STANBURY TRAFFIC PLANNING

TRAFFIC, PARKING & TRANSPORT CONSULTANTS

PARKING & TRAFFIC IMPACT ASSESSMENT

PROPOSED SPORTS & RECREATION PRECINCT
LOT 754 DP 1180111 CADDENS ROAD, CADDENS

PREPARED FOR LEGACY PROPERTY PTY. LTD.
OUR REF: 17-002

JUNE 2017

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1. INTRODUCTION

1.1 Scope of Assessment

Stanbury Traffic Planning has been commissioned by Legacy Property Pty. Ltd. to prepare a Parking & Traffic Impact Assessment to accompany a Development Application for a proposed sports and recreation precinct to be provided as part of the Caddens Hills residential precinct located to the north of Caddens Road, Caddens.

This aim of this assessment is to investigate and report upon the potential parking and traffic consequences of the proposal and to recommend appropriate ameliorative measures where required. This report provides the following scope of assessment:

- Section 1 provides a summary of the site location, details, existing and surrounding land-uses;
- Section 2 describes the proposed development and operational characteristics;
- Section 3 assess the adequacy of the proposed site access and internal circulation arrangements with reference to relevant Council, Roads & Maritime Services and Australian Standard specifications;
- Section 4 assesses the adequacy of the proposed parking provision with respect to established Council requirements, parking provision of similar facilities and the likely operational characteristics of the site use;
- Section 5 assesses the existing and planned traffic and transport conditions surrounding and servicing the site including a description of the surrounding road network, traffic demands, operational performance and available public transport infrastructure; and
- Section 6 estimates the projected traffic generating ability of the proposed development and assesses the ability or otherwise of the surrounding road network to be capable of accommodating the altered demand in a safe and efficient manner.

The report has been prepared pursuant to State Environmental Planning Policy (Infrastructure) 2007.

1.2 Reference Documents

Reference is made to the following documents throughout this report:

- The Roads & Maritime Services' *Guide to Traffic Generating Developments*;

- Chapter C10 and E1 of Penrith City Council's *Penrith Development Control Plan 2014* (PDCP 2014) relating to *Transport, Access & Parking* and *Caddens,* respectively;

- Masson Wilson Twiney's *Caddens Release Area – Transport Management & Accessibility Plan* (2008);

- Australian Standard for *Parking Facilities Part 1: Off-Street Car Parking* (AS2890.1:2004); and

- Australian Standard for *Parking Facilities Part 6: Off-Street Parking for People with Disabilities* (AS2890.6:2009).

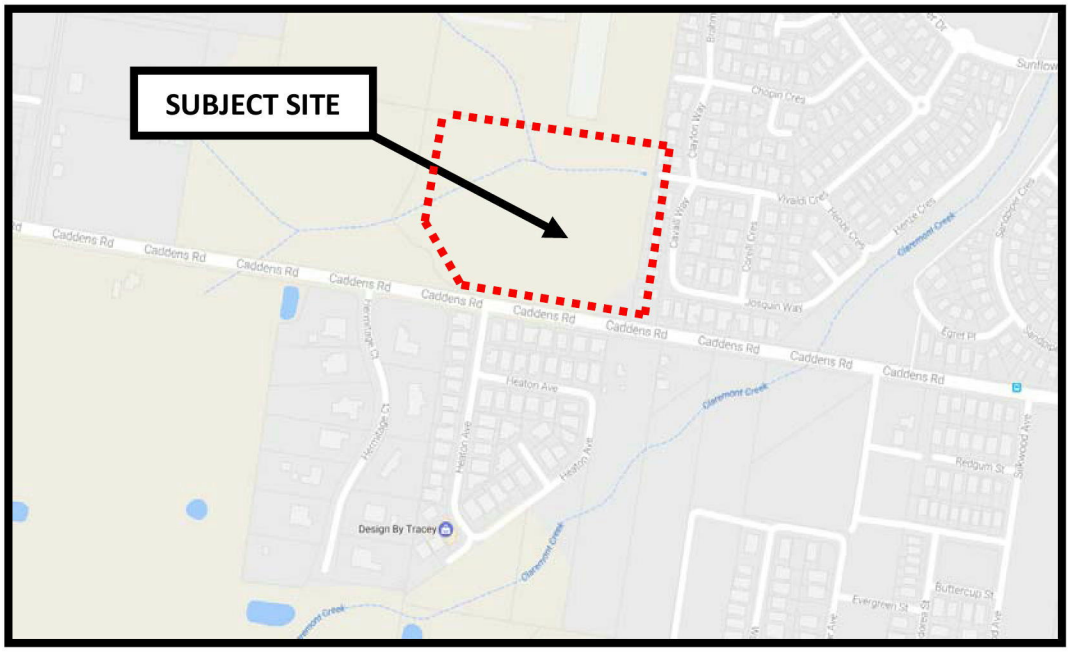
Development plans have been prepared by J. Wyndam Prince.

1.3 Site Details

1.3.1 Site Location

The subject site is located on the northern side of Caddens Road, approximately opposite Heaton Avenue, Caddens. The site location is illustrated below and overleaf within a local and aerial context by **Figure 1** and **Figure 2**, respectively.

FIGURE 1
SITE LOCATION WITHIN A LOCAL CONTEXT



Source: Google Maps (accessed 09/02/17)

FIGURE 2
SITE LOCATION WITHIN AN AERIAL CONTEXT

Source: Six Maps (accessed 09/02/17)

1.3.2 Site Description

The subject site provides a real property description of Lot 754 DP 1180111 Caddens Road, Caddens. The site forms an irregularly shaped parcel of land, providing a single frontage of approximately 180m to Caddens Road. The site extends to the north away from Caddens Road some 190m to the north away from Caddens Road, resulting in a total lot area in the order of 5.1 hectares.

1.3.3 Existing Site Use

The subject site is currently undeveloped and vacant.

1.3.3 Surrounding Uses

The site is surrounded by the following:

- Detached residential dwellings are located to the south fronting Caddens Road, Heaton Avenue and Hermitage Circuit;
- Detached residential dwellings are located to the east fronting Cavalli Way and Clayton Way;
- A large State Records facility is located to the north; and

- Vacant land is located to the west which is planned to accommodate Stage 2 of the Caddens Hill residential precinct, comprising some 69 residential lots local road infrastructure.

2. PROPOSED DEVELOPMENT

2.1 Strategic Background

As part of the strategic planning process for the Caddens Release Area, Penrith City Council has prepared Chapter E1 of PDCP 2014 detailing the manner in which development in the release area is to occur. The Control Plan ensures the timely provision of critical infrastructure such as roads, drainage, pedestrian footpaths, cycleways and community facilities, informing all stakeholders, including public authorities and developers.

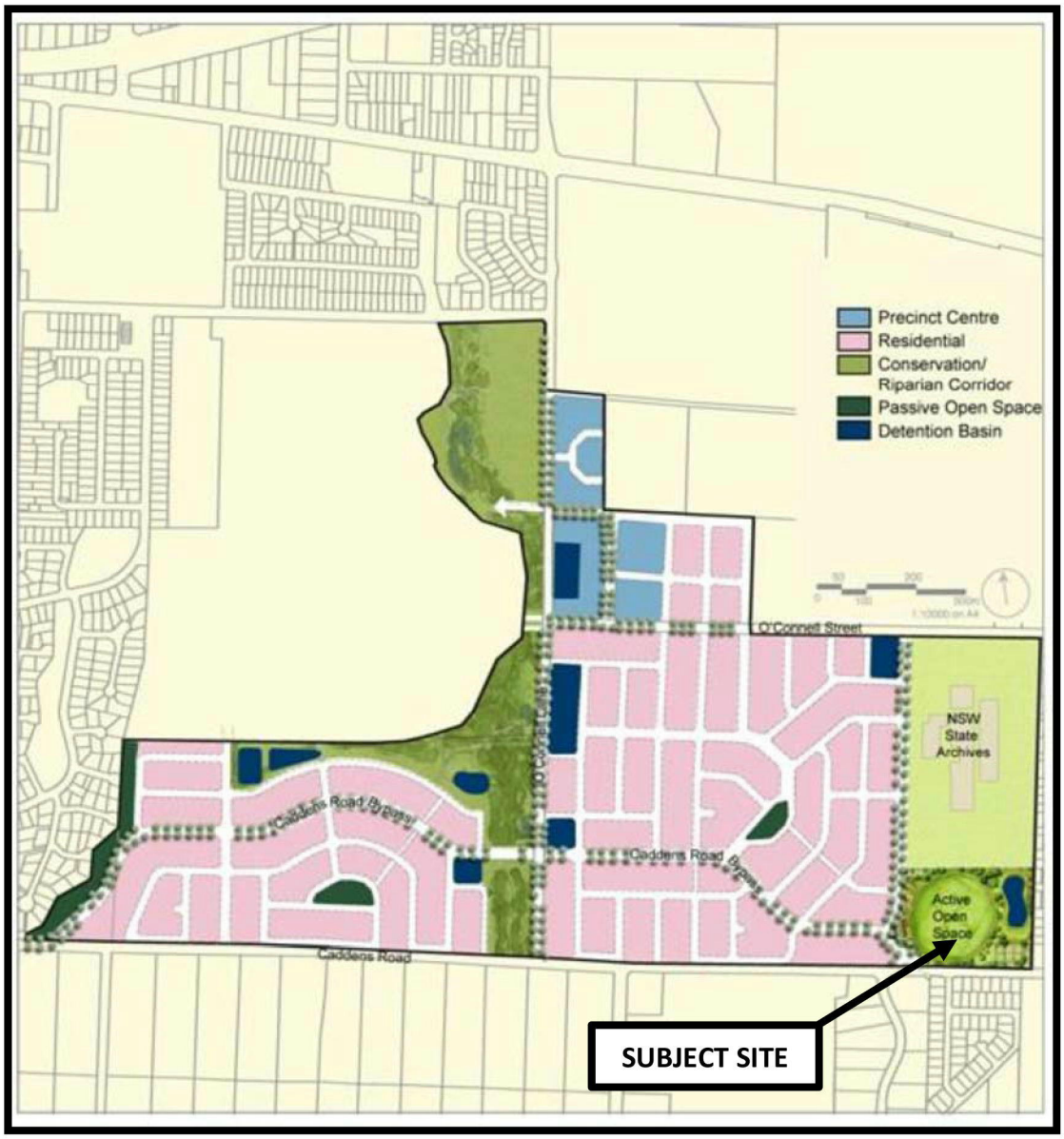
Chapter E1 of PDCP 2014 refers to the Caddens Release Area Structure Plan, which establishes the urban structure and form for the planning and future development of the area. The Structure Plan specifies that Caddens Release Area is ultimately to accommodate a minimum of 1,247 dwellings.

Legacy Property is in the process of developing the south-eastern portion of the Caddens Release Area, known as Caddens Hill. This precinct is to accommodate approximately 540 residential lots in conjunction with supporting infrastructure. Stage 1 of the Caddens Hill precinct, comprising 99 residential lots, has been approved and is currently under construction, forming the western portion of the development precinct, fronting O'Connell Lane.

Development within the overall Caddens Release Area has now progressed to a point where it is necessary to consider the provision of additional active open space and ancillary facilities. Chapter E1 of PDCP 2014 identifies the provision of a sports and recreation precinct within the subject site, forming the south-eastern portion of the Caddens Hill precinct, being developed by Legacy Property.

Figure 3 overleaf illustrates the location of the subject site in the context of the main elements of the Caddens Release Area Structure Plan, being an extract of Chapter E1 of PDCP 2014.

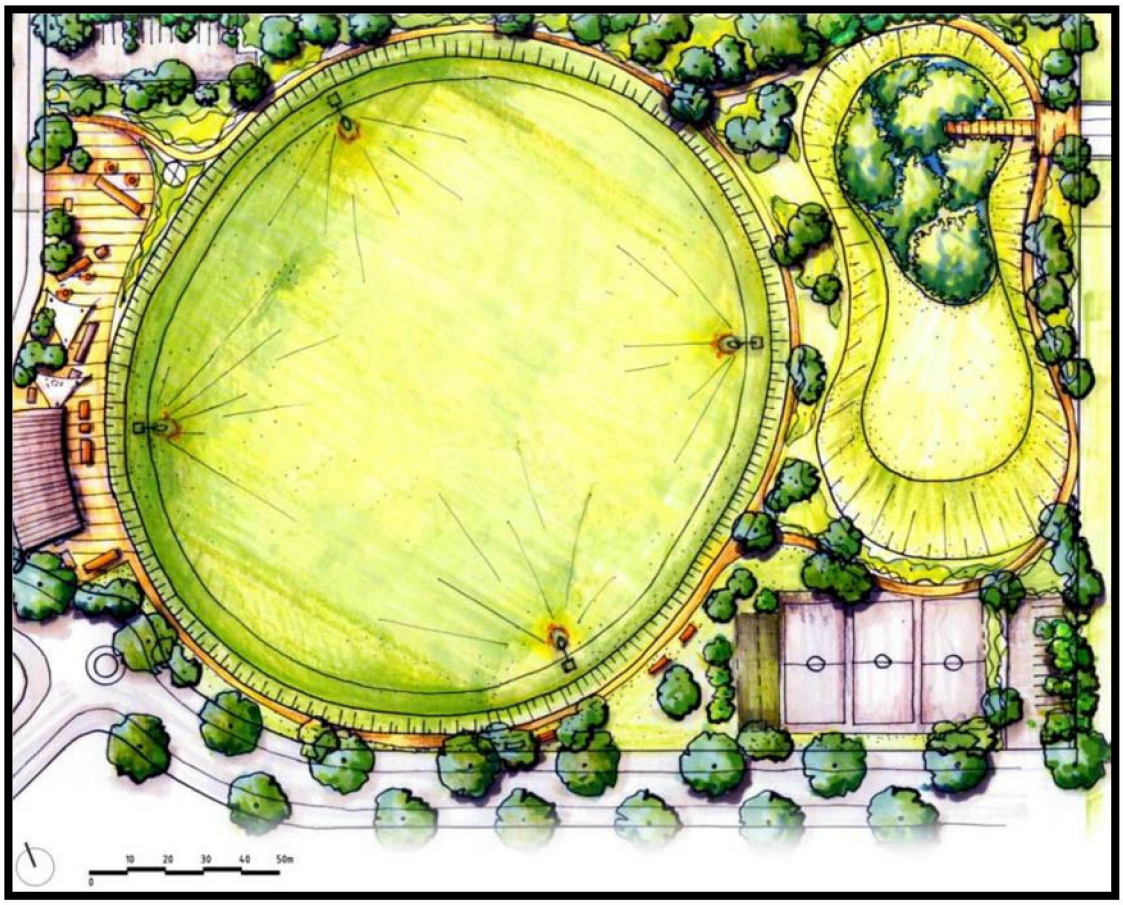
FIGURE 3
CADDENS RELEASE AREA STRUCTURE PLAN



Source: PDCP 2014 – Chapter E1

Chapter E1 of PDCP 2014 specifies that the 5.1 hectare site is to provide a local community focus and be designed generally in accordance with the Active Open Space Concept, provided overleaf as **Figure 4**.

FIGURE 4
ACTIVE OPEN SPACE CONCEPT FOR THE SUBJECT SITE



Source: PDCP 2014 – Chapter E1

PDCP 2014 specifies that the active open space within the subject site is to accommodate the following:

- Connections to the shared pedestrian and cycle path running along the northern verge of Caddens Road;
- An amenities block;
- A children's playground;
- A seating area;
- A large level area suitable for future playing fields with flood lights;
- Potential courts such as hard courts / tennis courts, bocce courts, netball courts and large chessboard;
- Canopy trees and structures to provide shade and amenity;
- Planting of robust endemic native species; and

- Car parking.

2.2 Built Form

The development application involves the provision of a sports and recreation precinct to be provided within the subject site. The precinct is proposed to accommodate the following, generally in accordance with that specified within Chapter E1 of PDCP 2014:

- A full size sports oval with lighting within the western portion of the site capable of accommodating various sporting fixtures including cricket and various football codes;
- A large detention basin within the north-eastern portion of the site;
- An informal half basketball practice court within the central eastern portion of the site;
- Two cricket practice nets to the north of the half basketball practice court;
- A children's playground adjacent to the to the south-west of the half basketball practice court;
- A viewing grandstand including amenities and change rooms adjacent and to the south-west of the children's playground;
- A periphery fitness loop shared pedestrian / cycle pathway connecting with a formalised fitness area accommodating various fitness stations;
- A formalised passenger vehicle parking area accommodating 57 parking spaces within the south-eastern corner of the site; and
- Formalised bicycle parking racks, capable of accommodating up to 20 bicycles, adjoining the passenger vehicle parking area.

Vehicular connectivity between the formalised passenger vehicle parking area and Caddens Road is proposed via separated ingress and egress driveways at the western and eastern ends of the parking area respectively. This passenger vehicle parking area is also proposed to provide maintenance access to the detention basin and emergency vehicle access to the oval, with connectivity between the parking area and the basin / oval being governed with removable bollards.

A series of pedestrian / cycle access gates are proposed to provide connectivity between the internal pedestrian and cycle paths and the planned shared path along the northern alignment of Caddens Road / Caddens Road Bypass and the eastern footpath of the local subdivision road to the west of the site, separate to the abovementioned vehicular access driveways.

3. SITE ACCESS & INTERNAL CIRCULATION

3.1 Access

3.1.2 Vehicular Access

Vehicular access between Caddens Road and the passenger vehicle parking area is proposed to be facilitated by separated 4.3m wide ingress and egress driveways, located approximately 70m to the east of Heaton Avenue and adjoining the south-eastern corner of the site, respectively.

In order to assess the suitability of the proposed site access arrangements, reference is made to AS2890.1:2004. This Standard provides driveway design specifications based the land-use, the functional order of the frontage road and the number of parking spaces the driveways are to serve.

Based on the local (non-arterial) function of Caddens Road, the proposed sporting facility use of the site and the parking provision of less than 100 spaces, Tables 3.1 and 3.2 of AS2890.1:2004 specify, at minimum, the provision of a combined ingress / egress driveway providing a width of between 6 – 9m.

The proposed 4.3m wide separated ingress and egress driveways therefore exceed the minimum design specifications provided by AS2890.1:2004 and are accordingly considered satisfactory in terms of design.

The proposed driveway design arrangements are further assisted by the reasonably consistent vertical and horizontal alignment of Caddens Road in the immediate vicinity of the site resulting in good sight distance between the access driveways and the public road (even incorporating the planned realignment of Caddens Road to form Caddens Road Bypass). Further, sight distance between vehicles entering and exiting the driveways and public road users are assisted by the relatively level nature of the driveways on approach to the property boundary and the fact that there are no limitations to sight distance immediately adjoining the driveways.

Assessment of the potential impacts of the movement of vehicles between the site and Caddens Road with respect to existing and planned public road traffic demands and the influence of other abutting land-use access arrangements is contained within subsequent sections of this report.

3.1.2 Cycle / Pedestrian Access

A series of pedestrian / cycle access gates are proposed to provide connectivity between the internal pedestrian and cycle paths and the planned shared path along the northern alignment of Caddens Road / Caddens Road Bypass and the eastern footpath of the local subdivision road to the west of the site, separate to the abovementioned vehicular access driveways.

The central of the abovementioned access gates have been aligned with the planned western refuge island associated with the roundabout control to govern the adjoining junction of Caddens Road and Caddens Road Bypass.

3.2 Internal Circulation and Manoeuvrability

Passenger vehicles, upon entry to the site from Caddens Road via the ingress driveway, will travel in a forward direction to connect with the internal passenger vehicle parking area. The parking area is proposed to comprise two 90 degree parking rows being serviced by a single central circulation / manoeuvring aisle, running parallel to Caddens Road. The circulation / manoeuvring aisle is proposed to accommodate a one-way eastbound traffic function prior to connecting back with Caddens Road in the south-eastern corner of the site via the egress driveway.

The passenger vehicle parking area and connecting internal roadways have been designed to accord with the relevant requirements of AS2890.1:2004 and AS2890.6:2009, providing the following minimum dimensions:

- Standard parking space width = 2.6m;
- Disabled vehicular parking space width = 2.4m (with adjoining 2.4m wide shared area);
- Standard and disabled vehicular parking space length = 5.4m;
- Vehicular parking aisle width adjoining parking spaces = 5.8m;
- One-way straight roadway width = 4.3m (reducing to 3m associated with the maintenance and emergency access roadways servicing the detention basin and the sports field, respectively);
- Maximum parking module grade = 1 in 20; and
- Maximum grade throughout disabled parking spaces (including shared areas) = 1 in 40.

Safe and efficient internal manoeuvring and parking space accessibility is anticipated to result, taking into consideration the above compliance with the relevant AS2890.1:2004 and AS2890.6:2009 specifications.

4 PARKING PROVISION

4.1 Proposed Parking Provision

4.1.1 Off-Street Parking

The sports and recreation precinct is proposed to provide a formalised car parking area containing 57 spaces, including two disabled spaces.

4.1.2 On-Street Parking

The community nature of the subject facility and the fact that it provides an extensive public road frontage is such that it is reasonable for some parking demand generated by the on-site uses to be accommodated within the immediately adjoining public roads. It is however acknowledged that significant portions of the immediately adjoining public roadway are not expected to be available for parking as a result of planned adjoining intersection controls, most notably the roundabout controlled junction of Caddens Road and Caddens Road Bypass (see Section 5 of this report).

Notwithstanding the above, the sports and recreation precinct provides the following immediately adjoining public road frontages which are currently and will continue to be capable of accommodating kerb-side parking following the redevelopment of the surrounding precinct:

- 50m of kerb space is available within Caddens Road between the Heaton Avenue and the proposed ingress driveway; and

- 70m of kerb space is available within Caddens Road between the proposed ingress and egress driveways.

The abovementioned adjoining kerb space is capable of generating in the vicinity of 20 passenger vehicles within a parallel arrangement.

Further to the above, it is noted that a further 20 passenger vehicles are expected to be capable of being accommodated within the planned local access road (Road No. 12) which will adjoin the development site to the west, following the redevelopment of that land (forming Stage 2 of the Legacy Property Caddens Hill precinct).

4.2 Assessment of Parking Requirements

4.2.1 Council Parking Requirements

PDCP 2014 provides locally sensitive parking requirements for a range of land-uses to ensure that new developments provide adequate off-street parking. This Policy however does not provide parking requirements for sports and recreation facilities such as that proposed.

The Active Open Space Concept and open space controls for the 5.1 hectare site contained within Chapter E1 of PDCP 2014 specify that some level of off-street parking is to be provided to support demand generated by the development. Whilst only indicative, the Active Open Space Concept (provided as **Figure 4** of this report) illustrates a suggested parking provision of between 10 and 15 passenger vehicle parking spaces.

A parking provision of 10 – 15 spaces, on face value, appears to be inadequate to accommodate the demand which could be generated by the various sporting and recreation components of the development and would therefore heavily rely on surrounding on-street parking supply.

The following sub-sections of this report provide discussion on the parking demand likely to be generated by the various development components based on other similar sporting and recreation facilities within the Penrith Local Government Area and the expected operational characteristics of the various development components.

4.2.2 Existing Sport and Recreation Facilities Parking Provision

In order to ascertain an indication of the appropriate parking provision for the subject development, this Practice has inspected a number of other similar sports and recreation precincts, located throughout the Penrith Local Government Area, as follows:

- Chameleon Reserve at Chameleon Drive, Erskine Park;
- Mark Leece Sporting Complex at Endeavour Avenue, St Clair;
- Jordan Springs Sports Fields at Cullen Avenue, Jordan Springs;
- Andromeda Playing Fields at Andromeda Drive, Cranebrook; and
- Londonderry Park at Carrington Road, Londonderry.

Table 1 overleaf provides a summary of the sporting and recreational components provided at each of the above facilities and the off-street parking capacities.

TABLE 1 EXISTING SPORTS & RECREATION FACILITIES WITHIN THE PENRITH LOCAL GOVERNMENT AREA SIMILAR TO THAT PROPOSED					
	Chameleon Reserve	Mark Leece Sporting Complex	Jordon Springs	Andromeda Playing Fields	Londonderry Park
Sports Fields	0	3	1	1	1
Formal Sports Courts	2	2	2	1	2
Practice Sports Courts	0	0	1	1	1
Children's Play Area	1	1	1	1	1
Amenities Block	1	1	1	1	1
Shared Exercise Path	1	1	1	0	0
Parking Provision	27	140	80	54	25

It is considered that practice sports courts, children's play areas, amenities blocks and shared exercise paths are largely ancillary in nature to the primary uses of sports fields and sports courts within the above existing and the proposed facilities. On this basis, the approximate average parking provision for the primary sporting field and sports court components of the existing observed facilities within the Penrith Local Government Area is as follows:

- 35 parking spaces per sports field; and
- 15 spaces per sports court.

Notwithstanding the above, for the purposes of this assessment and in order to generate an absolute worst case scenario, it is assumed that the practice half basketball court will generate parking demand in accordance with a full sized formal sports court.

4.2.3 Assessment of Operational Characteristics

In order to estimate the likely parking demand generated by various potential uses of the sports field and the practice sports court, an assessment of the likely operational characteristics of the potential activities is required to be undertaken. This involves an assessment of the number of players per sporting fixture, the number of officials likely to be present, allowance for changeover between fixtures, the number of spectators and the potential for car-pooling.

The proposed sports field is capable of accommodating cricket, rugby league, rugby union, hockey or soccer. The specific nature of the practice basketball court is that it can only accommodate basketball within an informal sporting fixture.

It is this practice's experience that an additional 25% allowance should be applied to the number of people at a sporting activity to take into consideration those people who arrive early for a fixture or remain at the venue following their fixture following the commencement of the next fixture. This changeover allowance is however effectively cancelled out by a 25% car-pooling rate, whereby one in four

players or officials at a sporting event travel with another player or official (or indeed, do not use a private motor vehicle to travel to and from the facility). For the purposes of this assessment it has been assumed that all spectators to sporting fixtures at the subject development will travel with players or officials, thereby not generating demand for parking.

On the basis of the previously presented likely operational characteristics, **Table 2** below has been formulated to summarise the likely parking demand generated by the proposed sports field and sports courts.

TABLE 2
OPERATIONAL ASSESSMENT OF PARKING DEMAND GENERATED BY POTENTIAL SPORTING FIXTURES

Sports Type	No. of Players	No. of Officials	25% Change Over	25% Car Pooling	Parking Spaces Required
SPORTS FIELD					
Cricket	22	3	+6	-6	25
Rugby League	26	3	+7	-7	29
Rugby Union	30	3	+8	-8	33
Hockey	22	3	+6	-6	25
Soccer	22	3	+6	-6	25
PRACTICE SPORTS COURT					
Basketball	10	2	+3	-3	12

Table 2 indicates that the following maximum parking demands:

- 33 parking spaces per sports field; and
- 12 spaces per practice sports court.

4.2.4 Discussion on Likely Parking Demand

The average observed parking provision of existing similar sporting facilities throughout the Penrith Local Government Area has been reported to be 35 spaces per sports field and 15 spaces per sports court. Further, an assessment of the likely peak parking demand based on operational characteristics has indicated a maximum demand of 33 spaces per sports field and 12 spaces per sports court. The consistency of the results suggests accuracy in their method of determination however, in order to generate an absolute worst case scenario, the higher of the two assessments has been adopted (i.e. 35 spaces per sports field and 15 spaces per sports court).

On the basis of the proposed development involving the provision of one sports field and one informal practice sports court, the proposal is expected to generate a peak parking demand in the order of 50 spaces.

4.2.5 Suitability of Parking Provision

It has been concluded that the proposed sports and recreational facility will generate a maximum parking demand of 50 spaces. The development is proposed to provide 57 spaces. The development parking provision is therefore

projected to be suitably capable of the peak operational parking demands generated by the primarily site components.

Notwithstanding the above, it has previously been assessed that the sports and recreation precinct will immediately adjoin public road frontages which are capable of accommodating between 20 – 40 parked vehicles in a parallel arrangement. The existing and planned low density residential nature of the immediately adjoining land-uses is such that it is expected that demand for on-street parking within the subject vicinity will be low. It is therefore considered that the immediately adjoining public road network will be capable of accommodating a moderate level of parking demand over and above that calculated to be demanded by this assessment if so require, without unreasonable impacts on surrounding on-street parking supply or residential amenity.

5. EXISTING / PLANNED TRAFFIC CONDITIONS

5.1 Surrounding Road Network

5.1.1 Existing Road Network

Caddens Road currently performs a local collector road function under the care and control of Penrith City Council. It provides an east-west connection generally between Claremont Meadows in the east and Kingswood in the west, where it intersects with Gipps Street and Bringelly Road, respectively. It is constructed to a semi-rural standard with sealed pavement and road shoulders as well as some kerb and gutter in sections.

Caddens Road, immediately adjoining the subject site provides one through lane of traffic in each direction, largely separated by double barrier centre lines. A formalised parking lane and kerb and gutter is provided along the southern alignment adjoining and servicing modern urban detached residential dwellings. An unsealed shoulder is provided along the northern alignment immediately adjoining the subject property commensurate with the current undeveloped rural land use.

Traffic flow within Caddens Road is governed by a sign posted speed limit of 60km/h, with speed humps provided at regular intervals ensuring compliance with the posted limit.

Caddens Road forms T-junctions with both Heaton Avenue and Hermitage Circuit in the immediate vicinity of the subject site. Both junctions operate under major / minor priority control, with Caddens Road forming the priority route.

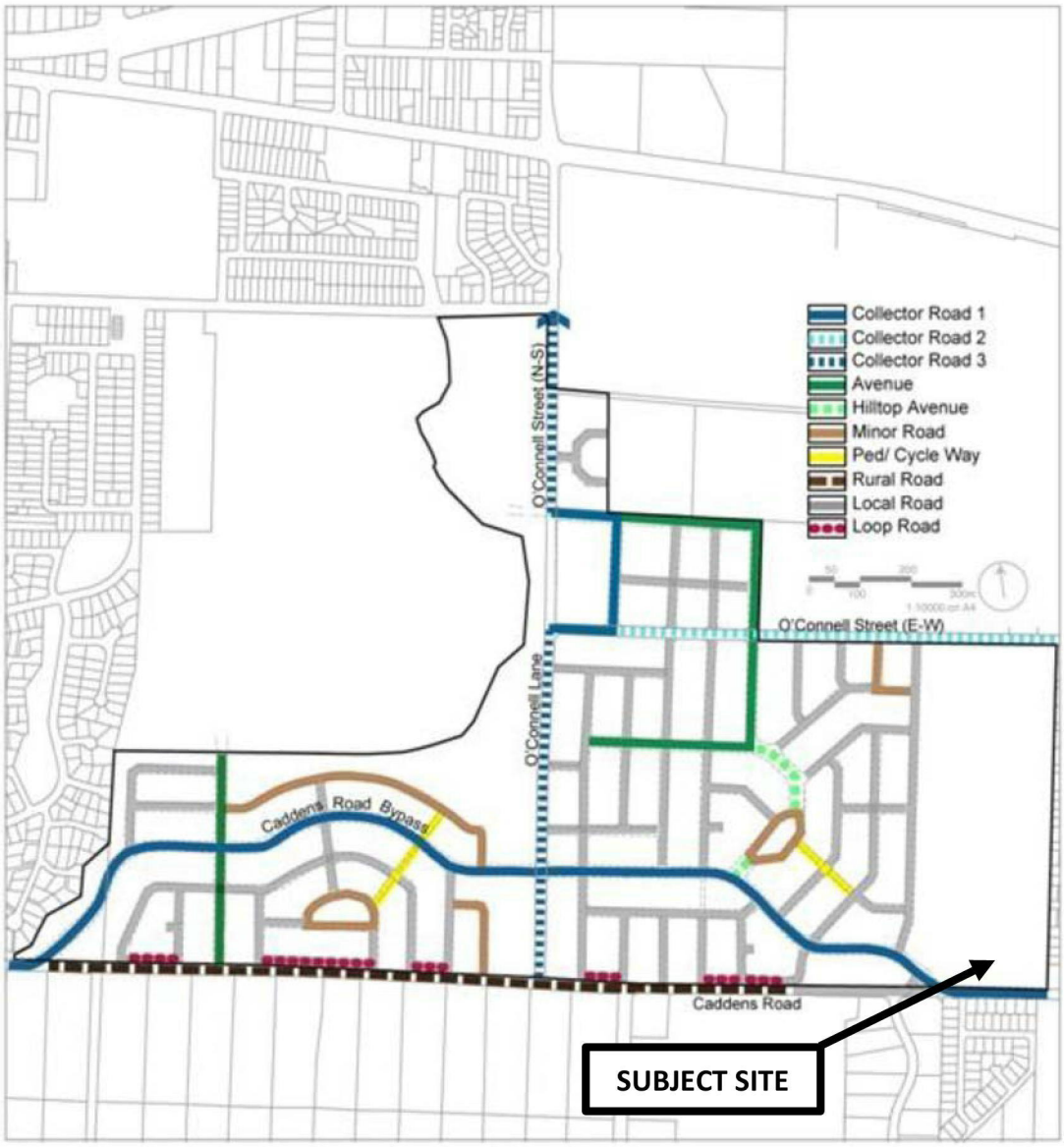
Heaton Avenue performs a minor local access street function servicing modern urban detached residential dwellings. It provides an approximately 7m wide pavement providing one through lane of traffic in each direction in conjunction with parallel parking along both formalised kerb alignments.

Hermitage Circuit performs a similar minor local access street function, however it services larger lot rural type residential dwellings. It provides an 8m wide pavement however it provides unsealed shoulders although rolled kerb and gutter is provided in places, commensurate with the abutting rural style residential properties.

5.1.2 Planned Road Network

The road network within the Caddens Release Area and indeed, within the immediate vicinity is subject to significant change in the next few years in accordance with that prescribed in PDCP 2014. The planned road network layout and hierarchy within the Release Area as defined within PDCP 2014 is illustrated within **Figure 5** overleaf.

FIGURE 5
PLANNED CADDENS RELEASE AREA ROAD NETWORK AND HEIRARCHY



Source: PDCP 2014 – Chapter E1

Figure 5 indicates the following in the immediate vicinity of the site:

- The existing primary east-west Caddens Road collector route is to be replaced with the Caddens Road Bypass collector road which is to provide the primary east-west spinal route through the Caddens Release Area, prior to diverting back to the south to align with the existing Caddens Road in the south-western and south-eastern corners of the Release Area;

- Caddens Road to the west of the site is to provide a series of road closures and provide a reduced traffic function forming loop roads for low order residential access streets providing a north-south alignment;

- The Caddens Road Bypass route is to provide a south-east / north-west alignment to the west of the site, prior to forming a T-junction with Caddens Road immediately adjacent to the south-western corner of the site;

- To the west of the abovementioned junction of Caddens Road Bypass and Caddens Road, Caddens Road Bypass is planned to form a T-junction with a north-south local access road (known as Road No. 12) running along the western boundary of the subject site;

- Caddens Road is to continue to form a T-junction with Hermitage Circuit to the south-west of its planned junction with Caddens Road Bypass; and

- Caddens Road is to continue to form a T-junction with Heaton Avenue to the east of its planned junction with Caddens Road Bypass.

The section of Caddens Road adjoining the subject site and thence extending to the north-west forming Caddens Road Bypass is planned to provide a 12m carriageway within a 22.6m wide road reservation. The collector road is planned to provide one 3.5m wide travel lane in each direction in conjunction with formalised 2.5m wide parking lanes. The southern verge is planned to provide a 1.5m wide footpath whilst the northern verge (adjoining the subject site) is planned to provide a 2.5m wide shared path.

The local road extending to the north from Caddens Road Bypass forming the western site boundary is planned to provide an 8m wide carriageway within a 16m wide road reservation. The carriageway width is planned to facilitate the provision of parallel parking along both kerb alignments, in conjunction with two-way traffic flow.

The junction of Caddens Road Bypass and Caddens Road is planned to be governed by single lane circulating roundabout intersection control, whilst all other intersections within the immediate vicinity of the site are to be governed by major / minor priority control.

5.2 Traffic Volumes and Conditions

5.2.1 Existing Conditions

Staff of Stanbury Traffic Planning have undertaken observations of Caddens Road in the immediate vicinity of the development site during various periods during February 2017. These observations have indicated that Caddens Road accommodates two directional traffic demands of approximately 300 vehicles per hour during weekday commuter peaks.

Such traffic demands provide motorists with a good overall level of service during peak periods, ensuring that motorists can manoeuvre in the traffic stream with very little impedances. Motorists have accordingly been observed to be able to undertake turning movements from abutting properties and lower order intersecting roads with little delay.

5.2.2 Planned Conditions

The *Caddens Release Area – Transport Management and Accessibility Plan* prepared in 2008 by Masson Wilson Twiney projected future traffic conditions within and surrounding the Caddens Release Area incorporating full redevelopment of the Caddens Area (including the subject site) and the surrounding Werrington Enterprise Living and Learning (WELL) Precinct. The Transport Management & Accessibility Plan indicates the following weekday commuter peak hour traffic demands within the immediate vicinity of the site:

- Caddens Road is projected to accommodate a two-way traffic demand of approximately 900 vehicles per hour immediately adjacent to the subject site (to the east of Caddens Road Bypass);

- Caddens Road Bypass is projected to accommodate a two-way traffic demand of approximately 800 vehicles per hour, to the west of the Caddens Road (to the west of the site);

- Caddens Road is projected to accommodate very low traffic demands (less than 20 vehicles) to the west of the subject site and south of the Caddens Bypass Road route; and

- The local access road immediately adjoining the site to the west is projected to accommodate two-directional traffic demands of less than 150 vehicles.

Intersection modelling undertaken by Masson Wilson Twiney and reported upon within the Transport Management and Accessibility Plan projected that the adjoining roundabout controlled junction of Caddens Road and Caddens Road Bypass will operate with a good level of service during weekday commuter peaks, with spare capacity.

Similarly, the priority controlled junction of Caddens Road Bypass and the local access road running along the western boundary of the site was modelled to provide a good level of service with spare capacity.

5.3 Public Transport

5.3.1 Existing Services

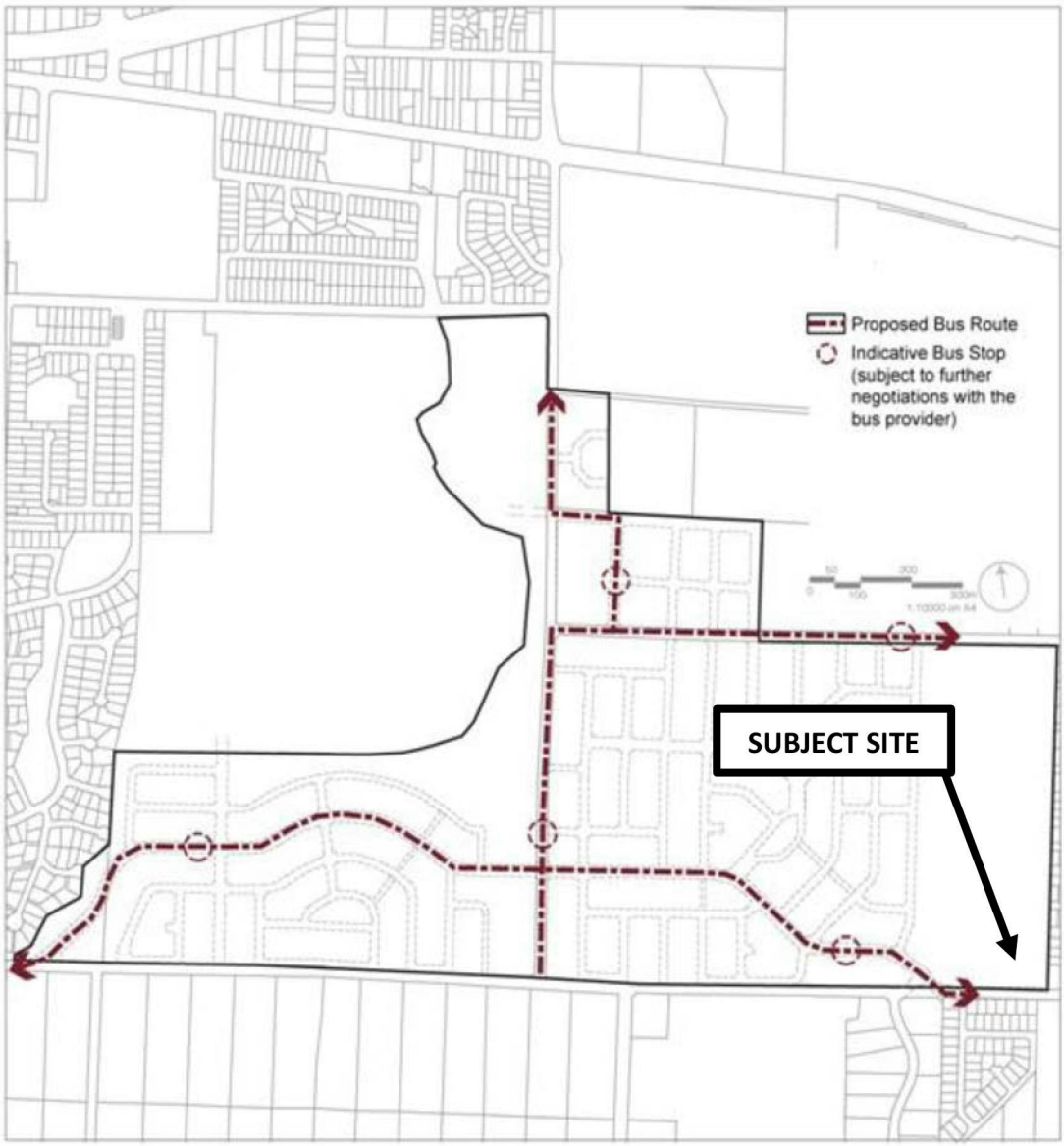
Busways operates Route 778 along Caddens Road, connecting the Caddens precinct with St Marys Railway Station. This route provides a service frequency of approximately 30 minutes during weekday commuter peaks, extending to 60 minutes during other weekday periods and on weekends.

The above bus route provides connectivity to the Sydney metropolitan rail network at St Marys. St Marys Railway Station provides connectivity to services operating along the T1 (North Shore, Northern & Western) Line. The T1 Line provides connectivity to the remainder of the rail network with interchanges at Blacktown (T5 Cumberland Line), Granville (T2 Airport, Inner West & South Line), Clyde (T6 Carlingford Line), Lidcombe (T3 Bankstown Line and T7 Olympic Line) and the City (T4 Eastern Suburbs & Illawarra Line).

5.3.2 Planned Services

Bus servicing of the Caddens Release Area is planned to be embellished following the redevelopment of the precinct. PDCP 2014 provides indicative bus routes and stop locations within the precinct, as illustrated within **Figure 6** below.

FIGURE 6
PLANNED PUBLIC TRANSPORT SERVICING OF THE CADDENS RELEASE AREA



Source: PDCP 2014 – Chapter E1

Figure 6 indicates that Caddens Road / Caddens Road Bypass is planned to accommodate east-west bus services through the precinct, with stops indicatively located to the west of the site within easy walking distance. The bus routes are expected to provide connectivity to the Kingswood precinct to the west and the Werrington precinct to the north in conjunction with the existing service connecting with St Marys to the north-east.

5.4 Pedestrian / Cycle Infrastructure

5.4.1 Existing Infrastructure

Pedestrians are currently provided with a footpath along the southern and eastern verges of Caddens Road and Heaton Avenue respectively, servicing the abutting urban residential dwellings.

There is no existing cycle infrastructure in the immediate vicinity of the site.

5.4.2 Planned Infrastructure

The following additional pedestrian and cycle infrastructure is planned within the immediate vicinity of the subject site:

- A shared path is planned along the northern verge of Caddens Road / Caddens Road Bypass immediately adjacent to the subject site;
- Footpaths are planned along both verges of the local access road running along the western boundary of the site; and
- Pedestrian refuges are planned to be provided within approach splitter islands associated with the roundabout junction control to govern the intersection of Caddens Road and Caddens Road Bypass.

6. PROJECTED TRAFFIC CONDITIONS

6.1 Traffic Generation

The Roads & Maritime Service provides average traffic generation rates for a range of land-uses within the *Guide to Traffic Generating Developments* publication. Traffic generation rates for the proposed sports and recreational precinct are however not provided. The traffic generating capacity of the development is therefore assessed via an investigation into the likely operational characteristics of the primary development components, being the sports field and the practice sports court.

Due to the variety and mix of sports capable of being undertaken within the development, the methodology adopted for the purposes of this report is to calculate the traffic generation based on predicted turnover of car parking spaces. Durations of sporting fixtures depend on the specific sport being played. Match times for sporting events range from 30 minutes to six hours depending on the sport played and the junior or senior age of participants. A conservative approach in determining the average turnover of car parking spaces, and hence a peak hour trip traffic generation, is to assume each parking space turns over on average every hour, thereby creating two vehicle trips (i.e. one in and one out).

Section 4 of this report presents that the development is projected to generate a peak parking demand of 50 vehicles at any one time. Based on an average length of stay of one hour, the sports and recreational precinct is projected to generate 100 peak hour vehicle movements, comprising 50 ingress and 50 egress trips.

6.2 Traffic Impacts

The proposed sports and recreation precinct has been projected to generate a peak of 100 vehicle trips to and from the site in any given hourly period, representing less than one ingress and one egress vehicle movement per minute during the peak operational periods of the facility. Such a level of additional traffic is not envisaged to result in any undesirable impacts on the overall safety and efficiency of the adjoining road network for the following reasons:

- Ingress and egress movements are not projected to impede one another as they will be separated by approximately 70m, given the separated nature of the proposed ingress and egress driveways servicing the development;

- The consistent vertical and horizontal alignment of Caddens Road in the vicinity of the proposed access driveways is anticipated to provide a good level of sight distance between the adjoining road network and the access driveways;

- The proposed sport and recreational facility is anticipated to generate peak operational conditions during weekday evening and weekend periods, not necessarily occurring simultaneously with the operational commuter peaks of the adjoining public road network; and

- The adjoining public road network has been assessed by others to provide motorists with an acceptable level of service incorporating the full redevelopment of the surrounding precinct, including the subject development.

In consideration of the above, it is considered that the surrounding road network will be readily capable of accommodating the extent of traffic projected to be generated by the subject development in a safe and efficient manner.

6. CONCLUSION

This report assesses the potential traffic and parking implications associated with a proposed sports and recreational facility to be located at Lot 754 DP 1180111 Caddens Road, Caddens. Based on this assessment, the following conclusions are now made:

- The location and form of the proposed sports and recreation precinct is reasonably consistent with the Structure Plan formulated for the Caddens Release Area contained within PDCP 2014;

- The proposed site access arrangements are compliant with the relevant AS2890.1:2004 specifications with respect to driveway design and provision of sight distance;

- The proposed off-street passenger vehicle parking area has been designed to accord with the relevant requirements of AS2890.1:2004 and is therefore envisaged to provide motorists with safe and efficient internal manoeuvring arrangements;

- The subject development has been projected to generate a peak operational parking demand of 50 vehicles;

- The proposed off-street parking provision of 57 spaces is therefore projected to satisfactorily accommodate the peak operational parking demand as required;

- The adjoining public road network has however been assessed to be capable of accommodating between 20 and 40 parking passenger vehicles in a parallel arrangement immediate adjacent to the subject site, depending on the evolution of the planned road network alterations;

- It is accordingly envisaged that the immediately adjoining public road network is further capable of accommodating the additional peak operational parking demands over and above that estimated within this assessment, without unreasonable impacts on adjoining road safety and efficiency or residential amenity;

- The adjoining public road network currently accommodates moderate traffic demands with spare capacity;

- The adjoining road network is planned to undergo significant alteration /upgrade to accommodate the full Caddens Release Area redevelopment;

- The subject development has been projected to generate up to 100 vehicle movements to and from the subject site, in any given hourly period, representing less than one ingress and one egress vehicle movement per minute;

- The abovementioned extent of traffic generation is not projected to occur simultaneously with the operational commuter peaks of the surrounding road

network;

- The planned adjoining public road network has been previously assessed by others to be capable of accommodating the future peak traffic demands, including the traffic projected to be generated by the proposed sports and recreational precinct.

It is considered there is no parking or traffic related issues that should prevent approval of the subject application. This action is therefore recommended.