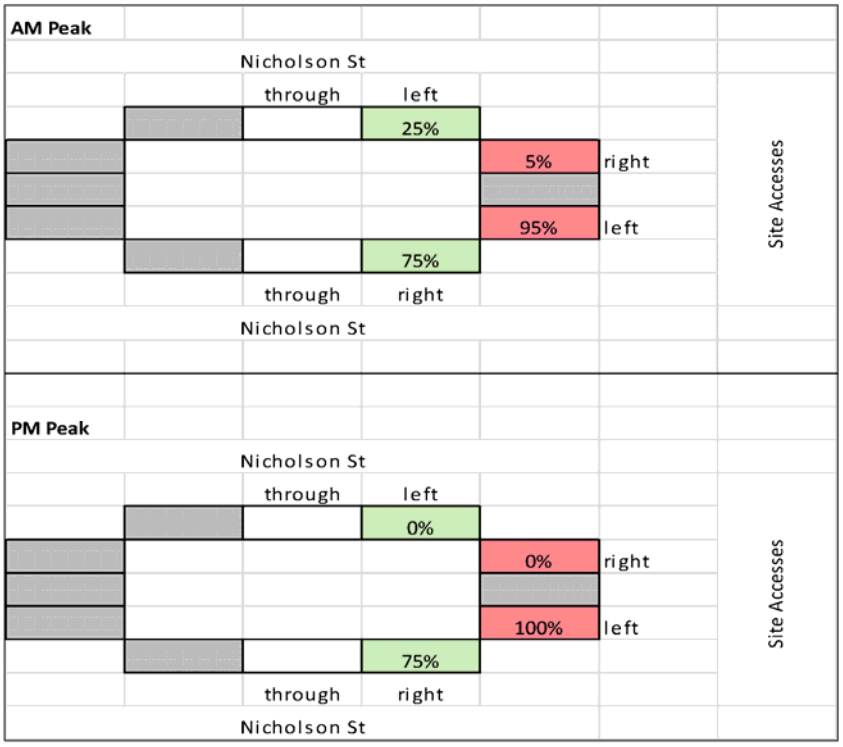
3.3 Trip Distribution

Traffic surveys have been undertaken during the morning and evening peak periods on Nicholson Street in order to observe the traffic patterns associated with all buildings affected by the proposed development. The survey captured all movements in and out of affected buildings including the following:

- 472 Pacific Highway, St Leonards;
- 486 Pacific Highway, St Leonards;
- 500 Pacific Highway, St Leonards; and
- 504 Pacific Highway, St Leonards.

The results of the survey are summarised in the figure below.

Figure 3-4: Observed Trip Distribution at Accesses (%)



3.3.1 Trip Distribution Assumptions

Overall Distribution

Given that the vast majority of outbound trips are made towards the Oxley Street / Pacific Highway intersection (including 95% and 100% during the morning and evening peak periods respectively), the trip distribution has been proportionally based on the existing turning movements at the intersection. For example, during the evening peak period, all movements through the intersection originating for the western leg of Oxley Street are

split such that approximately 30% turn left, 40% travel through and 30% turn right. As such, it has been assumed that motorists are travelling to and from the following locations:

- Origin / Destination 1: 30% of trips are to / from the northwest of St Leonards via the Pacific Highway;
- Origin / Destination 2: 40% of trips are to / from the northeast of St Leonards; and
- Origin / Destination 3: 30% of trips are to / from the south of St Leonards (i.e. the CBD) via the Pacific Highway.

Given the nature of the Pacific Highway at this location, and in particular because of its relatively tight alignment and constrained intersection characteristics (usually consisting of right turn bans from the north and south along the Pacific Highway), there are limited opportunities to access the precinct located on the western side of the Pacific Highway, including to and from the proposed development. The access that will likely be impacted by the most significant proportion, if not all of the development traffic, will be the intersection of Oxley Street / Pacific Highway. Indeed it is envisaged that the intersection of Oxley Street with the Pacific Highway will likely be the primary point of access and egress to the arterial road network.

The following discusses the assumptions adopted in estimating the trip distribution during the evening peak period. It should be noted that similar assumptions were adopted for the morning peak period with the only exception being that during the morning peak period Origin / Destination 3 is 25%, and Origin / Destination 1 is 35%. Further details of the trip distribution are provided in Appendix B.

Origin / Destination 1 - Northwest

Inbound traffic approaching from the north cannot turn right from the Pacific Highway. As such, it is anticipated that motorists will either turn left at Christie Street and undertake a U-turn at the roundabout (i.e. 10%) or turn left at Albany Street, Right at Oxley Street and right at Nicholson Street (i.e. 20%).

Outbound motorists are anticipated to predominantly turn left out of the site, left onto Oxley Street and left onto the Pacific Highway. To a lesser extent, outbound motorists will travel within the local road network in order to turn left onto the Pacific Highway via Lithgow Street. This assumption has been based on the fact that Christie Street is a one way road southbound as well as the traffic survey of the site accesses along Nicholson Street which revealed that 5% or less of outbound traffic turned right onto Nicholson Street.

Origin / Destination 2 – North & East

The 40% listed above has been further divided into north and east based on observations of the traffic surveys at all three surveyed intersections.

Inbound traffic is assumed to originate predominantly from the east (approximately 30%) approaching predominantly via Oxley Street (25%% and to a lesser extent (i.e. 5%) by turning right onto the Pacific Highway from Albany Street, left onto Christie Street and left onto Nicholson Street). An additional 10% is assumed to approach from the north via Christie Street.

Outbound traffic is not able to follow the same trip distribution in reverse as shown for inbound traffic due to several restricted movements along the Pacific Highway. As such, it is assumed that motorists travelling to the north of Christie Street (i.e. 10%) as well as all eastbound traffic (i.e. 30%) will turn left onto Oxley Street from Nicholson Street and travel through the Oxley Street / Pacific Highway intersection.

Origin / Destination 3 - South

Inbound traffic from the south is assumed to turn left from the Pacific Highway onto Oxley Street and right onto Nicholson Street. **Outbound** traffic is anticipated to use the same path in reverse.

The anticipated trip distribution onto the surrounding road network is presented in Appendix B.

4 Traffic Impact Assessment

A series of Sidra analysis was undertaken for the three key intersections. The results of the analysis are presented below.

4.1 Christie Street / Pacific Highway Intersection Performance

The analysis of the intersection post development incorporates the existing phase times in order to determine the impact of the proposed development. The results are tabulated below.

Table 4-1: Christie St / Pacific Hwy Intersection Performance Post Development

Performance Indicator	Average	Worst Movement
Existing AM Peak - (Phase A=103, Phase B=32)		
DOS (%)	-	95.1 (Right from Christie St)
Avg Delay (sec)	12.6	92.3 (Right from Christie St)
LOS	A	F
95th %ile Queue (m)	-	195.4 (Right from Christie St)
Existing PM Peak - (Phase A=94, Phase B=30)		
DOS (%)	-	82.3 (Right from Christie St)
Avg Delay (sec)	9.3	65.7 (Right from Christie St)
LOS	A	E
95th %ile Queue (m)	-	130.6 (right from Christie St)

The results of the analysis indicate that the intersection will operate within its operational capacity during the evening peak period. During the morning peak period, the right turn out of Christie Street will operate with a Degree of Saturation (DOS) of 95.1 and an average delay of 92.3. However, it should be noted that the movement is currently operating with the same DOS and average delay. As such, the results of the analysis indicate that the proposed development will not have any adverse impact on the intersection. The detailed Sidra results are presented in Appendix C.

4.2 Albany Street / Pacific Highway Intersection Performance

The analysis of the intersection post development incorporates the existing phase times in order to determine the impact of the proposed development. The results are tabulated below.

Table 4-2: Albany St / Pacific Hwy Intersection Performance Post Development

Performance Indicator	Average	Worst Movement
Existing AM Peak - (Phase A=103, Phase B=32)		
DOS (%)	-	80.9 (from Albany St)
Avg Delay (sec)	19.9	80.4 (Right from Pacific Hwy (east))
LOS	B	F
95th %ile Queue (m)	-	151.4 (through from Pacific Hwy (west))
Existing PM Peak - (Phase A=94, Phase B=30)		
DOS (%)	-	80.4 (Right from Pacific Hwy (east))
Avg Delay (sec)	20.7	75.1 (Right from Pacific Hwy (east))
LOS	B	F
95th %ile Queue (m)	-	130.1 (Right from Albany St)

The results of the analysis indicate that the proposed development will have no adverse impact the performance of the Albany Street / Pacific Highway intersection. The detailed Sidra results are presented in Appendix C.

4.3 Oxley Street / Pacific Highway Intersection Performance

The Oxley Street / Pacific Highway intersection has been assessed utilising the SIDRA intersection software. Inputs into this assessment have been traffic counts (2012 data) and also traffic signal data sourced from RMS for the site (data collected on 9 October 2013). The analysis of the intersection post development incorporates the existing phase times in order to determine the impact of the proposed development. The results are tabulated below.

Table 4-3: Intersection Performance Post Development

Performance Indicator	Average	Worst Movement
Existing AM Peak - (Phase A=103, Phase B=32)		
DOS (%)	-	112.8 (Through / Right from Oxley St (west))
Avg Delay (sec)	17.3	214.8 (Right from Oxley St (west))
LOS	B	F
95th %ile Queue (m)	-	118.3 (Through / Right from Oxley St (west))
Existing PM Peak - (Phase A=94, Phase B=30)		
DOS (%)	-	184.3 (Through / Right from Oxley St (west))
Avg Delay (sec)	76.5	847.7 (Right from Oxley St (west))
LOS	F	F
95th %ile Queue (m)	-	447.6 (Through / Right from Oxley St (west))

The above results indicate that the worst movement at the intersection will operate beyond its operational capacity during the morning and evening peak periods as delays increase in an exponential manner towards worse levels of service. However the average LoS of the intersection is satisfactory. The existing intersection (refer to Sub-section 2.7.5) is operating with average levels of service A and E, for AM and PM peak periods, while the worst movement's levels of service are currently at F for both AM and PM peak periods. As such, the proposed development's impact on the intersection's performance based on the existing phasing arrangement is considered to be marginal.

In addition to the above, the intersection has been remodelled using a modified phasing arrangement under the same cycle time. The results of the analysis are summarised in the table below.

Table 4-4: Oxley St / Pacific Highway Intersection Post Development (with New Phasing Arrangement)

Performance Indicator	Average	Worst Movement
Existing AM Peak - (Phase A=103, Phase B=32)		
DOS (%)	-	62.7 (Through / Right from Oxley St (west))
Avg Delay (sec)	11.3	69.0 (Right from Oxley St (west))
LOS	A	E
95th %ile Queue (m)	-	63.9 (Through / Right from Oxley St (west))
Existing PM Peak - (Phase A=94, Phase B=30)		
DOS (%)	-	80.4 (Through / Right from Oxley St (west))
Avg Delay (sec)	16.2	66.3 (Right from Oxley St (west))
LOS	B	E
95th %ile Queue (m)	-	120.9 (Through from Pacific Hwy (south))

The additional modelling reveals that the intersection is capable of operating within its notional capacity. Notwithstanding the above, the adopted trip generation rate for the residential component of the development can be considered to be conservatively high given that a more realistic value for the trip generation rate per unit should be even closer to the lower range specified by RMS. The conservative nature of the adopted rate is considered evident given that the site lies in an area that is predominantly commercial in nature and within close proximity to St Leonards train station and the CBD. As such, it is anticipated that the intersection is likely to operate better than suggested by the results of the analysis as shown in the tables above.

In light of the above, the proposed development is not anticipated to have any significant adverse impact on the Oxley Street / Pacific Highway intersection subject to the phasing arrangement being modified. The detailed Sidra results are presented in Appendix C.

4.4 Summary of Intersection Analysis

It is anticipated that the proposed development will not have any significant adverse impact to the performance of the Christie Street / Pacific Highway intersection or the Albany Street / Pacific Highway intersection. The Oxley Street / Pacific Highway intersection, which is already beyond its notional capacity (worst movement), is anticipated to slightly deteriorate should the current phasing arrangement be retained. However, it is capable of operating within its notional capacity.

4.5 Mid-block Assessment - Nicholson Street

The two-way traffic volumes on Nicholson Street post-development are summarised in the table below.

Table 4-5: Nicholson Street - Conservative Estimate of Mid-Block Traffic Volumes (vph)

Road	AM Peak	PM Peak
Nicholson Street	385	397

The mid-block levels of service based on the conservative estimates above are summarised in the table below.

Table 4-6: Nicholson Street - Anticipated Mid-Block Level of Service

	AM Peak		PM Peak	
Road	VCR	LOS	VCR	LOS
Nicholson Street	0.43	B	0.44	B

Nicholson Street provides a local access function and within a road hierarchy would be considered to be a local road. Local roads typically carry up to 2,000vpd. However, based on the relatively high density of development that exists over its length, including its connection to Christie Street and the one-way nature of Christie Street, it is very likely that the daily traffic volume along Nicholson Street may be of the order of at least 2,000 – 3,000vpd. In light of the above, traffic volumes along Nicholson Street are considered to be well within its notional capacity.

5 Sustainable Transport Actions - Green Travel Plan

The proponents propose to develop a Green Travel Plan as part of the redevelopment, which would reduce the demand for individual cars by both discouraging car commuting and encouraging use of safe alternative transportation, and therefore contributing to less impacts upon the local network and reducing traffic congestion. A Green Travel Plan is a suite of onsite initiatives and offsite services to encourage future residents and staff to use sustainable transport options. These initiatives include for example the installation of parking facilities for bicycles and end-of-trip facilities to encourage the use of active transport, implementation of an onsite car share system such as a proposed partnership with GoGet (refer to Appendix D) and the provision of bicycle and walking maps to residents and staff in the buildings, as well as timetables for public transport services (St Leonards Station and bus services).

The Green Travel Plan provides a valuable resource when choosing sustainable transport options such as walking, cycling, car-sharing and public transport and will be a "living" and dynamic document reflecting changes to on and offsite services. The implementation of the Green Travel Plan will certainly deliver social, economic, environmental and health benefits to the buildings' occupants, as well as to the wider St Leonards community.

6 Summary and Recommendations

A summary of the assessment of the proposed development as well as recommendations is provided below:

» It is proposed to redevelop the existing buildings on 472 – 486 Pacific Highway, 500 Pacific Highway and 504 – 520 Pacific Highway in order to provide 990 residential units, 9370m2 of office space and 4100m2 of retail space;

» The proposed parking supply of 918 spaces for residents and their visitors as well as 126 spaces for the commercial component of the development is sufficient to meet the minimum requirements as stipulated in the Lane Cove DCP and incorporating modified parking rate as supported in a Council meeting;

» The St Leonards precinct is well provided with public transportation, in the form of the local train station and a significant number of bus stops and services. The high utilisation of these services is reflected in the JTW analysis. This information illustrates the attraction of existing and potentially future residents and employees for the train and bus services provided in the area. It is envisaged that many of these local users would prefer the public transport travel mode to private car usage when travelling to and from work;

» The anticipated traffic generation rate adopted for residential units is midway between the average rate and the lower limit throughout Sydney in accordance with RMS Technical Directions. Given that the site lies within a predominantly commercial area (such that there will likely be a higher proportion of residents walking to work) as well as within walking distance to St Leonards Train Station and within close proximity to the CBD (which is more readily accessed via train from St Leonards), the adopted trip generation rate can still be considered to be conservative (i.e. by overestimating the traffic generation, it can be assumed that the intersection is more likely to perform better than suggested by the Sidra analysis);

» The proposed development is conservatively anticipated to generate 236vph and 177vph during the morning and evening peak periods respectively. This equates to an increase of 90vph and 60ph during the morning and evening peak periods respectively;

» Three intersections were modelled using the Sidra software in order to compare their future performance to the current performance. The analysis indicated the following:

- The proposed development will not have any significant adverse impact to the Christie Street / Pacific Highway intersection or the Albany Street / Pacific Highway intersection;
- The impact of the proposed development on the Oxley Street / Pacific Highway intersection based on the current signal phasing arrangement is considered to be marginal. However, the intersection was remodelled using a modified phasing arrangement. The results of the analysis indicate that the intersection's performance post development can be improved to be better than the current performance with slight modifications with the intersection's phasing arrangement; and

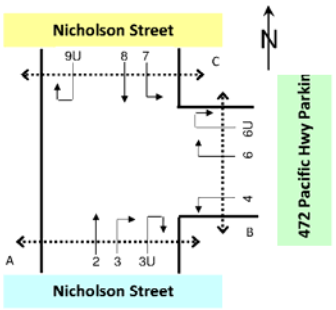
» The proponents propose to develop a Green Travel Plan as part of the redevelopment, which would reduce the demand for individual cars by both discouraging car commuting and encouraging use of safe alternative transportation, and therefore contributing to less impacts upon the local network and reducing traffic congestion.

BROWN
Smart Consulting

Appendix A Traffic & Parking Survey Data

Job No. : N1383
Client : Brown Consulting [Jayme Akstein]
Suburb : St Leonards
Location : 472, Pacific Hwy Parking

Day/Date : Tuesday, 15th April 2014
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

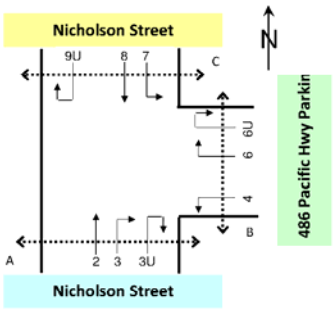


	Approach	Nicholson Street				472 Pacific Hwy Parking				Nicholson Street				Grand Total
	Time Period	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	
AM	8:15 to 9:15	210	1	8	**219**	2	0	0	**2**	109	5	0	**114**	**335**
PM	16:45 to 17:45	42	0	0	**42**	37	0	0	**37**	262	0	11	**273**	**352**

Approach	Nicholson Street				472 Pacific Hwy Parking				Nicholson Street				Grand Total
Time Period	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	
7:00 to 8:00	109	1	5	**115**	1	0	0	**1**	54	2	0	**56**	**172**
7:15 to 8:15	140	1	4	**145**	1	0	0	**1**	71	3	0	**74**	**220**
7:30 to 8:30	176	1	5	**182**	1	0	0	**1**	78	4	0	**82**	**265**
7:45 to 8:45	197	1	6	**204**	3	0	0	**3**	89	3	0	**92**	**299**
8:00 to 9:00	202	1	8	**211**	2	0	0	**2**	104	4	0	**108**	**321**
8:15 to 9:15	210	1	8	**219**	2	0	0	**2**	109	5	0	**114**	**335**
8:30 to 9:30	174	0	7	**181**	2	0	0	**2**	122	4	0	**126**	**309**
8:45 to 9:45	140	0	4	**144**	2	0	0	**2**	130	4	0	**134**	**280**
9:00 to 10:00	118	0	0	**118**	3	0	0	**3**	124	3	0	**127**	**248**
AM Totals	429	2	13	**444**	6	0	0	**6**	282	9	0	**291**	**741**
15:30 to 16:30	31	0	0	**31**	6	0	0	**6**	164	0	2	**166**	**203**
15:45 to 16:45	28	0	0	**28**	8	0	0	**8**	183	1	2	**186**	**222**
16:00 to 17:00	33	0	0	**33**	8	0	0	**8**	211	1	2	**214**	**255**
16:15 to 17:15	35	0	0	**35**	19	0	0	**19**	234	1	2	**237**	**291**
16:30 to 17:30	32	0	0	**32**	29	0	0	**29**	227	1	5	**233**	**294**
16:45 to 17:45	42	0	0	**42**	37	0	0	**37**	262	0	11	**273**	**352**
17:00 to 18:00	33	0	0	**33**	44	0	0	**44**	237	0	10	**247**	**324**
17:15 to 18:15	30	0	0	**30**	37	0	0	**37**	225	0	11	**236**	**303**
17:30 to 18:30	31	0	0	**31**	26	0	0	**26**	233	0	11	**244**	**301**
PM Totals	94	0	0	**94**	61	0	0	**61**	624	1	18	**643**	**798**

Job No. : N1383
Client : Brown Consulting [Jayme Akstein]
Suburb : St Leonards
Location : 486, Pacific Hwy Parking

Day/Date : Tuesday, 15th April 2014
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

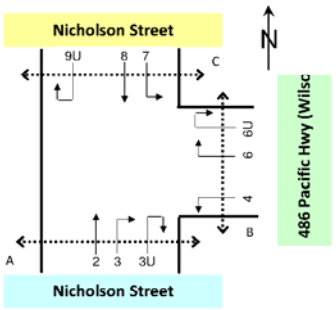


	Approach	Nicholson Street				486 Pacific Hwy Parking				Nicholson Street					Grand Total
	Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total		
AM	7:45 to 8:45	22	0	1	**23**	20	0	0	**20**	17	0	0	**17**		60
PM	16:45 to 17:45	26	0	0	**26**	21	0	1	**22**	7	0	0	**7**		55

Approach	Nicholson Street				486 Pacific Hwy Parking				Nicholson Street					Grand Total
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total		
7:00 to 8:00	11	0	1	**12**	9	0	0	**9**	12	0	0	**12**		33
7:15 to 8:15	14	0	1	**15**	13	0	0	**13**	13	0	0	**13**		41
7:30 to 8:30	19	0	1	**20**	20	0	0	**20**	17	0	0	**17**		57
7:45 to 8:45	22	0	1	**23**	20	0	0	**20**	17	0	0	**17**		60
8:00 to 9:00	23	0	1	**24**	18	0	0	**18**	7	0	1	**8**		50
8:15 to 9:15	21	0	2	**23**	17	0	0	**17**	6	0	1	**7**		47
8:30 to 9:30	13	0	2	**15**	10	0	0	**10**	1	0	1	**2**		27
8:45 to 9:45	10	0	1	**11**	7	0	0	**7**	1	0	1	**2**		20
9:00 to 10:00	6	0	3	**9**	5	0	0	**5**	0	0	0	**0**		14
AM Totals	40	0	5	**45**	32	0	0	**32**	19	0	1	**20**		97
15:30 to 16:30	3	0	0	**3**	4	0	1	**5**	0	0	0	**0**		8
15:45 to 16:45	8	0	0	**8**	8	0	0	**8**	0	0	0	**0**		16
16:00 to 17:00	13	0	0	**13**	10	0	0	**10**	2	0	0	**2**		25
16:15 to 17:15	16	0	0	**16**	14	0	0	**14**	5	0	0	**5**		35
16:30 to 17:30	20	0	0	**20**	20	0	1	**21**	6	0	0	**6**		47
16:45 to 17:45	26	0	0	**26**	21	0	1	**22**	7	0	0	**7**		55
17:00 to 18:00	22	0	0	**22**	24	0	3	**27**	6	0	0	**6**		55
17:15 to 18:15	17	0	0	**17**	24	0	3	**27**	3	0	0	**3**		47
17:30 to 18:30	12	0	0	**12**	16	0	2	**18**	2	0	0	**2**		32
PM Totals	35	0	0	**35**	40	0	4	**44**	8	0	0	**8**		87

Job No. : N1383
Client : Brown Consulting [Jayme Akstein]
Suburb : St Leonards
Location : 486, Pacific Hwy (Wilson Parking)

Day/Date : Tuesday, 15th April 2014
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

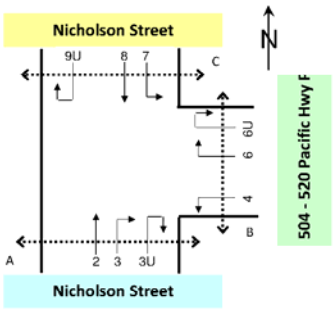


	Approach	Nicholson Street				486 Pacific Hwy (Wilson Parking)				Nicholson Street				Grand Total
	Time Period	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	
AM	8:45 to 9:45	99	1	1	**101**	4	0	0	**4**	74	1	1	**76**	**181**
PM	16:45 to 17:45	27	0	0	**27**	62	0	0	**62**	177	0	8	**185**	**274**

Approach	Nicholson Street				486 Pacific Hwy (Wilson Parking)				Nicholson Street				Grand Total
Time Period	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	
7:00 to 8:00	46	1	0	**47**	0	0	0	**0**	55	3	0	**58**	**105**
7:15 to 8:15	48	1	0	**49**	0	0	0	**0**	66	4	0	**70**	**119**
7:30 to 8:30	56	0	0	**56**	0	0	0	**0**	68	4	0	**72**	**128**
7:45 to 8:45	67	0	0	**67**	0	0	0	**0**	71	3	0	**74**	**141**
8:00 to 9:00	85	1	0	**86**	1	0	0	**1**	63	2	0	**65**	**152**
8:15 to 9:15	104	1	0	**105**	1	0	0	**1**	59	2	0	**61**	**167**
8:30 to 9:30	101	1	1	**103**	2	0	0	**2**	65	2	1	**68**	**173**
8:45 to 9:45	99	1	1	**101**	4	0	0	**4**	74	1	1	**76**	**181**
9:00 to 10:00	75	0	1	**76**	3	0	0	**3**	88	1	1	**90**	**169**
AM Totals	206	2	1	**209**	4	0	0	**4**	206	6	1	**213**	**426**
15:30 to 16:30	29	0	0	**29**	25	0	0	**25**	107	0	1	**108**	**162**
15:45 to 16:45	29	0	0	**29**	34	0	0	**34**	115	0	1	**116**	**179**
16:00 to 17:00	33	0	0	**33**	45	0	0	**45**	133	0	2	**135**	**213**
16:15 to 17:15	25	0	0	**25**	50	0	0	**50**	154	0	2	**156**	**231**
16:30 to 17:30	23	0	0	**23**	52	0	0	**52**	158	0	3	**161**	**236**
16:45 to 17:45	27	0	0	**27**	62	0	0	**62**	177	0	8	**185**	**274**
17:00 to 18:00	22	0	0	**22**	49	0	0	**49**	180	0	7	**187**	**258**
17:15 to 18:15	22	0	0	**22**	51	0	0	**51**	167	0	8	**175**	**248**
17:30 to 18:30	28	0	0	**28**	50	1	0	**51**	155	0	6	**161**	**240**
PM Totals	80	0	0	**80**	127	1	0	**128**	420	0	10	**430**	**638**

Job No. : N1383
Client : Brown Consulting [Jayme Akstein]
Suburb : St Leonards
Location : 504 - 520, Pacific Hwy

Day/Date : Tuesday, 15th April 2014
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Nicholson Street				504 - 520 Pacific Hwy Parking				Nicholson Street				Grand Total
	Time Period	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	
AM	8:15 to 9:15	93	1	0	94	4	0	0	4	62	2	1	65	163
PM	16:45 to 17:45	32	0	0	32	10	0	0	10	181	0	8	189	231

Approach	Nicholson Street				504 - 520 Pacific Hwy Parking				Nicholson Street				Grand Total
Time Period	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	Cars	Trucks	Bikes	Total	
7:00 to 8:00	47	1	0	48	0	0	0	0	63	3	1	67	115
7:15 to 8:15	50	1	0	51	1	0	0	1	71	4	1	76	128
7:30 to 8:30	60	0	0	60	1	0	0	1	73	4	1	78	139
7:45 to 8:45	72	0	0	72	1	0	0	1	76	3	0	79	152
8:00 to 9:00	80	1	0	81	1	0	0	1	67	2	1	70	152
8:15 to 9:15	93	1	0	94	4	0	0	4	62	2	1	65	163
8:30 to 9:30	82	1	1	84	6	0	0	6	66	2	2	70	160
8:45 to 9:45	75	1	1	77	8	0	0	8	74	1	2	77	162
9:00 to 10:00	59	1	1	61	12	0	0	12	87	1	1	89	162
AM Totals	186	3	1	190	13	0	0	13	217	6	3	226	429
15:30 to 16:30	20	0	0	20	9	0	1	10	110	0	1	111	141
15:45 to 16:45	21	0	0	21	12	0	1	13	119	0	1	120	154
16:00 to 17:00	26	0	0	26	13	0	0	13	139	0	2	141	180
16:15 to 17:15	27	0	0	27	12	0	0	12	159	0	2	161	200
16:30 to 17:30	29	0	0	29	12	0	0	12	163	0	3	166	207
16:45 to 17:45	32	0	0	32	10	0	0	10	181	0	8	189	231
17:00 to 18:00	28	0	0	28	9	0	0	9	183	0	7	190	227
17:15 to 18:15	29	0	0	29	8	0	2	10	170	0	8	178	217
17:30 to 18:30	31	0	0	31	6	0	2	8	157	0	6	163	202
PM Totals	80	0	0	80	27	0	3	30	430	0	10	440	550

Client	Brown Consulting
Location	1, 472 Pacific Hwy
Date	Tuesday, 15th April 2014 (7am to 7pm)
Description	St Leonards Parking Survey

SKYHIGH THE TRAFFIC SURVEY COMPANY

Parking Restriction	Availble Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
Ground Floor														
Employee Reserved	**56**	18	20	35	39	36	38	38	37	37	37	30	21	15
Disabled	**2**	0	0	1	1	1	0	1	1	1	1	1	1	1
Total	**58**	**18**	**20**	**36**	**40**	**37**	**38**	**39**	**38**	**38**	**38**	**31**	**22**	**16**
% Capacity		31%	34%	62%	69%	64%	66%	67%	66%	66%	66%	53%	38%	28%
1St Floor														
Employee Reserved	**59**	22	28	43	41	42	43	39	44	41	40	36	14	8
Total	**59**	**22**	**28**	**43**	**41**	**42**	**43**	**39**	**44**	**41**	**40**	**36**	**14**	**8**
% Capacity		37%	47%	73%	69%	71%	73%	66%	75%	69%	68%	61%	24%	14%
Roof Level														
Employee Reserved	**15**	6	6	13	13	13	13	13	13	12	12	9	2	1
Visitor Parking	**14**	1	1	3	5	3	5	6	7	6	3	4	0	0
Total	**29**	**7**	**7**	**16**	**18**	**16**	**18**	**19**	**20**	**18**	**15**	**13**	**2**	**1**
% Capacity		12%	12%	28%	31%	28%	31%	33%	34%	31%	26%	22%	3%	2%

Client	Brown Consulting
Location	2. 486 Pacific Hwy & Wilsons Parking
Date	Tuesday, 15th April 2014 (7am to 7pm)
Description	St Leonards Parking Survey

SKYHIGH THE TRAFFIC SURVEY COMPANY

Parking Restriction	Availble Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
Level B4 - All Reserved														
Broaden management	**4**	0	0	3	2	3	2	3	2	2	2	3	2	1
SE Rentals Pty Ltd	**8**	1	2	7	8	8	7	7	6	7	7	8	5	4
Asthma Foundation	**1**	0	0	1	1	1	1	1	1	1	1	0	0	0
CSL	**4**	0	0	2	3	3	3	3	3	3	3	2	2	2
Lyon Group Australia	**1**	1	1	1	0	0	1	1	1	1	1	1	0	0
Nextgen	**1**	0	0	0	0	0	0	1	1	1	1	1	1	0
Gateway	**1**	0	0	1	1	1	1	1	1	1	1	0	0	0
Timber development Assoc	**1**	1	1	1	1	1	1	1	1	1	1	1	0	0
Comfort Shop	**1**	0	0	0	0	1	0	0	0	0	0	0	0	0
Good Start Parking	**5**	3	5	1	2	1	1	1	1	1	0	3	0	0
Inco chips	**1**	1	1	1	1	1	1	1	1	1	1	1	1	0
No Parking, pick up & Drop off area	**2**	1	1	1	1	1	1	1	1	1	0	2	0	0
Traders Deliveries only	**4**	1	0	2	2	2	2	2	2	0	0	1	1	0
Bikes	**0**	5	7	7	8	7	8	9	9	9	8	8	4	1
Staff Parking	**6**	0	2	2	2	2	2	2	2	2	1	1	1	1
Total	**40**	**14**	**20**	**30**	**32**	**32**	**31**	**34**	**32**	**31**	**27**	**32**	**17**	**9**
% Capacity		35%	50%	75%	80%	80%	78%	85%	80%	78%	68%	80%	43%	23%
Level B1 - Casual Parking														
Normal	**28**	0	0	8	15	14	12	10	16	16	16	7	8	1
Reserved	**32**	5	13	27	30	31	31	31	31	27	28	14	8	1
Total	**60**	**5**	**13**	**35**	**45**	**45**	**43**	**41**	**47**	**43**	**44**	**21**	**16**	**2**
% Capacity		9%	22%	60%	78%	78%	74%	71%	81%	74%	76%	36%	28%	3%
Level B2 - Casual parking														
Normal	**61**	10	19	39	45	45	44	43	42	43	43	31	17	2
Disable	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0
Informal Parking		1	1	1	1	1	1	1	1	1	1	11	1	0
Total	**62**	**11**	**20**	**40**	**46**	**46**	**45**	**44**	**43**	**44**	**44**	**42**	**18**	**2**
% Capacity		19%	34%	69%	79%	79%	78%	76%	74%	76%	76%	72%	31%	3%
Level B3 - Permanent Parking														
Normal	**58**	15	22	41	46	47	48	48	48	46	43	23	12	8
Informal Parking		0	1	1	1	1	2	2	1	2	2	2	1	0
Total	**58**	**15**	**23**	**42**	**47**	**48**	**50**	**50**	**49**	**48**	**45**	**25**	**13**	**8**
% Capacity		26%	40%	72%	81%	83%	86%	86%	84%	83%	78%	43%	22%	14%

Client	Brown Consulting
Location	3. 504 - 520 Pacific Hwy
Date	Tuesday, 15th April 2014 (7am to 7pm)
Description	St Leonards Parking Survey

SKYHIGH THE TRAFFIC SURVEY COMPANY

Parking Restriction	Availble Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
1st Floor														
Reserved	4	1	2	2	2	2	2	2	2	2	2	1	1	1
CH Resources	2	1	1	1	1	1	1	1	1	1	1	0	0	0
Staff Parking	6	0	2	2	2	2	2	2	2	2	1	1	1	1
Total	**12**	**2**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**4**	**2**	**2**	**2**
% Capacity		17%	42%	42%	42%	42%	42%	42%	42%	42%	33%	17%	17%	17%
Ground Floor														
Staff Parking	11	4	6	10	9	9	9	10	10	10	10	10	10	10
Reserved	1	0	0	0	0	0	0	0	0	0	0	0	0	0
OSD	3	0	0	1	2	2	1	2	2	2	2	1	0	0
Hot House	3	0	0	1	0	0	2	2	2	2	2	2	1	1
Knight F	2	2	1	2	2	2	2	2	2	2	2	2	1	1
Building Manager	1	0	0	1	1	1	1	1	1	1	0	1	1	1
Authorised Parking	2	0	2	2	1	2	0	1	1	0	1	2	2	2
Total	**23**	**6**	**9**	**17**	**15**	**16**	**15**	**18**	**18**	**17**	**17**	**18**	**15**	**15**
% Capacity		26%	39%	74%	65%	70%	65%	78%	78%	74%	74%	78%	65%	65%

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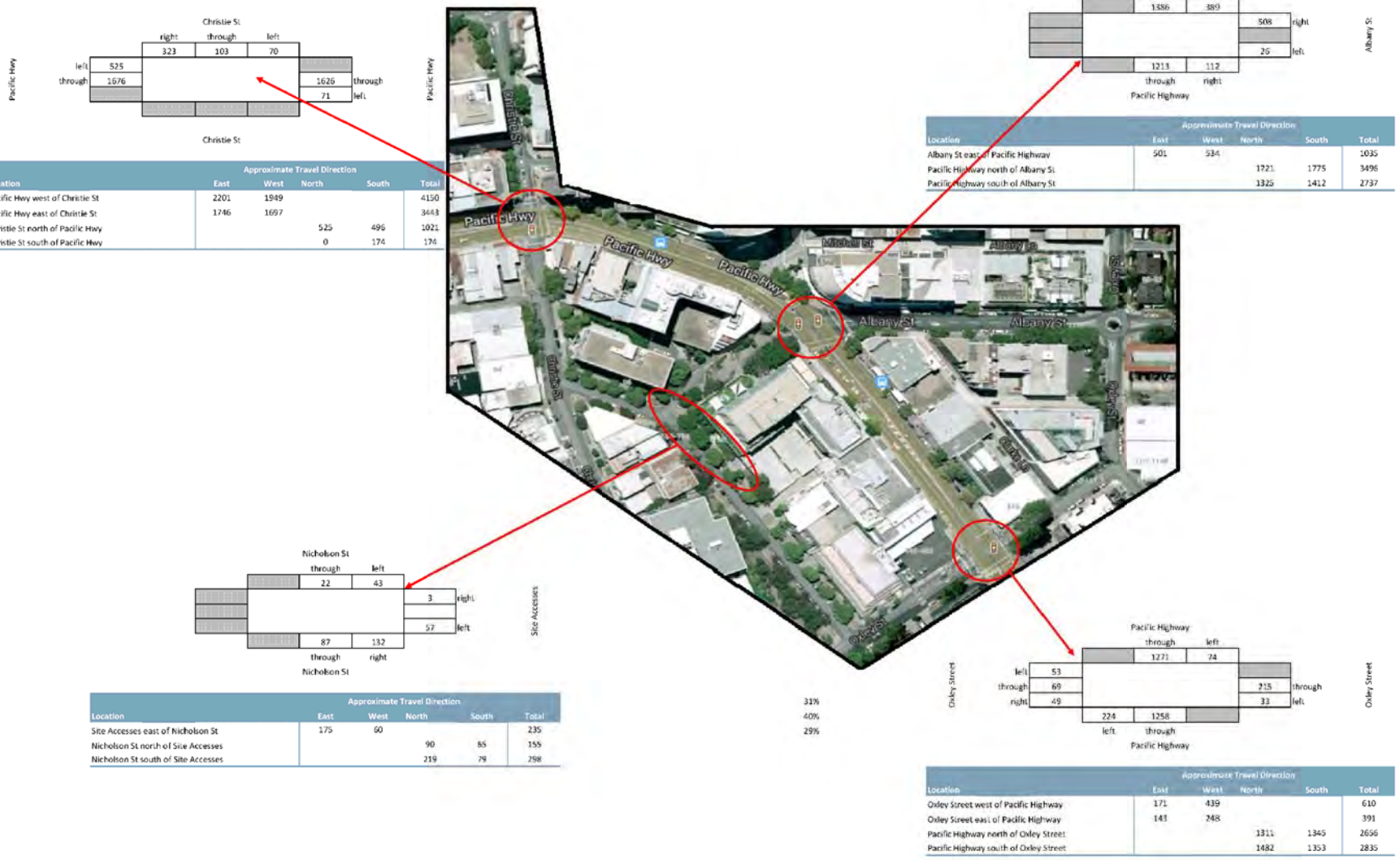
Appendix B Traffic Movement Summary

Existing Volumes (AM Peak)



Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	2201	1949			4150
Pacific Hwy east of Christie St	1746	1697			3443
Christie St north of Pacific Hwy			525	496	1021
Christie St south of Pacific Hwy			0	174	174

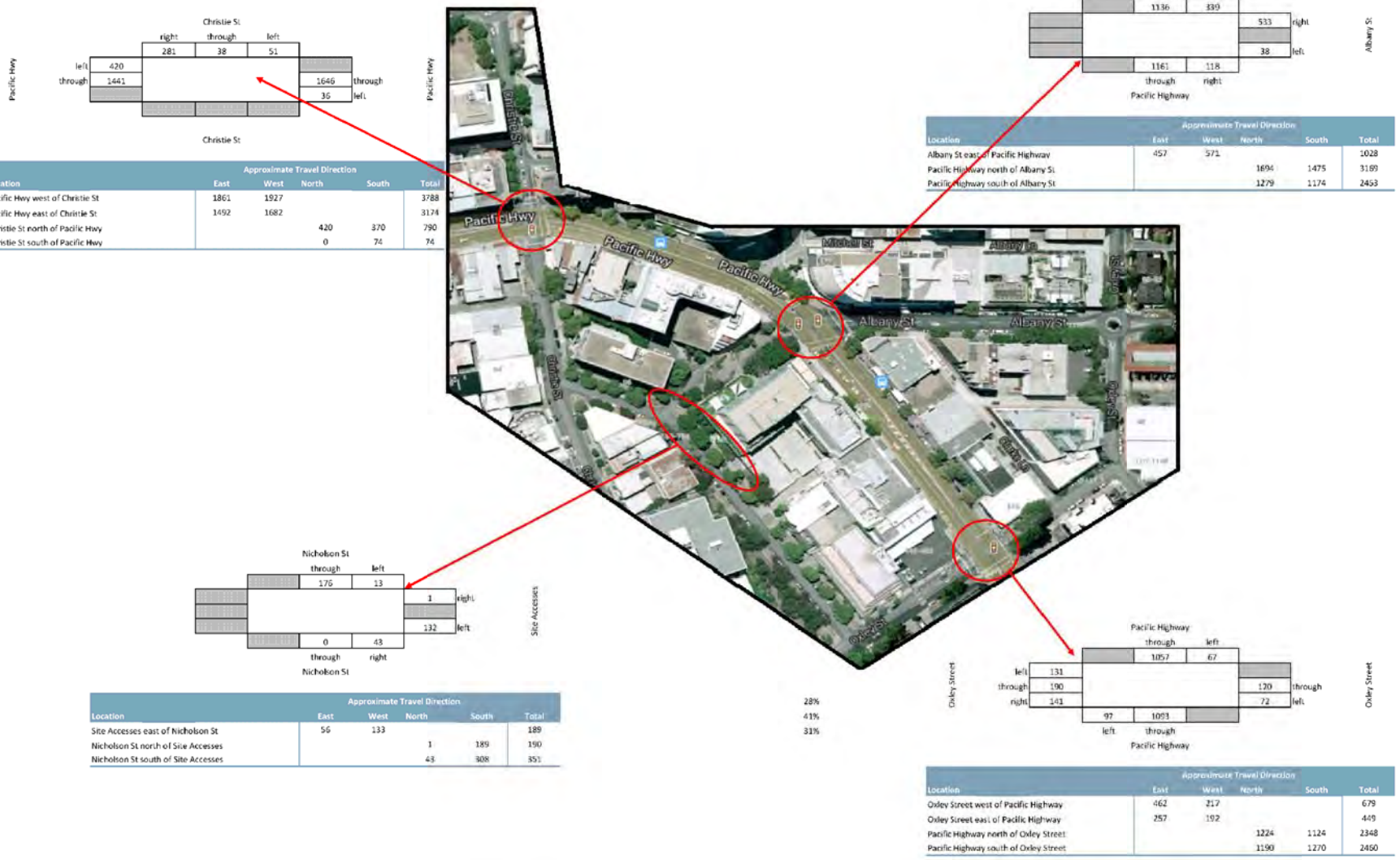
Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	501	534			1035
Pacific Highway north of Albany St			1721	1775	3496
Pacific Highway south of Albany St			1325	1412	2737

Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	175	60			235
Nicholson St north of Site Accesses			90	65	155
Nicholson St south of Site Accesses			219	79	298

31%
40%
29%

Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	171	439			610
Oxley Street east of Pacific Highway	143	248			391
Pacific Highway north of Oxley Street			1311	1345	2656
Pacific Highway south of Oxley Street			1482	1353	2835

Existing Volumes (PM Peak)



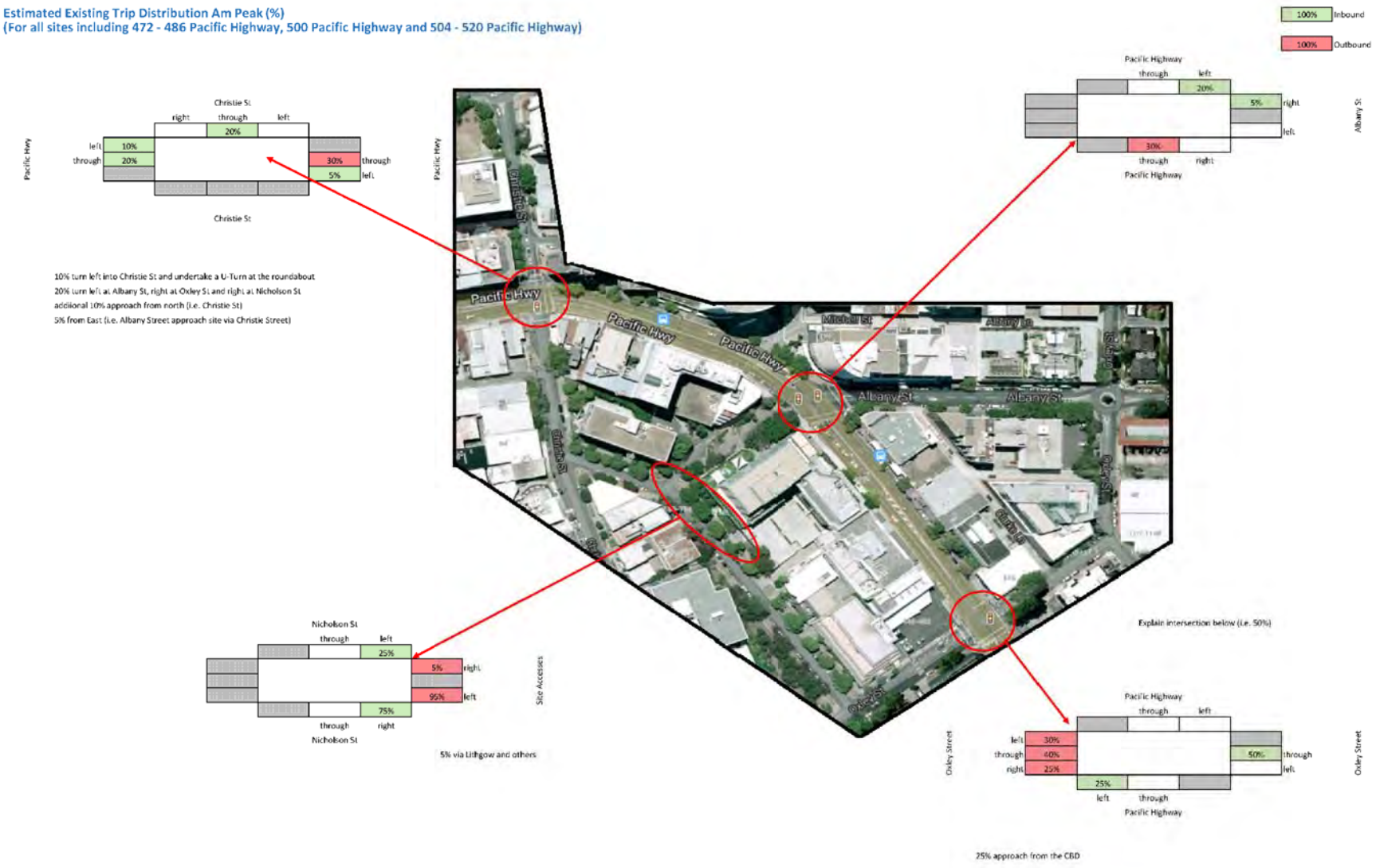
Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	1861	1927			3788
Pacific Hwy east of Christie St	1492	1682			3174
Christie St north of Pacific Hwy			420	370	790
Christie St south of Pacific Hwy			0	74	74

Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	457	571			1028
Pacific Highway north of Albany St			1694	1475	3169
Pacific Highway south of Albany St			1279	1174	2453

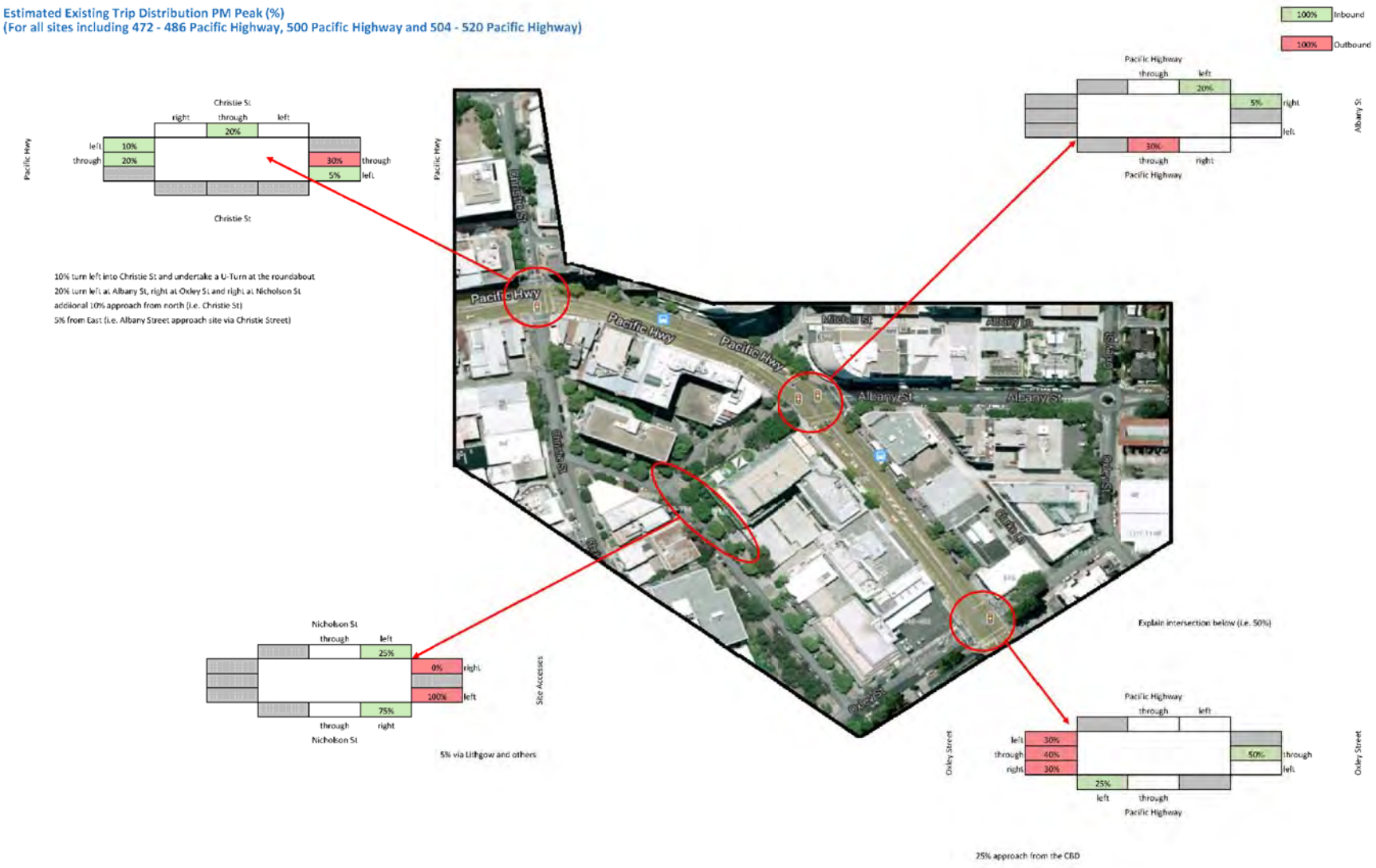
Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	56	133			189
Nicholson St north of Site Accesses			1	189	190
Nicholson St south of Site Accesses			43	308	351

Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	462	217			679
Oxley Street east of Pacific Highway	257	192			449
Pacific Highway north of Oxley Street			1224	1124	2348
Pacific Highway south of Oxley Street			1190	1270	2460

Estimated Existing Trip Distribution Am Peak (%)
(For all sites including 472 - 486 Pacific Highway, 500 Pacific Highway and 504 - 520 Pacific Highway)

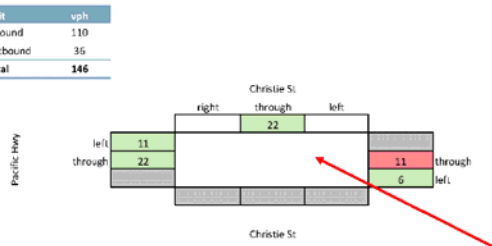


Estimated Existing Trip Distribution PM Peak (%)
(For all sites including 472 - 486 Pacific Highway, 500 Pacific Highway and 504 - 520 Pacific Highway)



Existing Trip Generation for 472 - 486 Pacific Highway, 500 Pacific Highway & 504 - 520 Pacific Highway (AM Peak)

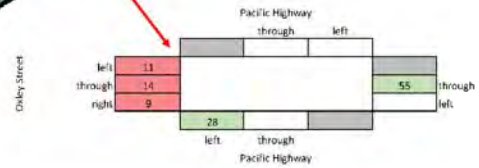
Split	vph
Inbound	110
Outbound	36
Total	146



Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	33	11			44
Pacific Hwy east of Christie St	22	17			39
Christie St north of Pacific Hwy			11	22	33
Christie St south of Pacific Hwy			0	28	28

Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	111	36			147
Nicholson St north of Site Accesses			2	28	30
Nicholson St south of Site Accesses			83	34	117

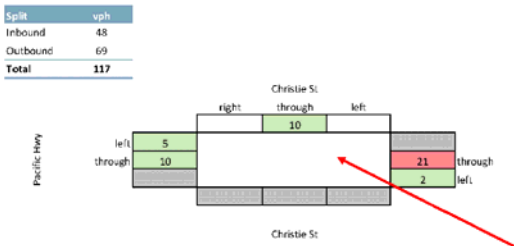
Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	22	6			28
Pacific Highway north of Albany St			17	22	39
Pacific Highway south of Albany St			11	0	11



Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	34	83			117
Oxley Street east of Pacific Highway	14	55			69
Pacific Highway north of Oxley Street			11	0	11
Pacific Highway south of Oxley Street			28	9	37

Existing Trip Generation for 472 - 486 Pacific Highway, 500 Pacific Highway & 504 - 520 Pacific Highway (PM Peak)

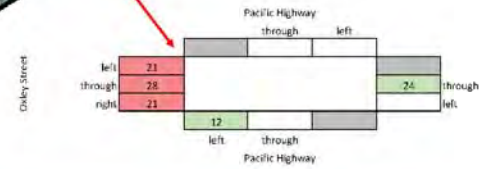
Split	vph
Inbound	48
Outbound	69
Total	117



Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	15	21			36
Pacific Hwy east of Christie St	10	23			33
Christie St north of Pacific Hwy			5	10	15
Christie St south of Pacific Hwy			0	12	12

Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	48	69			117
Nicholson St north of Site Accesses			0	12	12
Nicholson St south of Site Accesses			36	69	105

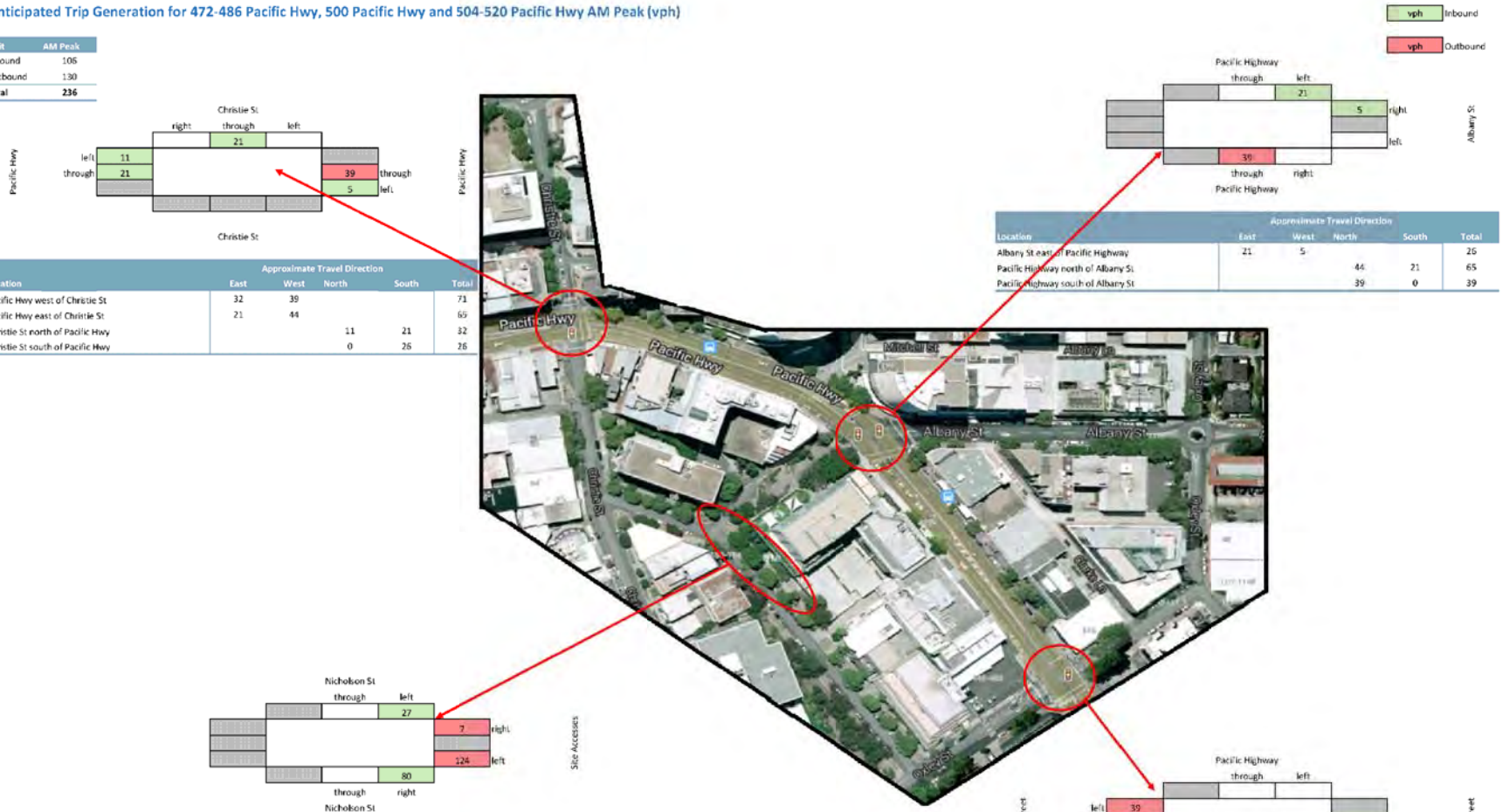
Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	10	2			12
Pacific Highway north of Albany St			23	10	33
Pacific Highway south of Albany St			21	0	21



Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	70	36			106
Oxley Street east of Pacific Highway	28	24			52
Pacific Highway north of Oxley Street			21	0	21
Pacific Highway south of Oxley Street			12	21	33

Anticipated Trip Generation for 472-486 Pacific Hwy, 500 Pacific Hwy and 504-520 Pacific Hwy AM Peak (vph)

Split	AM Peak
Inbound	106
Outbound	130
Total	236



Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	32	39			71
Pacific Hwy east of Christie St	21	44			65
Christie St north of Pacific Hwy			11	21	32
Christie St south of Pacific Hwy			0	26	26

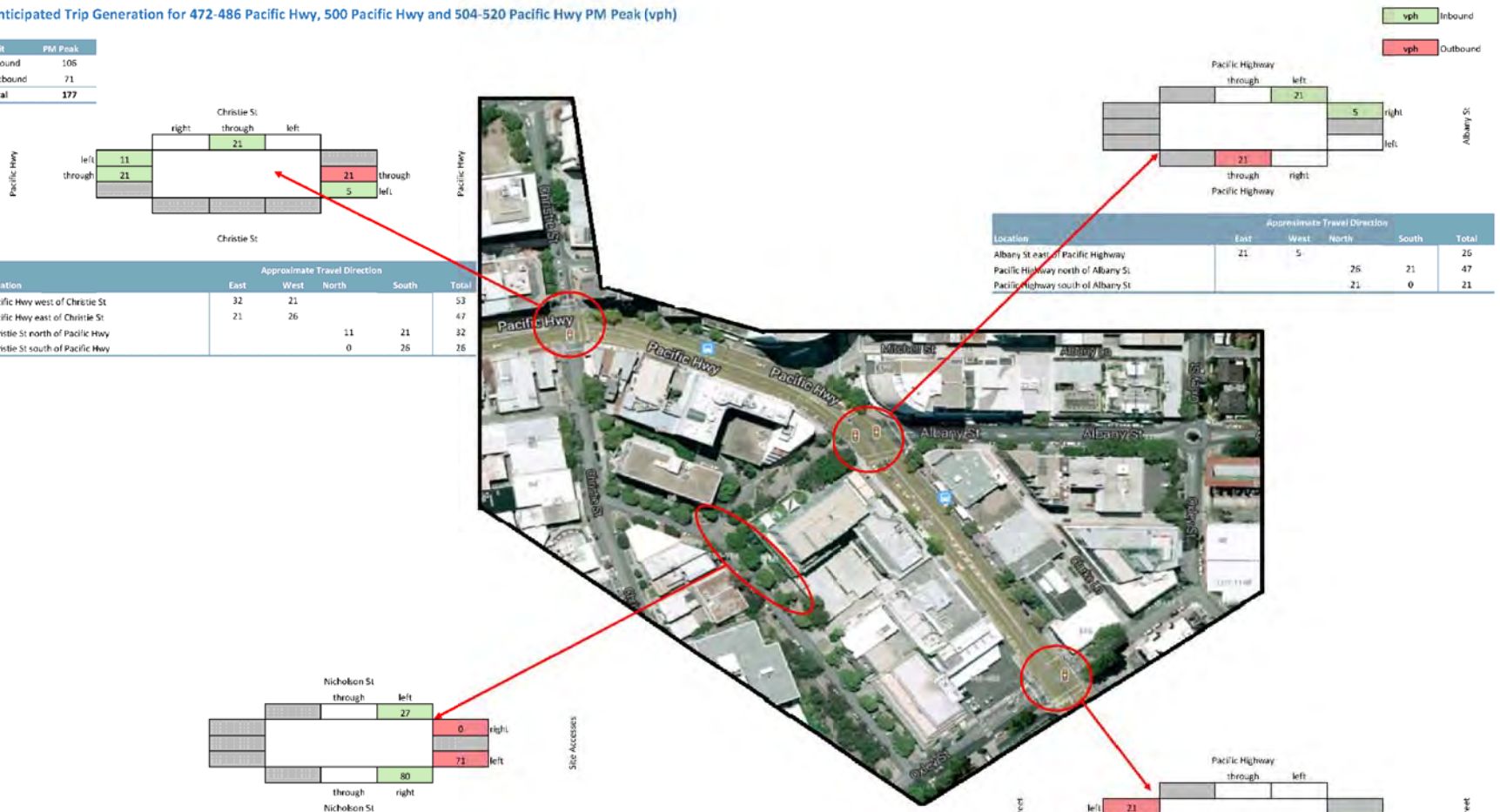
Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	21	5			26
Pacific Highway north of Albany St			44	21	65
Pacific Highway south of Albany St			39	0	39

Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	107	131			238
Nicholson St north of Site Accesses			7	27	34
Nicholson St south of Site Accesses			80	124	204

Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	124	80			204
Oxley Street east of Pacific Highway	52	53			105
Pacific Highway north of Oxley Street			39	0	39
Pacific Highway south of Oxley Street			27	33	60

Anticipated Trip Generation for 472-486 Pacific Hwy, 500 Pacific Hwy and 504-520 Pacific Hwy PM Peak (vph)

Split	PM Peak
Inbound	106
Outbound	71
Total	177



Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	32	21			53
Pacific Hwy east of Christie St	21	26			47
Christie St north of Pacific Hwy			11	21	32
Christie St south of Pacific Hwy			0	26	26

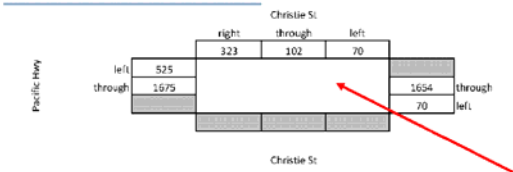
Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	21	5			26
Pacific Highway north of Albany St			26	21	47
Pacific Highway south of Albany St			21	0	21

Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	107	71			178
Nicholson St north of Site Accesses			0	27	27
Nicholson St south of Site Accesses			80	71	151

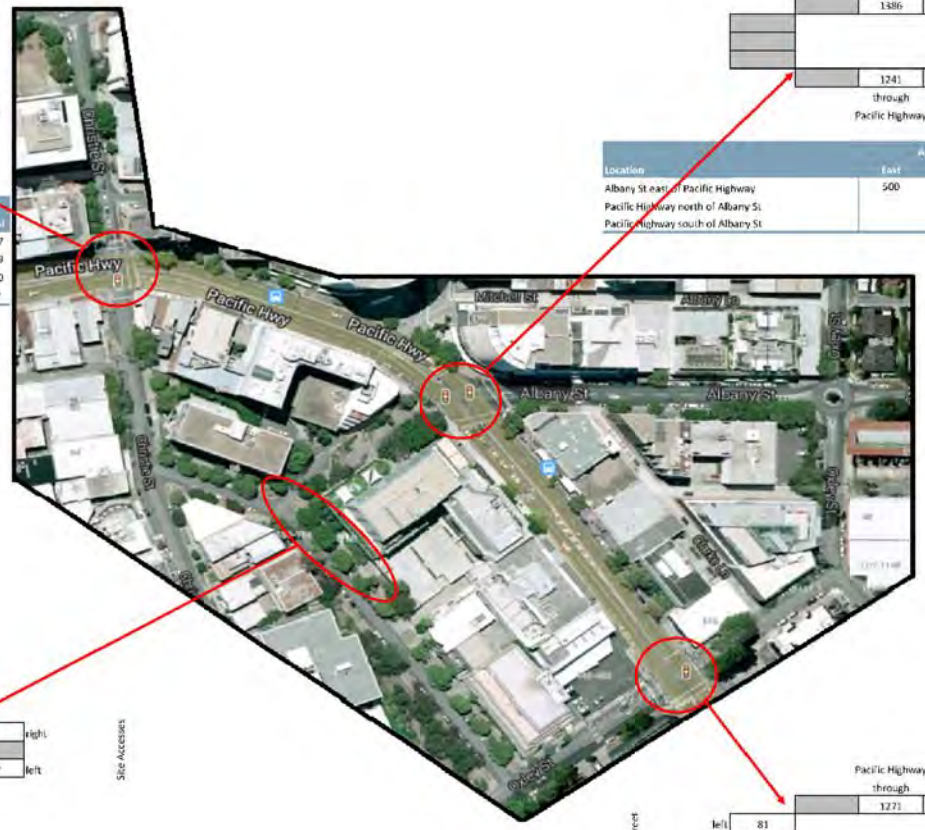
Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	70	80			150
Oxley Street east of Pacific Highway	28	53			81
Pacific Highway north of Oxley Street			21	0	21
Pacific Highway south of Oxley Street			27	21	48

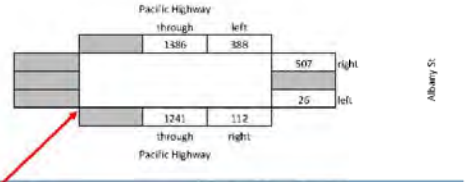
AM Peak Post Development (vph)

Split	Existing	Proposed	Extra
Inbound	110	106	-4
Outbound	36	130	94
Total	**146**	**236**	**90**



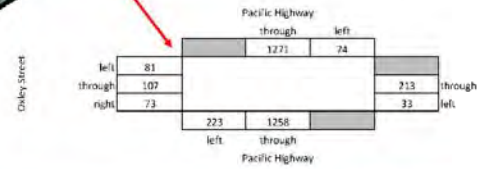
Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	2200	1977			4177
Pacific Hwy east of Christie St	1745	1724			3469
Christie St north of Pacific Hwy			525	495	1020
Christie St south of Pacific Hwy			0	172	172





Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	500	533			1033
Pacific Highway north of Albany St			1748	1774	3522
Pacific Highway south of Albany St			1353	1412	2765

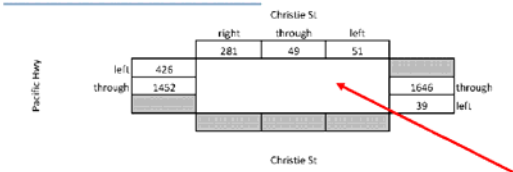
Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	171	155			326
Nicholson St north of Site Accesses			95	64	159
Nicholson St south of Site Accesses			216	169	385



Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	261	436			697
Oxley Street east of Pacific Highway	181	246			427
Pacific Highway north of Oxley Street			1339	1345	2684
Pacific Highway south of Oxley Street			1481	1377	2858

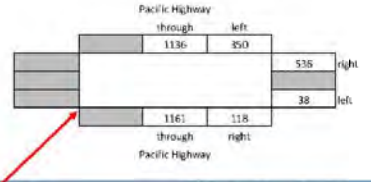
PM Peak Post Development (vph)

Split	Existing	Total	Extra
Inbound	48	106	58
Outbound	69	71	2
Total	**117**	**177**	**60**

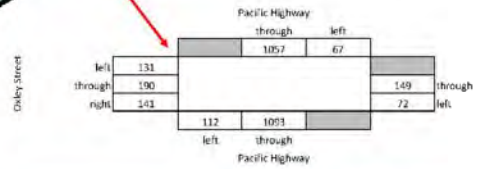


Location	Approximate Travel Direction East	West	North	South	Total
Pacific Hwy west of Christie St	1878	1927			3805
Pacific Hwy east of Christie St	1503	1685			3188
Christie St north of Pacific Hwy			426	381	807
Christie St south of Pacific Hwy			0	88	88

Location	Approximate Travel Direction East	West	North	South	Total
Site Accesses east of Nicholson St	115	135			250
Nicholson St north of Site Accesses			1	204	205
Nicholson St south of Site Accesses			87	310	397



Location	Approximate Travel Direction East	West	North	South	Total
Albany St east of Pacific Highway	468	574			1042
Pacific Highway north of Albany St			1697	1486	3183
Pacific Highway south of Albany St			1279	1174	2453



Location	Approximate Travel Direction East	West	North	South	Total
Oxley Street west of Pacific Highway	462	261			723
Oxley Street east of Pacific Highway	257	221			478
Pacific Highway north of Oxley Street			1224	1124	2348
Pacific Highway south of Oxley Street			1205	1270	2475

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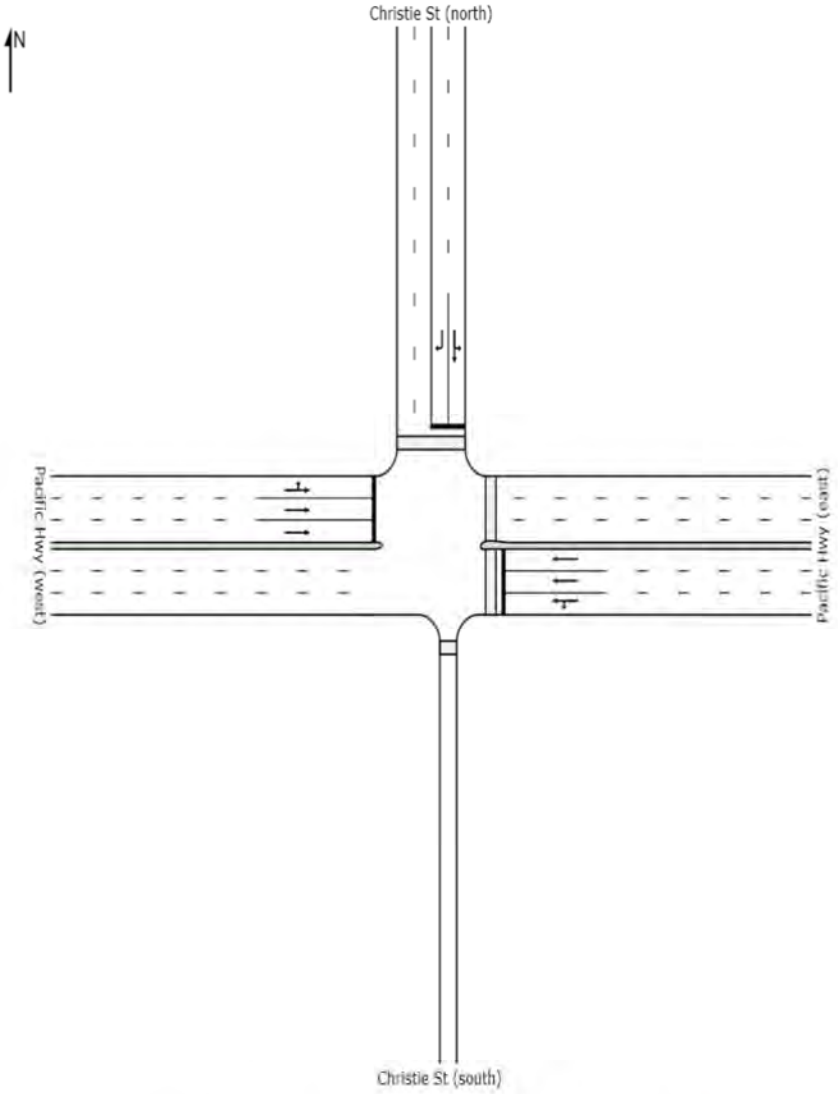
Appendix C Sidra Intersection Modelling

SITE LAYOUT

Site: Christie St / Pacific Hwy (existing) AM Peak

AM Peak Existing



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SIDRA INTERSECTION 6

PHASING SUMMARY

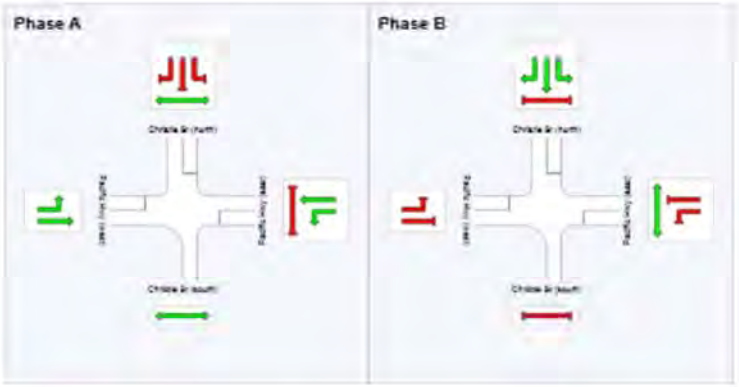
Site: Christie St / Pacific Hwy (existing) AM Peak

AM Peak Existing
Signals - Fixed Time Cycle Time = 135 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	97	26
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	103	32
Phase Split	76 %	24 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Christie St / Pacific Hwy (existing) AM Peak

AM Peak Existing
Signals - Fixed Time Cycle Time = 135 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Pacific Hwy (east)											
4	L2	75	3.0	0.432	10.7	LOS A	4.8	34.0	0.14	0.23	54.1
5	T1	1712	2.0	0.432	1.9	LOS A	4.8	34.0	0.11	0.13	56.0
Approach		1786	2.0	0.432	2.3	LOS A	4.8	34.0	0.11	0.13	56.0
North: Christie St (north)											
7	L2	74	0.0	0.497	61.0	LOS E	10.8	76.0	0.94	0.80	23.0
8	T1	108	1.0	0.497	52.8	LOS D	10.8	76.0	0.94	0.80	23.0
9	R2	340	0.0	0.951	92.3	LOS F	27.9	195.4	1.00	1.03	17.0
Approach		522	0.2	0.951	79.7	LOS F	27.9	195.4	0.98	0.95	18.7
West: Pacific Hwy (west)											
10	L2	553	0.0	0.563	15.6	LOS B	18.2	128.3	0.41	0.70	43.5
11	T1	1764	2.0	0.563	2.6	LOS A	18.2	128.3	0.15	0.18	54.5
Approach		2317	1.5	0.563	5.7	LOS A	18.2	128.3	0.21	0.30	51.4
All Vehicles		4625	1.6	0.951	12.7	LOS A	27.9	195.4	0.26	0.31	44.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	5.9	LOS A	0.1	0.1	0.30	0.30
P2	East Full Crossing	158	58.3	LOS E	0.6	0.6	0.93	0.93
P3	North Full Crossing	158	8.6	LOS A	0.2	0.2	0.36	0.36
All Pedestrians		368	29.5	LOS C			0.60	0.60

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

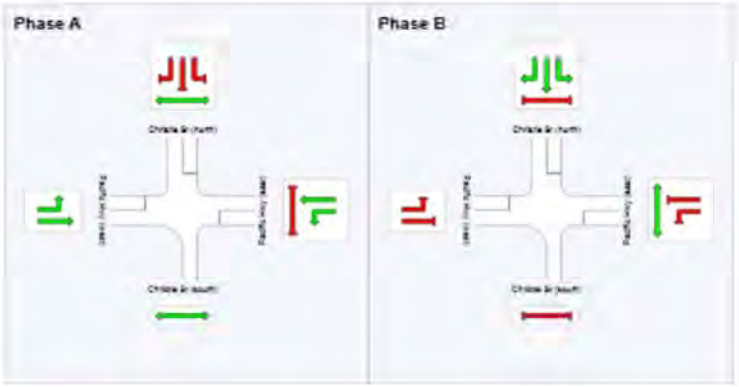
Site: Christie St / Pacific Hwy (existing) PM Peak

AM Peak Existing
Signals - Fixed Time Cycle Time = 124 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	88	24
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	94	30
Phase Split	76 %	24 %



MOVEMENT SUMMARY

Site: Christie St / Pacific Hwy (existing) PM Peak

AM Peak Existing
Signals - Fixed Time Cycle Time = 124 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Pacific Hwy (east)											
4	L2	38	0.0	0.427	10.3	LOS A	3.9	27.2	0.12	0.17	55.4
5	T1	1733	0.0	0.427	1.8	LOS A	3.9	27.2	0.11	0.11	56.4
Approach		1771	0.0	0.427	2.0	LOS A	3.9	27.2	0.11	0.12	56.3
North: Christie St (north)											
7	L2	54	0.0	0.257	54.2	LOS D	4.8	34.3	0.89	0.75	24.6
8	T1	40	3.0	0.257	46.0	LOS D	4.8	34.3	0.89	0.75	24.6
9	R2	296	0.0	0.823	65.7	LOS E	18.7	130.6	1.00	0.91	21.4
Approach		389	0.3	0.823	62.1	LOS E	18.7	130.6	0.97	0.87	22.1
West: Pacific Hwy (west)											
10	L2	442	0.0	0.480	14.5	LOS A	12.7	89.0	0.36	0.66	44.7
11	T1	1517	1.0	0.480	2.4	LOS A	12.7	89.0	0.14	0.17	54.7
Approach		1959	0.8	0.480	5.1	LOS A	12.7	89.0	0.19	0.28	52.1
All Vehicles		4119	0.4	0.823	9.2	LOS A	18.7	130.6	0.23	0.27	47.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	5.8	LOS A	0.1	0.1	0.31	0.31
P2	East Full Crossing	53	54.4	LOS E	0.2	0.2	0.94	0.94
P3	North Full Crossing	53	8.6	LOS A	0.1	0.1	0.37	0.37
All Pedestrians		158	22.9	LOS C			0.54	0.54

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

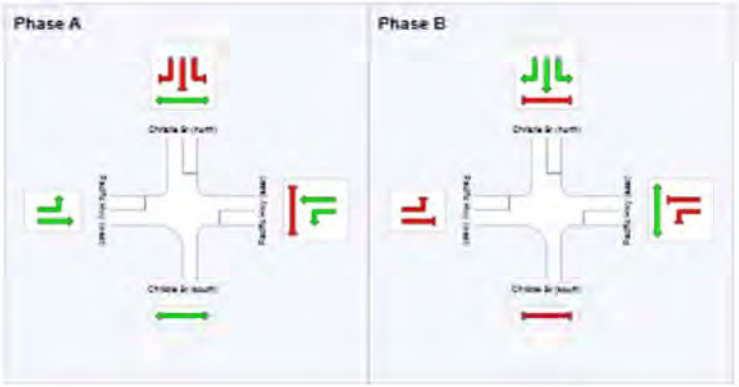
Site: Christie St / Pacific Hwy With Development AM Peak

AM Peak With Development
Signals - Fixed Time Cycle Time = 135 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	97	26
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	103	32
Phase Split	76 %	24 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Christie St / Pacific Hwy With Development AM Peak

AM Peak With Development
Signals - Fixed Time Cycle Time = 135 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Pacific Hwy (east)											
4	L2	74	3.0	0.438	10.7	LOS A	4.9	34.6	0.14	0.23	54.2
5	T1	1741	2.0	0.438	1.9	LOS A	4.9	34.6	0.11	0.13	56.0
Approach		1815	2.0	0.438	2.3	LOS A	4.9	34.6	0.11	0.13	56.0
North: Christie St (north)											
7	L2	74	0.0	0.494	61.0	LOS E	10.7	75.5	0.94	0.80	23.1
8	T1	107	1.0	0.494	52.8	LOS D	10.7	75.5	0.94	0.80	23.1
9	R2	340	0.0	0.951	92.3	LOS F	27.9	195.4	1.00	1.03	17.0
Approach		521	0.2	0.951	79.8	LOS F	27.9	195.4	0.98	0.95	18.7
West: Pacific Hwy (west)											
10	L2	553	0.0	0.563	15.6	LOS B	18.2	128.2	0.41	0.70	43.5
11	T1	1763	2.0	0.563	2.6	LOS A	18.2	128.2	0.15	0.18	54.5
Approach		2316	1.5	0.563	5.7	LOS A	18.2	128.2	0.21	0.30	51.4
All Vehicles		4652	1.6	0.951	12.6	LOS A	27.9	195.4	0.26	0.31	44.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	5.9	LOS A	0.1	0.1	0.30	0.30
P2	East Full Crossing	158	58.3	LOS E	0.6	0.6	0.93	0.93
P3	North Full Crossing	158	8.6	LOS A	0.2	0.2	0.36	0.36
All Pedestrians		368	29.5	LOS C			0.60	0.60

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

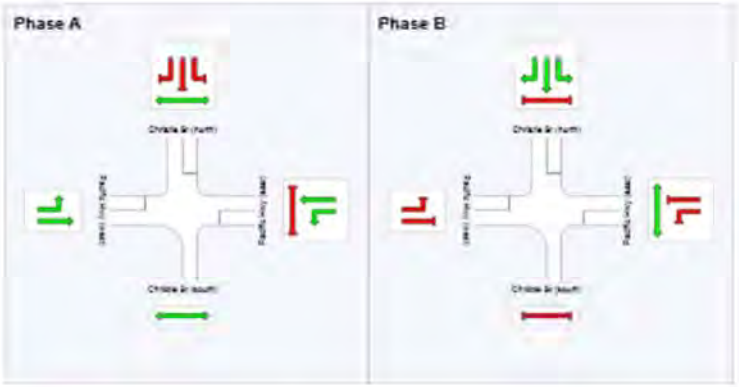
Site: Christie St / Pacific Hwy With Development PM Peak

PM Peak With Development
Signals - Fixed Time Cycle Time = 124 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	88	24
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	94	30
Phase Split	76 %	24 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Christie St / Pacific Hwy With Development PM Peak

PM Peak With Development
Signals - Fixed Time Cycle Time = 124 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Pacific Hwy (east)											
4	L2	41	0.0	0.428	10.3	LOS A	4.0	27.7	0.12	0.17	55.3
5	T1	1733	0.0	0.428	1.8	LOS A	4.0	27.7	0.11	0.12	56.3
Approach		1774	0.0	0.428	2.0	LOS A	4.0	27.7	0.11	0.12	56.3
North: Christie St (north)											
7	L2	54	0.0	0.289	54.5	LOS D	5.5	38.9	0.90	0.76	24.6
8	T1	52	3.0	0.289	46.3	LOS D	5.5	38.9	0.90	0.76	24.6
9	R2	296	0.0	0.823	65.7	LOS E	18.7	130.6	1.00	0.91	21.4
Approach		401	0.4	0.823	61.7	LOS E	18.7	130.6	0.97	0.87	22.1
West: Pacific Hwy (west)											
10	L2	448	0.0	0.484	14.6	LOS B	12.9	90.6	0.37	0.67	44.6
11	T1	1528	1.0	0.484	2.4	LOS A	12.9	90.6	0.14	0.17	54.7
Approach		1977	0.8	0.484	5.1	LOS A	12.9	90.6	0.19	0.28	52.1
All Vehicles		4152	0.4	0.823	9.3	LOS A	18.7	130.6	0.23	0.27	47.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

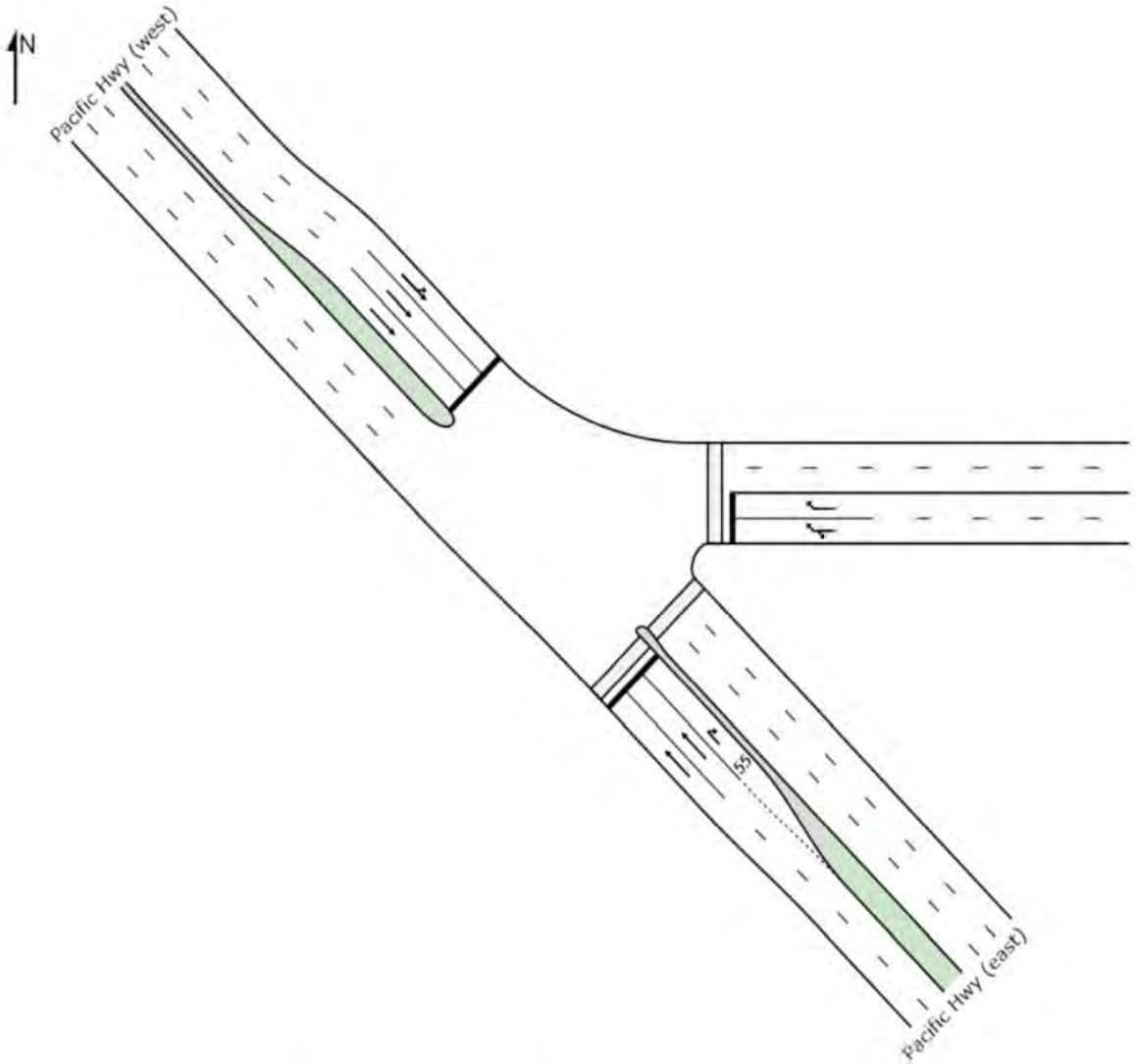
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	5.8	LOS A	0.1	0.1	0.31	0.31
P2	East Full Crossing	53	54.4	LOS E	0.2	0.2	0.94	0.94
P3	North Full Crossing	53	8.6	LOS A	0.1	0.1	0.37	0.37
All Pedestrians		158	22.9	LOS C			0.54	0.54

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: Albany St / Pacific Hwy (existing) AM Peak

AM Peak - Existing



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SIDRA INTERSECTION 6

PHASING SUMMARY

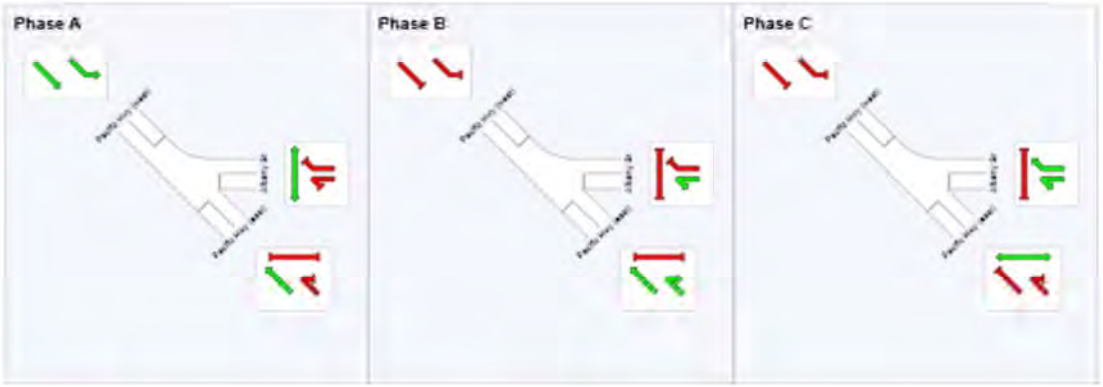
Site: Albany St / Pacific Hwy (existing) AM Peak

AM Peak - Existing
Signals - Fixed Time Cycle Time = 136 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Green Time (sec)	80	13	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	86	19	31
Phase Split	63 %	14 %	23 %



MOVEMENT SUMMARY

Site: Albany St / Pacific Hwy (existing) AM Peak

AM Peak - Existing
Signals - Fixed Time Cycle Time = 136 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Pacific Hwy (east)											
22	T1	1277	3.0	0.459	1.7	LOS A	3.7	26.3	0.10	0.09	56.8
23b	R3	118	4.0	0.779	80.4	LOS F	8.3	60.2	1.00	0.88	18.8
Approach		1395	3.1	0.779	8.3	LOS A	8.3	60.2	0.17	0.15	48.5
East: Albany St											
4b	L3	27	8.0	0.811	71.1	LOS F	19.0	135.0	1.00	0.91	20.6
6a	R1	535	1.0	0.811	69.1	LOS E	19.2	135.8	1.00	0.91	20.6
Approach		562	1.3	0.811	69.2	LOS E	19.2	135.8	1.00	0.91	20.6
NorthWest: Pacific Hwy (west)											
27a	L1	409	1.0	0.552	23.1	LOS B	21.4	151.7	0.58	0.72	37.8
28	T1	1459	2.0	0.552	11.5	LOS A	21.4	151.7	0.43	0.42	43.7
Approach		1868	1.8	0.552	14.1	LOS A	21.4	151.7	0.47	0.49	42.2
All Vehicles		3825	2.2	0.811	20.1	LOS B	21.4	151.7	0.44	0.43	38.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	59.4	LOS E	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	16.0	LOS B	0.1	0.1	0.49	0.49
All Pedestrians		105	37.7	LOS D			0.71	0.71

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

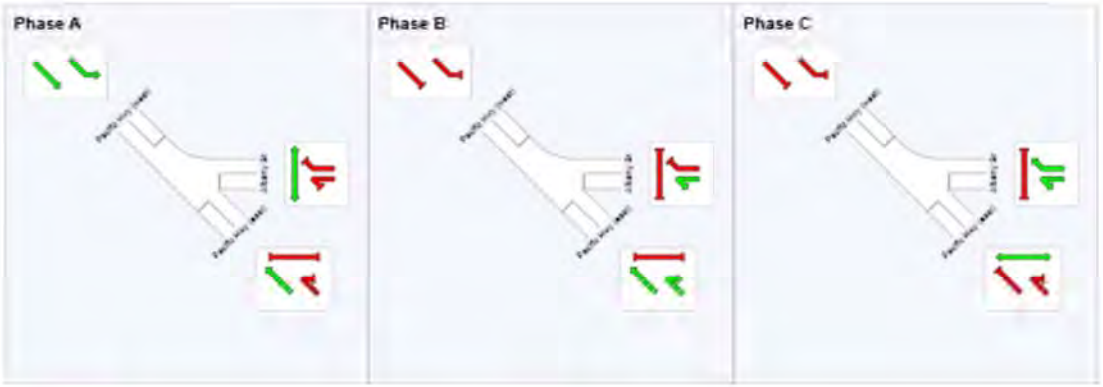
Site: Albany St / Pacific Hwy (existing) PM Peak

AM Peak - Existing
Signals - Fixed Time Cycle Time = 123 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Green Time (sec)	68	12	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	74	18	31
Phase Split	60 %	15 %	25 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Albany St / Pacific Hwy (existing) PM Peak

AM Peak - Existing
Signals - Fixed Time Cycle Time = 123 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Pacific Hwy (east)											
22	T1	1222	1.0	0.451	2.2	LOS A	4.2	29.7	0.13	0.12	55.9
23b	R3	124	1.0	0.789	74.3	LOS F	8.0	56.5	1.00	0.89	19.8
Approach		1346	1.0	0.789	8.9	LOS A	8.0	56.5	0.21	0.19	47.8
East: Albany St											
4b	L3	40	3.0	0.779	62.0	LOS E	17.9	125.6	1.00	0.89	22.6
6a	R1	561	0.0	0.779	60.1	LOS E	18.1	126.9	1.00	0.89	22.5
Approach		601	0.2	0.779	60.2	LOS E	18.1	126.9	1.00	0.89	22.5
NorthWest: Pacific Hwy (west)											
27a	L1	357	0.0	0.485	23.5	LOS B	16.7	117.0	0.59	0.73	37.4
28	T1	1196	1.0	0.485	12.5	LOS A	16.7	117.0	0.46	0.44	42.7
Approach		1553	0.8	0.485	15.1	LOS B	16.7	117.0	0.49	0.50	41.4
All Vehicles		3500	0.8	0.789	20.4	LOS B	18.1	126.9	0.47	0.45	37.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	52.9	LOS E	0.2	0.2	0.93	0.93
P2	East Full Crossing	53	17.2	LOS B	0.1	0.1	0.53	0.53
All Pedestrians		105	35.1	LOS D			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

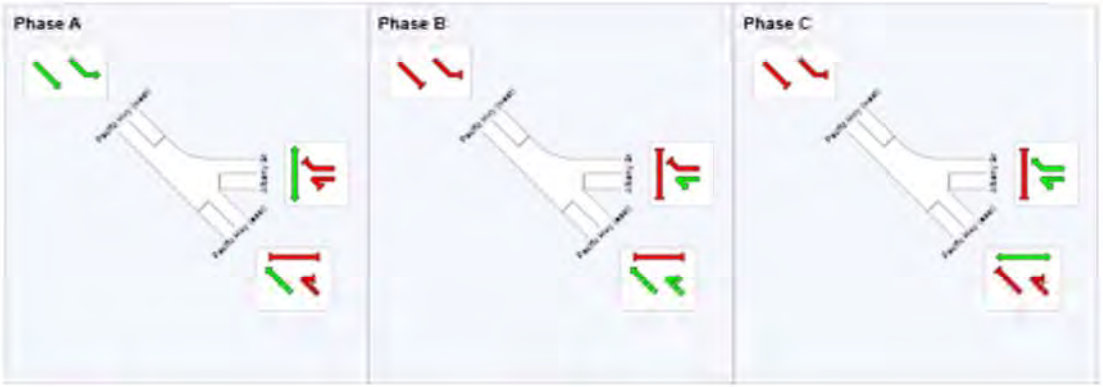
Site: Albany St / Pacific Hwy With Development AM Peak

AM Peak With Development
Signals - Fixed Time Cycle Time = 136 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Green Time (sec)	80	13	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	86	19	31
Phase Split	63 %	14 %	23 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Albany St / Pacific Hwy With Development AM Peak

AM Peak With Development
Signals - Fixed Time Cycle Time = 136 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Pacific Hwy (east)											
22	T1	1306	3.0	0.469	1.7	LOS A	3.8	27.4	0.10	0.09	56.8
23b	R3	118	4.0	0.779	80.4	LOS F	8.3	60.2	1.00	0.88	18.8
Approach		1424	3.1	0.779	8.2	LOS A	8.3	60.2	0.17	0.15	48.6
East: Albany St											
4b	L3	27	8.0	0.809	71.0	LOS F	18.9	134.5	1.00	0.91	20.6
6a	R1	534	1.0	0.809	69.0	LOS E	19.2	135.4	1.00	0.91	20.6
Approach		561	1.3	0.809	69.1	LOS E	19.2	135.4	1.00	0.91	20.6
NorthWest: Pacific Hwy (west)											
27a	L1	408	1.0	0.551	23.0	LOS B	21.4	151.4	0.57	0.72	37.8
28	T1	1459	2.0	0.551	11.5	LOS A	21.4	151.4	0.43	0.42	43.7
Approach		1867	1.8	0.551	14.0	LOS A	21.4	151.4	0.47	0.49	42.2
All Vehicles		3853	2.2	0.809	19.9	LOS B	21.4	151.4	0.43	0.43	38.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	59.4	LOS E	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	16.0	LOS B	0.1	0.1	0.49	0.49
All Pedestrians		105	37.7	LOS D			0.71	0.71

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

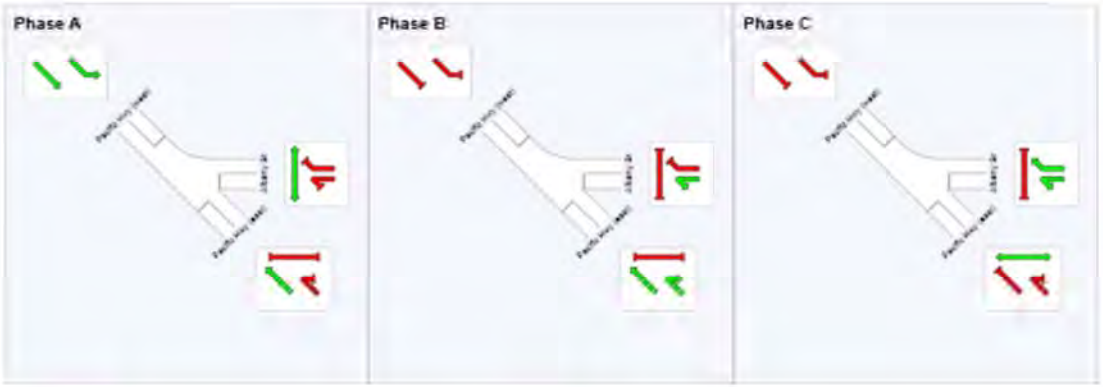
Site: Albany St / Pacific Hwy With Development PM Peak

PM Peak With Development
Signals - Fixed Time Cycle Time = 123 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Green Time (sec)	68	12	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	74	18	31
Phase Split	60 %	15 %	25 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Albany St / Pacific Hwy With Development PM Peak

PM Peak With Development
Signals - Fixed Time Cycle Time = 123 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Pacific Hwy (east)											
22	T1	1222	3.0	0.457	2.2	LOS A	4.2	30.5	0.13	0.12	55.9
23b	R3	124	4.0	0.804	75.1	LOS F	8.1	58.5	1.00	0.90	19.7
Approach		1346	3.1	0.804	9.0	LOS A	8.1	58.5	0.21	0.19	47.7
East: Albany St											
4b	L3	40	8.0	0.790	62.7	LOS E	18.1	129.0	1.00	0.90	22.4
6a	R1	564	1.0	0.790	60.8	LOS E	18.4	130.1	1.00	0.90	22.4
Approach		604	1.5	0.790	60.9	LOS E	18.4	130.1	1.00	0.90	22.4
NorthWest: Pacific Hwy (west)											
27a	L1	368	1.0	0.492	23.7	LOS B	17.0	120.3	0.60	0.73	37.2
28	T1	1196	2.0	0.492	12.6	LOS A	17.0	120.3	0.46	0.44	42.7
Approach		1564	1.8	0.492	15.2	LOS B	17.0	120.3	0.50	0.51	41.3
All Vehicles		3515	2.2	0.804	20.7	LOS B	18.4	130.1	0.47	0.45	37.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

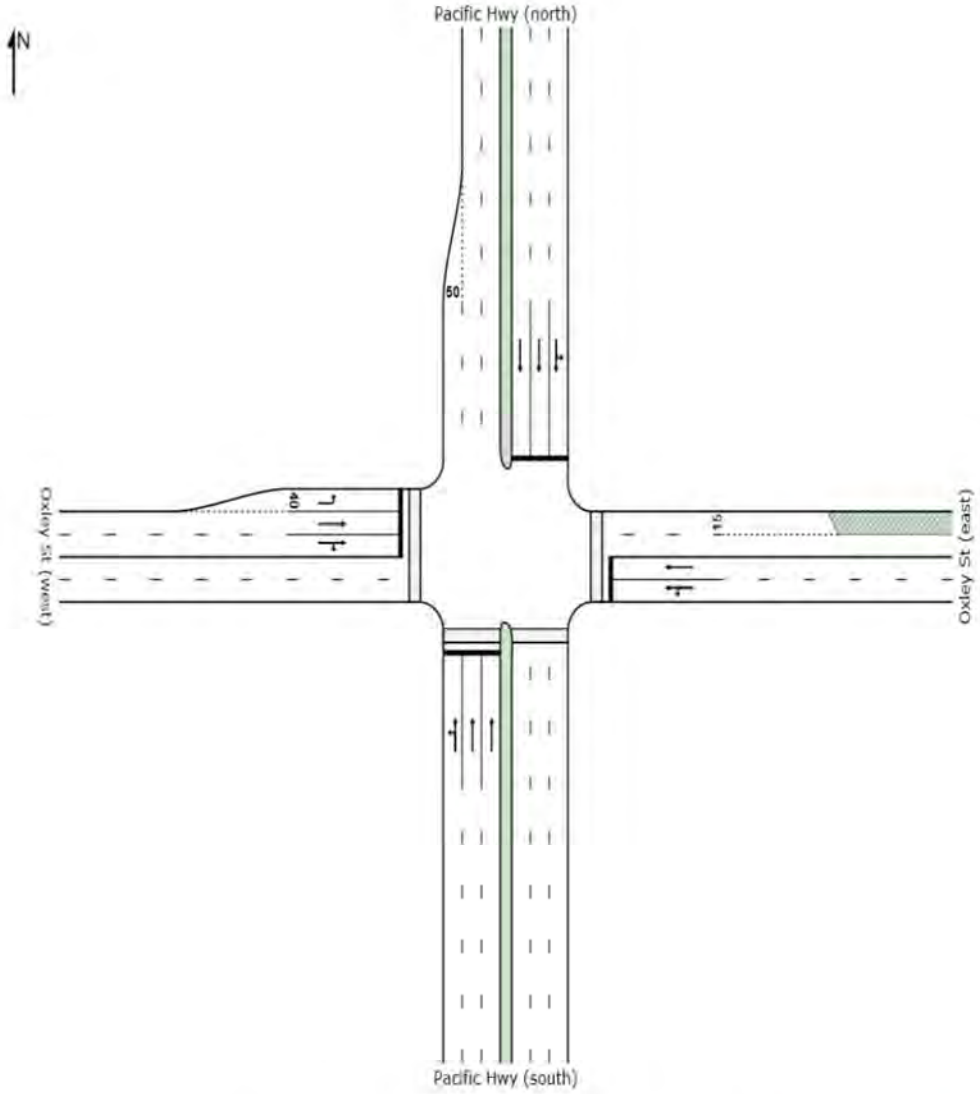
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	52.9	LOS E	0.2	0.2	0.93	0.93
P2	East Full Crossing	53	17.2	LOS B	0.1	0.1	0.53	0.53
All Pedestrians		105	35.1	LOS D			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: Oxley St / Pacific Hwy (Existing) AM Peak

AM Peak - Existing



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SIDRA INTERSECTION 6

PHASING SUMMARY

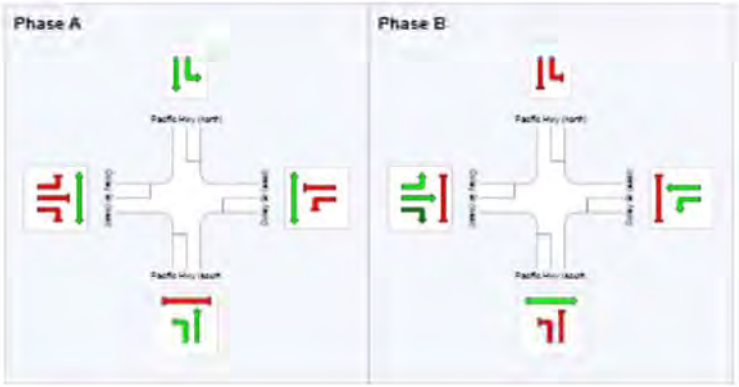
Site: Oxley St / Pacific Hwy (Existing) AM Peak

AM Peak - Existing
Signals - Fixed Time Cycle Time = 138 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	109	17
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	115	23
Phase Split	83 %	17 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Oxley St / Pacific Hwy (Existing) AM Peak

AM Peak - Existing
Signals - Fixed Time Cycle Time = 138 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pacific Hwy (south)											
1	L2	236	0.9	0.162	11.8	LOS A	3.7	26.2	0.26	0.71	45.2
2	T1	1324	2.7	0.437	1.3	LOS A	3.7	26.6	0.09	0.09	57.4
Approach		1560	2.4	0.437	2.9	LOS A	3.7	26.6	0.12	0.18	55.1
East: Oxley St (east)											
4	L2	35	0.0	0.551	70.9	LOS F	8.4	59.4	0.99	0.79	21.0
5	T1	226	1.4	0.551	62.7	LOS E	8.5	60.2	0.99	0.79	21.2
Approach		261	1.2	0.551	63.8	LOS E	8.5	60.2	0.99	0.79	21.1
North: Pacific Hwy (north)											
7	L2	78	1.4	0.312	9.9	LOS A	3.2	23.2	0.11	0.25	54.9
8	T1	1338	2.5	0.312	1.3	LOS A	3.2	23.2	0.09	0.12	56.9
Approach		1416	2.5	0.312	1.8	LOS A	3.2	23.2	0.09	0.13	56.8
West: Oxley St (west)											
10	L2	56	9.4	0.260	68.4	LOS E	3.5	26.3	0.95	0.76	20.8
11	T1	73	4.3	0.752	66.0	LOS E	6.2	44.2	0.96	0.78	20.4
12	R2	52	2.0	0.752	81.9	LOS F	6.2	44.2	1.00	0.87	18.7
Approach		180	5.3	0.752	71.3	LOS F	6.2	44.2	0.97	0.80	20.0
All Vehicles		3417	2.5	0.752	10.7	LOS A	8.5	60.2	0.22	0.24	45.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	41	54.9	LOS E	0.1	0.1	0.89	0.89
P2	East Full Crossing	188	5.6	LOS A	0.2	0.2	0.28	0.28
P4	West Full Crossing	98	6.4	LOS A	0.1	0.1	0.31	0.31
All Pedestrians		327	12.0	LOS B			0.37	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

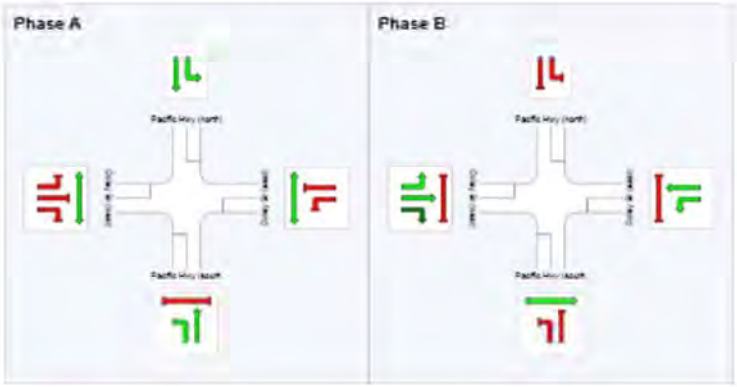
Site: Oxley St / Pacific Hwy (Existing) PM Peak

PM Peak - Existing
Signals - Fixed Time Cycle Time = 132 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	103	17
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	109	23
Phase Split	83 %	17 %



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SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Oxley St / Pacific Hwy (Existing) PM Peak

PM Peak - Existing
Signals - Fixed Time Cycle Time = 132 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pacific Hwy (south)											
1	L2	102	0.0	0.121	10.7	LOS A	1.8	12.7	0.17	0.52	49.7
2	T1	1151	0.6	0.355	1.3	LOS A	2.5	17.9	0.09	0.10	57.0
Approach		1253	0.6	0.355	2.1	LOS A	2.5	17.9	0.09	0.14	56.4
East: Oxley St (east)											
4	L2	76	1.4	0.411	66.4	LOS E	6.0	42.3	0.96	0.78	21.4
5	T1	126	0.0	0.411	58.1	LOS E	6.2	43.7	0.96	0.76	22.1
Approach		202	0.5	0.411	61.2	LOS E	6.2	43.7	0.96	0.77	21.9
North: Pacific Hwy (north)											
7	L2	71	1.5	0.261	9.8	LOS A	2.6	18.0	0.11	0.25	54.8
8	T1	1113	0.7	0.261	1.3	LOS A	2.6	18.0	0.08	0.12	56.9
Approach		1183	0.7	0.261	1.8	LOS A	2.6	18.0	0.08	0.13	56.8
West: Oxley St (west)											
10	L2	138	0.8	0.580	68.0	LOS E	8.6	60.5	0.99	0.80	20.9
11	T1	200	0.5	1.726	411.6	LOS F	61.7	433.0	0.98	1.55	4.8
12	R2	148	0.0	1.726	742.3	LOS F	61.7	433.0	1.00	2.27	2.8
Approach		486	0.4	1.726	415.1	LOS F	61.7	433.0	0.99	1.56	4.8
All Vehicles		3124	0.6	1.726	70.1	LOS E	61.7	433.0	0.29	0.40	20.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	38	51.9	LOS E	0.1	0.1	0.89	0.89
P2	East Full Crossing	215	5.8	LOS A	0.2	0.2	0.30	0.30
P4	West Full Crossing	73	6.7	LOS A	0.1	0.1	0.32	0.32
All Pedestrians		325	11.4	LOS B			0.37	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

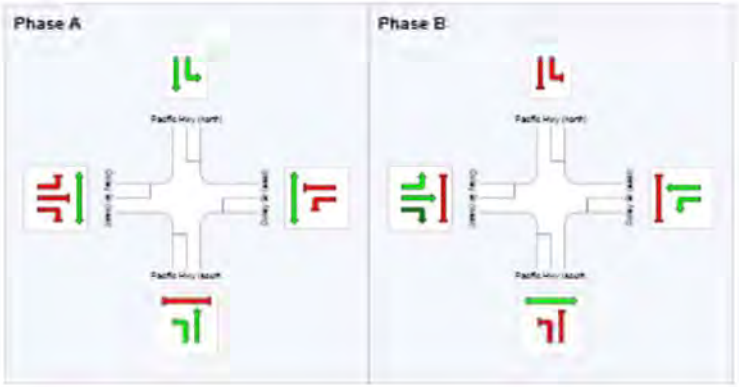
Site: Oxley St / Pacific Hwy With Development AM Peak

AM Peak With Development
Signals - Fixed Time Cycle Time = 138 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	109	17
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	115	23
Phase Split	83 %	17 %



MOVEMENT SUMMARY

Site: Oxley St / Pacific Hwy With Development AM Peak

AM Peak With Development
Signals - Fixed Time Cycle Time = 138 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pacific Hwy (south)											
1	L2	235	0.9	0.161	11.8	LOS A	3.7	26.0	0.26	0.71	45.2
2	T1	1324	2.7	0.437	1.3	LOS A	3.7	26.6	0.09	0.09	57.4
Approach		1559	2.4	0.437	2.9	LOS A	3.7	26.6	0.12	0.18	55.2
East: Oxley St (east)											
4	L2	35	0.0	0.547	70.8	LOS F	8.3	58.9	0.99	0.79	21.0
5	T1	224	1.4	0.547	62.6	LOS E	8.4	59.7	0.99	0.79	21.2
Approach		259	1.2	0.547	63.7	LOS E	8.4	59.7	0.99	0.79	21.1
North: Pacific Hwy (north)											
7	L2	78	1.4	0.312	9.9	LOS A	3.2	23.2	0.11	0.25	54.9
8	T1	1338	2.5	0.312	1.3	LOS A	3.2	23.2	0.09	0.12	56.9
Approach		1416	2.5	0.312	1.8	LOS A	3.2	23.2	0.09	0.13	56.8
West: Oxley St (west)											
10	L2	85	6.2	0.389	69.6	LOS E	5.4	39.9	0.96	0.78	20.6
11	T1	113	2.8	1.128	130.1	LOS F	16.6	118.3	0.97	1.02	12.7
12	R2	77	1.4	1.128	214.8	LOS F	16.6	118.3	1.00	1.34	8.8
Approach		275	3.4	1.128	135.0	LOS F	16.6	118.3	0.98	1.03	12.6
All Vehicles		3508	2.4	1.128	17.3	LOS B	16.6	118.3	0.24	0.27	40.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	41	54.9	LOS E	0.1	0.1	0.89	0.89
P2	East Full Crossing	188	5.6	LOS A	0.2	0.2	0.28	0.28
P4	West Full Crossing	98	6.4	LOS A	0.1	0.1	0.31	0.31
All Pedestrians		327	12.0	LOS B			0.37	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

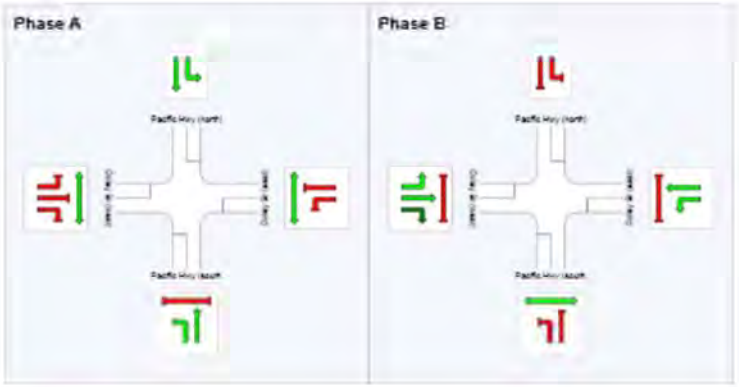
Site: Oxley St / Pacific Hwy With Development PM Peak

PM Peak With Development
Signals - Fixed Time Cycle Time = 132 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	103	17
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	109	23
Phase Split	83 %	17 %



MOVEMENT SUMMARY

Site: Oxley St / Pacific Hwy With Development PM Peak

PM Peak With Development
Signals - Fixed Time Cycle Time = 132 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pacific Hwy (south)											
1	L2	118	0.0	0.122	10.9	LOS A	2.0	14.1	0.19	0.57	48.8
2	T1	1151	0.6	0.359	1.3	LOS A	2.6	18.2	0.09	0.10	57.1
Approach		1268	0.6	0.359	2.2	LOS A	2.6	18.2	0.10	0.14	56.2
East: Oxley St (east)											
4	L2	76	1.4	0.472	66.9	LOS E	7.0	49.2	0.97	0.79	21.4
5	T1	157	0.0	0.472	58.7	LOS E	7.2	50.7	0.97	0.78	22.0
Approach		233	0.5	0.472	61.4	LOS E	7.2	50.7	0.97	0.78	21.8
North: Pacific Hwy (north)											
7	L2	71	1.5	0.261	9.8	LOS A	2.6	18.0	0.11	0.25	54.8
8	T1	1113	0.7	0.261	1.3	LOS A	2.6	18.0	0.08	0.12	56.9
Approach		1183	0.7	0.261	1.8	LOS A	2.6	18.0	0.08	0.13	56.8
West: Oxley St (west)											
10	L2	138	0.8	0.580	68.0	LOS E	8.6	60.5	0.99	0.80	20.9
11	T1	200	0.5	1.843	441.7	LOS F	63.8	447.6	0.98	1.53	4.5
12	R2	148	0.0	1.843	847.7	LOS F	63.8	447.6	1.00	2.32	2.5
Approach		486	0.4	1.843	459.7	LOS F	63.8	447.6	0.99	1.56	4.4
All Vehicles		3171	0.6	1.843	76.5	LOS F	63.8	447.6	0.29	0.40	19.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	38	51.9	LOS E	0.1	0.1	0.89	0.89
P2	East Full Crossing	215	5.8	LOS A	0.2	0.2	0.30	0.30
P4	West Full Crossing	73	6.7	LOS A	0.1	0.1	0.32	0.32
All Pedestrians		325	11.4	LOS B			0.37	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

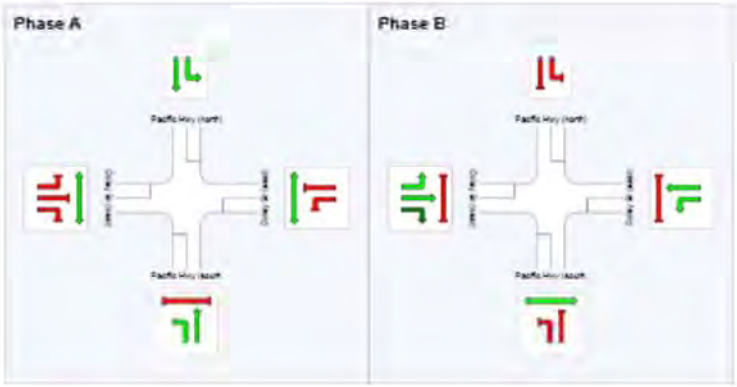
Site: Oxley St / Pacific Hwy With Development & New Phasing AM Peak

AM Peak With Development & New Phasing
Signals - Fixed Time Cycle Time = 138 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	99	27
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	105	33
Phase Split	76 %	24 %



MOVEMENT SUMMARY

Site: Oxley St / Pacific Hwy With Development & New Phasing AM Peak

AM Peak With Development & New Phasing
Signals - Fixed Time Cycle Time = 138 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pacific Hwy (south)											
1	L2	247	0.9	0.187	14.8	LOS B	5.3	37.2	0.35	0.73	42.6
2	T1	1324	2.7	0.482	1.8	LOS A	4.0	28.7	0.10	0.09	56.6
Approach		1572	2.4	0.482	3.9	LOS A	5.3	37.2	0.14	0.19	53.9
East: Oxley St (east)											
4	L2	35	0.0	0.344	59.9	LOS E	7.5	53.0	0.91	0.76	23.5
5	T1	224	1.4	0.344	51.7	LOS D	7.6	53.8	0.91	0.74	23.7
Approach		259	1.2	0.344	52.8	LOS D	7.6	53.8	0.91	0.74	23.7
North: Pacific Hwy (north)											
7	L2	78	1.4	0.344	10.8	LOS A	3.8	27.3	0.13	0.26	53.6
8	T1	1338	2.5	0.344	1.9	LOS A	3.8	27.3	0.10	0.13	56.0
Approach		1416	2.5	0.344	2.3	LOS A	3.8	27.3	0.10	0.13	55.9
West: Oxley St (west)											
10	L2	85	6.2	0.245	58.9	LOS E	4.9	35.9	0.89	0.77	22.9
11	T1	113	2.8	0.627	55.6	LOS D	9.0	63.9	0.93	0.74	22.6
12	R2	77	1.4	0.627	69.0	LOS E	9.0	63.9	0.99	0.82	21.1
Approach		275	3.4	0.627	60.4	LOS E	9.0	63.9	0.93	0.77	22.2
All Vehicles		3521	2.4	0.627	11.3	LOS A	9.0	63.9	0.24	0.25	45.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	41	46.3	LOS E	0.1	0.1	0.82	0.82
P2	East Full Crossing	188	8.8	LOS A	0.3	0.3	0.36	0.36
P4	West Full Crossing	98	9.8	LOS A	0.1	0.1	0.38	0.38
All Pedestrians		327	13.8	LOS B			0.42	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

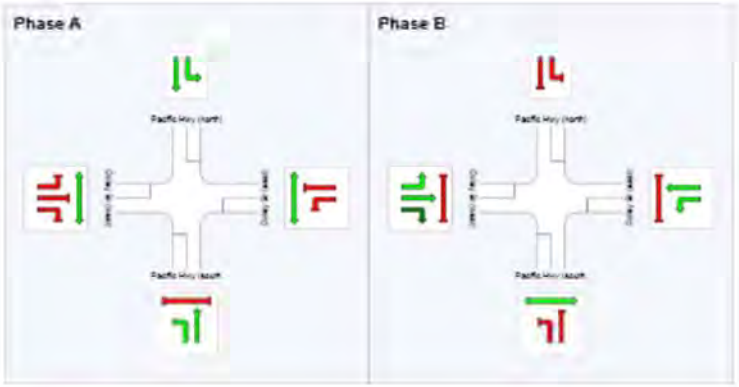
Site: Oxley St / Pacific Hwy With Development & New Phasing PM Peak

PM Peak With Development & New Phasing
Signals - Fixed Time Cycle Time = 132 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	86	34
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	92	40
Phase Split	70 %	30 %



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8000937, BROWN CONSULTING, PLUS / Floating

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Oxley St / Pacific Hwy With Development & New Phasing PM Peak

PM Peak With Development & New Phasing
Signals - Fixed Time Cycle Time = 132 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pacific Hwy (south)											
1	L2	118	0.0	0.146	15.7	LOS B	3.4	24.1	0.32	0.61	43.9
2	T1	1151	0.6	0.430	5.2	LOS A	7.2	50.6	0.23	0.23	51.2
Approach		1268	0.6	0.430	6.2	LOS A	7.2	50.6	0.24	0.26	50.4
East: Oxley St (east)											
4	L2	76	1.4	0.236	49.7	LOS D	5.8	40.8	0.83	0.76	25.8
5	T1	157	0.0	0.236	41.5	LOS C	6.0	42.0	0.83	0.69	26.7
Approach		233	0.5	0.236	44.2	LOS D	6.0	42.0	0.83	0.71	26.4
North: Pacific Hwy (north)											
7	L2	71	1.5	0.313	13.9	LOS A	5.6	39.4	0.24	0.35	49.3
8	T1	1113	0.7	0.313	4.9	LOS A	5.6	39.4	0.21	0.22	51.5
Approach		1183	0.7	0.313	5.4	LOS A	5.6	39.4	0.21	0.23	51.3
West: Oxley St (west)											
10	L2	138	0.8	0.290	50.4	LOS D	7.1	50.1	0.85	0.79	25.1
11	T1	200	0.5	0.804	50.5	LOS D	17.2	120.9	0.92	0.81	23.8
12	R2	148	0.0	0.804	66.3	LOS E	17.2	120.9	1.00	0.94	21.6
Approach		486	0.4	0.804	55.3	LOS D	17.2	120.9	0.92	0.84	23.4
All Vehicles		3171	0.6	0.804	16.2	LOS B	17.2	120.9	0.38	0.37	40.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	38	37.9	LOS D	0.1	0.1	0.76	0.76
P2	East Full Crossing	215	12.0	LOS B	0.3	0.3	0.43	0.43
P4	West Full Crossing	73	13.2	LOS B	0.1	0.1	0.45	0.45
All Pedestrians		325	15.3	LOS B			0.47	0.47

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

BROWN
Smart Consulting

Appendix D Go Get Car Share Information

14/04/14

Attention:
Peter O'Meagher
Leighton Properties
Level 18, 100 Pacific Highway
North Sydney
2060

GoGet Car Sharing Onsite

GoGet CarShare has been providing car share vehicles in developments since 2008. Currently we have carshare vehicles in the secure car parks of 14 residential developments. All our carshare vehicles are available to all our active, verified, members. More developers are choosing to provide carshare, especially to reduce parking. GoGet currently has a network of 1,400 cars throughout Australia, used by 45,000 Members.

Below are some examples of residential buildings which have GoGet in their secure car park.

CENTRAL PARK Apartments, Sydney. Blocks from Central Station. Approx. 2,100 Apartments, 925 Student studios, 20,000sqm retail and 50,000 sqm commercial. An estimated 4,000 residents and 3,500 workers will occupy this development. There are 2,000 parking spaces total with 40 spaces in the secure car park dedicated to GoGet (with 7 on street as well).

138 Walker Street Apartments, North Sydney. 650 metres from North Sydney Station, In North Sydney CBD. 195 Apartments (39 studio, 68 one bed, 72 two bed, and 16 three bed). 140 parking spaces including 3 GoGet spaces (Audi, Corolla, and Yaris).

SEE Apartments, 45 Claremont Street, South Yarra. 350 metres to South Yarra Station. 74 Apartments, 20 parking spaces (2 GoGet).

50 Albert Road Apartments, South Melbourne. 200 metres to the Domain Interchange tram. 282 Apartments (84 one bed, 186 two bed, 12 three bed) 248 parking spaces (3 GoGet).

Under construction 80 Alfred Street, North Sydney. Redevelopment across from Milsons Point Station.143 Apartments (12 Studio, 109 one bed, 18 two bed, and 4 three bed) with 50 Parking spaces total (2 GoGet spaces).

Car sharing is a sustainable form of transport that contributes to the green credentials of the building and allow developers to build smaller car parks and sell units without parking.

Yours sincerely,

Christopher Vanneste
Business Development Manager
GoGet Carshare

Ph: **1300 769 389** Fax: **02 8211 5119** Email: **admin@goget.com.au** Web: **goget.com.au**

Level 2, 37 St Johns Rd Glebe, NSW 2037 ABN: 39 102 892 679

Transport Roads & Maritime Services

17 October 2014

Our Reference: SYD14/00942 (A7730082)
Council Ref: SU5246

The General Manager
Lane Cove Council
PO Box 20
Lane Cove NSW 1595

Attention: Stephanie Bashford

Dear Sir/Madam

PLANNING PROPOSAL – LEP AMENDMENT, DRAFT DCP AND DRAFT VPA FOR 472-520 PACIFIC HIGHWAY, ST LEONARDS

Reference is made to your letter dated 18 August 2014 to Roads and Maritime Services (Roads and Maritime) regarding the abovementioned planning proposal referred to Roads and Maritime for comment under Section 56 of the Environmental Planning and Assessment Act 1979. Roads and Maritime appreciates the opportunity to comment on the planning proposal.

Roads and Maritime has also received notice of the public exhibition of the Public Domain Plan (Council Ref: *SU4559*) in relation to the subject planning proposal, and will provide comments on this Plan under separate correspondence.

Roads and Maritime has reviewed the subject planning proposal and supporting documentation, and have identified a number of key issues that require further clarification/analysis by the applicant, prior to the gazettal of the LEP. These issued are outlined in detail in Attachment A.

Roads and Maritime will provide further comment/requirements when the above issues are addressed in the form of an addendum traffic study. If required, Roads and Maritime are willing to meet with Council and the applicant to further explain the content in the Attachment.

Should you have any questions in relation to the above, please do not hesitate to contact the nominated Land Use Planner, Rachel Nicholson on 8849 2702 or by email Rachel.Nicholson@rms.nsw.gov.au.

Yours sincerely,

James Hall
A/ Manager Strategic Land Use
Network and Safety Section

Roads and Maritime Services
27-31 Argyle Street, Parramatta NSW 2150 | PO Box 973 Parramatta NSW 2150 | www.rms.nsw.gov.au | 131 782

ATTACHMENT A

1. Traffic Generation

The overall traffic generation of the proposed development should be based on a worst case of a supermarket tenant being accommodated within the retail component of the proposed development. In this regard, it is noted that 4,100m^2 of retail floor space is proposed (approximately 30% of the proposed commercial component), with one building (472-486 Pacific Highway) proposed to contain 3,000m^2 of retail. This has the potential to attract a supermarket tenant, which is a traffic generating land use.

2. Parking

It is noted that the car parking requirements set out in the Lane Cove Development Control Plan have been updated since the Traffic, Parking and Accessibility Report was prepared. The parking provision rates proposed in this report do not appear to meet the current DCP requirements. The Traffic and Parking report should be updated to assess compliance of the proposed parking provision against the current Lane Cove DCP.

3. Traffic Modelling

The Sidra modelling accompanying the report has been reviewed and the following key issues shall be addressed with regard to the input data of the models:

- *Movement Definitions*: The Traffic, Parking and Accessibility Report states that "There are bus stops at the train station as well as on the near Christie Street and Albany Street. These five bus stops have a total of 15 routes which are within 50 m and 400 m from the subject site". However there are no buses added under movement classes.

- *Lane Data*: It is noted that no grades have been applied on any of the roads in the models.

- *Pedestrians*: There seems to be no increase in pedestrian numbers in the post development scenario on any of the intersections. This should be justified with empricial evidence.

- *Priorities*: Existing pedestrian protections have not been applied in the models for any of the intersections. In accordance with modelling guidelines, start delay due to pedestrian crossing should be applied to left and right turning vehicles.

- *Vehicle Movement data*: Under the default setting for signal coordination, arrival type has been changed without any justification. Any change to this default setting requires justification.

In addition to the above, Roads and Maritime provide the following advisory comment to Council for consideration as part of the determination of the planning proposal:

Promoting Increased Use of Sustainable Modes of Travel

Roads and Maritime strongly supports development which will reduce car dependency and increase use of sustainable modes of travel including the use of buses, bicycles and walking. It is therefore recommended that the LEP supports, to the greatest extent possible, the aims and objectives of the NSW Government policies dealing with this matter including *NSW 2021*, *NSW Long Term Transport Master Plan* and supporting modal plans; Sydney's Cycling Future, Sydney's Walking Future, and Sydney's Bus Future.

The planning proposal should be referred to Transport for NSW (TfNSW) to ensure that impacts to pedestrians, cyclists and public transport infrastructure and services are adequately considered and addressed in accordance with the above policies. Council should consult with TfNSW particularly with regard to the proposed St Leonards Rail Plaza and Bus Interchange and provision of pedestrian/cyclist connections and facilities.

Developer Contribution for Road / Transport Improvements

Council should ensure that a funding mechanism is in place for developer contributions towards appropriate funding of road / transport infrastructure improvements that may be required as a direct result of the cumulative impact from additional development in the Local Government Area.

Lane Cove Development Control Plan 2010 – DRAFT Amendment 21 July 2014

Part D – Commercial Development and Mixed Use Localities

- **472-520 Pacific Highway, St Leonards**
    - Number 500 Pacific Highway refers to SP 82937.
    - Numbers 472-494 Pacific Highway refers to Lot 1 DP 628513 and SP 73071.
    - Numbers 504-520 Pacific Highway refers to Lots 2-6 DP 3175.

This precinct is located in the precinct area bound by Pacific Highway on the north and east, Nicholson Street to the south, the eastern boundary of 472 Pacific Highway and the western boundary of 504-520 Pacific Hwy.

Note: This DCP section prevails over the remainder of DCP 2010 where inconsistency occurs.

Objectives

1. Create a landmark precinct including taller and slender towers, of triangular form on 472-494 Pacific Hwy and rounded on 500 Pacific Hwy fronting Friedlander Place, at this prominent corner of the Pacific Highway to provide visual interest upon approach from all directions.

2. Achieve design excellence and iconic new development in the centre of St Leonards.

3. Create a distinctive architectural character to the Pacific Highway frontage with engaging and legible 'entrance' points to reinforce St Leonards as a key location as an activity centre.

4. Provide a new public space integrated with Friedlander Place to create a distinctive sense of place for residents, workers and visitors.

5. Activate and integrate existing and new public spaces with appropriate ground floor retail and other uses, specifically Friedlander Place and the new retail plaza on 472-4994 Pacific Hwy and the colonnade fronting No.500.

6. Increase the amenity of Nicholson Street and the adjoining public access ways, maximising casual surveillance and activation.

7. Provide viewlines through Friedlander Place, the new plaza on 472-494 Pacific Hwy and the new towers on that site.

8. Promote site amalgamation to avoid the creation of isolated sites within the precinct.

Tables

Notes:

- Controls in all tables below are to be applied to the relevant properties.
- Setbacks are to apply to the outer edge of balconies.
- "Friedlander Place" refers to Lot 1DP 1179636.
- GFA: The GFA / building floor plates being referenced include cores ie all area contained by external walls but excluding balconies. (*)

Numbers 504 and 500 Pacific Hwy (regardless of amalgamation)

CONTROL	PROVISION	NOTES
Floor Space Ratio	1.5:1 min. (non-residential) 15.5:1 max (residential) 17:1 max (total)	
Setbacks – Ground Level Retail	4.0 m min.	Colonnade form to Pacific Hwy and Friedlander Place
Setbacks – Non-Residential Podium	0 m from all boundaries	All commercial, except where retail colonnade provided
Setbacks – Residential Tower	4.0 m min. from Pacific Hwy	
Setbacks – All Levels	0 m	Along common boundary between 500 & 504

CONTROL	PROVISION	NOTES
Levels – Non-Residential (Including Retail)	4 levels min.	To be floorplates above Pacific Hwy extending across the entire site area for buildings fronting Pacific Hwy
Floor to Floor Height - Non-Residential - Ground Level - Non-Residential - Each Level, Other Than Retail	4.8 m min. 3.6 m min.	Above ground level Pacific Hwy
Balcony Area	10.0 m2 min.	
Balcony Articulation Zone	2.0 m min.	Behind all building setbacks
Building Separation	24 m min.	To residential towers east of Friedlander Place.
Vehicle Access	From Nicholson St/ rear lane/ Friedlander Place	Via rights of way as necessary
Pedestrian Link	Within private property at rear of site. Rear lane to be redesigned to provide clear line of sight.	From rear lane to Friedlander Place

No. 504 (Charter Hall) – not amalgamated

CONTROL	PROVISION	NOTES
Site Area Approx.	1,834 m2	
Height	138 m	Above ground level Pacific Hwy
Building Floor Plate	800 m2 max. (*)	Excluding balconies
Setbacks –Residential Tower	9.0 m min.	From western boundary with No.530 (Telstra) - to edge of balconies
Setbacks – Residential Tower	4.0 m min.	From rear lane
Building Length	40.0 m max.	

No.500 Pacific Hwy – not amalgamated

CONTROL	PROVISION	NOTES
Site Area Approx.	435m2	From SP
Height	72 metres max.	Above ground level Pacific Hwy
Setbacks – All Levels	0 m	All boundaries

Numbers 504-520 and 500 Pacific Hwy - if amalgamated

These two sites must be amalgamated as a condition of development consent in order for the controls below to apply.

CONTROL	PROVISION	NOTES
Site Area Approx.	2,268 m2	
Height	138 metres max.	Above ground level Pacific Hwy
Building Floor Plate	1,075 m2 max. GFA (*)	Excluding balconies
Setbacks – All Levels	0 m min. from rear lane	
Setbacks - Residential	4.0 m min from Pacific Hwy 7.0 m min. from western boundary with No.530	
Building Length	51 m max. measured along the central east-west axis of the amalgamated site.	To a max. of 10 m from eastern boundary of 504. Rounded or stepped building form required – see diagrams.

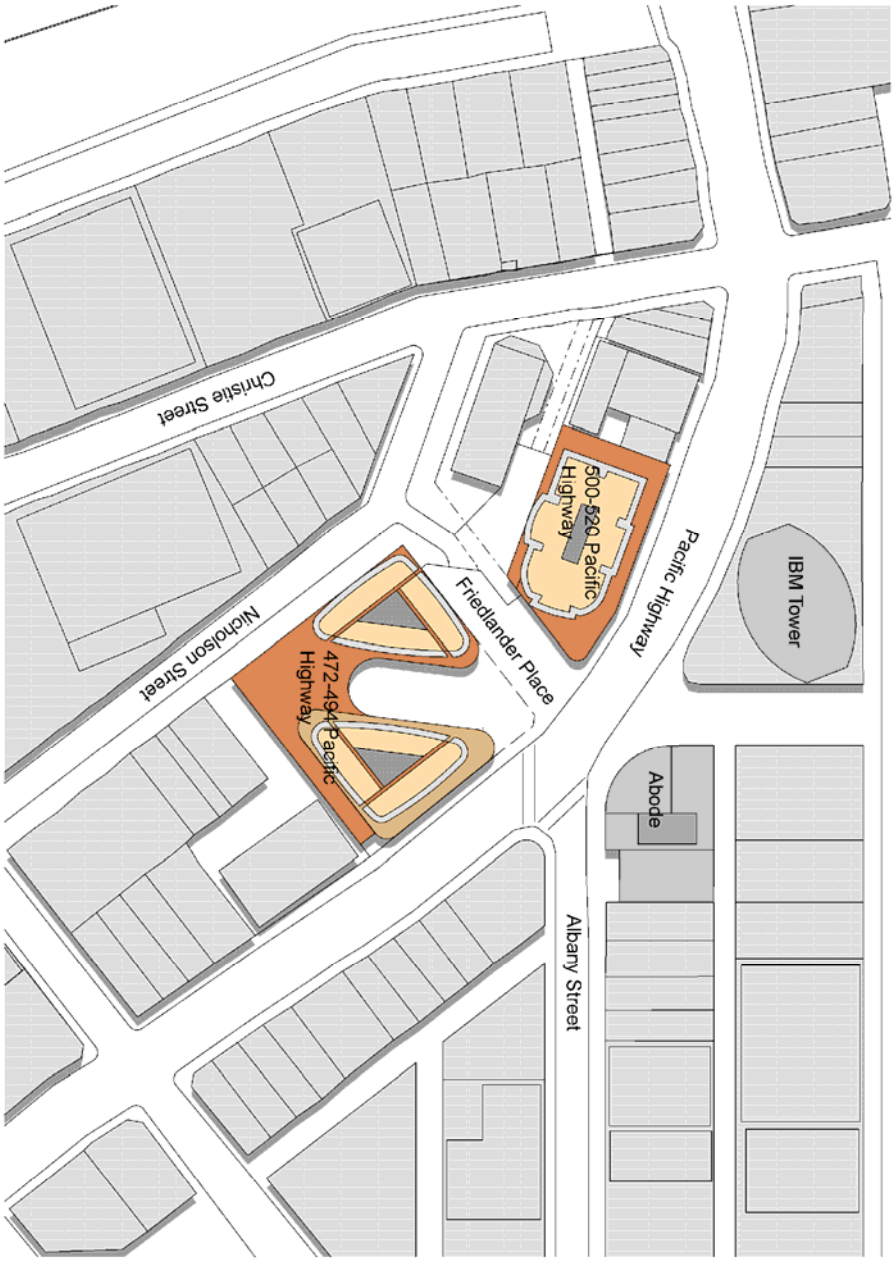
Numbers 472-494 (Leighton)

These two sites must be amalgamated as a condition of development consent in order for the controls below to apply.

CONTROL	PROVISION	NOTES
Floor Space Ratio	1.5:1 min. (non-residential) 10.5:1 max (residential) 12:1 max (total)	
Building Height	91m max. – building at front (Pacific Hwy) 115 m max. – building at rear (Nicholson St)	Above ground level Pacific Hwy
Floor to Floor Height - Non-Residential - Ground Level - Non-Residential - Each Level, Other Than Retail	4.8 m min. 3.6 m min.	Above ground level Pacific Hwy
Building Floorplate of Each Residential Tower	850 m2 max. GFA (*)	Excluding balconies
Levels – Non-Residential	4 levels min.- front building	To be entire levels of the building fronting Pacific Highway
Setbacks – Ground Level	4.0 m min. from Pacific Hwy 2m min. elsewhere in site	Colonnade form
Setbacks – Non-Residential Podium	0 m from all boundaries, except:- 20 m min from Friedlander Place – front building	All commercial, except where retail colonnade provided
Setbacks – Residential Tower	4.0 m min. from Pacific Hwy - front building 0 m min. from Nicholson St – rear building 7.0 m min. from side boundary with No.470 0 m from side boundary with Friedlander Place	
Balcony Area	10.0 m2 min.	
Balcony Articulation Zone	2.0 m min.	Behind all building setbacks
Building Separation	22 m min. between balconies	
Retail Plaza Width	22 m min.	
Vehicle Access	From Nicholson St/ Friedlander Place	Via rights of way as necessary
New Public Open Space	The proposed new public open space at the northern end of the site is to have a minimum area of 325sqm.	To ensure that the new public open space is provided at that location and contributes a desirable quality of public amenity.
Pedestrian Link	2.0. m min. within the property	To boundary with No.470 Pacific Hwy

All Developments

CONTROL	PROVISION	NOTES
Uses	Encourage uses which operate during evening and early morning hours, such as local retail convenience stores, cafes and restaurants, community facilities, gymnasiums and other facilities, to encourage activity and safety outside of office hours. Provide active uses at street level, and flanking public spaces. In the tower form, provide a range of housing options, including more affordable housing with less required parking.	Ground level floor heights must allow for commercial or retail uses. Upper level non-residential uses may include gymnasium and child care.
Podium Form	Podium height to be expressed through external façade material changes to reinforce commercial land use character	
Car Parking	Parking rates to comply with applicable rates in Table 2 of Part R, Draft DCP amendment, as at 31 August 2014.	
Landscaping/ Open Space	New street trees, paving and verge upgrades to be incorporated into the site development.	Tree species and paving design upgrades and specifications to be agreed on with Council.
Pedestrian Network/ Mid-Block Connections	Future development to satisfy the precinct plan to provide new and enhanced connections in the precinct	
Public Domain	A public domain plan is required to be submitted ensuring that development contribute positively to the overall precinct wide public domain outcome. The plan is to include details of materials and the like in consultation with Council.	
Façade Colours and Materials	A mixture of non-reflective façade materials and colours are required to emphasis the podium level non-residential form and residential towers as separate elements. External materials to be durable with a high quality finish. Façade detailing to also address shading, wind protection and solar access considerations.	
Facade Articulation	Articulation of façades is to be designed to express a base and top, with layering of levels of the building complemented by the composition of rhythm, texture, and materials. Roof form should be integrated with the overall design of the building. The elements comprise balconies, sun-shading devices, bay windows and other similar elements, depending on internal programme and orientation	The intent of the building wall articulation control is to incorporate sufficient modulation in the architectural façade to reduce the scale and massing of the building form, adding visual interest and diversity to the overall design.
Balconies Floor Space	An LEP cl.4.6 objection may be favourably considered for balconies with potential to be fully enclosed as noise control, to increase floor space for balconies of apartments in a direct line of sight of Pacific Hwy. These should have fully enclosable balconies, double glazed/thick glass windows and acoustic treatment measures for internal amenity.	
Solar Access	The guideline that new developments should achieve 2 hours direct sunlight for at least 70% of apartments, under the NSW Residential Flat Design Code, should be applied as a rule of thumb with discretion in Major Centres/ Specialised Centres where densities are high.	


Christie Street
Nicholson Street
500-520 Pacific Highway
472-494 Pacific Highway
Friedlander Place
Pacific Highway
IBM Tower
Abode
Albany Street

Draft DCP – editing/ clarification/ compliance amendments proposed post-exhibition

- Add Objective 9: “Reinforce the LEP’s requirements for a minimum FSR 1.5:1 non-residential floor space for each site.”
- In the Tables:-
    - In relation to 500/ 504 Pacific Hwy (the Charter Hall site), state: “Full 4 storeys of non-residential floor space are to be provided - horizontal from Pacific Hwy to the rear of the site above Pacific Hwy existing ground level.”
    - Replace the words: “Building length... to a max.10m from eastern boundary of 504” with “Building length... to a max.10m east of the eastern boundary of 504 Pacific Hwy”.
    - Delete “GFA” in the table relating to the “building floor plate” as technically inconsistent.
    - In the Table for All Developments, state: “Development is to be committed to for each site in full as a pre-requisite to approval.”
    - Public Domain: “The lane to the rear of 504 Pacific Hwy and on-site pedestrian link are to be redesigned to provide a clear line of sight to promote visual connectivity and safety.”
- Add a provision: “Serviced apartments are not to be developed”.
- Add a provision: “Federal legislation requirements relating to Sydney Airport are to be investigated and complied with by the applicant for any development.”

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