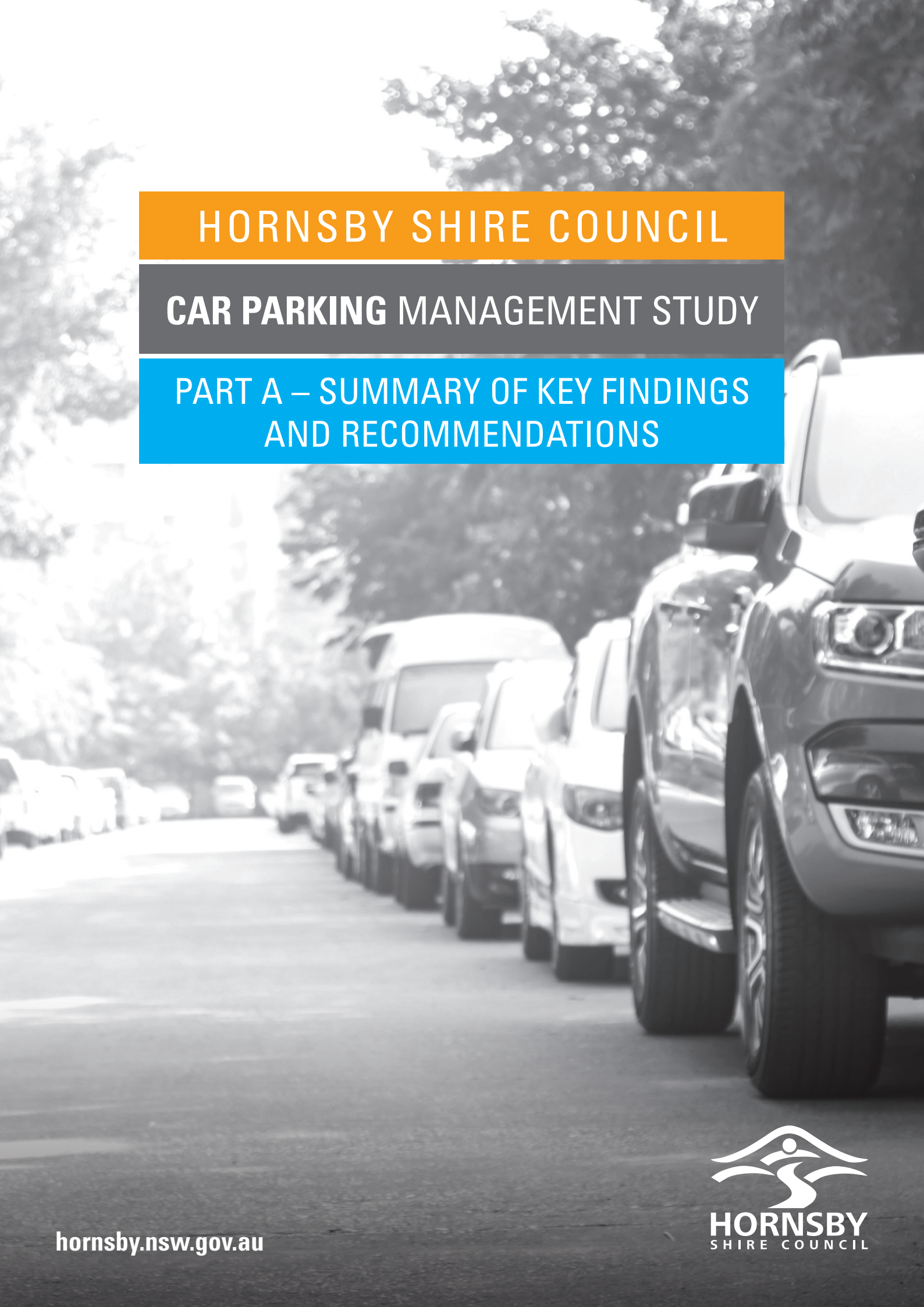

HORNSBY SHIRE COUNCIL

CAR PARKING MANAGEMENT STUDY

PART A – SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS

hornsby.nsw.gov.au

HORNSBY SHIRE COUNCIL

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1 HORNSBY SHIRE KEY FINDINGS AND RECOMMENDATIONS

1.1 KEY FINDINGS

A summary of key findings for the Hornsby Shire is tabulated in Table 1.1.

Table 1.1 Summary of key findings for Hornsby Shire

Description of Information or Data	Findings
PARKING CONTEXT	
Overview	• Most of the Shire's parking is free and unrestricted • Long term, medium term and short-term parking demand is high in key precincts.
Strategic Planning Context	• Reduce private vehicle use • Increase alternate travel modes • Reduce excessive vehicle kilometres travelled • User pays for parking.
REVIEW OF BACKGROUND INFORMATION	
Hornsby Station Intercept Surveys (Austraffic, 2010)	• 83.6% of respondents travelled more than 3 days each week from Hornsby train station. • Car drivers accounted for 12.3% of travel mode to Hornsby train station. • 40.8% of respondents used public transport (bus and train) as their travel mode to Hornsby train station. • Walking accounted for 33.1% of travel mode to Hornsby train station.
Hornsby Shire Town Centre Parking Surveys	• The data collected from these surveys is more than three years old (conducted by Hornsby Shire Council in 2010) and is no longer reflective of the parking issues these precincts face.
Hornsby Integrated Land Use and Transport Strategy	• 'Parking is a critical part of an integrated transport system. It has a significant influence on car use in that, if parking is not available at the destination, car use is minimised. The aim of a parking policy is to balance the supply of, and demand for, parking spaces with the objective of minimising additional traffic generation through restraining car use, while ensuring the economic viability of each centre is maintained'. • Various unrestricted on-street parking bays should be considered for progressive conversion to three- and four-hour parking. • On-street unrestricted parking bays adjacent to auto repair shops and other light industries should be time restricted, however permits and/or vouchers may be issued to allow continued business use of these bays. • Introduce paid parking (first hour free) at the Council car park on the corner of Burdett Street and George Street. Trial paid parking for on-street parking bays on George Street, Linda Street, Hunter Street, Albert Street and Florence Street. Extend the coverage of the on-street paid parking scheme (if successful) to all on-street bays within 400 m of the station. • Future developments must provide sufficient parking in alignment with code requirements, including Section 94 contributions (S711/S12 funding). Retain Council car parks for future expansion, for the purpose of Section 94 contributions. • Do not provide additional parking bays for commuters. • Long-stay paid parking should be implemented at Alexandria Parade, Romsey Street and Orara Street. • 4P parking should be implemented at Waitara Avenue, Park Street and Balmoral Street (south of Park Lane), 3P along eastern side of Waitara Avenue, between Edgeworth David Avenue and Park Lane, to accommodate short term parking for upgraded Waitara Oval and new PCYC centre, 10 additional 2P bays along Derby Road to accommodate visitors to Hornsby Hospital and 6 1/2Pbays along western side of Hunter Lane, north of Burdett Street, to accommodate retail in Hunter Lane. • The introduction of temporary 'Work Zones' to accommodate approved developments, various upgrade of bus stops to 'Bus Zones' to prevent illegal parking and improve transport operations and various 'No Parking' zones in cul-de-sacs to improve waste collection.
Parking User Types	• Rail travellers including commuters, part time workers, college and university students • Long stay – local employees • Short to Medium stay – visitors, shoppers and part time employees • Loading/drop-off/pick-up • M2 bus service commuters.

Description of Information or Data	Findings
Demographics – Population Trends (2011-2016)	Between 2011 and 2016 the population of the Shire • Increased by 10-12% in Waitara and Hornsby • Increased by 2-6% in Berowra, Beecroft, Pennant Hills, Thornleigh, Normanhurst and Galston • Remained the same in Cherrybrook. • Decreased by 3-9% in Brooklyn, Cheltenham and Asquith • Decreased by 42% in Berowra Waters.
Demographics - Travel Modes **(2011-2016)**	Between 2011 and 2016 the car usage in the Shire • Decreased in most precincts by 1-8% • Increased in Hornsby, Berowra, Asquith and Galston by 1-3%. Between 2011 and 2016 other travel modes usage in the Shire • Increased by 10-30% in all precincts except for Galston • Decreased in Galston by -2%.
EXISTING PARKING CONDITIONS	
Key Parking Issues from the Community	• Local residents objecting to all day parking on their street • Residents complaining of parking occurring too close to their driveway • Residents requesting preferential parking at rail stations • Local employees seeking all day parking near centres • Business people wishing to park, load/unload near their business premises • Train and bus commuters seeking all day parking near existing train and bus stations • Parking management on Franklin Road and Robert Road, Cherrybrook to deter commuter parking generated by the North West Metro. • Hawkesbury River residents seeking all day or multi day parking and Brooklyn visitors requiring shorter stay parking • Berowra Waters River residents seeking all day or multi day parking and visitors requiring shorter stay parking
REVIEW OF PARKING MANAGEMENT PRACTICES	
Employee Parking	• All commercial and industrial developments in Hornsby LGA are required to provide adequate parking for employees and visitors. • This requirement is contributing to traffic congestion and encourages private vehicle use.
Rail Commuter Parking	• 14 rail stations within Hornsby LGA with limited Transport for NSW provided off-street parking • Council adopts the position that rail commuter parking is a State Government issue • Overflow rail commuters park in the surrounding streets causing congestion on local streets
Permit Parking	• No current permit parking schemes in Hornsby LGA • There are a range of permit parking schemes available to help with parking issues including: Business, Commuter, Resident, Resident's Visitor, Special Event and Declared Organisation Parking Permits. • Eligibility and benefits of these schemes need to be managed with the impact on the road network in mind.
Parking Time Limits	• Streets in Hornsby LGA's town centres have limited time restrictions for on-street parking • There are limited short and medium stay time restrictions, allowing long stay parkers the priority parking.
FUTURE PARKING DEMAND REQUIREMENTS	
Resumption of TAFE Car Park by TfNSW	• Council is working with TfNSW as part of the Hornsby Town Centre Review to identify the best use of this land in the future
Hornsby Hospital Expansion	• The Hornsby Hospital car park was initially free of charge, however, past fees increased the potential for parking overspill into surrounding residential areas as people sought free parking alternatives. Presently, the completion of a new multi-storey paid car park has changed this parking situation with more people parking within this facility.
Hornsby Park	• The Masterplan for the Hornsby Park revitalisation project is yet to be completed and details of specific components and the parking requirements are not available.

Description of Information or Data	Findings
Hornsby Town Centre Review	• Council is aiming to revitalise the Hornsby Town Centre to create a liveable, green and accessible centre that enhances life for the community.
Hornsby RSL Club Planning Proposal	• The planning proposal for redevelopment of Hornsby RSL incorporating the three locations along William Street, Ashley Lane, High Street and Webb Avenue has been placed on hold and is forming part of the Hornsby Town Centre Review.
Potential Sites for Construction of Public Car Parking	• There are limited sites within the town centres for construction of public parking facilities and these are not recommended as they encourage private vehicle use and cause town centre traffic congestion. • Any public parking construction is to be constructed on the fringe of the town centre.
Parking Contributions	• Pay Parking is currently only available in Fagan Park and at the Hornsby Aquatic Centre • Pay parking is viewed upon favourably as a parking management and control measure for Hornsby.
PARKING MANAGEMENT APPROACH	
Traditional Approach to Parking	• During the past 15 years there has been an increasing trend towards more efficient use of existing transport infrastructure as an alternative to expanding roads and parking facilities. The approach increasingly being used is known as travel demand management.
Changing Approach for Managing Car Parking	• Under a new 'demand management' approach, parking facilities should be used more efficiently. • The challenge for the Shire is to find a balance between adequate parking supply and demand to ensure the long-term vitality of the Town Centres and the environmental, social and economic necessity towards more efficient use of infrastructure. • Controlling parking demand is the counterbalance to the management of parking supply, but it is far easier, more flexible and less expensive to make better use of existing parking capacity than to create additional parking. This change in approach to the strategic management of parking has been termed a paradigm shift and is being increasingly applied in urban areas where sustainability is a major objective.
People Access	• The promotion of increased active access such as convenient cycle ways and walkways
Driver Priorities	• Following the decision to drive to their destination, drivers will choose where they park based on four major factors: cost of parking; location of parking; time of day; availability of parking.
Efficient and Effective Alternatives to Car Access	• Unfortunately, the Council does not control the provision of bus services and public transport however Council can lobby the New South Wales State Government to provide more convenient and frequent public transport services.
Transport Mode Shift	• The need for better pedestrian paths, bicycle paths and quality end-of-trip bicycle facilities need to be considered in support of sustainable transport initiatives. As technology further evolves and user acceptance grows, passengers can be transported to and from a destination without the vehicle needing to park in between.
Commuter Parking	• Commuter parking tends to be of lesser value to town centres and should ideally be supplied on the periphery of town centres in large-scale parking structures priced to support all-day parking.
Special Events	• Council does not have a special event parking strategy or measures in place to manage the impact of special event increased parking demand.
Tourist Destinations	• Any parking time restrictions or charges introduced should have the flexibility to change to meet seasonal demand. Following the parking utilisation surveys conducted in these areas, the introduction of time-restricted parking in Brooklyn and Berowra Waters may be warranted.
Free Parking	• Owners of private vehicles are expected to cover the costs associated with owning and operating a car and constructing and maintaining road infrastructure; however, in most instances, the costs associated with vehicle storage, e.g. parking, may not be charged directly to users.
Parker User Groups	• To enable equitable sharing of parking resources, it is necessary to identify all the different parking user groups and prepare a parking hierarchy.
PARKING MANAGEMENT TOOLS AND OPTIONS	

Description of Information or Data	Findings
Street Parking Plan	• A street parking plan provides a consistent approach to parking management based on parking occupancy thresholds. Each threshold has a different degree or severity for parking controls. For areas that reach more than 85% occupancy, controls promote mode shift to alternative transport thereby promoting sustainability. The plan provides a flexible approach to parking management, enabling parking controls to adapt to the dynamic and transforming nature of communities and places.
Parking Controls	• Parking controls should support the viable operation of the adjacent land-use and user needs.
Commercial and Mixed-Use Areas	• Parking controls in streets dominated by retail and commercial frontages will aim to support the viability and efficient operation of local businesses. The parking controls will encourage street parking turnover and encourage use of off-street parking facilities whilst providing sufficient time for visitors to access services and amenities.
Residential Areas	• Parking controls in residential areas aim to balance the parking needs of residents with the needs of all households who require street space for visitors, family, care workers and tradespeople. Parking spaces are to be prioritised for residents in streets near to shops and businesses where there is a high visitor demand for parking.
Parking Management Improvement Plan	• Successful parking management increases the availability of parking for competing users of the road space (cars, public transport and bike infrastructure) who need or value it most in a given situation.
Pay Parking	• Best practice considers the introduction of pay parking when average peak-hour demand exceeds 85%. The survey results revealed many of Council's high demand parking areas are well above the 85% benchmark. Regardless of the emotion often surrounding the introduction of pay parking, there is little doubt that it represents an efficient and effective means to manage on and off-street parking demand and encourage turnover of bays. • Pay Parking should also be investigated for recreational areas such as Crosslands Reserve. This site is similar to nearby NPWS facilities such as Bobbin Head which has pay and display.
Compliance	• The effectiveness, benefits and impacts of pay parking are directly linked to compliance. An average occupancy initially recorded as 85% may well be only 75% when more effective enforcement is introduced.
Car Share and Car Pooling	• A car share scheme is currently available within Hornsby with 5 vehicles at two locations. • Car pooling and even van pooling can have preferential parking provided to encourage its success.
Rates on Parking Provisions	• To limit private vehicle use Council should review the Hornsby Development Control Plan with a view to implementing a cap on provision of employee parking, particularly for commercial developments within 500 metres of major town centres.
Travel/Green Plan	• All new development applications for commercial premises should be required to provide a detailed Travel Plan/Green Plan. • Development bonuses should be provided by Council for the development of an employee travel plan/green plan.
Education	• An upgraded and on-going campaign of communication on the unsustainability of current parking practices is recommended.
Enforcement and Compliance	• For most of the on-street parking in the Shire, the current process of monitoring compliance is highly inefficient. The benefit of more efficient and simplified parking enforcement is the creation of additional capacity, an improvement in the turnover of on-street parking bays, and the encouragement of better utilisation.
Technology	• Smart Parking technology is ultimately not only about driving up productivity and service, but also demonstrating a long-term greener value to customers. In addition, improved parking technologies will also improve enforcement within the area and subsequently increase compliance.

Description of Information or Data	Findings
Wayfinding	• A coherent wayfinding system is a cost-effective means to reduce searching time for bays and unnecessary circulation of cars, while also encouraging better utilisation. Predictable, consistent and authoritative public information is the key to building confidence.
Parking and Access Data and Information	• The provision of better information about on- and off-street parking availability combined with signage indicating pedestrian walking times to major destinations can increase utilisation of all available facilities.
Shared Parking	• Efficient sharing of bays can allow the number of parking bays required to service demand to be reduced significantly.
Remote Parking	• Remote parking can free up quantities of parking for short-stay visitors to the Town Centres.
Parking Control and Management Plan	• A Parking Control and Management Plan (PCMP) places the onus on the developer to consider the proposed practical plans to manage and control the parking on site in order to comply with the planning conditions.
RECOMMENDED PARKING RATES AND CASH-IN-LIEU CONTRIBUTIONS	
DCP	• The required parking rates for Hornsby increase when the location of the development exceeds an 800 m radius from a railway station.
ILUTS	• The stated intention of Council's ILUTS is to balance the supply of and demand for parking spaces with the objective of minimising additional traffic generation through restraining car use, while ensuring the economic viability of each centre is maintained.
Other LGA's	• When comparing the business or office premises parking requirements with five other LGA's, Willoughby Council has almost half the required rates of Hornsby Shire. Hornsby Shire has either the same or lower parking requirements than the Hills, Ku-ring-gai, Ryde and Northern Beaches LGA's. • The LGA's of Willoughby, Ku-ring-gai and Hills also apply increasing parking rates to some types of developments as the location of the development becomes more remote from a railway station or town centre. All LGA's, including Hornsby implement minimum parking rates.
Minimum Parking Ratios	• To a large extent, minimum parking ratios are a historical by-product of plentiful and inexpensive land and a lack of convenient payment technologies.
Maximum Parking Ratios	• Maximum parking ratios should be implemented to limit the oversupply of parking in the town centres.
Cash-In-Lieu	• Cash-in-lieu is particularly beneficial when parking needs to be limited and should be considered as a tool or option for managing future parking demands.
Current Status	• Due to the current commercial development trends in Hornsby Town Centre, the additional public car parking that is to be funded from developer contributions is likely to be received at a slow rate over a protracted period of time, possibly over the next 20-30 years.
Use of Funds	• Limiting the use of cash-in-lieu generated funds to provide public parking is restrictive and assumes that additional parking is both necessary and desirable. In view of the importance of integrating transport policy and management and the competition for limited funding, it is clearly desirable that the funds raised be available for transport purposes in general. This should include services and infrastructure, such as funding a shuttle bus to serve the commercial centres.
SMART TECHNOLOGY	
Car Sharing	• The introduction of car sharing schemes in the Shire (short term – next 18 months) will reduce private vehicle use, traffic congestion as well as the demand for on-street parking.

Description of Information or Data	Findings
Driverless Vehicles	• The introduction of driverless cars, combined with changing transport trends by Australians, will bring substantial changes to the parking ecosystem within the longer term (next 5–10 years). • Car parks will therefore need to modernise to feature charging stations and become connected environments with internet access. • It is thought that smarter cars will result in smaller parking spaces, with less development costs associated with parking. As technology advances and more cities begin to adapt, the shift may lead more and more local governments to begin to figure out how to repurpose empty parking areas, or start moving car parks to the edge of town, given that autonomous vehicles will eventually be able to valet themselves.
Autonomous Vehicles	• The advent of autonomous vehicles may have significant implications for parking, including with regards to its size and location.
Electric Vehicles	• There will be a requirement in the short to medium term for designated electric vehicle on-street charging bays in the Shire.
Cooperative Intelligent Transport Systems	• Cooperative Intelligent Transport Systems will improve the safety of both pedestrians and drivers in the on-street parking environment in the short term (next 18 months).
Mobility as A Service	• The emergence of Mobility-as-a Service throughout the city of Sydney is a clear indicator that commuters will increasingly favour a pick-up and drop-off service, which will reduce demand for multiple parking options, and allow those spaces to be repurposed for other uses. An example study can be found at https://www.sciencedirect.com/science/article/pii/S0965856418311376
LATEST AND EMERGING TECHNOLOGY	
Smart Parking Approach	• For the Shire to be smart, liveable and sustainable in the future, the Council should adopt a Smart Parking approach to parking.
Case Studies	• Many local governments are installing and using smart technologies to assist in the management of parking.
Vision for Smart Parking Technology	• Cash payments are decreasing with the move towards more convenient cashless payment increasing. A wide range of payment options will be available for drivers. Besides pay and display machines, there will be credit and debit card-accepting terminals, online booking options and payment via smart phone. • Real-time information on the location and availability of vacant bays will be available in several formats including wayfinding signage, parking guidance systems, variable message signs, apps and in-car information. Importantly, drivers deciding to travel to the town centre will be aware of various options to park, whether they be off-street, on-street or in unmetered areas. • Smart Parking will significantly improve customer service by offering better guidance, quicker location of bays and more convenient methods of payment, increased efficiency in the use of parking bays. • Council will still require officers to undertake enforcement, however, there will be far less time spent on implementation of the process. Compliance will be measured using in-ground sensors or CCTV analytics and vehicle-mounted LPR.

1.2 RECOMMENDATIONS

The following tables list all of the recommendations and provide a prioritised action plan as **Urgent (U)** – within 18 months, **Necessary (N)** – within 5 years and **Desirable (D)** – within 10 years.

Any recommendations that involve the consent of a third party such as Transport for New South Wales or State Rail should be included in discussions of changes before any changes are committed to action. This will allow an effective solution to be developed with all parties' requirements to be met at an early stage of the process.

1.2.1 POLICY

<table>
<tr><th>Policy/Strategy</th><th colspan="2">Recommendation</th></tr>
<tr><td>Manage Parking as an Asset</td><td>Council is to optimise the use of existing parking resources before building new facilities.</td><td>U</td></tr>
<tr><td>Hierarchy of Parking</td><td>Council needs to implement a hierarchy of parker user groups as presented below. The Council needs to implement a hierarchy of parker user groups for Central Town Centre and Outside Town Centre.
<table>
<tr><th>Priority</th><th colspan="2">Central Town Centre Parking</th><th colspan="2">Outside Town Centre Parking</th></tr>
<tr><td></td><td>On-street</td><td>Off-street</td><td>On-street</td><td>Off-street</td></tr>
<tr><td>Highest</td><td>Disability permit holders (where appropriate off-street parking cannot be provided)</td><td>Disability permit holders</td><td>Public transport</td><td>Long-stay/ commuter, Facility user</td></tr>
<tr><td></td><td>Loading</td><td>Short to medium stay</td><td>Residents</td><td>Short to medium stay</td></tr>
<tr><td></td><td>Public transport</td><td>Drop-off/pick-up</td><td>Short to medium-stay</td><td>Drop-off/pick-up</td></tr>
<tr><td></td><td>Drop-off/pick-up</td><td>Loading</td><td>Disability permit holders</td><td>Park and Ride</td></tr>
<tr><td></td><td>Short to medium-stay</td><td>Motorcycle/scooter</td><td>Loading</td><td>Residents,</td></tr>
<tr><td></td><td>Motorcycle/scooter & cyclists</td><td>ong-stay/commuter & residents</td><td>Long-stay/ commuter</td><td>Motorcycle/scooter</td></tr>
<tr><td>Lowest</td><td>Disability permit holders (where appropriate off-street parking has been provided)</td><td>Cyclists</td><td>Drop-off/pick-up & motorcycle/ scooter & cyclists</td><td>Disability permit holders & loading & cyclists</td></tr>
<tr><td>Not allowed in this zone</td><td>Long-stay/commuter</td><td>Public transport</td><td></td><td>Public transport</td></tr>
<tr><td></td><td>Residents</td><td></td><td></td><td></td></tr>
</table>
Consideration is to be given to the nature of the surrounding land use and the function that the particular road plays in the overall transport network. This allows for different priority within the same neighbourhood depending on the adjacent generators of kerbside demand.</td><td>U</td></tr>
<tr><td>Evidence Based Approach</td><td>It is recommended an evidence-based approach is used to develop a framework for consistent and transparent decision-making to promote the efficient, fair and equitable use of available street parking to where and when pricing and time restrictions need to be introduced.
This will require undertaking parking surveys to establish parking demands and availability during these periods as well as measuring parking occupancy, turnover and compliance to the existing controls.</td><td>U</td></tr>
<tr><td>User Information</td><td>Information for parking in all precincts should be provided on the internet, with pricing, time restrictions, locations of car parks and real time availability to assist users to find a vacant bay, reducing the time wasted in searching for a car park.</td><td>U</td></tr>
<tr><td>Time Restricted Parking</td><td>Time limited parking restrictions should be altered and expanded to provide consistent and appropriate parking opportunities and maximise the availability of supply.</td><td>U</td></tr>
</table>

Policy/Strategy	Recommendation	
Parking Control and Management Plan	Council should require a parking control and management plan (PCMP), to be provided by developers, together with their building application as part of the development assessment process for all developments requiring more than five spaces. Reference to the PCMP should be included in the parking policy, together with penalties for non-compliance.	**U**
Residential Parking	The introduction of RPPS (residential parking permit scheme) is not recommended at this stage as it will encourage car ownership and lead to increased congestion and the overwhelming majority of residences have adequate off-street parking. It has been recommended that tighter parking controls be implemented to manage on-street parking affected by long-stay parker overspill. It is recommended that timed parking restrictions be extended and tighter parking controls be implemented to manage on-street parking affected by long-stay parker overspill. The following specific measures are recommended: Short term • Review the 'No Parking Restrictions' that were recently installed in several streets surrounding the Cherrybrook Metro Precinct and remove the subject restrictions to allow all day parking. • Progressively increase the supply of short-stay parking spaces in major centres inclusive of Waitara, Hornsby Town Centre and Hornsby Hospital to increase parking space turnover. • Investigate options and viability of introducing parking vouchers or a parking token system for local residents in areas where the demand for on-street parking exceeds supply. • Continue to work with car share providers and consider introducing the car share scheme in all major activity centres inclusive of Waitara, Hornsby Hospital, Hornsby Town Centre, Berowra and Cherrybrook Metro precincts. • Undertake a targeted community campaign to educate residents about sustainable travel options and the general cost of car parking to the community. Short to medium term • Review the requirements for a Resident Parking Scheme in 12 – 24 months in key precinct areas inclusive of Cherrybrook Metro, Waitara, Hornsby Hospital and Hornsby Town Centre precincts. • Consider implementing a two stage Resident Parking Permit trial (Stage 1) for 12 – 24 months concurrent with Pay Parking (Stage 2) around Hornsby Hospital Precinct and certain areas of Waitara subject to the outcome of community consultation.	**U**
Special Events and Sporting Precincts	Council should undertake a detailed analysis of all on-street and off-street parking during special event periods and at highly patronised sporting facilities. As part of the special events approval procedure, Council is to request an Event Parking Plan from the organisers which will include an appropriate communication plan for educating visitors to the festivals. Special event parking permits may be issued to residents or businesses that are affected by special event traffic managements such as major sporting events in the area or cultural festivals. They may also be issued as an annual permit for areas where there are a large number of special events, such as sporting precincts.	**U**
Parking Ratios	Regulations relating to the provision of parking are to include measures to maximise the use of all non-resident parking for the public as shared parking, and the expansion of time limited and pay for parking to encourage turnover (churn) of bays. A detailed floor space survey is to be undertaken and the existing parking rates re-evaluated against future growth estimates can be used to determine appropriate rates for Hornsby Town Centre. In order to achieve an appropriate level of parking supply in some precincts, mandatory maximum and minimum parking requirements will be necessary. A maximum is to be set on the total supply of parking in the central core precinct. It is recommended, subject to community consultation, the existing 1 per 48sqm. GFA within a radius of 800m of a railway station minimum parking requirement for business and office premises be implemented as a maximum requirement and a minimum requirement of 1 per 60sqm GFA be introduced. Similarly, the parking requirement for shops should be amended to be 1 per 29 sqm GFA maximum and 1 per 35 sqm GFA minimum. It is further recommended the radius be reduced to 800m of a railway station. Those developers willing to incorporate car share schemes in a development could receive special dispensation on a case by case basis, however this would have to be investigated further.	**U**
Cash-in-Lieu	The cash-in-lieu fee for all projects is charged, but with a regular adjustment to the fee. Rather than applying CPI increases and given the increase in land values within the LGA, the cash-in-lieu fee is to be based on a formula which considers the land value for each commercial centre set by the Council every 2 years and the cost of construction. Property owners/developers complying with the criteria shall make payments in lieu of providing a proportion of required on-site parking.	**U**

Policy/Strategy	Recommendation	
	Income received as parking cash-in-lieu be allocated to a special fund for accessibility improvements including: • A shuttle bus service in the council. • Security lights and improved pathways to access parking area. • Cycle paths and other cycling support facilities. Ensure that there is an effective record-keeping process to manage cash-in-lieu contributions. This system would track payments by developers, current land and construction costs, infrastructure works and planning. Maintaining a transparent process of cash-in-lieu through which developers can see direct value will assist in achieving both mandatory and voluntary contributions.	
Encourage Unbundled Parking	It is recommended that Council talk to the proprietors of adjacent shops and businesses to propose they unbundle their parking and share a larger area of parking between a group of shops and businesses. This will provide more availability of spaces for customers and clients. It creates a more cohesive parking area rather than segregated areas where drivers need to check each bay to determine if the bay is reserved for a business.	**U**
Public Transport Services	Council should lobby the State Government for more bus services to be provided from the surrounding suburbs and stopping at the bus interchanges and near the train stations in the town centres. More bus services will reduce the need for parking supply in the town centres. This effort from Council should be communicated to the residents so that they know Council is trying to provide alternative transportation options in the Shire.	**U**
Education	An education program needs to be aimed at all stakeholders including planners, developers, designers, retailers, tenants, elected officials and council officers, business and community groups, students, residents, visitors, commuters, and the general public. Education and appreciation of the unsustainability of current parking demand should be available and regularly communicated in the Council's publications. The community need to understand that: • Drivers cannot expect unlimited parking close to their destination. • Unlimited supply has environmental, social and economic drawbacks. • Parking needs to be sustainable. • There is a cost for the provision of parking. • Parking users need to help to share the cost of parking infrastructure equitably. Net surplus from parking services are to be reinvested into improving access and transport infrastructure	**U**
Integrated Transport Strategy	It is important to acknowledge that a parking management plan forms part of an integrated transport strategy which may also incorporate: • Road safety plan • Green travel plan • Travel demand management plan • Active transport plan • Local area traffic management plans • Specific parking management plans	**U**
Strategy and Actions	Council is to explore opportunities to maximise the use of existing supply, including the application of technology to provide information, shared parking arrangements, the use of loading-zones outside of business hours, and promotion by the Council of all off-street public parking facilities. When these are available to the public, the focus is to be on maximising the use of all existing parking resources to the greatest extent possible. The parking study for the Shire is to be identified and coordinated with an integrated transport strategy. The strategy is to incorporate five sustainable parking principles: • Focus on people movement rather than vehicle access. • Provide efficient and effective alternatives to car access. • Parking policy and strategy must support sustainable transport. • The appropriate amount of parking for a centre will be well below the unconstrained demand for parking. The provision of parking requires a demand management, not a demand satisfaction approach.	**N**
Introduce Pay Parking	It is recommended on-street pay parking be introduced in the short to medium term. On-street parking must be priced as a premium product to encourage long-stay stays to off-street and more remote facilities. As long as on-street parking is cheaper than off-street parking, drivers will not be discouraged from cruising the street looking for a bay.	**N**

Policy/Strategy	Recommendation	
Allocate Pay Parking Revenue	Revenue received from pay parking should be written into policy to be exclusively used for maintenance and upgrade of parking equipment and facilities, the improvement of active transport between centres of high activity and peripheral parking, pedestrian and cyclist facilities as well as shared transport services generally within Hornsby Shire. Providing community accessibility through the improvement and expansion of cyclist and pedestrian facilities using parking revenue shows residents that they benefit from the implementation of pay parking. This information should be communicated to residents as part of the communication regarding the introduction to pay parking. At specific locations that may be considered destination parking, funds could also be hypothecated towards specific locations and improvements as part of a broader economic development approach.	**N**
Commuter Parking	It is recommended that commuter parking be provided primarily on or accessed via major approach roads on the boundaries of the town centres, to minimise the impact of commuter parking and commuter traffic on the operation of the internal road network. It should not be Council's responsibility to provide commuter parking. In many ways, the provision of commuter parking should not be a priority for Council when considering the appropriate use of parking infrastructure in a central activity area. The priority should be for Council to encourage visitation by maintaining a sufficient inventory of short stay parking. This will instil confidence in the minds of all visitors in believing it is 'easy' to park near their final destination within the precinct. This will in turn inevitably encourage future business investment. Accordingly, it is further recommended that Council do not directly increase the commuter parking inventory within the Hornsby LGA. Rather, Council should lobby TfNSW to provide appropriate commuter parking supply commensurate with current and forecast levels of demand in locations that support the success of the relevant centre. Additionally, it is noted TfNSW have commenced a pilot scheme to introduce access control in commuter car parks. Non-commuters will be discouraged by the implementation of parking fees and transport mode shift will be encouraged. With this in mind, Council should consider the potential future impacts on shopkeepers and staff currently using the commuter car parks in the Hornsby Town Centre and Waitara study area precincts.	**N**
On Demand Shuttle Bus	The New South Wales Government is currently trialling an on-demand shuttle bus service. It is recommended Council liaise with the state government and undertake comparative surveys to identify the impacts of this service on parking. This service will significantly reduce the high demand for commuter parking whilst reducing travel time for commuters.	**N**
Car Share	The Council needs to continue to review their policy regarding car share vehicles and the installation of dedicated parking (pods) for these vehicles to reflect changes in residents' perception of this policy and developments within its management. The usage of car share vehicles is to be carefully monitored and the allocation of bays revised where necessary.	**N**
Driverless and Electric Vehicles	Council needs to closely monitor the development of autonomous vehicles and consumer take up of electric vehicles. Car parks will need to modernise to feature charging stations and become connected environments with internet access. The requirement for parking in activity centres will reduce and Council will need to consider the repurposing of unused parking areas. The introduction of autonomous vehicles in car share schemes will accelerate the necessity for Council action.	**D**
Travel Demand Management	The future plans for the Shire must contain recommendations not only to curtail the supply of additional parking, but also to manage parking to constrain demand.	**D**
Transport Mode Shift	The existing public realm for pedestrians, cyclists and public transport users' needs to be significantly improved during the next decade to encourage transport mode shift. Better pedestrian paths, dedicated bicycle routes and quality end-of-trip bicycle facilities need to be considered in support of sustainable transport initiatives. The Shire needs to prioritise access for pedestrians, cyclists, public transport users and people with disabilities, and make the most of public transport infrastructure, balanced with the needs of the road network, including the need to minimise congestion. Additionally, educational and media campaigns should be undertaken to inform parkers of the advantages of using sustainable transport options.	**D**

1.2.2 INFRASTRUCTURE/TECHNOLOGY

Item	Recommendation	
Improved Wayfinding and Smart Technology	Wayfinding signage in all town centres should be introduced or reviewed and improved to guide drivers to the off-street car parks. This signage would be best placed along the main roads leading into the town centres. The signs should indicate if the parking is short, medium or long-term parking. Directing drivers to available off-street parking ensures premium on-street parking is available for short term parkers. Clear, concise parking wayfinding signage assists drivers to find parking more efficiently, reducing the circulation of vehicles in the town centres. Council owned and maintained off-street car parks should be clearly and consistently signed for drivers on the approach to the entrances to these car parks. In some of the town centres smart technology should be implemented. The real time information on the signs will show the number of available bays remaining in a car park and will help drivers to make early parking decisions before they turn off the main road into the town centre. This technology will involve the installation of parking technology at the entrances and exits of car parks to provide the real time information to the smart technology signs. This information should be available on the internet.	**U**
New Technology to Assist Enforcement	New technology be used to assist in enforcement including handheld enforcement devices and LPR surveillance which decrease the time taken to issue tickets and in return increase compliance with parking restrictions. This will discourage long term parkers from using the short- and medium-term car parks and allow bona fide users to find a parking space. Consistent and regular enforcement is the best way to encourage good parking behaviour as drivers know that if they don't comply with the parking restrictions they will be fined. It should be used as a tool to encourage turnover, giving drivers equal parking opportunities. The effectiveness, benefits and impacts of pay parking are directly linked to compliance. An average occupancy initially recorded as 85% may well be only 75% when more effective enforcement is introduced	**U**
Enhancing the Pedestrian Experience and Safety	Accessibility for pedestrians requires enhancement in most precincts. It is recommended that Council provide designated pedestrian pathways, pedestrian crossings and pedestrian refuge islands where proposed in the specific precinct recommendations. This will improve connectivity with parking areas and improve pedestrian safety. Provision of improved cycle connections may require removal and replacement of on-street parking to achieve efficient network connections especially in the context that most verges are 3.5m wide and do not easily accommodate min 2.5m wide cycle shareways after considering topographic constraints, pedestrian uses and street tree space requirements. The lighting in some of the town centres along pedestrian routes should be reviewed and improved to meet Australian Standards. This is of importance for pedestrian crossings and streets that have a high night-time pedestrian flow.	**U**
Electric Vehicle Charging	Council should investigate the installation of charging facilities for electric vehicles on-street. This service should offer short term parking plus a fee for the provision of a rapid charge. Council should not provide long term electric vehicle charging facilities on-street. It is recommended, as part of a pilot scheme, two electric vehicle charging stations be installed in the Dural Lane, Dural Street and Aquatic off-street car parks as well as two on-street bays on each of Jersey Street and Hunter Street.	**U**
Parking Management and Enforcement Technology	Council should adopt a Smart Parking approach to parking. Council needs to incorporate technology into its on-street parking policy to enable the provision of real-time data management. It should provide live-streamed wayfinding and bay availability to prospective users of the on-street parking. It is recommended LPR ticketless technology is employed to manage pay parking in both on-street and off-street parking. This will include the installation of Pay by Plate (PbP) parking machines, in-ground parking sensors and a mobile LPR system for enforcement. The PbP parking machines should accept payment by cash, credit/debit card and mobile phone APP. In accordance with RMS guidelines, less machines will need to be installed compared with Pay and Display (PnD) ticket machines as parkers will not be required to return to their vehicles from the machine to place a ticket on the dashboard. The mobile phone payment App should also be integrated to provide live streamed bay availability and guidance to drivers. Each on-street and off-street bay is to have an in-ground parking sensor installed. In-ground sensors will allow an enforcement officer to patrol once and to easily determine whether a vehicle has parked in excess of any restrictions. Smart parking technology will provide real-time information of available parking capacity in on-street and off-street car parks, statistical information on the use and turnover of all spaces and increase the turnover of available spaces due to reactive and targeted enforcement. The sensors and parking machines will provide	**U**

Item	Recommendation	
	detailed demand data reporting and analytics which will negate the need for future utilisation surveys to be undertaken in the installed areas. Additionally, by agreement with RMS, trip origin data can be retrieved from the licence plate data. Enforcement of both pay parking and time restricted parking areas is to be undertaken using a mobile LPR system. This will include on vehicle LPR cameras, licensed smart phones and associated hardware and software which will improve the efficiency of the parking officers by enabling more frequent patrols of the time restricted areas and targeted patrolling of the pay parking areas when integrated with the parking sensors.	
Technology Platform	Implement a pilot parking guidance system in a particular precinct. This is to be integrated with all off-street parking in the precinct. • Integrate the information of all on and off-street parking into a single integrated Council parking service. • Provide a region wide PGS embracing wayfinding and space availability and linked to apps and website searching. • Implement flexible, demand-based pricing structures for on- and off-street parking.	**N**
Parking Sensors	Install in-ground sensors or CCTV analytics in high demand streets	**N**

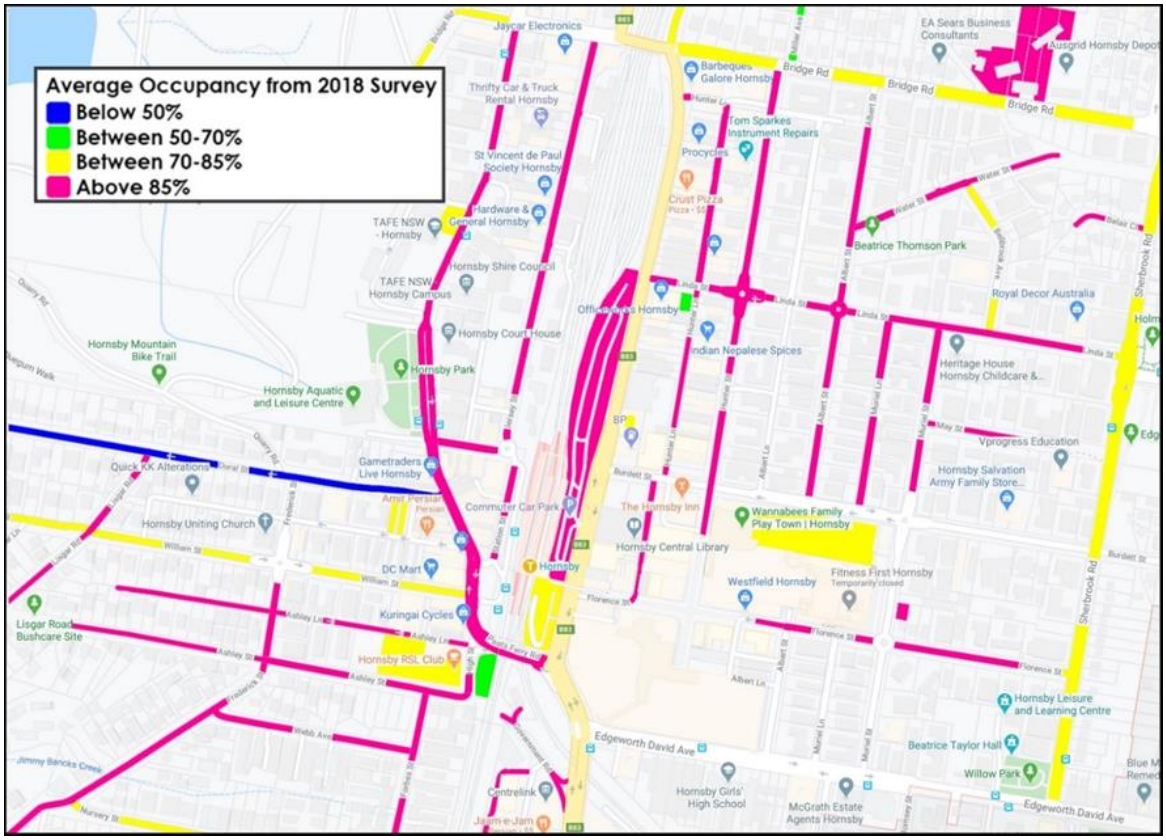
1.2.3 SURVEYS AND DATA COLLECTION

Item	Recommendation	
Parking Ratios	It is recommended that a detailed floor space survey is undertaken, and the forecast of the flat parking rate be re-evaluated against future growth rates.	**U**
Parking Occupancy Surveys	Parking occupancy surveys shall be undertaken consistently at the same time each year not only as a snapshot of parking demand, but to assess how demand is changing. Surveys in high demand areas should be undertaken once every two years, and once every five years in areas of less demand. Surveys should measure occupancy, duration of stay and compliance with restrictions, and the results should identify peak time occupancy and average occupancy for each street.	**N**
Parking Sensor Data	The data obtained from parking sensors can be monitored to enable Council to make informed, evidence-based decisions on increasing time restricted parking or extending pay parking.	**N**
LPR Data	Data captured by the mobile LPR enforcement vehicles be used to obtain trip origin to assist in determining future planning and prioritising the development of parking infrastructure for constituent use.	**D**

2 PRECINCT KEY FINDINGS AND RECOMMENDATIONS

2.1 HORNSBY TOWN CENTRE

Figure 2.1 Hornsby Town Centre occupancy heat map



Description of Information or Data	Findings

Utilisation Surveys	• There are 7,049 parking bays located within the study area. Of these, 21% are time restricted and 79% unrestricted.
	• 66% of parking supply is on-street, while 34% is off-street.
	• Peak occupancy on-street is 92% on a Thursday between 12 pm and 3pm, and, 90% on a Saturday with peak demand occurring at 11am as visitation to the precinct increases.
	• Peak occupancy off-street is 89% on a Thursday at 11am and 87% on a Saturday with peak demand occurring at 1pm.
	• The average length of stay off-street is 3.6 hours on a Thursday which indicates a large proportion of parkers are commuters or people employed in the CBD.
	• The restricted areas of on-street parking generate an average turnover of 6.9 cars during a typical weekday. The unrestricted areas of on-street parking generate an average turnover of 1.7 cars during a typical weekday.
	• The average length of stay off-street on a Saturday is 2.7 hours which is typical for a CBD area during the weekend.
	• The following road segments yielded occupancy rates of higher than 85%:
	  ◦ Peats Ferry Road from High Street to Coronation Street.
	  ◦ Coronation Street.
	  ◦ High Street.
	  ◦ Hunter Street south of Burdett Street.
	  ◦ Florence Street from Albert Street to Albert Lane southern side.
	  ◦ Station Street in place of existing 1/4P and 1/2P parking spaces.
	  ◦ Peats Ferry Road from Coronation Street to Jersey Lane.
	  ◦ Jersey Street from Coronation Street to Jersey Lane.
	  ◦ Dural Street from Peats Ferry Road to Frederick Street except for the current no parking zone.
	  ◦ William Street from Peats Ferry Road to Frederick Street.
	  ◦ Government Road except for existing P parking zone.
	  ◦ Hunter Lane from Burdett Street to George Street.
	  ◦ Hunter Street from Burdett Street to Linda Street.

Description of Information or Data	Findings
	• Hunter Street from Linda Street to Bridge Road western side. • Florence Street from Albert Street to Muriel Street. • Albert Street south of Florence Street eastern side. •
SWOT Analysis	• The lighting in the Council car parks off Dural Street and Dural Lane is inconsistent across the car park with one section in complete darkness and another section very well-lit. • Many residential streets were observed to be narrow which causes traffic congestion, such as Linda Street. • Drivers stop in the no stopping zone in the cul-de-sac of Hunter Street to drop passengers off, despite the vacancy of the passenger drop off zone on entry to the cul-de-sac. • The Dural Lane and Dural Street car parks are 3P parking and located within a short distance of Westfield Hornsby, where a 3-hour free parking limit applies. The parking fees at Westfield Hornsby are prohibitive for longer than 3 hours. As a result, drivers risk overstaying the 3P limit in the Dural Lane and Dural Street car parks. • Pedestrian crossing facilities are well lit on Peats Ferry Road, Jersey Street and Station Street.

Recommendations

Hierarchy of Parking

Priority	Hornsby Town Centre Parking		Outside Hornsby Town Centre Parking	
	On-street	**Off-street**	**On-street**	**Off-street**
Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, Facility user
	Loading/service vehicles	Short to medium-stay	Residents	Short to medium-stay
	Public transport (Including taxis)	Cyclists	Short to medium-stay	Drop-off/pick-up
	Drop-off/pick-up	Drop-off/pick-up	Disability permit holders	Park and Ride
	Short to medium-stay	Loading	Loading	Residents,
	Car share	Car share	Long-stay/ commuter	Motorcycle/scooter
	Motorcycle/scooter	Motorcycle/scooter	Drop-off/pick-up & motorcycle/ scooter & cyclists	
	Local Residents	long-stay visitors/workers/commuter		
Lowest		Cyclists	Lay-over zones	Disability permit holders & loading & cyclists
Not allowed in this zone	Long-stay visitors/workers/commuter	Public transport		Public transport

U

New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.

The 1P and 2P on-street parking areas should be line-marked to ensure maximisation of parking supply. **U**

Hornsby Town Centre is one of the most frequented areas for parking in Hornsby Shire. To reduce traffic congestion and prevent unnecessary travel time due to vehicles circling in search of parking, real time parking supply information should be installed at strategic locations. Suitable locations include Peats Ferry Road north of Bridge Road as well as Bridge Road.

These signs will guide drivers to the long term on-street parking in Jersey Street and the long-term commuter car park off George Street on the eastern side of the station. Additional signs for these two long term parking areas should be located on Edgeworth David Avenue travelling west to provide drivers with time to decide which side of the train line to park long term. The real time supply information should indicate the type of parking as long or short term and bay availability. This will allow commuters, staff, customers and clients to make informed parking decisions before turning into streets. **U**

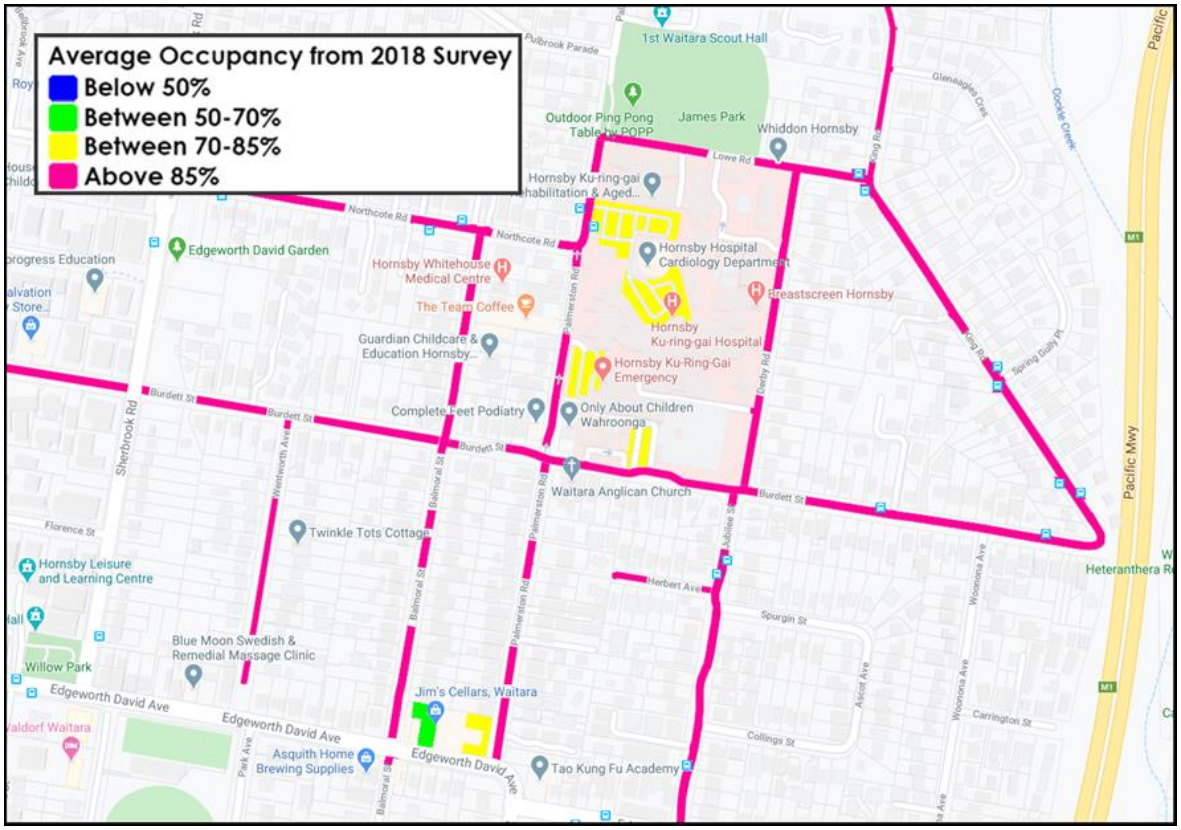
Install consistent parking wayfinding signage is consistent and the location and size of the signs is clear. The signs should provide details such as commuter/long stay (P Long), medium stay (P Medium) or short stay (P Short) giving drivers the knowledge to

Recommendations	
choose wisely regarding their parking needs. These should be located before key decision making intersections such as Peats Ferry Road and Bridge Road, Bridge Road and Jersey Street, Bridge Road and George Street, Edgeworth David Avenue and George Street. The Council Dural Street and Dural Lane off-street car parks should be clearly and consistently signed for drivers on the approach to the entrances. Information provided on the Council website should indicate the location, time limitations, fees and bay availability of the off-street car parks. A map of the off-street car parking locations should also be displayed. Similarly, a map of the streets included in the on-street pay parking area for Hornsby be provided to allow drivers to decide on their parking destination prior to driving to Hornsby, preventing unnecessary circulating through the town centre streets.	
The presence of cyclists is communicated to drivers along Peats Ferry Road and Edgeworth David Avenue. This will include the installation of appropriate warning signs and pavement marking. Improving the cycling environment will encourage cyclists to travel to Hornsby. A bike sharing scheme is investigated in consultation with the local community. A trial with limited bicycles could be undertaken near the Hornsby train station. Any bike sharing scheme should also be complemented with improved cycle infrastructure including safe off-street share paths.	U
An additional pedestrian crossing facility be installed across the Peats Ferry Road, outside the Court House, to mitigate the safety risk of pedestrians currently crossing the road at this location.	U
The location of street lighting should be reviewed to ensure lighting is not obstructed by tree foliage. Consistent lighting is provided in the Council car parks off Dural Street and Dural Lane. The lighting on Jersey Street is improved due to the high parking utilisation and low levels of lighting. Lighting is installed on Albert Lane from Florence Street to the car park ramp.	U
Two parking time restrictions be implemented on-street in the Hornsby Town Centre. One-hour parking (1P) is to be implemented on: • Peats Ferry Road from High Street to Coronation Street • Coronation Street • High Street • Hunter Street south of Burdett Street • Florence Street from Albert Street to Albert Lane southern side • Station Street in place of existing 1/4P and 1/2P parking spaces. Two-hour parking (2P) is to be implemented on: • Peats Ferry Road from Coronation Street to Jersey Lane • Jersey Street from Coronation Street to Jersey Lane • Dural Street from Peats Ferry Road to Frederick Street except for the current no parking zone • William Street from Peats Ferry Road to Frederick Street • Government Road except for existing P parking zone • Hunter Lane from Burdett Street to George Street • Hunter Street from Burdett Street to Linda Street • Hunter Street from Linda Street to Bridge Road western side • Florence Street from Albert Street to Muriel Street • Albert Street south of Florence Street eastern side. The short-term parking on other sections of Jersey Street and Peats Ferry Road are to be converted 3P parking. One parking time limitation of 3 hours is to be implemented in the off-street Dural Lane and Dural Street car parks.	N
The loading zone located on Florence Street between Albert Street and Albert Lane is converted to a passenger drop off zone only. The loading zone on Albert Street can be used for commercial deliveries. Additionally, the no parking zone on the western side of Station Street is converted to a passenger drop off zone.	N
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.	N
Pay parking be introduced at the existing Dural Lane and Dural Street car parks with pay and display machines conveniently located within the car parks. Limited space is available to create a queuing lane at the entry to the car park and as such, pay and display is recommended to ensure vehicles can enter the car park unimpeded. The fee for the off-street parking should be less than the fee for on-street parking to encourage drivers to park off-street, leaving the highly desirable on-street bays available for short term parkers. Pay parking be introduced on-street in the town centre at streets with the 1P and 2P time restrictions recommended above. This will complement the off-street pay parking by encouraging drivers to park in the off-street parking areas at a cheaper rate than paying more for premium on-street bays. It will also encourage higher turnover and improved compliance in the short-term bays. Pay parking be implemented from Monday to Saturday, with Saturday rates to be less than the weekday rates. This can be reviewed regularly, to allow adjustments to the pay parking times to be managed and encourage required turnover.	N

Recommendations	
Revenue generated from pay parking should be written into policy to be exclusively used for the administration of pay parking, maintenance and upgrade of parking equipment and facilities and further pedestrian and cyclist facilities within Hornsby Town Centre.	
Council should open discussions with key parties regarding a possible redevelopment of a multi-deck car park with increased capacity to provide additional long stay and commuter parking on the perimeter of the Hornsby town centre precinct. Long-stay parking should be located at the outside edge of the centre so as not to compromise access and maximise use of space and activity within the centre.	**N**

2.2 HORNSBY HOSPITAL

Figure 2.2 Hornsby Hospital Precinct occupancy heat map



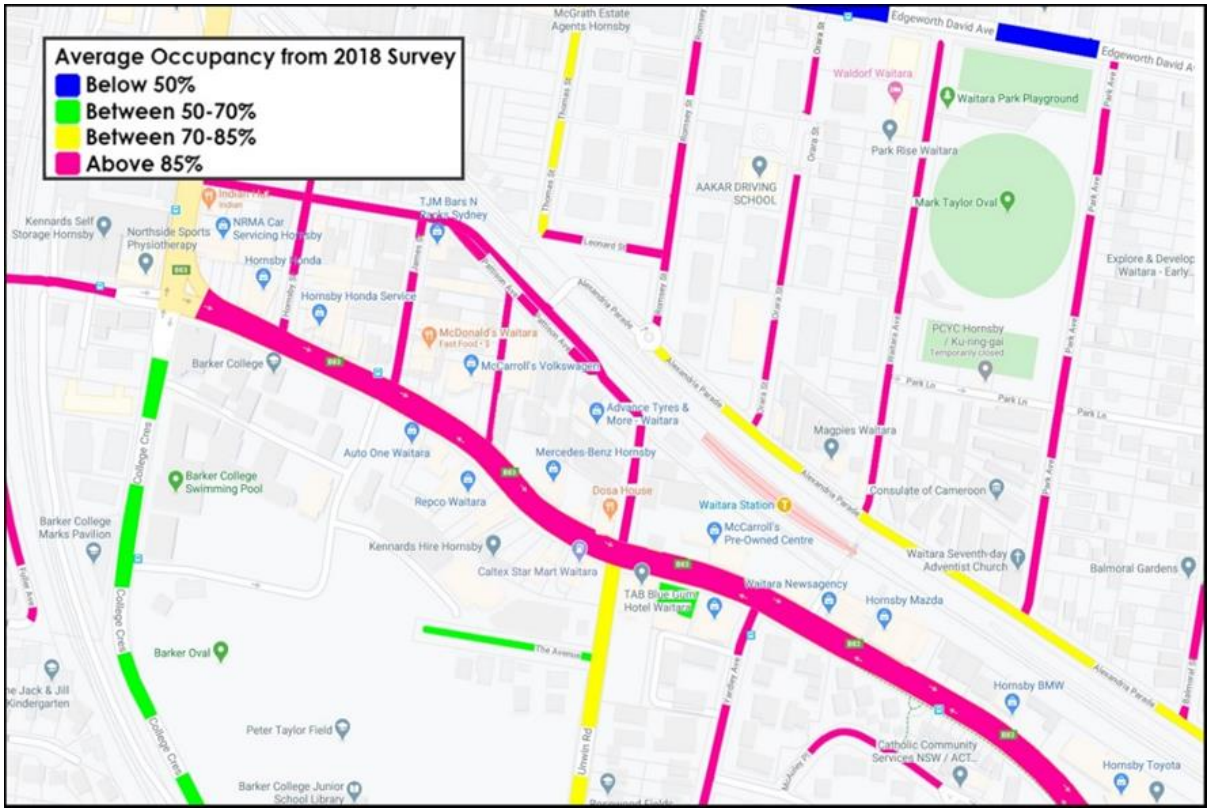
Description of Information or Data	Findings
Utilisation Surveys	• There are 1,257 parking bays located within the study area. Of these, 25% are time restricted and 75% unrestricted. 84% of parking supply is on-street, while 16% is off-street. • Peak occupancy on-street is 92% on a Thursday between 11am and 4pm, and, 90% on a Saturday with peak demand occurring between 12pm and 2pm. Peak occupancy off-street is 84% on a Thursday at 1pm and 92% on a Saturday with peak demand occurring at 2pm. • The average length of stay on-street is 4.9 hours on a Thursday which indicates a large proportion of parkers are employees of the Hospital. • The restricted areas of on-street parking generate an average turnover of 5.9 cars during the survey on Thursday. • The unrestricted areas of on-street parking generate an average turnover of 1.8 cars during the survey on Thursday. The following road segments yielded occupancy rates of higher than 85%, • Lowe Road from Palmerston Road to Derby Road. • Derby Road from Lowe Road to Burdett Street. • Burdett Street from Derby Road to Balmoral Street. • Palmerston Road from Burdett Street to Lowe Road.
SWOT Analysis	• Current parking demands in the hospital precinct, primarily from long term parking hospital staff, impede on residential areas and parking overspill is evident in residential streets. • Short- and medium-term parking demand increases for the parking located near James Park during sporting seasons, however it is typically occupied with long term hospital staff. • Most of the streets within and surrounding the hospital precinct have no controlled parking. • All loading for the hospital occurs within the hospital confines at their loading docks. There is only one loading zone located on Palmerston Road. • NSW Health encourages staff to travel by train to Hornsby Station and they provide a free shuttle bus that transports them to Palmerston Road.

Recommendations						
Hierarchy of Parking	**Priority**	**Hornsby Hospital Central Precinct Parking**		**Outside Hornsby Hospital Central Precinct Parking**		
		On-street	**Off-street**	**On-street**	**Off-street**	
	Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, Facility user	**U**
		Special services	Special services	Special services	Special services	
		Public transport	Short to medium-stay	Residents	Short to medium-stay	
			Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up	
		Drop-off/pick-up	Loading	Disability permit holders	Park and Ride	
		Short to medium-stay	Motorcycle/scooter	Loading	Residents,	
		Car share	Car share			
		Cyclists	long-stay workers and commuters	Long-stay workers/ commuter and residents	Motorcycle/scooter	
	Lowest	Motorcycle/scooter	Cyclists	Drop-off/pick-up & motorcycle/ scooter & cyclists	Disability permit holders & loading & cyclists	
	Not allowed in this zone	Long-stay/commuter	Public transport		Public transport	
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such medium stay (P Medium) on the streets surrounding the hospital giving drivers the knowledge to choose wisely regarding their parking needs. These should be located before key decision making intersections such as Northcote Road and Palmerston Road, and Palmerston Road and Burdett Street.						
The presence of cyclists is communicated to drivers along Palmerston Road and Burdett Street. This will include the installation of appropriate warning signs and pavement marking. Improving the cycling environment will encourage hospital staff to travel via bicycle to Hornsby Hospital.						**U**
Parking time restrictions be implemented on-street in the Hornsby Hospital Precinct. Three-hour parking (3P) is to be implemented on: • Lowe Road from Palmerston Road to Derby Road • Derby Road from Lowe Road to Burdett Street • Burdett Street from Derby Road to Balmoral Street • Palmerston Road from Burdett Street to Lowe Road. The parking controls are reviewed in one year with a view to extending the parking time restrictions to more streets as needed in response to the hospital's off-street parking supply. Possible extension of three-hour parking (3P) is to be implemented on: • Lowe Road from Derby Road to King Road • Burdett Street from the bus stop outside no.127 to Derby Road • Jubilee Street from Burdett Street to Herbert Avenue • Palmerston Road from Burdett Street to Herbert Avenue pedestrian path • Herbert Avenue • Northcote Road from Balmoral Street to Palmerston Road.						**U**
Parking Sensor technology is to be installed to assist in enforcing the time restricted parking.						**U**
Pay parking be introduced on-street in the Hospital Precinct at streets with the 3P time restrictions recommended above. This will complement the off-street pay parking at the Hospital by encouraging drivers to park in the off-street parking areas at a cheaper rate than paying more for premium on-street bays. It will also encourage higher turnover and improved compliance in the on-street bays. Pay parking be implemented from Monday to Saturday, with Saturday rates to be less than the weekday rates. This can be reviewed regularly, to allow adjustments to the pay parking times to be managed and encourage required turnover.						**N**

Recommendations	
Pedestrian crossing facilities be installed across Palmerston Road, Lowe Road, Derby Road and Burdett Street adjacent to the hospital, to mitigate the safety risk of pedestrians currently crossing the road at this location.	N
The lighting located at the pedestrian crossing on Clarke Road and pedestrian refuges on Balmoral Street and Ingram Road is upgraded where necessary. The lighting in high demand parking areas such as Alexandria Parade and Leonard Street is improved.	N
On-street parking adjacent to the hospital should be medium term to provide parking for visitors and patients to the hospital throughout the day. On-street parking near James Park should be medium term parking to allow James Park users to park close to their destination.	D

2.3 WAITARA TOWN CENTRE

Figure 2.3 Waitara Town Centre occupancy heat map



Description of Information or Data	Findings

Utilisation Surveys	• There are 1,796 parking bays located within the study area. Of these, 33% are time restricted and 67% unrestricted. 92% of parking supply is on-street, while 8% is off-street.
	• Peak occupancy on-street is 92% on a Thursday at 12pm, and, 90% on a Saturday with peak demand occurring at 12pm as visitation to the precinct increases.
	• Peak occupancy off-street is 83% on a Thursday at 1pm and 89% on a Saturday with peak demand occurring at 10am.
	• The restricted areas of on-street parking generate an average turnover of 5.6 cars during the survey on Thursday. The unrestricted areas of on-street parking generate an average turnover of 1.8 cars during the survey on Thursday.
	• The average length of stay on-street on a Saturday is 3.8 hours which indicates long-stay resident parking in the area.
	• The following road segments yielded occupancy rates of higher than 85%:
	  • Pacific Highway northern side from Carden Avenue to College Crescent.
	  • Pacific Highway southern side from Unwin Road to College Crescent.
	  • Waitara Avenue from Pacific Highway to end.
	  • Waitara Avenue from Alexandria Avenue to Park Lane.
	  • Romsey Street from Pacific Highway to Pattison Avenue.
	  • James Lane from Pacific Highway to Pattison Avenue.
	  • James Street from Pacific Highway to Leonard Street.
	  • Hornsby Street from Pacific Highway to Leonard Street.
	  • Leonard Street from Pacific Highway to Hornsby Street.
	  • Alexandria Parade northern side from Romsey Street to Waitara Avenue.
	  • Waitara Avenue from Park Lane to end.
	  • Pattison Avenue.
	  • Hornsby Street from Leonard Street to the end.
	  • Leonard Street from Hornsby Street to Pattison Avenue.

Description of Information or Data	Findings
SWOT Analysis	• If changes to parking management are not implemented the demand for parking in the Waitara study area will continue to exceed the supply which will discourage medium-term parkers from visiting the suburb. • Current parking demands within Waitara impede on residential areas as the demand for long term commuter parking is high. The train station is located in the middle of the suburb and there is limited long term parking available. • There is limited street lighting along the parking on Leonard Street. • There are limited disability parking bays available on-street in Waitara study area. • There are limited loading zones on-street and trucks double park to unload. • Many residential towers are being built in and around Waitara study area. These developments have one supplied parking bay off-street per residence. Owners and tenants own more than one vehicle and park their second vehicle on-street utilising highly desirable town centre parking bays. • Rangers have issues with business owners parking their vehicles on-street. • The current on-street parking supply has varying parking controls within a single street with limited consistency of time restrictions. • There is excellent lighting outside the train station at the intersection of Alexandria Parade and Waitara Avenue.

Recommendations

Hierarchy of Parking

Priority	Waitara Central Precinct Parking		Outside Waitara Precinct Parking	
	On-street	**Off-street**	**On-street**	**Off-street**
Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, Facility user
	Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles
	Loading	Short to medium stay	Residents	Short to medium-stay
	Public transport	Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up
	Car share	Car share		
	Drop-off/pick-up	Loading	Disability permit holders	Park and Ride
	Short to medium-stay	Motorcycle/scooter	Loading	Residents,
	Cyclists	long-stay workers/commuter & residents	Long-stay workers/ commuter and residents	Motorcycle/scooter
Lowest	Motorcycle/scooter	Cyclists	Drop-off/pick-up & motorcycle/ scooter & cyclists	Disability permit holders & loading & cyclists
Not allowed in this zone	Long-stay/commuter	Public transport		Public transport
	Residents			

U

To reduce traffic congestion and prevent unnecessary travel time due to vehicles circling in search of parking, real time parking supply information should be installed at strategic locations. Suitable locations to provide real-time long-term parking information signs include Pennant Hills Road prior to Ingram Road and Edgeworth David Avenue prior to Romsey Street travelling east and prior to Myra Street travelling west. These signs will guide drivers to the long term on-street parking in Alexandria Parade.

Two parking time restrictions be implemented on-street in the Waitara study area.

Two-hour parking (2P) is to be implemented on:

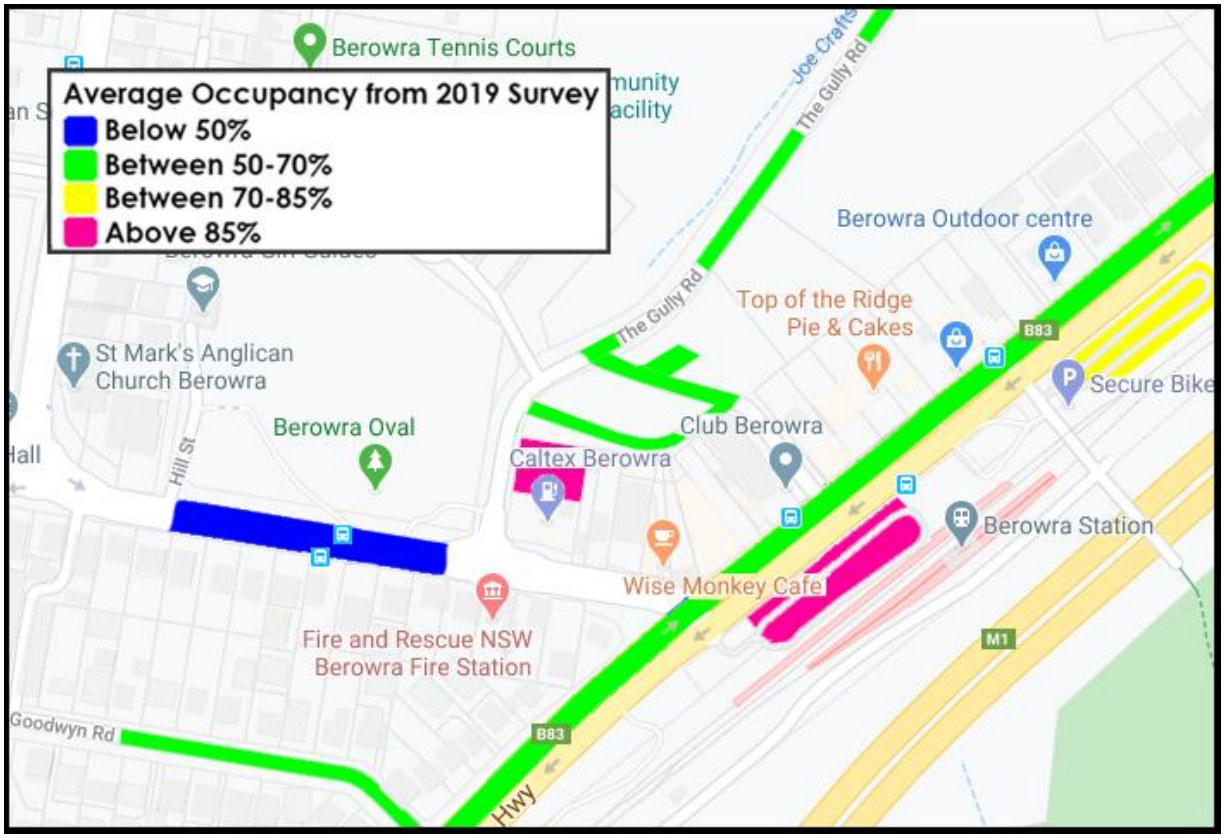
- Pacific Highway northern side from Carden Avenue to College Crescent
- Pacific Highway southern side from Unwin Road to College Crescent
- Waitara Avenue from Pacific Highway to end

N

Recommendations	
• Waitara Avenue from Alexandria Avenue to Park Lane • Romsey Street from Pacific Highway to Pattison Avenue • James Lane from Pacific Highway to Pattison Avenue • James Street from Pacific Highway to Leonard Street • Hornsby Street from Pacific Highway to Leonard Street • Leonard Street from Pacific Highway to Hornsby Street • Alexandria Parade northern side from Romsey Street to Waitara Avenue. Three-hour parking (3P) is to be implemented on: • Waitara Avenue from Park Lane to end • Pattison Avenue • Hornsby Street from Leonard Street to the end • Leonard Street from Hornsby Street to Pattison Avenue. Remove the following parking restrictions: • 1/2P bays on Carden Avenue. • 1P bays on Park Avenue between Alexandria Parade and Park Lane • 1P bays on Balmoral Street near Edgeworth David Avenue • All parking restrictions on Orara Street from Alexandria Parade to end.	
Pay parking be introduced on-street in the town centre at streets with the 2P and 3P time restrictions recommended above. This will encourage higher turnover and improved compliance in the short, and, medium term bays. Pay parking be implemented from Monday to Saturday, with Saturday rates to be less than the weekday rates. This can be reviewed regularly, to allow adjustments to the pay parking times to be managed and encourage required turnover.	**N**
A loading zone is located on the western side of Romsey Street in place of the 1P parking bays.	**N**
The lighting located at the pedestrian crossing on Clarke Road and pedestrian refuges on Balmoral Street and Ingram Road is upgraded where necessary. The lighting in high demand parking areas such as Alexandria Parade and Leonard Street is improved.	**N**
Pedestrian refuge islands be installed half-way along Waitara Avenue and Park Avenue to encourage pedestrians to cross the road at these locations. This will discourage pedestrians emerging from between two parked cars to cross the road and potentially being unseen by oncoming drivers. Pedestrian refuge islands be installed along Alexandria Parade, as there is no provision of a pedestrian path adjacent to the 90-degree parking bays. Pedestrians should be able to safely cross and walk along the northern side of Alexandria Parade.	**N**
Additional bus services be provided to and from the train station. This may increase mode share and decrease the number of commuter parking bays required near Waitara Station. A bike sharing scheme is investigated in consultation with the local community. A trial with limited bicycles could be undertaken near the Alexandria Parade entrance at Waitara Train Station. Any bike sharing scheme should also be complemented with improved cycle infrastructure including safe off-street share paths.	**N**
Installation of car share bays to encourage residents to own only one car	**N**

2.4 BEROWRA TOWN CENTRE

Figure 2.4 Berowra Town Centre occupancy heat map



Description of Information or Data	Findings
Utilisation Surveys	• There are 724 time-restricted and unrestricted parking bays located within the study area. Of these, 18% are time restricted and 82% unrestricted. • 53% of parking supply is on-street, while 47% is off-street. • Peak occupancy on-street is 71% on a Thursday at 12pm, and, 18% on a Sunday with peak demand occurring at 6pm as visitation to the precinct increases. Peak occupancy off-street is 97% on a Thursday at 12pm and 24% on a Sunday with peak demand occurring at 2pm. • The time-restricted areas of on-street parking generate an average turnover of 2.2 cars during the survey on Thursday. The unrestricted areas of on-street parking generate an average turnover of 1.4 cars during the survey on Thursday. • The average length of stay on-street on a Sunday is 0.9 hours.
SWOT Analysis	• Council has no power to change on-street parking restrictions within 1km from Berowra Railway Station as specified in the delegation for nominated stations. • More bus services to and from the train station may increase mode share and decrease the number of commuter parking spaces required near the station. • There are plenty of options for people to access this area, either through public or private transport. • There is a limited range of parking controls in both on-street and off-street carparks. • The on-street parking in this area is limited by no-parking zones, particularly along the Pacific Highway. • Utilisation of the current supply could be increased through changes to the time restrictions to guide drivers to park in the currently underutilised parking bays. • More proactive measures to control parking is required such as increased areas with time restrictions and the enforcement of time restricted zones throughout, especially during peak demand parking times. • Signage could be improved to allow drivers to make the best decision regarding where to park for the time they require. • The improvement of integration of all transport modes will encourage less use of vehicles in this area. • Limited dedicated bicycle lanes/paths discourage cyclists within the town centre.

Recommendations		
Hierarchy of Parking 		U

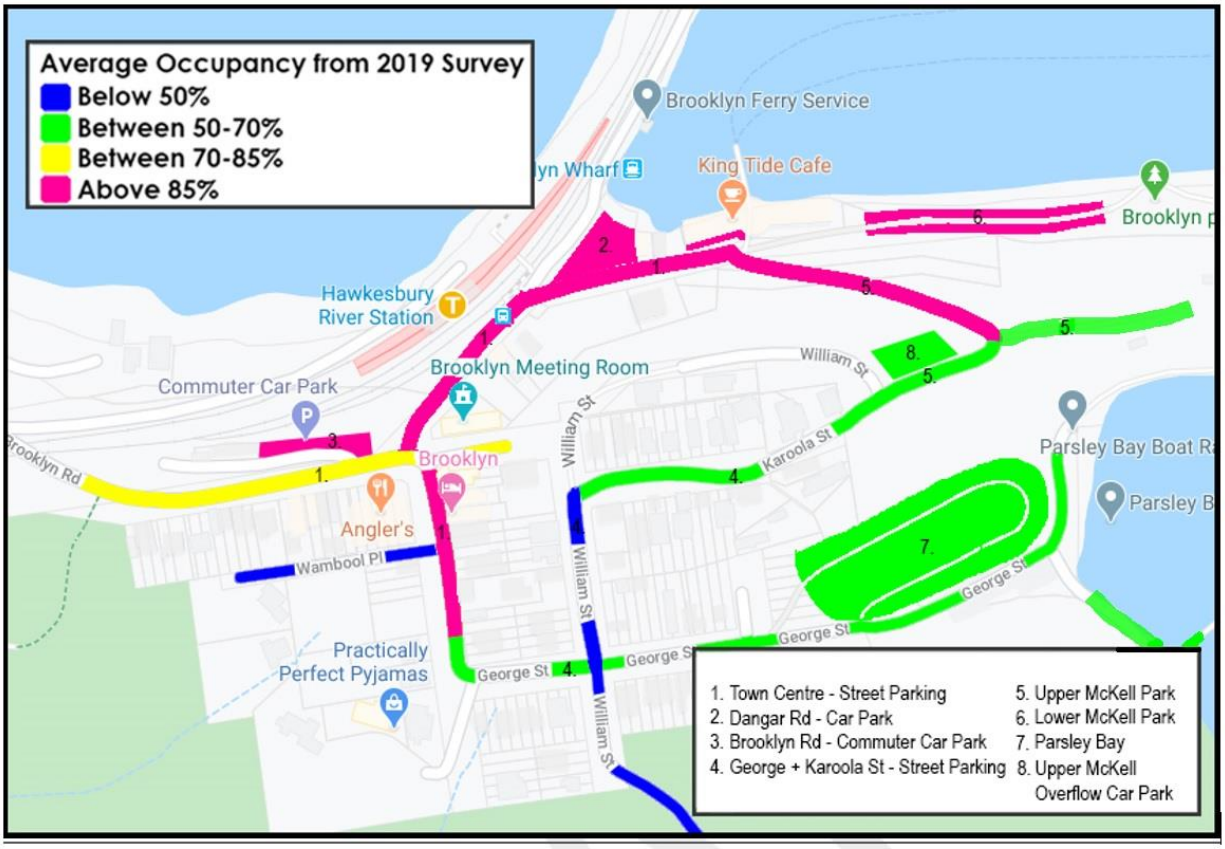
Priority	Berowra Precinct Parking		Outside Berowra Precinct Parking	
	On-street	**Off-street**	**On-street**	**Off-street**
Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Park and Ride
	Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles
	Loading	Short to medium-stay	Drop-off/pick-up & motorcycle/ scooter & cyclists	Long-stay/ commuter, Facility user
	Public transport and taxis	Drop-off/pick-up	Residents	Drop-off/pick-up
	Drop-off/pick-up	Loading	Disability permit holders	Disability permit holders & loading & cyclists
	Short to medium-stay	Car share	Loading	Motorcycle/scooter
	Cyclists	Motorcycle/scooter	Long-stay visitors, commuter and workers	Residents
	Car share	Long-stay visitors, commuter and workers	Layover zones for buses/community transport	
Lowest	Motorcycle/scooter	Cyclists	Short to medium-stay	Short to medium-stay
Not allowed in this zone	Long-stay/commuter	Public transport		Public transport
	Residents			

Request the RTA allow Council to convert the southern half of the 1/4P parking on the eastern side of the Pacific Highway into a dedicated kiss'n'ride with clear and consistent signage to provide accessible and efficient drop off and pick up of commuters. Council to investigate further kiss'n'ride locations on local streets within easy access of the train station.	
Request the RTA allow Council to convert the No Stopping and 2P parking on the western side of the Pacific Highway into no restriction parking from the signalised pedestrian crossing to the start of the 80 zone.	U
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.	U
Encourage businesses along the Pacific Highway to share their off-street bays to allow the number of parking bays required to service demand to be reduced significantly and allow on-street parking to be used by bona fide customers.	U
The presence of cyclists is communicated to drivers along the Pacific Highway, Berowra Waters Road from Pacific Highway to Crowley Road and along The Gully Road. This will include the installation of appropriate warning signs and pavement markings. Improving the cycling environment will encourage cyclists to travel to Berowra Town Centre. Install quality end of trip facilities within the Community Centre car park and The Gully Road car park to encourage people to cycle to the town centre knowing their bicycle will be in a monitored car park. Install more bike lockers in the town centre and particularly near the railway station.	U
Request the RTA allow Council to implement two parking time restrictions on-street in the Berowra Town Centre. Two-hour parking (2P) is to be implemented on: • Pacific Highway western side from Berowra Waters Road to the signalised pedestrian crossing to the north • Berowra Waters Road from the Pacific Highway to The Gully Road • Berowra Parade (convert current 4P to 2P). Four-hour parking (4P) is to be implemented on: • The Gully Road from Berowra Waters Road to Berowra Parade • Berowra Parade western half • The Gully Road car park from The Gully Road to Berowra Parade.	N
The Gully Road Car Park and the western section of Berowra Parade Car Park to be resurfaced and line marked to provide maximum parking supply with efficient traffic flow through the car parks.	N

Recommendations	
Request the RTA allow Council to convert the northern half of the 1/4P parking on the eastern side of the Pacific Highway into P for long stay parkers. Long-stay parking should be located at the outside edge of the centre so as not to compromise access and maximise use of the limited Berowra Town Centre space available.	N
Extend the footpath along the eastern side of the Pacific Highway to the end of the marked parking area from the start of the 60 zone in the north to Rickard Road in the south to allow safe passage for pedestrians parking on the eastern side of the highway and walking to the train station.	N
Provide better information online indicating where parking is available for long, medium and short stay. Included in this should be the availability for weekday parking in the No P 12 noon -9PM Sundays and Public Holidays on the eastern side of the Pacific Highway, south of the train station.	N
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs are to guide drivers to the long-stay and medium stay parking available on Berowra Parade, in The Gully Road car park and in the Community Centre car park. These should be located before key decision making intersections such as The Pacific Highway and Berowra Waters Road, Berowra Waters Road and The Gully Road, Pacific Highway and Berowra Parade and The Gully Road and Berowra Parade.	N
Request the RTA allow Council to review the need for the No P 12 noon – 9PM Sundays and Public Holidays on the eastern side of the Pacific Highway with a view to removing it altogether.	D
The effectiveness of the newly implemented time restrictions should be monitored with a view to extension if necessary.	D
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Berowra Town Centre to reduce the need for commuter bays near the station.	D

2.5 BROOKLYN TOWN CENTRE

Figure 2.5 Brooklyn Town Centre occupancy heat map



Description of Information or Data	Findings
Utilisation Surveys	• There are 52 time-restricted and 580 unrestricted parking bays located within the Brooklyn Town Centre. Of these, 8% are time restricted and 92% unrestricted. • 42% of parking supply is on-street, while 58% is off-street including Dangar Road carpark, Brooklyn Road Commuter carpark, Upper McKell Park, Lower McKell Park and Parsley Bay.. • Peak occupancy on-street is 71% on a Thursday at 2pm, and, 77% on a Sunday with peak demand occurring from 12pm to 3pm. • Peak occupancy off-street is 100% on a Thursday from 12 pm to 2 pm and 96% on a Sunday with peak demand occurring from 10 am to 12pm. • The time-restricted areas of on-street parking generate an average turnover of 4.6 cars during the survey on Sunday. • The unrestricted areas of on-street parking generate an average turnover of 2.3 cars during the survey on Sunday. • The average length of stay on-street on a Sunday is 5 hours for on-street parking.
SWOT Analysis	• There are plenty of options for people to access this area, either through public or private transport. • There is a limited range of parking controls in both on-street and off-street carparks. • The on-street parking in this area is limited by no-parking zones and narrow streets. • Utilisation of the current supply could be increased through the improvement of the delineation of parking. • Large demand for parking on weekends effects the residents' ability to park in carparks as well as in residential areas due to infiltration, resulting in drivers navigating through narrow streets for parking. • There is little parking for disabled individuals as well as no observed loading zones. • More proactive measures to control parking is required such as increased areas with time restrictions and the enforcement of time restricted zones throughout, especially during peak demand parking times. • Signage could be improved to show drivers where a parking bay that suit their needs could be. • The improvement of integration of all transport modes will encourage less use of vehicles in this area.

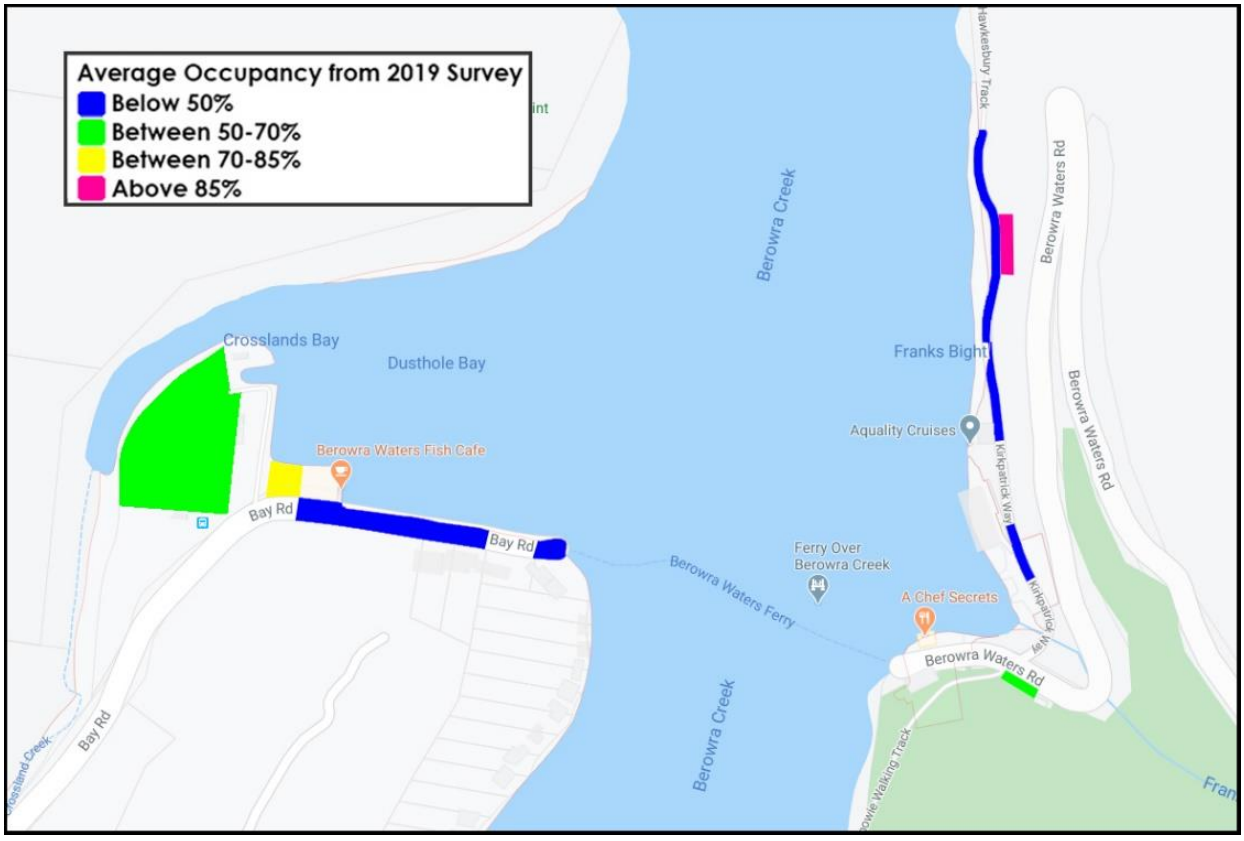
Recommendations		
Hierarchy of Parking		U
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.		U
The Dangar Road car park near Brooklyn Wharf to be 4P parking and bays are to be line marked to increase the number of available bays and ensure aisle widths allow free flow of traffic. This is the main car park that is to be used by visitors to service the town centre businesses and restaurants.		U
Encourage businesses on Bridge Street and Wambool Place to share their off-street bays to allow the number of parking bays required to service demand to be reduced significantly and allow on-street parking to be used by bona fide customers.		U
Improve security and street lighting in town centre streets and car parks.		U
Investigate and install parking for persons with a disability in conveniently located and easily accessible on and off-street parking areas.		U
Keep foliage trimmed along Dangar Road to keep parking signs visible.		U
Investigate a shared zone outside the train station along Dangar Road from Brooklyn Road to the Dangar Road car park due to the limited opportunity for pedestrian facilities in the area. This will slow down the movements of vehicles through the area and allow safer pedestrian accessibility in the town centre. Investigate installation of shared zone on all roads in Lower and Upper McKell Park to prioritise pedestrian access.		U
Two parking time restrictions be implemented on-street in the Brooklyn Town Centre – subject to business demand depending upon the day of the week. Two-hour parking (2P) is to be implemented on: • Wambool Place • Bridge Street • Brooklyn Road from the bridge over the train line to Dangar Road. Four-hour parking (4P) is to be implemented on:		N

Priority	Brooklyn Town Centre Parking		Outside Brooklyn Town Centre Parking	
	On-street	**Off-street**	**On-street**	**Off-street**
Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, Facility user
	Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles
	Loading	Drop-off/pick-up	Residents	Park and Ride
	Public transport	Loading	Short to medium-stay	Drop-off/pick-up
	Drop-off/pick-up	Motorcycle/scooter, cyclists	Disability permit holders	Short to medium-stay
	Short to medium-stay	Short to medium-stay	Loading	Residents,
	Cyclists	Car share	Long-stay visitors, commuter and residents	Motorcycle/scooter
	Motorcycle/scooter	long-stay & residents	Drop-off/pick-up & motorcycle/ scooter & cyclists	Disability permit holders & loading & cyclists
			Layover zones for buses/community transport	Boats and trailers
			Boats and trailers	
Lowest	Motorcycle/scooter	Commuter		Disability permit holders & loading & cyclists
Not allowed in this zone	Long-stay/commuter	Public transport		Public transport
	Residents	Boats and trailers (excluding Parsley Bay)		
	Boats and trailers			

Recommendations	
• Dangar Road • George Street from Bridge Street to William Street • William Street from George Street to Karoola Street • William Street from Dangar Road to Karoola Street. • Upper and Lower McKell plus slip road	
Long-stay parking should be located at the outside edge of the centre so as not to compromise access and maximise use of the limited Brooklyn Town Centre space available. This should be achieved through the construction of a long-stay car park on the disused State Rail land on Long Island and a further car park on the land on the corner of Brooklyn Road and Cole Street near the Rural Fire Brigade, which is Council owned (Saltpan Reserve). It is located just 1.7km from the corner of Bridge Street in the centre of the Brooklyn Activity Centre and takes 11 minutes by bus that services Brooklyn Road every 30 minutes. Other government land on the eastern side of Government Road, north of the Brooklyn Road Rail Bridge may also be investigated.	**N**
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs are to guide drivers to the long-stay and medium stay parking available in the Dangar Road car park and the parking area at the top of Karoola Street – Upper McKell Park. These should be located before key decision making intersections such as Brooklyn Road and Bridge Street intersection, the intersection at the Marina and Upper McKell Park slip road and upon arrival at Upper McKell Park – top of Karoola Street. Wayfinding signage may also be installed on the Pacific Highway and/or slip road off the M1 to alert boat and trailer drivers when the carpark is full at the boat ramp.	**N**
Investigate a loading zone/15-minute parking area near to the Brooklyn Mooring Co-op in Lower McKell Park and investigate short term storage lockers for off shore residents.	**N**
Investigate use of Old Diary Site and / or Saltpan Reserve for long-term car parking for house boat hirers / overnight visitors along with boat trailer parking. This could be a fee for service.	**N**
Investigate pay parking for boat users in the Parsley Bay Car Park. Revenue generated from pay parking should be written into policy to be exclusively used for maintenance and upgrade of parking equipment, other town centre improvements and further pedestrian and cyclist facilities within the town centre.	**N**
Investigate the upgrade of Parsley Bay Car Park, Lower McKell Park, Upper McKell Park and surplus TfNSW land to facilitate a multi-level car park to accommodate the growing parking demand into the future. Parking supply would provide for visitors to Brooklyn and offshore. Pay parking to be investigated for this service.	**N**
Investigate priority parking opportunities for car share groups for off shore residents	**D**
Accessibility for pedestrians to be investigated further to provide safe pedestrian crossing locations and pathways throughout the Brooklyn Town Centre. This will improve connectivity with parking areas and improve pedestrian safety along the narrow streets.	**D**
Review the current Council Policy allowing a time restriction for boat trailers of 28 days on-street. The current restriction limits the use of high demand parking in and around the town centre due to the occupation of the bays with boat trailers. The policy needs to be limited to areas of less parking demand such as the longer-term parking provisions outside the town centre. Within the town centre area, installing parking time restrictions for all users will allow better turnover and utilisation of the high demand bays.	**D**
Investigate locations to provide tourist coaches and bus drop off near the town centre and parking further from the town centre to encourage tourists and visitors to the area without using further high demand parking in the town centre.	**D**
Remove informal boat and trailer parking in Upper McKell Park, George Street and Karoola Street. Subject to demand explore opportunities to relocate on surplus government land outside the town centre (e.g. Saltpan Reserve or Old Dairy Site at a cost to the owner / user – fee for service.	**D**
Investigate opportunities to formalise car parking in overflow Upper McKell area (top of Karoola Street). Increase availability of parking spaces in Upper McKell Park by converting kerbside parallel parking to angle parking subject to design. Include 4P parking and accessible spaces for park visitors.	**D**
Council liaise with the Central Coast Council to provide funding directly to Hornsby Shire Council to provide car parking facilities / mooring for their residents at Little Wobby. Council to prioritise Hornsby Shire residents in any future long-term car parking opportunities for off shore residents.	**D**
Council should lobby TfNSW to provide appropriate commuter parking supply commensurate with current and forecast levels of demand for train and ferry users in the town centre. Opportunity to partner with TfNSW for an integrated parking solution to also incorporate visitor and off shore resident parking (at a cost).	**D**

2.6 BEROWRA WATERS ACTIVITY CENTRE

Figure 2.6 Berowra Waters Activity Centre occupancy heat map

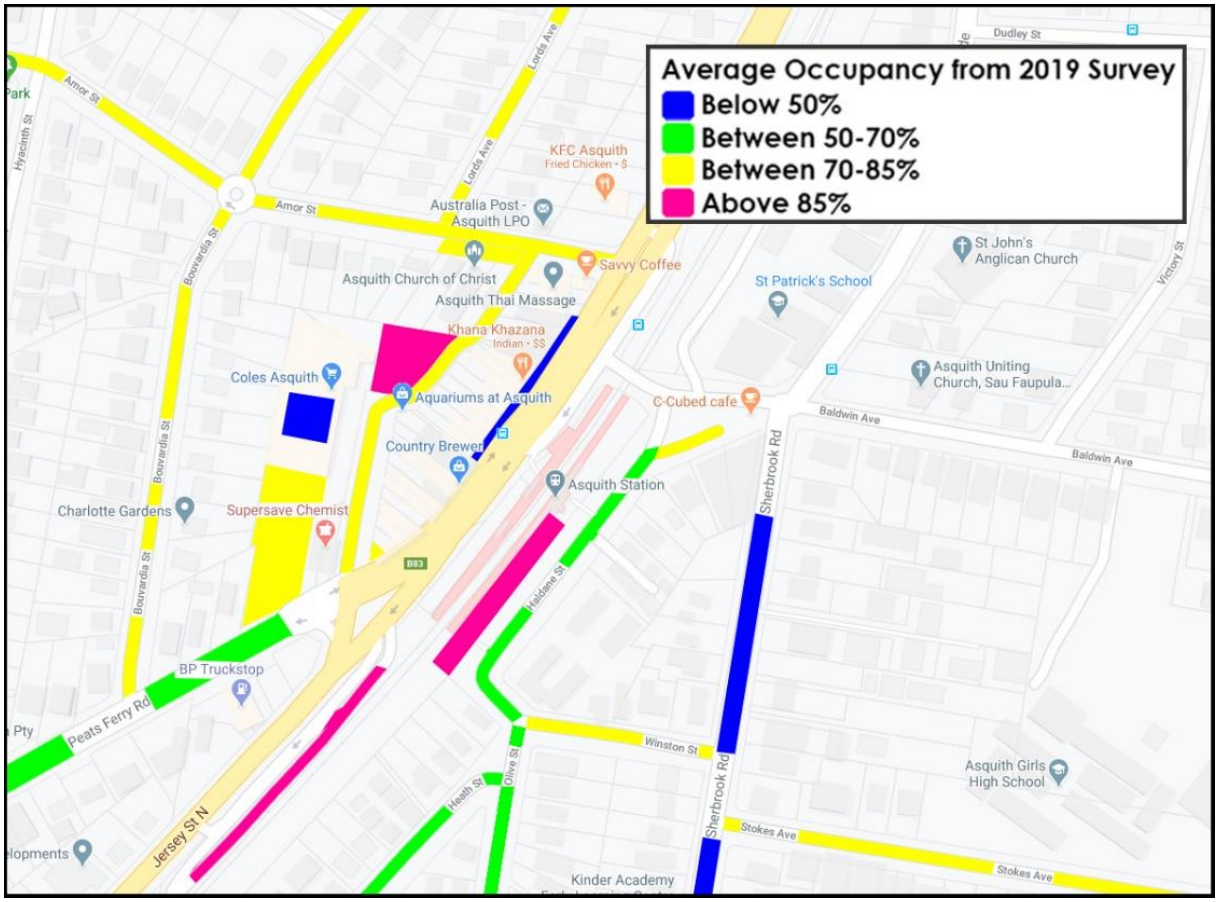


Description of Information or Data	Findings
Utilisation Surveys	• There are 400 parking bays located within the study area. Of these, 100% is unrestricted parking. • 31% of parking supply is on-street, while 69% is off-street. • Peak occupancy on-street is 60% on a Thursday at 11am, and, 43-44% on a Sunday with peak demand occurring between 10am and 5pm as visitation to the precinct increases. • Peak occupancy off-street is 61% on a Thursday at 5pm and 44% on a Sunday with peak demand occurring from 10am to 12pm and at 4pm. • The unrestricted areas of on-street parking generate an average turnover of 1.6 cars during the survey on Thursday. • The average length of stay on-street on a Sunday is 5.5 hours. • 75% of parkers' trip origins in Berowra Waters were located within the Hornsby LGA with 25% in other surrounding LGA's'.
SWOT Analysis	• Large amounts of vehicle and pedestrian activity on both sides of Berowra Creek. • There are no controlled parking limits for on-street parking. • The demand for parking is not satisfied by the limited Council owned off-street parking supply in Kirkpatrick Way. • Disabled individuals will have trouble with the uneven surfaces of the roads and lack of disabled parking bays. • The Bay Rd upper deck single car parking area is underutilised while single cars are parked in boat trailer bay as seen in Figure 2-19 and Figure 2-20. Parking management strategies to accommodate different levels of demand throughout the week. • Parking information should be available to the public on an online platform so that drivers may have information about parking, especially on weekends. • The frequency of parking enforcement needs to increase for compliance to increase.

Recommendations						
Hierarchy of Parking	**Priority**	**Berowra Waters Precinct Parking**		**Outside Berowra Waters Precinct Parking**		U
		On-street	**Off-street**	**On-street**	**Off-street**	
	Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Short to medium-stay	Long-stay/ commuter, Facility user	
		Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles	
		Loading	long-stay workers, commuter & residents	Residents	Short to medium-stay	
		Public transport	Public transport	Disability permit holders	Drop-off/pick-up	
		Drop-off/pick-up	Loading, drop-off/ pick up	Drop-off/pick-up & motorcycle/ scooter & cyclists	Park and Ride	
		Short to medium-stay	Motorcycle/scooter	Loading	Residents,	
		Cyclists	Short to medium-stay	Long-stay/ commuter	Motorcycle/scooter	
		Motorcycle/scooter	Cyclists	Boats and trailers	Disability permit holders & loading & cyclists	
			Boats and trailers			
	Lowest		River settlements	River settlements		
	Not allowed in this zone	Long-stay/commuter		Public transport	Public transport	
		Residents				
Remove the current residential parking area on Kirkpatrick Way and convert the area into a parking area for visitors and residents during daytime hours. A four-hour parking (4P) is to be implemented on-street on Kirkpatrick Way. Review the layout of the parking on Kirkpatrick way to improve the bay configuration and possibly provide further parking supply. Resurface and delineate the parking on Kirkpatrick Way.						
Implement four-hour parking (4P) within the Bay Road car park for the parking spaces parallel to Bay Road to encourage long-stay parkers to use the deck parking.						U
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions, particularly along Bay Road and within the Bay Road car park.						U
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such as medium stay (P Medium), long stay (P Long) and boat trailer parking in the Bay Road car park on the Bay Road approach to the car park giving drivers the knowledge to choose wisely regarding their parking needs. These should be located before key decision making intersections such as on Bay Road just before the entrance to the car park. Further signs should be located before the Bay Road car park, at the Ferry Terminal and at the intersection of Kirkpatrick Way and Berowra Waters Road guiding drivers to the medium stay (P Medium) parking located along Kirkpatrick Way.						U
Extend the shared zone on the exit of the ferry at Berowra Waters Road to include the intersection of Berowra Waters Road and Kirkpatrick Way. This will provide safer pedestrian access to and from the toilets on Kirkpatrick Way and to and from the parking on Kirkpatrick Way and the ferry terminal.						N
Convert two of the parking bays near the toilets on Kirkpatrick Way into parking for persons with a disability.						N
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to and from the Berowra Waters Ferry Terminal at the end of Bay Road.						D

2.7 ASQUITH TOWN CENTRE

Figure 2.7 Asquith Town Centre occupancy heat map



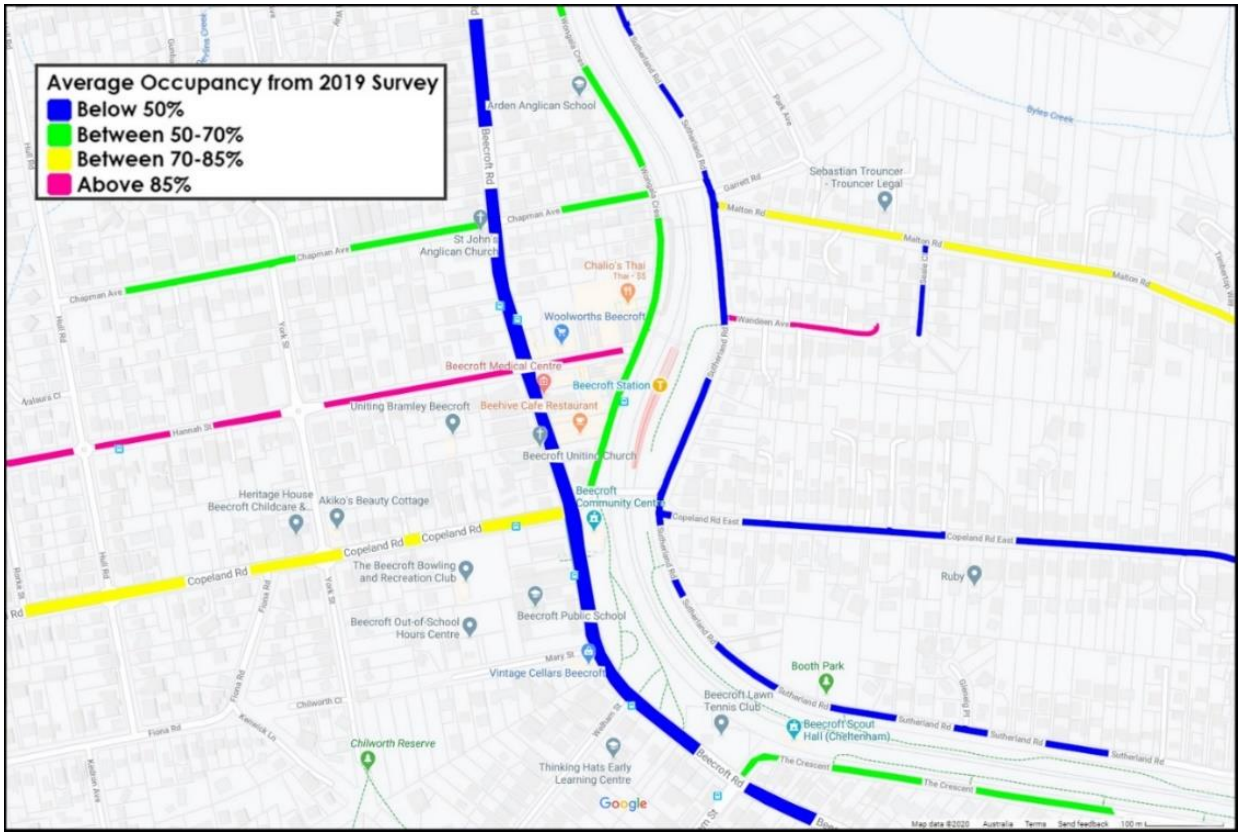
Description of Information or Data	Findings
Utilisation Surveys	• There are 1,770 parking bays located within the study area. Of these, 6% are time restricted and 94% unrestricted. • 83% of parking supply is on-street, while 17% is off-street. • Peak occupancy on-street is 63% on a Thursday at 1 pm, and, 84% on a Saturday with peak demand occurring from 2 pm to 4 pm. • Peak occupancy off-street is 71% on a Thursday at 4 pm and 24% on a Saturday with peak demand occurring at 9 am. • The time-restricted areas of on-street parking generate an average turnover of 2.3 cars during the survey on Thursday. • The unrestricted areas of on-street parking generate an average turnover of 1.6 cars during the survey on Thursday. • The average length of stay on-street on a Saturday is 4.2 hours for on-street parking. • 64% of parkers' trip origins in Asquith were located within the Hornsby LGA with 36% in other surrounding LGA's'.
SWOT Analysis	• Demand for parking for the train station and the Coles shopping centre has overflowed into many streets in and around the train station, with many of these streets having no parking controls. • Residents of multi-storey developments park their second vehicles in highly desirable town centre parking bays. • The addition of pay parking is highly recommended as it will benefit all stakeholders. • Implementation of restricted parking will force commuters to park beside the train line, instead of residential streets. • More bus services to and from the train station may increase mode share and decrease the number of commuter parking spaces required near the station.

Recommendations						
Hierarchy of Parking	**Priority**	**Asquith Town Centre Parking**		**Outside Asquith Town Centre Parking**		
		On-street	**Off-street**	**On-street**	**Off-street**	
	Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, facility user	**U**
		Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles	
		Loading	Short to medium-stay	Residents	Short to medium-stay	
		Public transport and taxis	Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up	
		Drop-off/pick-up	Cyclists	Disability permit holders	Park and Ride	
		Short to medium-stay	Motorcycle/ scooter	Loading	Residents,	
		Motorcycle/scooter & cyclists	Long-stay workers, commuters & residents	Long-stay workers, commuters and residents	Motorcycle/scooter	
			Car share			
	Lowest	Car share	Loading	Drop-off/pick-up & motorcycle/ scooter & cyclists	Disability permit holders & loading & cyclists	
	Not allowed in this zone	Long-stay/commuter	Public transport		Public transport	
		Residents				
Install accessible parking bays on Wattle Street in Asquith Town Centre to allow town centre accessibility.						
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions, particularly those overstaying in the short term bays on-street in the town centre.						**U**
The presence of cyclists is communicated to drivers along Peats Ferry Road, Sherbrook Road and Royston Parade. This will include the installation of appropriate warning signs and pavement markings. Improving the cycling environment will encourage cyclists to travel to Asquith. Install quality end of trip facilities within the Wattle Street car park to encourage people to cycle to the town centre knowing their bicycle will be in a monitored car park.						**U**
Council to communicate with business owners in Asquith Town Centre to encourage efficient sharing of bays by the owners and their staff. Well utilised on-site parking can allow the number of parking bays on-street required to service demand to be reduced significantly.						**N**
Two parking time restrictions be implemented on-street in the Asquith Town Centre. One-hour parking (1P) is to be implemented on: • Peats Ferry Road western side from Wattle Street to Amor Street. Three-hour parking (3P) is to be implemented on: • Wattle Street • Amor Street from Bouvardia Street to Peats Ferry Road • Bouvardia Street from Amor Street to Peats Ferry Road. The Wattle Street 2P car park to be a three-hour parking (3P) area.						**N**
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such as medium stay (P Medium) parking in the Wattle Street 3P car park. These should be located before key decision making intersections such as The Pacific Highway and Amor Street travelling southbound, Peats Ferry Road and Bouvardia Street travelling northbound, Royston Parade and Baldwin Avenue travelling southbound and Sherbrook Road and Baldwin Avenue travelling northbound.						**N**
Pay parking be introduced on-street in the town centre at streets with the 1P and 3P time restrictions recommended above. This will encourage higher turnover and improved compliance in the short stay bays. Pay parking to be introduced in the Wattle Street 3P car park to encourage turnover of bays in the town centre.						**D**

Recommendations	
The effectiveness of the newly implemented time restrictions should be monitored with a view to extension if necessary.	D
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Asquith Town Centre to reduce the need for commuter bays near the station.	D

2.8 BEECROFT TOWN CENTRE

Figure 2.8 Beecroft Town Centre occupancy heat map



Description of Information or Data	Findings

Utilisation Surveys	• There are 1,416 parking bays located within the study area. Of these, 31% are time restricted and 69% unrestricted.
	• 63% of parking supply is on-street, while 37% is off-street.
	• Peak occupancy on-street is 57% on a Thursday at 11 am, and, 30% on a Saturday with peak demand occurring at 12 pm.
	• Peak occupancy off-street is 99% on a Thursday at 10 am and 49% on a Saturday with peak demand occurring from 1 pm to 3 pm.
	• The time-restricted areas of on-street parking generate an average turnover of 2.1 cars during the survey on Thursday.
	• The unrestricted areas of on-street parking generate an average turnover of 1 car during the survey on Thursday.
	• The average length of stay on-street on a Saturday is 1.5 hours for on-street parking.
	• The following road segments yielded occupancy rates of higher than 85%:
	  • Copeland Road – North
	  • Copeland Road – South
	  • Hannah Street
	  • Wandeen Avenue
	  • Sutherland Road.
	• 66% of parkers' trip origins in Beecroft were located within the Hornsby LGA with 34% in other surrounding LGA's'.

SWOT Analysis	• Beecroft has a wide range of on-street parking controls, such as 15 min, 2P, and 4P parking, but there are many streets with no controlled parking. With the increasing demand for commuter parking, many parkers will overflow to these uncontrolled streets. • There is no paid parking in Beecroft Town Centre, the introduction of paid parking using various technologies will benefit all stakeholders. • More enforcement is needed during school peak periods in areas around Beecroft Town Centre, as seen in Figure 3-30 in Part C.

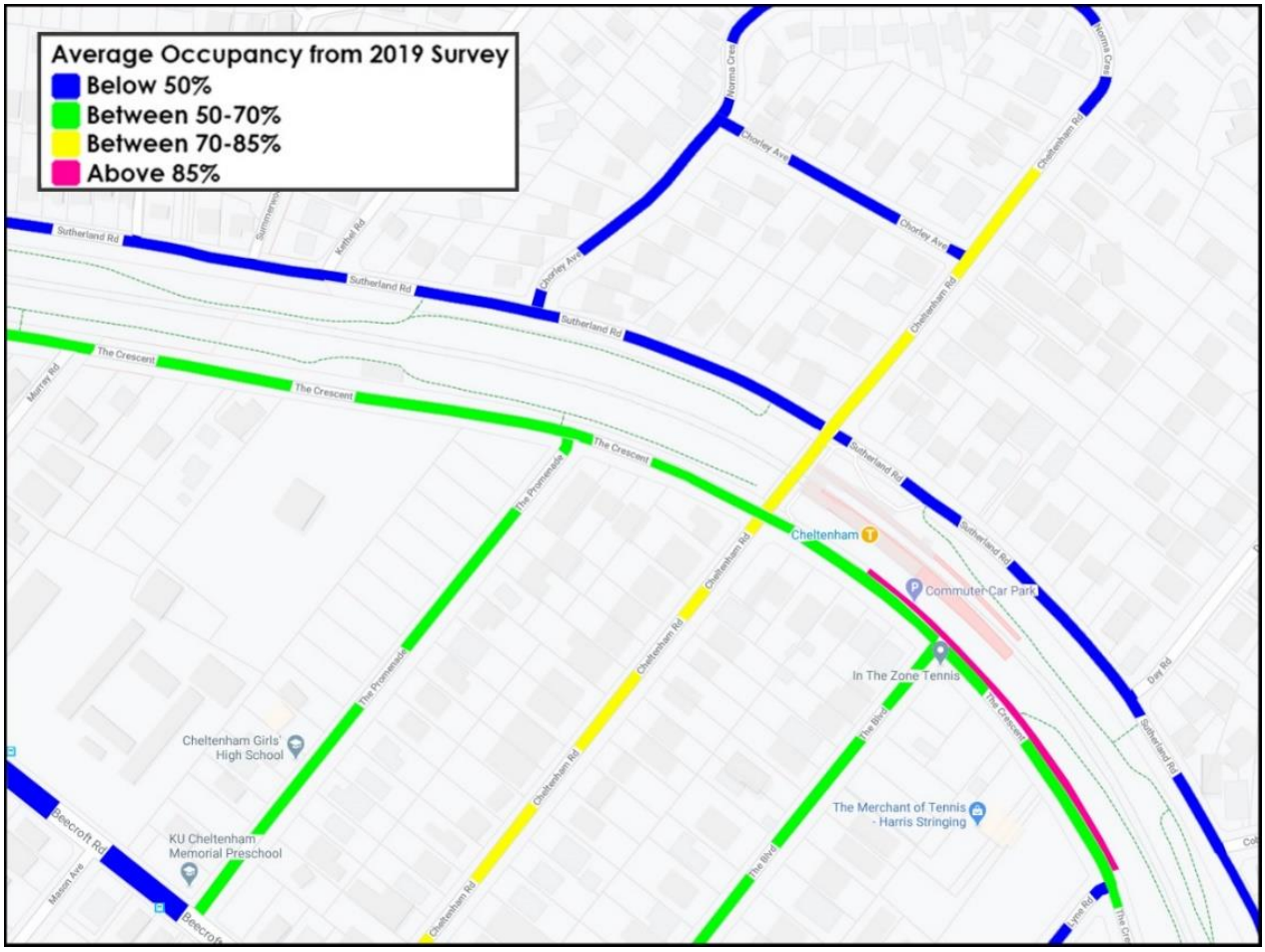
<table>
<tr><th colspan="2">Recommendations</th></tr>
<tr><td>
<table>
<tr><td rowspan="12">Hierarchy of Parking</td><th>Priority</th><th colspan="2">Beecroft Town Centre Parking</th><th colspan="2">Outside Beecroft Town Centre Parking</th></tr>
<tr><th></th><th>On-street</th><th>Off-street</th><th>On-street</th><th>Off-street</th></tr>
<tr><td>Highest</td><td>Disability permit holders (where appropriate off-street parking cannot be provided)</td><td>Disability permit holders</td><td>Public transport</td><td>Long-stay/ commuter, Facility user</td></tr>
<tr><td></td><td>Special service vehicles</td><td>Special service vehicles</td><td>Special service vehicles</td><td>Special service vehicles</td></tr>
<tr><td></td><td>Loading</td><td>Short to medium-stay</td><td>Residents</td><td>Park and Ride</td></tr>
<tr><td></td><td>Public transport</td><td>Drop-off/pick-up</td><td>Short to medium-stay</td><td>Drop-off/pick-up</td></tr>
<tr><td></td><td>Drop-off/pick-up</td><td>Cyclists</td><td>Disability permit holders</td><td>Short to medium-stay</td></tr>
<tr><td></td><td>Short to medium-stay</td><td>Motorcycle/scooter</td><td>Loading</td><td>Residents,</td></tr>
<tr><td></td><td>Motorcycle/scooter & cyclists</td><td>long-stay workers. commuter and residents</td><td>Long-stay workers, commuter and residents</td><td>Motorcycle/scooter</td></tr>
<tr><td></td><td>Car share</td><td>Car share</td><td>Drop-off/pick-up & motorcycle/ scooter & cyclists</td><td></td></tr>
<tr><td>Lowest</td><td></td><td>Loading</td><td>Lay over zones for buses/community transport</td><td>Disability permit holders & loading & cyclists</td></tr>
<tr><td>Not allowed in this zone</td><td>Long-stay/commuter
Residents</td><td>Public transport</td><td></td><td>Public transport</td></tr>
</table>
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions such as the no parking zone on Copeland Road outside the Beecroft Public School.
</td><td>U</td></tr>
<tr><td>Council to communicate with business owners in Beecroft Town Centre to encourage efficient sharing of bays by the owners and their staff. Well utilised on-site parking can allow the number of parking bays on-street required to service demand to be reduced significantly.</td><td>U</td></tr>
<tr><td>Two parking time restrictions be implemented on-street in the Beecroft Town Centre.

One-hour parking (1P) is to be implemented on:
Wongala Crescent from Chapman Avenue to Copeland Road
Hannah Street from Beecroft Road to Wongala Crescent.
Two-hour parking (2P) is to be implemented on:
Hannah Street from Beecroft Road to York Street
Copeland Road from Beecroft Road to York Street
Beecroft Road from Chapman Avenue to Copeland Road
Chapman Avenue from Wongala Crescent to Beecroft Road.
Beecroft Road car park be two-hour parking (2P).</td><td>N</td></tr>
<tr><td>The presence of cyclists is communicated to drivers along Wongala Crescent, Beecroft Road, Sutherland Road, Chapman Road, Copeland Road and Copeland Road east. This will include the installation of appropriate warning signs and pavement marking. Improving the cycling environment will encourage cyclists to travel to Beecroft.</td><td>N</td></tr>
<tr><td>Install quality end-of-trip bicycle facilities within the monitored Beecroft Road car park accessible from Beecroft Road and Wongala Crescent.</td><td>N</td></tr>
<tr><td>Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such short stay (P Short) parking in the Beecroft Road 2P car park. These should be located before key decision making intersections such as Beecroft Road and Chapman Avenue and Copeland Road and Beecroft Road.</td><td>N</td></tr>
<tr><td>Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Beecroft, especially by bus for commuters of the upgraded train network.</td><td>N</td></tr>
<tr><td>Pay parking be introduced on-street in the town centre at streets with the 1P and 2P time restrictions recommended above. This will encourage higher turnover and improved compliance in the short stay bays.

Pay parking be introduced in the Beecroft Road 2P car park.</td><td>D</td></tr>
</table>

2.9 CHELTENHAM PRECINCT

Figure 2.9 Cheltenham Precinct occupancy heat map



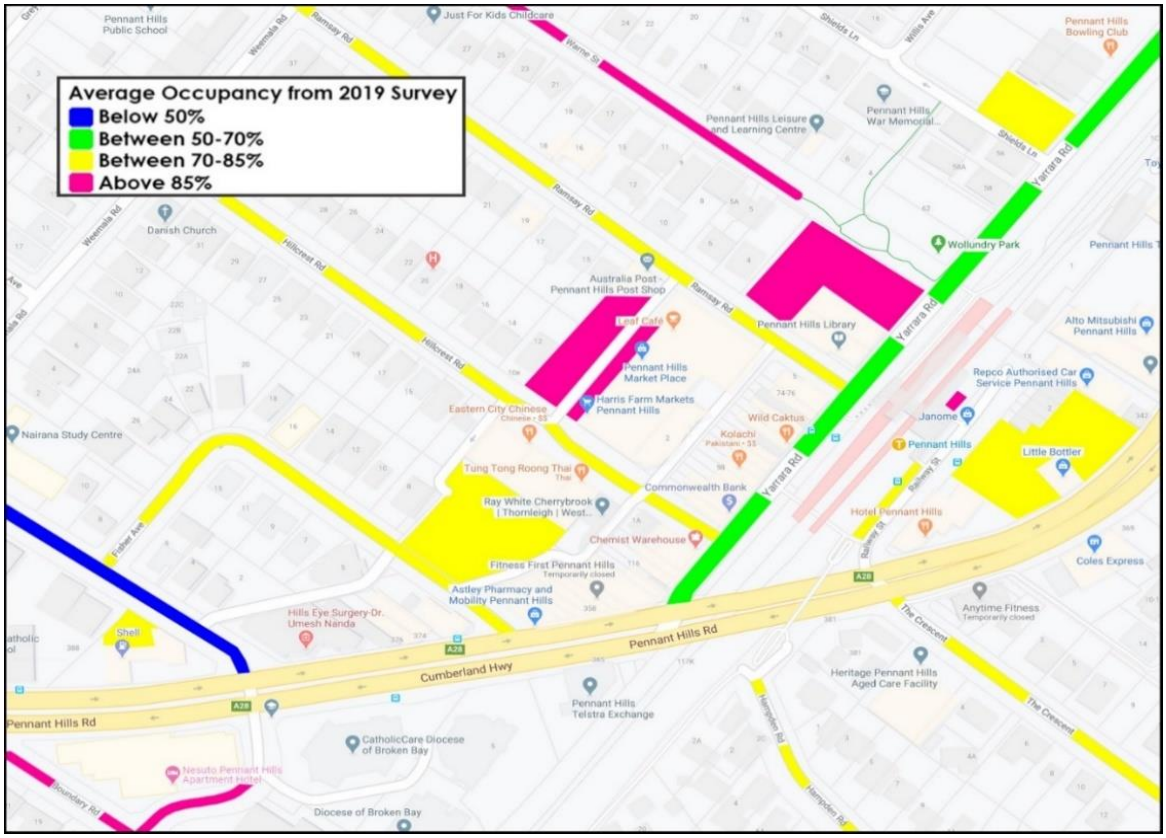
Description of Information or Data	Findings
Utilisation Surveys	• There are 113 time-restricted and 721 unrestricted parking bays located within the study area. Of these, 14% are time restricted and 86% unrestricted. • 99% of parking supply is on-street, while 1% is off-street. • Peak occupancy on-street is 58% on a Thursday at 2 pm, and, 14% on a Saturday with peak demand occurring from 12 pm to 1 pm. • The time-restricted areas of on-street parking generate an average turnover of 1.3 car during the survey on Thursday. • The unrestricted areas of on-street parking generate an average turnover of 0.7 car during the survey on Thursday. • The average length of stay on-street on a Saturday is 3 hours. • 65% of parkers' trip origins in Cheltenham were located within the Hornsby LGA with 35% in other surrounding LGA's'.
SWOT Analysis	• As seen in Figure 3-33 in Part C, there is an excessive supply of unrestricted parking along The Crescent. • Council has provided adequate restrictions for the current demands for the train station and the Cheltenham Girls' High School. • There are streets close to the train station that have no parking restrictions, with some infiltration to the streets near the train station as seen in Figure 2-38 in Part C. Implementation of simplified on-street time restricted parking within the precinct will force commuters to park beside the train line, removing the commuters from parking in the residential streets near the station.

Recommendations					
Hierarchy of Parking	**Priority**	**Cheltenham Precinct Parking**		**Outside Cheltenham Precinct Parking**	
		On-street	**Off-street**	**On-street**	**Off-street**
	Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, facility user
		Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles
		Drop-off/pick-up	Short to medium-stay	Residents	Short to medium-stay
		Loading	Drop-off/pick-up	Short to medium stay	Drop-off/pick-up
		Public transport and taxis	Loading	Disability permit holders	Park and Ride
		Short to medium-stay	Motorcycle/scooter	Loading	Residents,
		Long-stay/commuter	long-stay workers, commuter & residents	Long-stay visitors, commuter and workers	Motorcycle/scooter
			Car share	Drop-off/pick-up & motorcycle/ scooter & cyclists	
		Motorcycle/scooter & cyclists	Cyclists	Lay-over zones	Disability permit holders & loading & cyclists
	Not allowed in this zone	Residents	Public transport		Public transport

Convert two parking bays on The Crescent adjacent to the train station entrance into accessible parking bays.	U
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions, particularly the restrictions on The Promenade outside the Cheltenham Girls' High School and the clearway along Beecroft Road.	U
The presence of cyclists is communicated to drivers along Cheltenham Road, The Crescent and Sutherland Road. This will include the installation of appropriate warning signs and pavement marking. Improving the cycling environment will encourage cyclists to travel to Cheltenham.	N
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such as long stay (P Long) on The Crescent between Cheltenham Road and Lyne Road giving drivers the knowledge to choose wisely regarding their parking needs. These should be located before key decision making intersections such as Beecroft Road and Cheltenham Road and Cheltenham Road and Sutherland Road.	N
Council lobby the New South Wales State Government to provide more convenient and frequent bus services to Cheltenham to remove the need for long term parking in the precinct.	N
Convert some of the on-street parking bays near the entrance to the train station on The Crescent into dedicated end of trip bicycle facilities to encourage transport mode shift. The close proximity to the train station entrance will be an attractive option for commuters.	D
Review parking in the Cheltenham precinct and the impact on the traffic flow to determine if parking controls are needed to prevent long-stay parking on streets such as Cheltenham Road, The Boulevard and The Promenade. This will include the survey of long stay parking use along The Crescent.	D

2.10 PENNANT HILLS TOWN CENTRE

Figure 2.10 Pennant Hills Town Centre occupancy heat map



Description of Information or Data	Findings

Utilisation Surveys	• There are 2,028 parking bays located within the study area. Of these, 38% are time restricted and 62% unrestricted.
	• 75% of parking supply is on-street, while 25% is off-street.
	• Peak occupancy on-street is 81% on a Thursday at 10 am, and, 55% on a Saturday with peak demand occurring at 2 pm.
	• Peak occupancy off-street is 87% on a Thursday from 10 am to 12 pm and 55% on a Saturday with peak demand occurring at 2 pm.
	• The time-restricted areas of on-street parking generate an average turnover of 1.4 cars during the survey on Thursday.
	• The unrestricted areas of on-street parking generate an average turnover of 2.8 cars during the survey on Thursday.
	• The average length of stay on-street on a Saturday is 2.9 hours for on-street parking.
	• The following road segments yielded occupancy rates of higher than 85%:
	  ◦ Hampden Road – Trinity Grove end.
	  ◦ George Street – from Cecil Avenue to Harold Avenue
	  ◦ The Crescent – from Charlotte Road to Pennant Hills Road
	  ◦ Yarrara Road
	  ◦ Pennant Hills Bowling Club Car Park
	  ◦ Pennant Hills Community Centre
	  ◦ Pennant Hills Market Place Car Park at Grade
	  ◦ Train Station Commuter Car Park
	• 61% of parkers' trip origins in Pennant Hills were located within the Hornsby LGA with 39% in other surrounding LGA's'.

SWOT Analysis	• Strong levels of utilisation, spatial extent of controlled parking, enforcement and compliance. • There are varying levels of demand throughout the town centre due to competing demand such as commuters, shoppers, and staff of businesses in the town centre and Pennant Hills Library. • Commuter carparks operate at full capacity for most of the day throughout the week. • Numerous time restrictions apply within short distance of each other, resulting in confusion for drivers and an overabundance of signage.

	• Pay parking should be introduced as it may benefit all stakeholders. • Outside of peak demand times, parking restrictions can be relaxed to allow more parking spaces closer to destinations for night parkers.	

Recommendations

Hierarchy of Parking

Priority	Pennant Hills Town Centre Parking		Outside Pennant Hills Town Centre Parking	
	On-street	**Off-street**	**On-street**	**Off-street**
Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, Facility user
	Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles
	Loading	Short to medium-stay	Residents	Park and Ride
	Public transport and taxis	Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up
	Drop-off/pick-up	Cyclists	Disability permit holders	Short to medium-stay
	Short to medium-stay	Motorcycle/scooter	Loading	Residents,
	Cyclists	Loading	Long-stay visitors, commuters and workers	Motorcycle/scooter
		Car share	Drop-off/pick-up & motorcycle/ scooter & cyclists	
Lowest	Motorcycle/scooter	long-stay workers, commuter & residents	Lay-over zones	Disability permit holders & loading & cyclists
Not allowed in this zone	Long-stay/commuter	Public transport		Public transport
	Residents			

U

New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.

Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Pennant Hills Town Centre during weekdays and Pennant Hills Park on weekends to alleviate the high demand for parking. U

Council communicate to business owners in the Pennant Hills town centre to encourage efficient sharing of bays to allow the number of parking bays required to service demand to be reduced significantly. U

Two parking time restrictions be implemented on-street in the Pennant Hills Town Centre.

One-hour parking (1P) is to be implemented on:

- Yarrara Road between Shields Lane and the Cumberland Highway
- Ramsay Road between Yarrara Road and Pennant Hills Market Place car park entry
- Hillcrest Road between Yarrara Road and Pennant Hills Market Place car park entry.

Three-hour parking (3P) is to be implemented on:

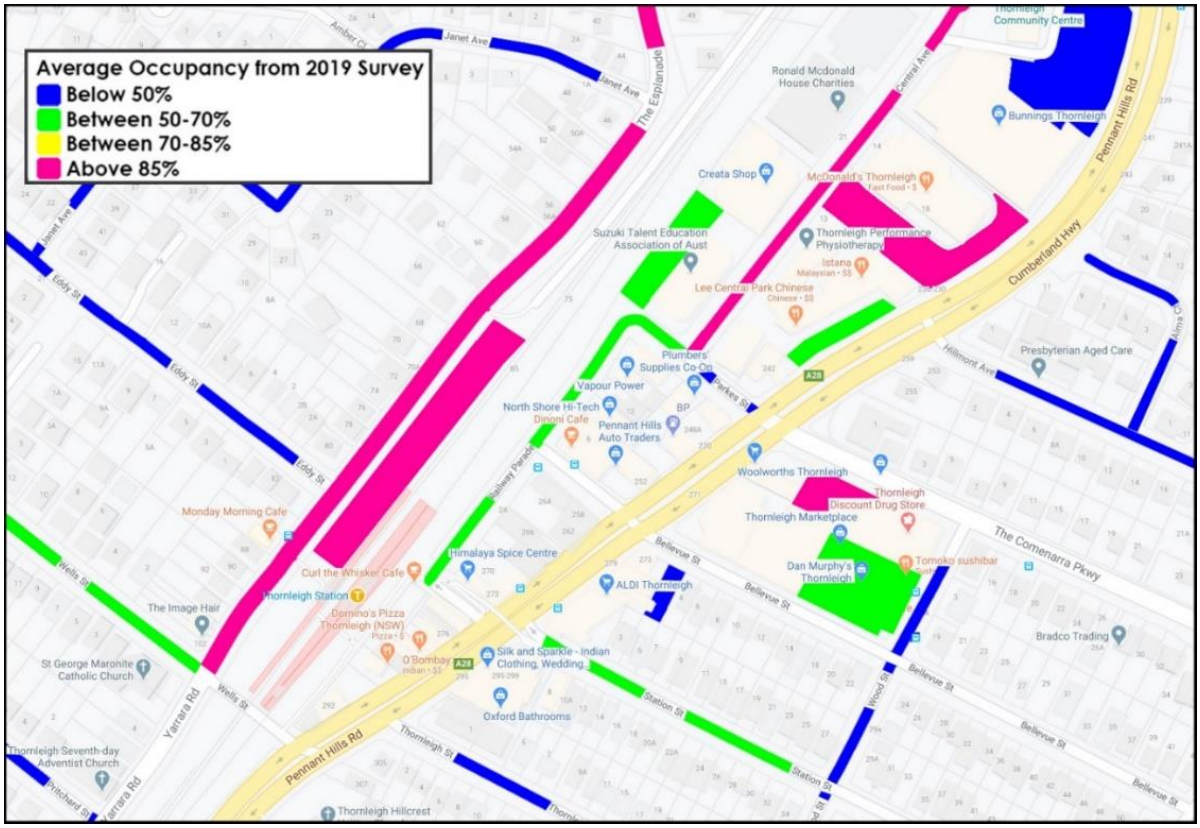
- Yarrara Road from Shields Lane to Stevens Street
- Willis Avenue
- Werona Street
- Shields Lane
- Ramsay Road from the Pennant Hills Market Place car park entry to Rosemount Avenue
- Warne Street
- Hillcrest Road from the Pennant Hills Market Place car park entry to Weemala Road
- Fisher Avenue
- The Crescent from existing 1P parking to Britannia Street
- George Street from Cumberland Highway to Cecil Avenue
- Hampden Road from The Crescent to Cumberland Highway
- Harold Avenue.

U

Recommendations	
Pay parking be introduced on-street in the town centre at streets with the 1P and 3P time restrictions recommended above. This will encourage higher turnover and improved compliance in the short stay bays. Investigate pay parking in the Pennant Hills Market Place 2P car park. As the Market Place Car Park is privately owned this would need to be coordinated and agreed to with the landowner. Pay parking be implemented from Monday to Saturday, with Saturday rates to be less than the weekday rates. This can be reviewed regularly, to allow adjustments to the pay parking times to be managed and encourage required turnover. Revenue generated from pay parking should be written into policy to be exclusively used for pay parking, maintenance and upgrade of parking equipment and facilities and further pedestrian and cyclist facilities within Pennant Hills town centre and Pennant Hills Park.	**N**
Install further parking supply into the perimeter and throughout the Pennant Hills Park for use by shuttle bus to the town centre during weekdays and to prevent parking overflow on the weekends. Long-stay parking should be located at the outside edge of the centre so as not to compromise access and maximise use of space and activity within the centre.	**N**
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such as medium stay (P Medium) on the majority of streets in the town centre including the off-street Council operated Pennant Hills Market Place car park. These should be located before key decision making intersections such as Stevens Street and Yarrara Road, Ramsay Road and Rosemount Avenue and Hampden Road and The Crescent.	**N**
The presence of cyclists is communicated to drivers along Pennant Hills Road, Yarrara Road and Stevens Street. This will include the installation of appropriate warning signs and pavement markings. Improving the cycling environment will encourage cyclists to travel to Pennant Hills Town Centre and Pennant Hills Park.	**N**
Install quality end-of-trip bicycle facilities within Wollundry Park, accessible from Yarrara Road and Warne Street.	**N**
A bike sharing scheme is investigated in consultation with the local community. A trial with limited bicycles located could be undertaken near the Pennant Hills train station and Pennant Hills Park. Any bike sharing scheme should also be complemented with improved cycle infrastructure including safe off-street share paths.	**D**
Install quality end of trip bicycle facilities at Pennant Hills Park to encourage cyclists to ride to Pennant Hills Park on the weekends for sporting activities.	**D**
Review the extent of parking restrictions in the Pennant Hills town centre and if required include Stevens Street, Rosemount Avenue, Weemala Road, Charlotte Lane and Charlotte Road.	**D**
Council to develop a special event parking strategy for events held at Pennant Hills Park including measures in place to manage the impact of special event increased parking demand.	**D**
Council lobby the New South Wales State Government to investigate short stay parking outside of peak periods on Pennant Hills Road following the opening of North Connex.	**D**

2.11 THORNLEIGH TOWN CENTRE

Figure 2.11 Thornleigh Town Centre occupancy heat map



Description of Information or Data	Findings

Utilisation Surveys	• There are 2,265 parking bays located within the study area. Of these, 10% are time restricted and 90% unrestricted.
	• 42% of parking supply is on-street, while 58% is off-street.
	• Peak occupancy on-street is 52% on a Thursday at 10 am, and, 31% on a Saturday with peak demand occurring at 1 pm.
	• Peak occupancy off-street 88% on Thursday 11 am and 68% on a Saturday with peak demand occurring at 12 pm.
	• The time-restricted areas of on-street parking generate an average turnover of 1.3 cars during the survey on Thursday.
	• The unrestricted areas of on-street parking generate an average turnover of 2.3 cars during the survey on Thursday.
	• The average length of stay on-street on a Saturday is 1.4 hours for on-street parking.
	• The following road segments yielded occupancy rates of higher than 85%:
	  ◦ The Esplanade
	  ◦ Commuter Car Park (Level 1 – 5)
	  ◦ Woolworths Car Park
	• 65% of parkers' trip origins in Thornleigh were located within the Hornsby LGA with 35% in other surrounding LGA's'.

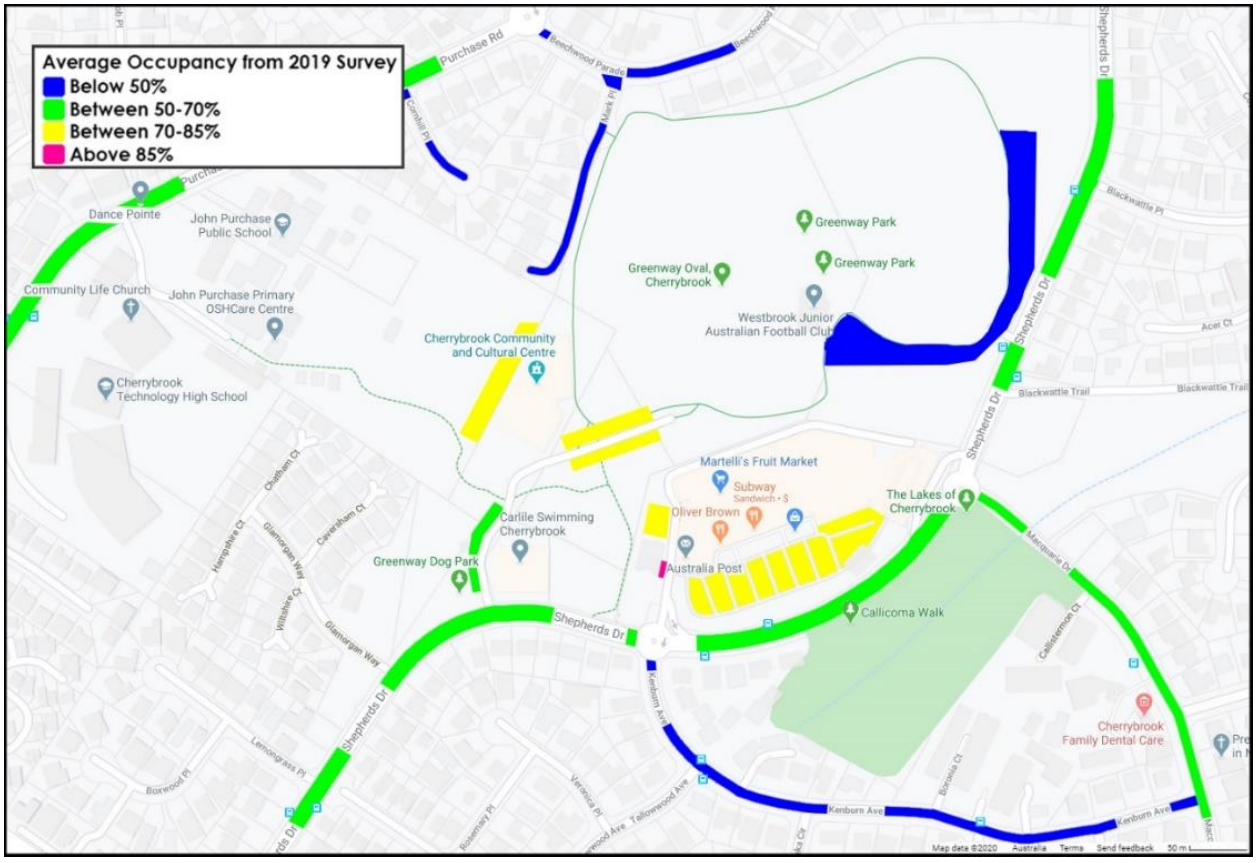
SWOT Analysis	• There is limited council owned off-street parking supply that is provided in the Town Centre, especially on the Eastern side of Thornleigh station, with the Thornleigh Train Station car park operating at full capacity for the majority of the day throughout the week. • Parking demands differ throughout the town centre during different time periods due to competing demands such as commuters, shoppers, and staff of businesses in the town centre. • Thornleigh community centre carpark is underutilised during the weekday peak hours. • Introduction of pay parking will benefit all stakeholders.

Recommendations						
Hierarchy of Parking		**Thornleigh Town Centre Parking**		**Outside Thornleigh Town Centre Parking**		U
		On-street	**Off-street**	**On-street**	**Off-street**	
	Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, Facility user	
		Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles	
		Loading	Short to medium-stay	Residents	Park and Ride	
		Public transport and taxis	Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up	
		Drop-off/pick-up	Cyclists	Disability permit holders	Short to medium-stay	
		Short to medium-stay	Motorcycle/scooter	Loading	Residents,	
		Cyclists	Loading	Long-stay workers, commuters and residents	Motorcycle/scooter	
			Car share	Drop-off/pick-up & motorcycle/ scooter & cyclists		
	Lowest	Motorcycle/scooter	long-stay workers, commuter & residents	Lay-over zones	Disability permit holders & loading & cyclists	
	Not allowed in this zone	Long-stay/commuter	Public transport		Public transport	
		Residents				
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.						
Council to communicate to the business owners the benefits of efficient sharing of bays on-site. This allows the number of parking bays required to service demand to be reduced significantly and provides more opportunity for customers and clients of Thornleigh.						U
Two parking time restrictions be implemented on-street in the Thornleigh Town Centre. One-hour parking (1P) is to be implemented on: • The Esplanade between Wells Street and Eddy Street. Three-hour parking (3P) is to be implemented on: • Pritchard Street between Lovett Street and Yarrara Road • Yarrara Road between Pritchard Street and Wells Street • Wells Street between Yarrara Road and Lovett Street • Eddy Street between Janet Avenue and The Esplanade • The Esplanade between Eddy Street and Janet Avenue • Parkes Street • Railway Parade • Bellevue Street between Wood Street and Railway Parade • Station Street between Wood Street and Railway Parade						N
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such as medium stay (P Medium) on the majority of the streets within the town centre. These should be located before key decision making intersections such as Yarrara Road and Pritchard Street, The Esplanade and Janet Avenue, The Cumberland Highway and Bellevue Street and The Cumberland Highway and Station Street.						N
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Thornleigh to alleviate the commuter and long stay parking demands in the town centre.						N
Pay parking be introduced on-street in the town centre at streets with the 1P and 3P time restrictions recommended above. This will encourage higher turnover and improved compliance in the short stay bays. Pay parking be implemented from Monday to Saturday, with Saturday rates to be less than the weekday rates. This can be reviewed regularly, to allow adjustments to the pay parking times to be managed and encourage required turnover. Revenue generated from pay parking should be written into policy to be exclusively used for						D

Recommendations	
the administration of the monies from pay parking, maintenance and upgrade of parking equipment and facilities and further pedestrian and cyclist facilities within Thornleigh town centre.	
Review the parking restrictions in the Thornleigh Town Centre and if required extend them to Wood Street, Thornleigh Street, Lovett Street, Tillock Street and Janet Avenue.	D

2.12 CHERRYBROOK SHOPPING CENTRE PRECINCT

Figure 2.12 Cherrybrook Shopping Centre occupancy heat map



Description of Information or Data	Findings

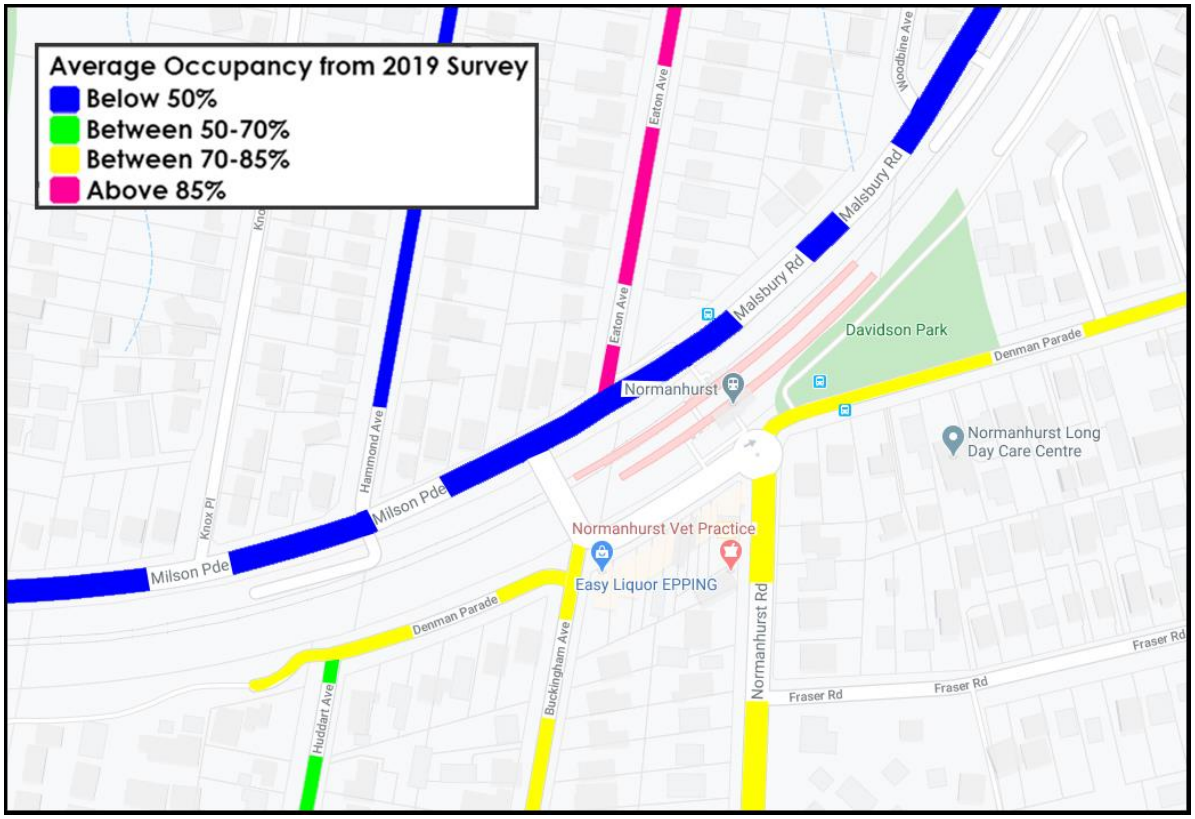
Utilisation Surveys	• There are 2,973 parking bays located within the study area. Of these, 20% are time restricted and 80% unrestricted.
	• 63% of parking supply is on-street, while 37% is off-street.
	• Peak occupancy on-street is 48% on a Thursday at 9 am, and, 25% on a Saturday with peak demand occurring at 4 pm.
	• Peak occupancy off-street is 100% on a Thursday 11 am and 94% on a Saturday with peak demand occurring at 2 pm.
	• The time-restricted areas of on-street parking generate an average turnover of 1 car during the survey on Thursday.
	• The unrestricted areas of on-street parking generate an average turnover of 1.1 cars during the survey on Thursday.
	• The average length of stay on-street on a Saturday is 1.5 hours for on-street parking.
	• The following road segments yielded occupancy rates of higher than 85%:
	  ◦ Shepherds Drive
	  ◦ Kenburn Avenue
	  ◦ Kenburn Avenue – from Tallowood Avenue to Shepherds Drive
	  ◦ Purchase Road
	  ◦ Tennyson Close – from Purchase Road to Hallam Way
	  ◦ Kindalin Early Childhood
	  ◦ Carlile Swimming Centre
	  ◦ Forest Glen
	  ◦ Cherrybrook Community and Cultural Centre – near John Purchase Oval
	  ◦ Cherrybrook Shopping Villa Basement.
	• 73% of parkers' trip origins in Cherrybrook were located within the Hornsby LGA with 27% in other surrounding LGA's'.

SWOT Analysis	• Underutilisation of Greenway Park car parking during the week, but high demand during the weekend, resulting in the overflow into surrounding streets. Council needs to find some land within or on the perimeter of Greenway Park for additional parking within the town centre to alleviate the high weekend demand. • Limited parking controls in and around the town centre.

Recommendations						
Hierarchy of Parking	**Priority**	**Cherrybrook Shopping Centre Precinct Parking**		**Outside Cherrybrook Shopping Centre Precinct Parking**		
		On-street	**Off-street**	**On-street**	**Off-street**	
	Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, facility user	**U**
		Public transport and taxis	Public transport	Residents	Park and Ride	
		Drop-off/pick-up	long-stay/commuter	Short to medium-stay	Short to medium-stay	
		Loading	Drop-off/pick-up	Disability permit holders	Drop-off/pick-up	
		Short to medium-stay	Loading	Loading	Residents,	
		Cyclists	Motorcycle/ scooter, cyclists	Long-stay visitors workers and commuters	Motorcycle/scooter	
			Car share			
	Lowest	Motorcycle/scooter	Short to medium-stay	Drop-off/pick-up & motorcycle/ scooter & cyclists	Disability permit holders & loading & cyclists	
	Not allowed in this zone	Long-stay visitors, workers and commuters	Residents		Public transport	
		Residents				
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions, including overstay of parking in Cherrybrook Village Shopping Centre.						
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Cherrybrook Shopping Centre precinct to reduce the number of long stay parking bays required.						U
Three-hour parking (3P) is to be implemented on: • Shepherds Drive between Blackwattle Trail (northern entry) and Kenburn Avenue • Kenburn Avenue.						**N**
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such as long stay (P Long) in Greenway Park car park on weekdays and weekends. These should be located before key decision making intersections such as New Line Road and Shepherds Drive, Purchase Road and Hancock Drive and Shepherds Drive and Macquarie Drive. These signs should also be installed on entry to Greenway Park car park.						**N**
Construct more parking supply on the perimeter or within Greenway Park car park for the high parking demand on the weekend and to be used as long stay parking in the weekdays. This will remove long stay parkers from parking in the residential streets. Long-stay parking should be located at the outside edge of the centre so as not to compromise access and maximise use of space and activity within the centre where short and medium stay parking is in high demand.						**N**
The presence of cyclists is communicated to drivers along Shepherds Drive, New Line Road and Hancock Road to complement the Purchase Road signs and line marking. This will include the installation of appropriate warning signs and pavement marking. Improving the cycling environment will encourage cyclists to travel to Cherrybrook.						**N**
Install quality end of trip facilities for cyclists within Greenway Park next to the bus stop to allow modal shift from private vehicle use to cycling.						**N**
Provide designated pedestrian refuge islands on Shepherds Drive and Beechwood Parade to encourage pedestrians to walk to Greenway Park. This will improve connectivity with parking areas and improve pedestrian safety.						**N**
Pedestrian and cycle access to and from and through Greenway Park and the surrounding destinations such as the Cherrybrook Village Shopping Centre, the Carlile Swimming and the Community and Cultural Centre should be reviewed with a view to improving the pedestrian paths, providing dedicated bicycle routes and end of trip facilities. This will support sustainable transport initiatives in Cherrybrook.						**D**
Review the on-street parking restrictions and extend to the following streets if necessary: • Purchase Road • Tennyson Close – from Purchase Road to Hallam Way.						**D**
Council to develop a special event parking strategy for Greenway Park and put measures in place to manage the impact of special event increased parking demand.						**D**

2.13 NORMANHURST TOWN CENTRE

Figure 2.13 Normanhurst Town Centre occupancy heat map



Description of Information or Data	Findings
Utilisation Surveys	• There are 2,973 parking bays located within the study area. Of these, 20% are time restricted and 80% unrestricted. • There are 659 parking bays located within the study area. Of these, 6% are time restricted and 94% unrestricted. • 100% of parking supply is on-street parking. • Peak occupancy on-street is 56% on a Thursday at 12 pm, and, 23% on a Saturday with peak demand occurring at 2 pm. • The time-restricted areas of on-street parking generate an average turnover of 0.6 car during the survey on Thursday. • The unrestricted areas of on-street parking generate an average turnover of 2 cars during the survey on Thursday. • The average length of stay on-street on a Saturday is 0.9 hour for on-street parking. • 61% of parkers' trip origins in Normanhurst were located within the Hornsby LGA with 39% in other surrounding LGA's'. • Commuter parking has spilled onto residential areas as seem in figure 3-64 in Part C.
SWOT Analysis	• There is very little Council owned off-street parking supply in the town centre, with streets in and around the town centre with no controlled parking, and no on-street parking bays for persons with a disability. • Commuter parking overflows into residential streets.

Recommendations	

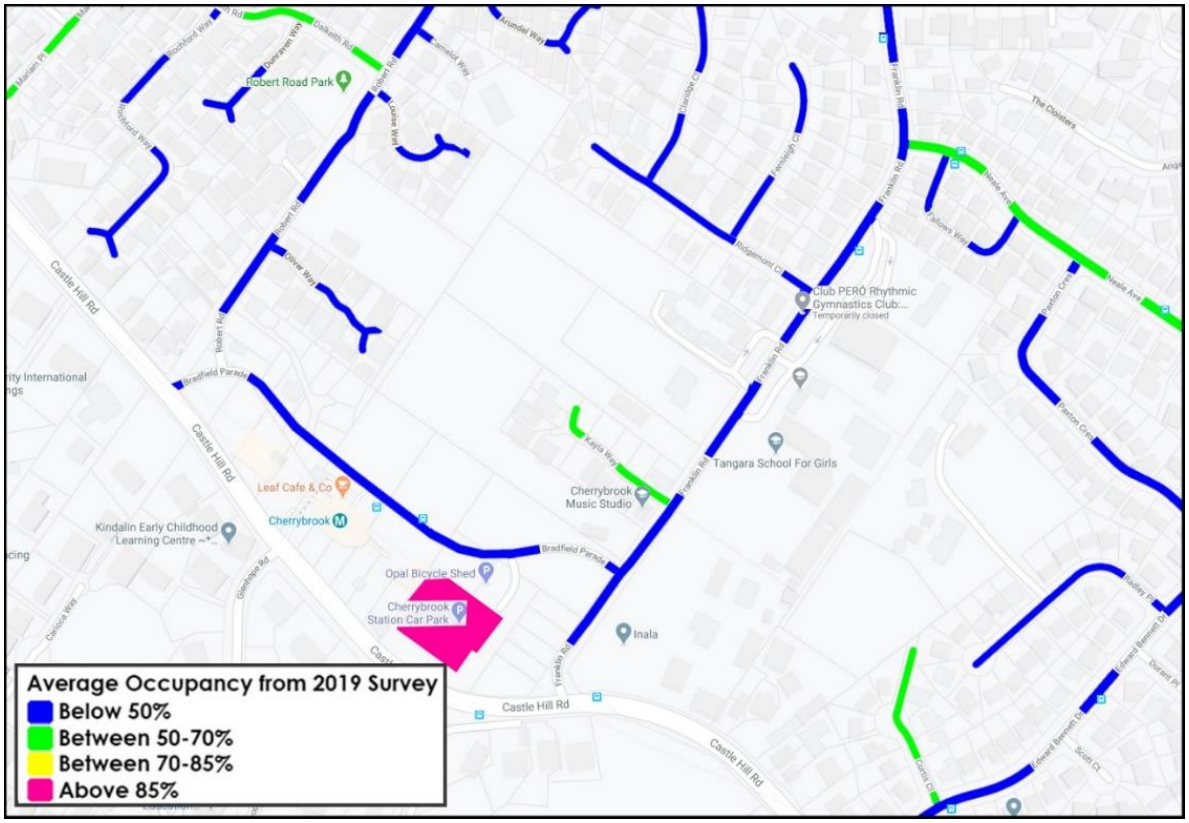
Hierarchy of Parking

Priority	Normanhurst Town Centre Parking		Outside Normanhurst Town Centre Parking	
	On-street	**Off-street**	**On-street**	**Off-street**
Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Long-stay/ commuter, Facility user
	Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles
	Loading	Short to medium-stay	Residents	Short to medium-stay
	Public transport and taxis	Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up
	Drop-off/pick-up	Loading	Disability permit holders	Park and Ride
	Short to medium-stay	Motorcycle/scooter	Loading	Residents,
	Motorcycle/scooter & cyclists	Cyclists	Long-stay/ commuter	Motorcycle/scooter
		Car share		
Lowest	Long-stay workers and commuter	long-stay workers commuter & residents	Drop-off/pick-up & motorcycle/ scooter & cyclists	Disability permit holders & loading & cyclists
Not allowed in this zone	Residents	Public transport		Public transport

Install in Denman Parade some on-street accessible parking bays on both sides of the road within close proximity to the pedestrian crossing near Normanhurst Road.	U
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions, particularly along Denman Parade.	U
Council to communicate to business owners in the town centre the benefits of efficient sharing of bays on-site or in the close proximity of the town shops such as the bays available in Denman Parade, which allows the number of parking bays required to service customer and client demand to be reduced significantly.	U
Two parking time restrictions be implemented on-street in the Normanhurst Activity Centre. One-hour parking (1P) is to be implemented on: • Denman Parade from Buckingham Avenue to the eastern side of Davidson Park. Three-hour parking (3P) is to be implemented on: • Buckingham Avenue • Normanhurst Road from Denman Parade to Fraser Road.	N
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Normanhurst including more bus services to the train station in the morning and afternoon peak hours to reduce the demand for long stay parking in the town centre.	N
The presence of cyclists is communicated to drivers along Denman Parade, Milson Parade and Malsbury Road. This will include the installation of appropriate warning signs and pavement marking. Improving the cycling environment will encourage cyclists to travel to Normanhurst.	N
Install quality end-of-trip bicycle facilities on the perimeter of Davidson Park off Denman Parade to encourage commuters and town centre customers to cycle to Normanhurst and to support sustainable transport initiatives.	D
Review the parking restrictions implemented and if necessary extend to Huddart Avenue, Eaton Avenue, Johns Avenue, Hammond Avenue and Malsbury Road.	D

2.14 CHERRYBROOK METRO PRECINCT

Figure 2.14 Cherrybrook Metro Precinct occupancy heat map



Description of Information or Data	Findings

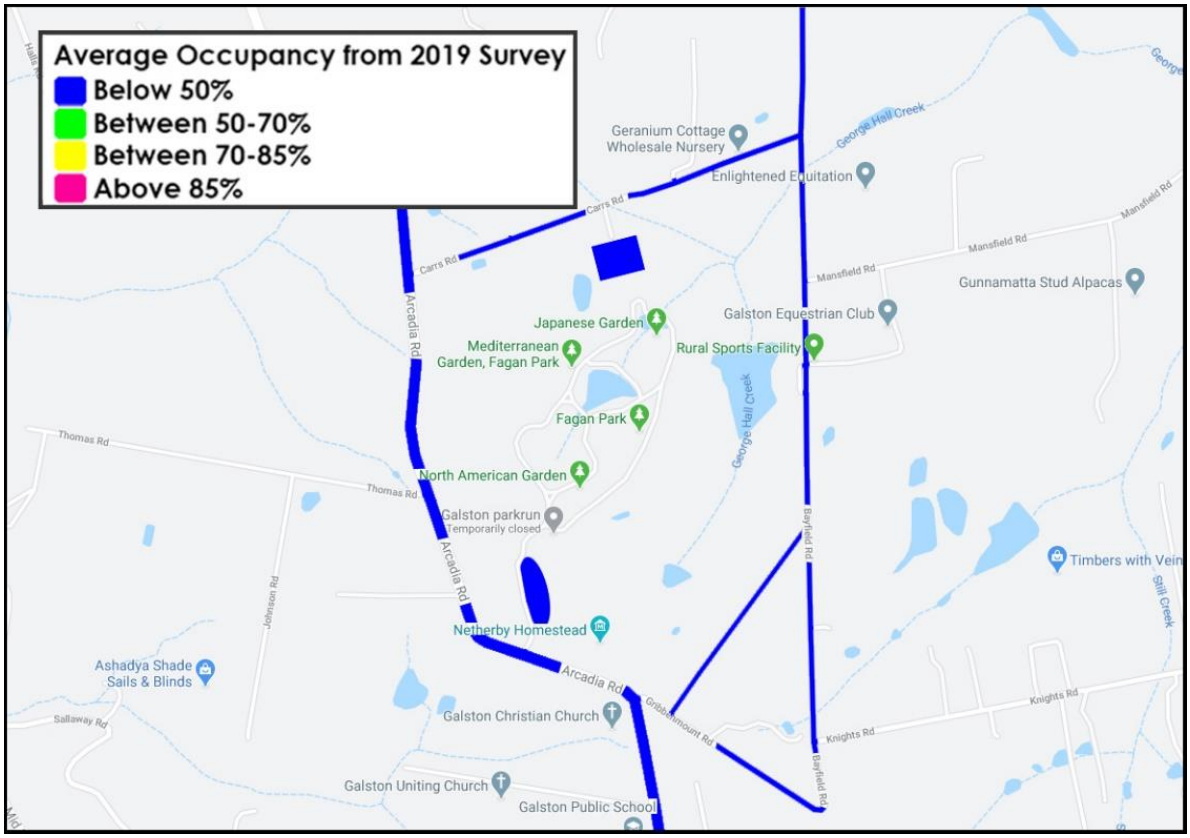
Utilisation Surveys	• There are 1,703 parking bays located within the study area. Of these, 21% are time restricted and 69% unrestricted.
	• 66% of parking supply is on-street, while 34% is off-street.
	• Peak occupancy on-street is 35% on a Thursday at 8 am, and, 16% on a Saturday with peak demand occurring at 2 pm.
	• Peak occupancy off-street is 98% on a Thursday from 8 am to 2 pm and 61% on a Saturday with peak demand occurring at 2 pm.
	• The time-restricted areas of on-street parking generate an average turnover of 0.6 car during the survey on Thursday.
	• The unrestricted areas of on-street parking generate an average turnover of 1 car during the survey on Thursday.
	• The average length of stay on-street on a Saturday is 0.7 hour for on-street parking.
	• The following road segments yielded occupancy rates of higher than 85%:
	  ◦ Ashford Road
	  ◦ Clifton Place - Ashford Road end
	  ◦ Country Drive - from Treetops Road to John Road.
	• 79% of parkers' trip origins in the Cherrybrook Metro were located within the Hornsby LGA with 21% in other surrounding LGA's'.

SWOT Analysis	• There are plenty of opportunities for commuters to use different modes of travel, with the provision of undercover bicycle parking, kiss and drop areas, bus stations on Bradfield and plenty of pedestrian crossings around the area. • The Cherrybrook Station car park was supposed to be constructed with 800 bays, but only 400 bays are provided, resulting in commuter overspill in surrounding areas. • Without effective parking management in this area with high demand for commuter parking and limited free supply, there will continue to be parking overspill.

Recommendations						
Hierarchy of Parking	**Priority**	**Cherrybrook Metro Precinct Parking**		**Outside Cherrybrook Metro Precinct Parking**		
		On-street	**Off-street**	**On-street**	**Off-street**	
	Highest	Disability permit holders (where appropriate off-street parking cannot be provided)	Disability permit holders	Public transport	Residents,	
		Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles	
		Loading	long-stay/commuter & Park and Ride	Residents	Short to medium-stay	
		Public transport and taxis	Cyclists	Short to medium-stay	Drop-off/pick-up	
		Drop-off/pick-up	Motorcycle/scooter	Disability permit holders	Motorcycle/scooter	
		Cyclists	Short to medium-stay	Loading	Disability permit holders & loading & cyclists	
		Motorcycle/scooter	Car share	Long-stay visitors, commuters, and workers		
				Drop-off/pick-up & motorcycle/ scooter & cyclists		
	Lowest			Lay-over zones		
	Not allowed in this zone	Long-stay visitors, commuters and workers Short to medium-stay	Public transport		Public transport	
		Residents				
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.						U
Council lobby the New South Wales State Government to provide more convenient and frequent bus services to Cherrybrook Station in lieu of the promised extra 400 parking bays that were not constructed.						U
The presence of cyclists is communicated to drivers along Bradfield Parade, Castle Hill Road, Franklin Road, Robert Road, John Road and County Drive. This will include the installation of appropriate warning signs and pavement marking. Improving the cycling environment will encourage cyclists to travel to Cherrybrook Metro where there is excellent end of trip facilities.						U
Four-hour parking (4P) is to be implemented on the following roads near Cherrybrook Metro Station: • Robert Road from Bradfield Parade to John Road • John Road from Robert Road to Franklin Road • Franklin Road from Castle Hill Road to John Road • All the roads bounded by Bradfield Parade, Castle Hill Road, Country Drive, John Road and Franklin Road.						N
A bike sharing scheme is investigated in consultation with the local community. A trial with limited bicycles located could be undertaken near the Cherrybrook Metro station. Any bike sharing scheme should also be complemented with improved cycle infrastructure including safe off-street share paths.						N
Review the parking restrictions implemented with a view to adjusting the times in streets showing good turnover of bays and possibly extending the time restricted streets to assist in encouraging commuters to use public transport, walk or cycle to the train station.						D
Review the compliance of the 4P time restrictions and implement pay parking (having users pay to park at a bay for a day) as incentive for commuters to use public transport, walk or cycle to the train station.						D

2.15 FAGAN PARK

Figure 2.15 Fagan Park occupancy heat map

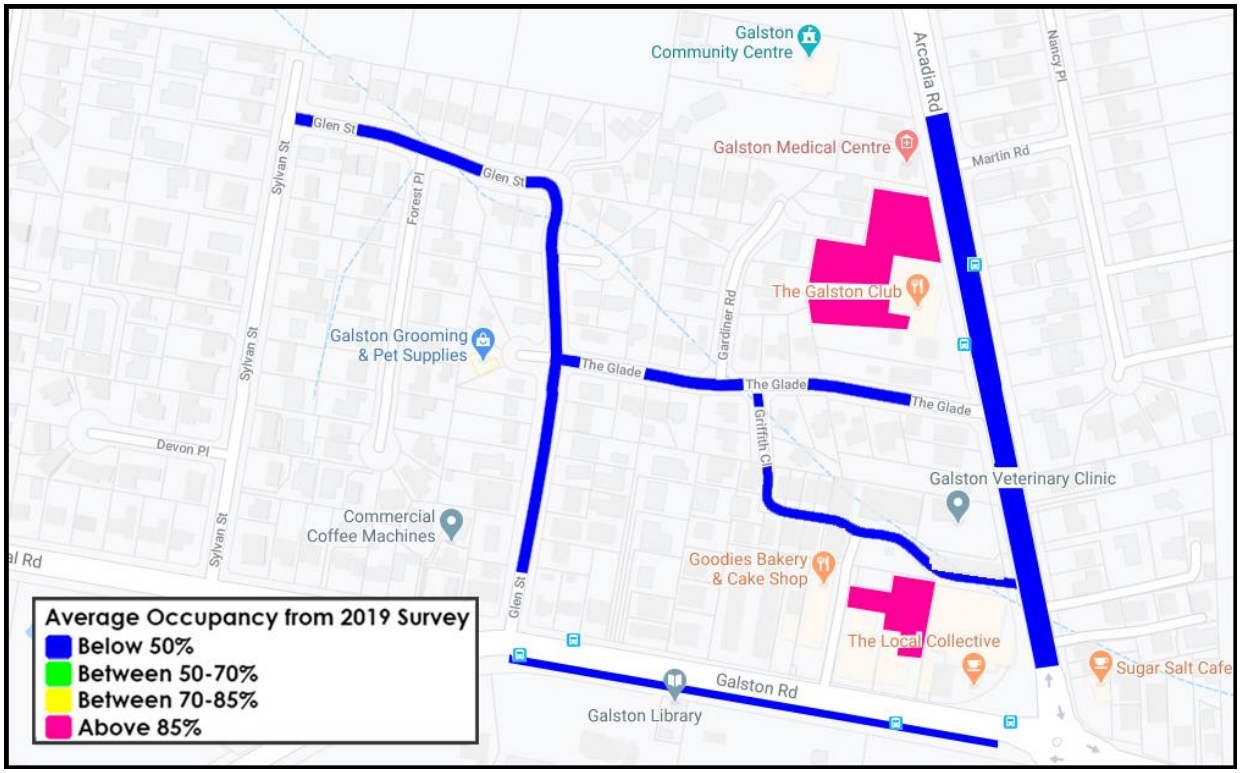


Description of Information or Data	Findings
Utilisation Surveys	• There are 942 parking bays located within the study area. Of these, 100% are unrestricted parking. • 78% of parking supply is on-street, while 22% is off-street. • Peak occupancy on-street is 1% on a Thursday from 12 pm to 3 pm, and, 3% on a Sunday with peak demand occurring from 12 pm to 4 pm. It should be noted that occupancy levels for this area vary depending on the day or period e.g. public holidays. • Peak occupancy off-street is 6% on a Thursday from 2 pm to 4 pm and 23% on a Sunday with peak demand occurring at 1 pm. • The unrestricted areas of on-street parking generate an average turnover of 0 cars during the survey on Thursday. • The average length of stay on-street on a Sunday is 0.1 hours for on-street parking. • 66% of parkers' trip origins in Fagan Park were located within the Hornsby LGA with 34 % in other surrounding LGA's'. .
SWOT Analysis	• All off-street parking in Fagan Park is pay and display parking at a cost of $6 per day, with a $41 annual parking permit. • The parking within Fagan Park is underutilised during the weekdays as shown in Figure 3-75, with the Carrs Road car park being underutilised throughout the week. • Advertising the existing $41 annual parking permit to residents will increase revenue and encourage more occupancy of the car park during the week. • Without effective enforcement there will be limited compliance for weekday parking at Fagan Park.

Recommendations				
Hierarchy of Parking	**Priority**	**Fagan Park Parking**		**U**
		On-street	**Off-street**	
	Highest	Public Transport	Disability permit holders	
			Special service vehicles	
			Short to medium-stay	
			long-stay workers, commuter & residents	
			Park and reserves visitors	
			Cyclists	
			Motorcycle/scooter	
	Lowest		Loading, Drop-off/pick-up	
	Not allowed in this zone	All other parking types	Public transport	
New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions, particularly on the weekends when Fagan Park has high occupancy.				**U**
Advertise the existing Fagan Park $41 annual parking permit to residents to increase revenue and encourage increased occupancy of the car park during the week.				**N**
Install wayfinding guidance signs on Arcadia Road and Carrs Road from both directions indicating long stay parking is available within Fagan Park.				**N**
The presence of cyclists is communicated to drivers along Carrs Road, Bayfield Road, Gribbenmount Road and Arcadia Road. This will include the installation of appropriate warning signs and pavement markings. Improving the cycling environment will encourage cyclists to travel to Fagan Park.				**N**
Review the pedestrian and cyclist accessibility to, from and throughout Fagan Park to encourage travel to and from Fagan Park using these alternate modes of transport. Better pedestrian paths, dedicated bicycle routes and quality end-of-trip bicycle facilities in Fagan Park will increase the use of the park and support sustainable transport initiatives.				**D**

2.16 GALSTON VILLAGE TOWN CENTRE

Figure 2.16 Galston Village Town Centre occupancy heat map



Description of Information or Data	Findings
Utilisation Surveys	• There are 485 parking bays located within the study area. Of these, 24% are time restricted and 76% unrestricted. • 50% of parking supply is on-street, while 50% is off-street. • Peak occupancy on-street is 74% on a Thursday at 12 pm, and, 65% on a Saturday with peak demand occurring at 11 am. • Peak occupancy off-street is 81% on a Thursday from 10 am to 12 pm and 52% on a Saturday with peak demand occurring at 10 am and between 12 pm to 2 pm. • The time-restricted areas of on-street parking generate an average turnover of 1.2 cars during the survey on Thursday. • The unrestricted areas of on-street parking generate an average turnover of 1.6 cars during the survey on Thursday. • The average length of stay on-street on a Saturday is 1.4 hour for on-street parking. • 68% of parkers' trip origins in Galston were located within the Hornsby LGA with 32% in other surrounding LGA's'.
SWOT Analysis	• Turnover of the 30-minute 90-degree parking outside the shopping complex as seen in Figure 3-82 in Part C requires effective enforcement. • The on-street and off-street parking supply around the Galston town centre is underutilised throughout the week.

Recommendations		
Hierarchy of Parking		

Priority	Galston Village Town Centre Parking		Outside Galston Village Town Centre Parking	
	On-street	**Off-street**	**On-street**	**Off-street**
Highest	Public transport and taxis	Disability permit holders	Public transport	Residents
	Special service vehicles	Special service vehicles	Special service vehicles	Special service vehicles
	Loading	Short to medium-stay	Residents	Short to medium-stay
	Drop-off/pick-up	Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up
	Short to medium-stay	Loading	Disability permit holders	Disability permit holders
	Motorcycle/scooter & cyclists	Motorcycle/scooter & cyclists	Loading	Motorcycle/scooter
	Disability permit holders (where appropriate off-street parking has been provided)		Long-stay visitors, commuter	loading
Lowest	Long-stay workers, commuter & Residents		Drop-off/pick-up & motorcycle/ scooter & cyclists	cyclists
Not allowed in this zone		Public transport		Public transport
		long-stay/commuter & residents		

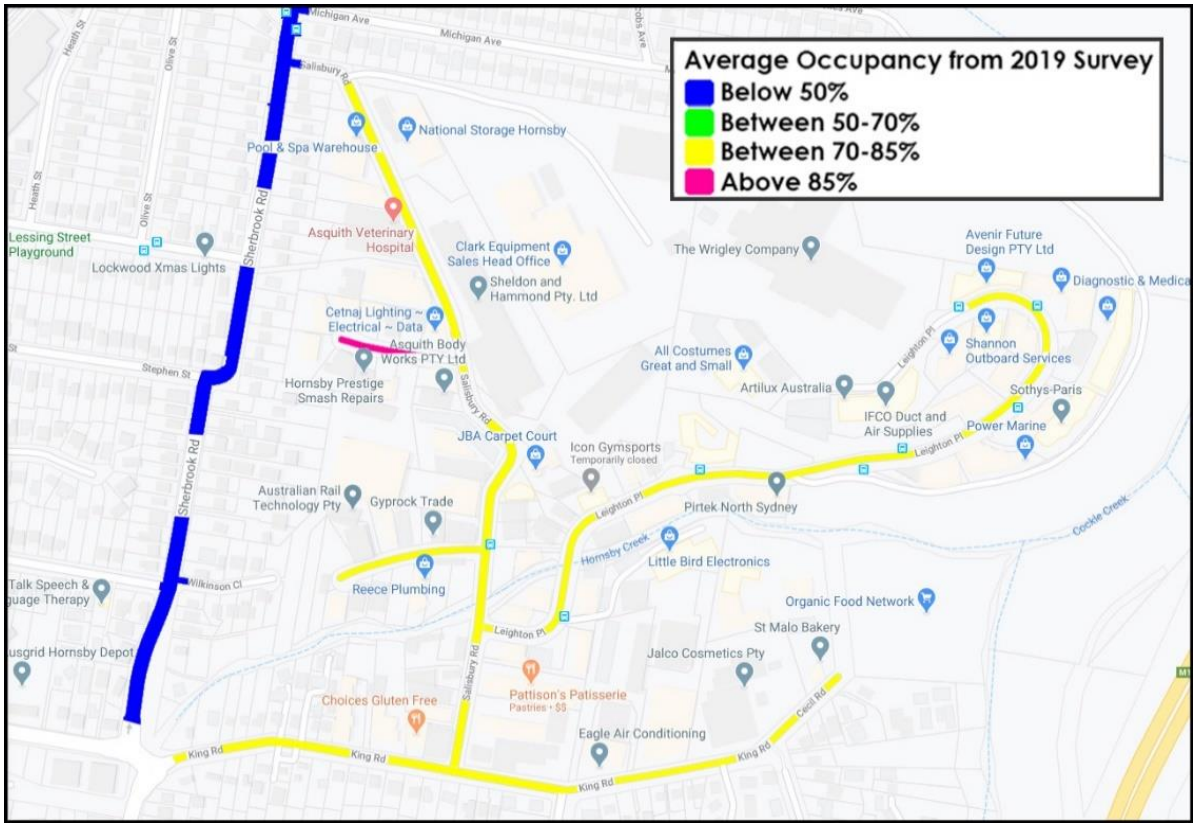
U

New technology can also be used to assist in enforcement including handheld enforcement devices and LPR surveillance which will decrease the time taken to issue fines, and, in return, increase compliance of parking restrictions.

Install a pedestrian refuge island on Arcadia Road just south of Griffith Close to provide pedestrian connectivity from the east of Arcadia Road with the Galston Village shopping and business area.	U
Two parking time restrictions be implemented on-street in the Galston Village Centre such as a 1P and 4P parking time restriction.	N
Install consistent parking wayfinding signage and ensure the location and size of the signs is clear. The signs should provide details such as medium stay (P Medium) in Galston Shopping Village Complex. These should be located before key decision making intersections such as Galston Road and Arcadia Road.	N
Install share the road cycle signs and bicycle line marking along with bicycle parking signs at Griffith Close. The presence of cyclists is communicated to drivers along Galston Road and Arcadia Road. This will include the installation of appropriate warning signs and pavement markings. Include bicycle parking signs at the intersection of Arcadia Road and Griffith Close. Improving the cycling environment will encourage cyclists to travel to Galston Village.	N
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to Galston Village to reduce the need for long stay parking.	D

2.17 SALISBURY ROAD AND LEIGHTON PLACE INDUSTRIAL PRECINCT

Figure 2.17 Salisbury Road and Leighton Place Industrial Precinct occupancy heat map



Description of Information or Data	Findings

Utilisation Surveys	• There are 656 parking bays located within the study area. Of these, 2% are time restricted and 98% unrestricted.
	• 100% of parking supply is on-street.
	• Peak occupancy on-street is 75% on a Thursday from 11 am to 1 pm.
	• The time-restricted areas of on-street parking generate an average turnover of 2.2 cars during the survey on Thursday.
	• The unrestricted areas of on-street parking generate an average turnover of 3.1 car during the survey on Thursday.
	• The average length of stay on-street on a Thursday is 2.6 hours for on-street parking.
	• The following road segments yielded occupancy rates of higher than 85%:
	  ◦ King Road
	  ◦ Leighton Place
	  ◦ Brennan Close
	  ◦ Kelray Place – Salisbury Road end
	  ◦ Salisbury Road
	  ◦ Sherbrook Road.
	• 70% of parkers' trip origins in the Salisbury Road and Leighton Place Industrial area were located within the Hornsby LGA with 30% in other surrounding LGA's'.

SWOT Analysis	• Staff and employees park on-street despite the businesses in the industrial estate having a reasonable supply of off-street parking, resulting in off-street parking being underutilised and on-street parking to be at full occupancy for most weekdays as seen in Figure 3-84 in Part C. • Council should encourage business owners to provide parking on-site for their staff and remove any stock or items that may prohibit access to development approved parking on-site. • Without removal of the current occupancy of employees on-street, the businesses in the Salisbury Road and Leighton Place Industrial Precinct will experience lack of customers as there is a perception that there are no free parking spaces available.

Recommendations				
Hierarchy of Parking	**Priority**	**Salisbury Road and Leighton Place Parking**		U
		On-street	**Off-street**	
	Highest	Special service vehicles	Disability permit holders	
		Public transport and Taxis	Special service vehicles	
		Drop-off/pick-up	Loading	
		Long-stay/commuter	Short to medium-stay	
		Short to medium-stay	Motorcycle/scooter & cyclist	
		Disability permit holders (where appropriate off-street parking has been provided)	long-stay workers, commuters	
	Lowest			
	Not allowed in this zone	Motorcycle/scooter & cyclists & loading	Public transport	
		Residents	Residents	
Council to communicate to businesses in the industrial estate the need to ensure off-street parking is provided for staff and that all development approved off-street parking spaces are to be utilised for parking not storage. Additionally, the efficient sharing between businesses of their off-street parking bays can reduce the number of on-street bays needed for customers/clients.				
Council lobby the New South Wales State Government to provide more convenient and frequent public transport services to the industrial estate to reduce the need for staff parking.				U
Install bicycle parking beside the pedestrian footpaths on the verge in strategic locations throughout the industrial estate to encourage cyclists to cycle to work. Install share the road cycle signs and bicycle line marking on Leighton Place and Salisbury Road. Improving the cycling environment will encourage cyclists to commute to work in the industrial estate.				N
Review the 6am-9am and 3pm-6pm bus zone times and extend if necessary to accommodate more bus services at times suited to the start and end of workers in the estate.				N
Review the parking needs on-street and implement parking time restrictions on-street to encourage long term parking off-street and use of public transport, walking and cycling to the industrial estate. Time restricted parking could be implemented on Leighton Place, Salisbury Road, Brennan Close, Kelray Place and King Road.				**D**