




City of Joondalup
 90 Boas Ave, Joondalup WA 6027
 PO Box 21, Joondalup WA 6919
 Ph: 08 9400 4000
 Fax: 08 9300 1383
 info@joondalup.wa.gov.au
 www.joondalup.wa.gov.au



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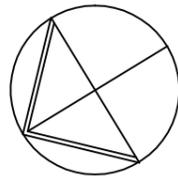
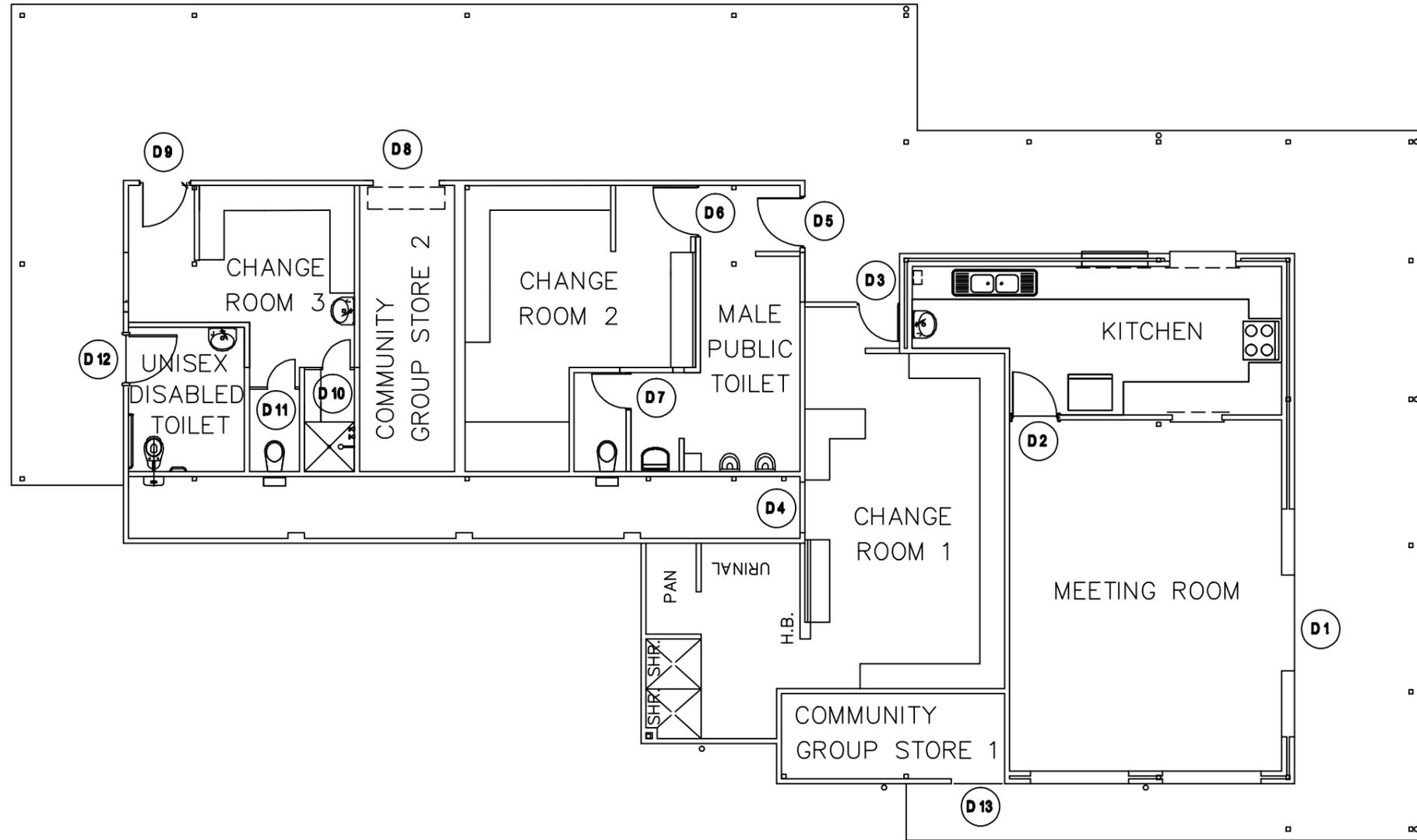
Date: 7/10/2016

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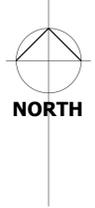
CHICHESTER PARK

SCHEDULE OF AREAS:

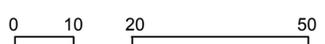
KITCHEN	15m ²
MEETING ROOM	32m ²
CHANGE ROOM 1	33m ²
CHANGE ROOM 2	17m ²
CHANGE ROOM 3	15m ²
COMMUNITY GROUP STORE 1	6m ²
COMMUNITY GROUP STORE 2	9m ²
MALE PUBLIC TOILET	14m ²
UNISEX DISABLED TOILET	6m ²
TOTAL AREA	147m²



<p>DRAWING TITLE: FLOOR PLAN</p> <p><small>THIS DRAWING TO BE PLOTTED ON A3 SIZE PAPER - DO NOT SCALE, IF IN DOUBT ENQUIRE WITH ASSET MGT 94004340</small></p>	<p>ADDRESS: 109 TRAPPERS DRIVE, WOODVALE</p> <p><small>THIS DRAWING IS THE PROPERTY OF THE CITY OF JOONDALUP BUILDING ASSET MANAGEMENT AND MAY NOT BE COPIED OR USED WITHOUT CONSENT. CHECK ALL DIMENSIONS BEFORE FABRICATION AND AGAINST ON SITE DIMENSIONS</small></p>	<p>City of Joondalup Building Asset Mngmt</p> <p>PO Box 21, Joondalup Western Australia, 6919 Telephone: (08) 9400 4000 Facsimile: (08) 9400 4501</p> 	<p>DATE: JUNE 11</p> <p>SCALE: 1:100</p> <p>DRAWN: D.W</p>	<p>BUILDING No: 1184</p> <p>DRAWING No: A001</p>	<p>BUILDING NAME: CHICHESTER PARK CLUBROOM</p>
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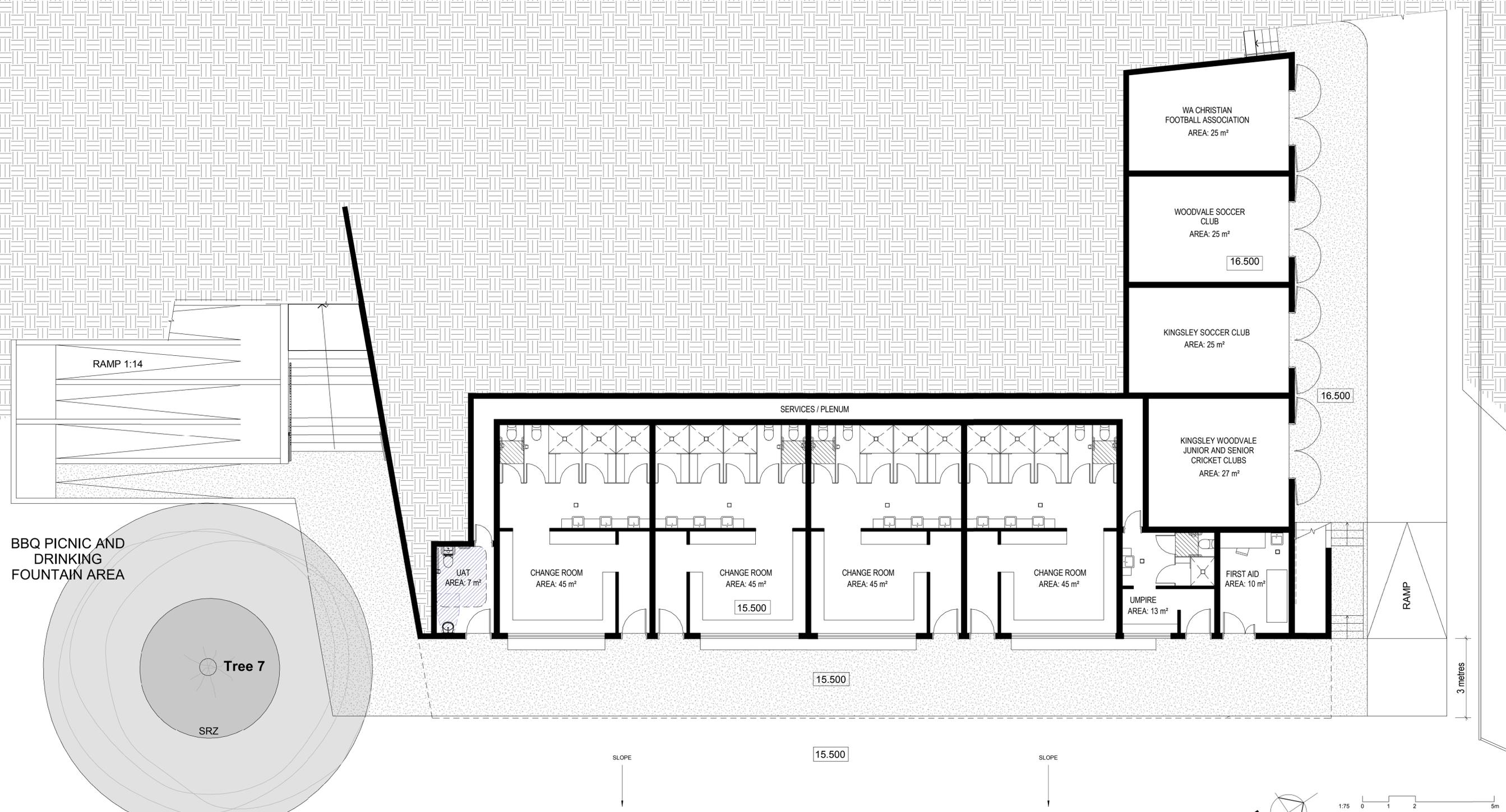


- LEGEND**
- ① New community sporting facility
 - ② New BBQ / picnic area / drinking fountain
 - ③ Existing car park
 - ④ Potential additional parking (car park)
 - ⑤ Potential additional parking (parallel)
 - ⑥ Existing disk golf course
 - ⑦ Temporary facilities
 - ⑧ Winter flood zone
- Existing trees
 - New trees
 - Trees to be removed



SCALE: 1:600 ON A1
 DATE: 14/09/2018

**CHICHESTER PARK REDEVELOPMENT
 LOCATION PLAN**



BBQ PICNIC AND DRINKING FOUNTAIN AREA

Tree 7

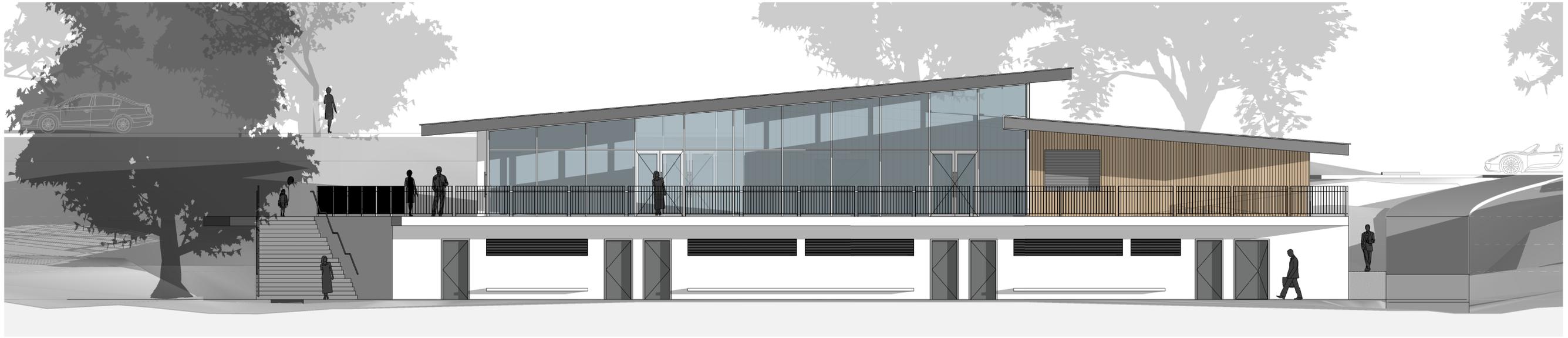
SRZ

TPZ

TPZ = Tree Protection Zone
 SRZ = Structural Root Zone

**CHICHESTER PARK REDEVELOPMENT
 LOWER LEVEL**

SCALE: 1:75 ON A1
 DATE: 02/08/2018



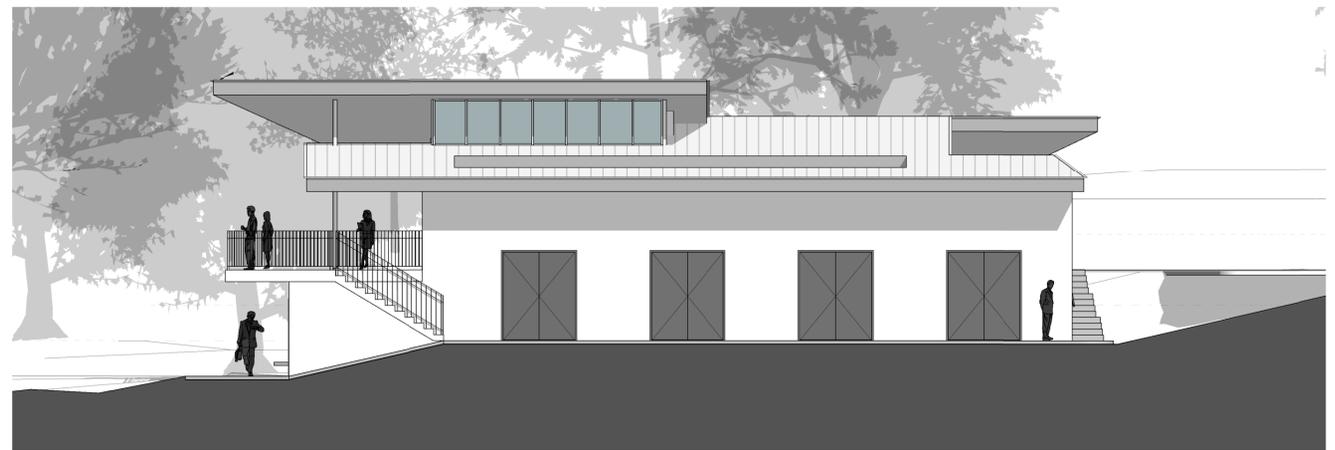
ELEVATION EAST
1 : 75



ELEVATION WEST
1 : 75



ELEVATION NORTH
1 : 100



ELEVATION SOUTH
1 : 100

SCALE 1:100 AND 1:75 ON A1
DATE: 02/08/2018



3D PERSPECTIVE SOUTH-EAST



3D PERSPECTIVE NORTH-WEST (CAR PARK)

City of Joondalup

Arboricultural Assessment and Report

Chichester Park Woodvale WA 6026

Brendan Hogan
18/06/2018

Updated
17/07/2018

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1. Introduction

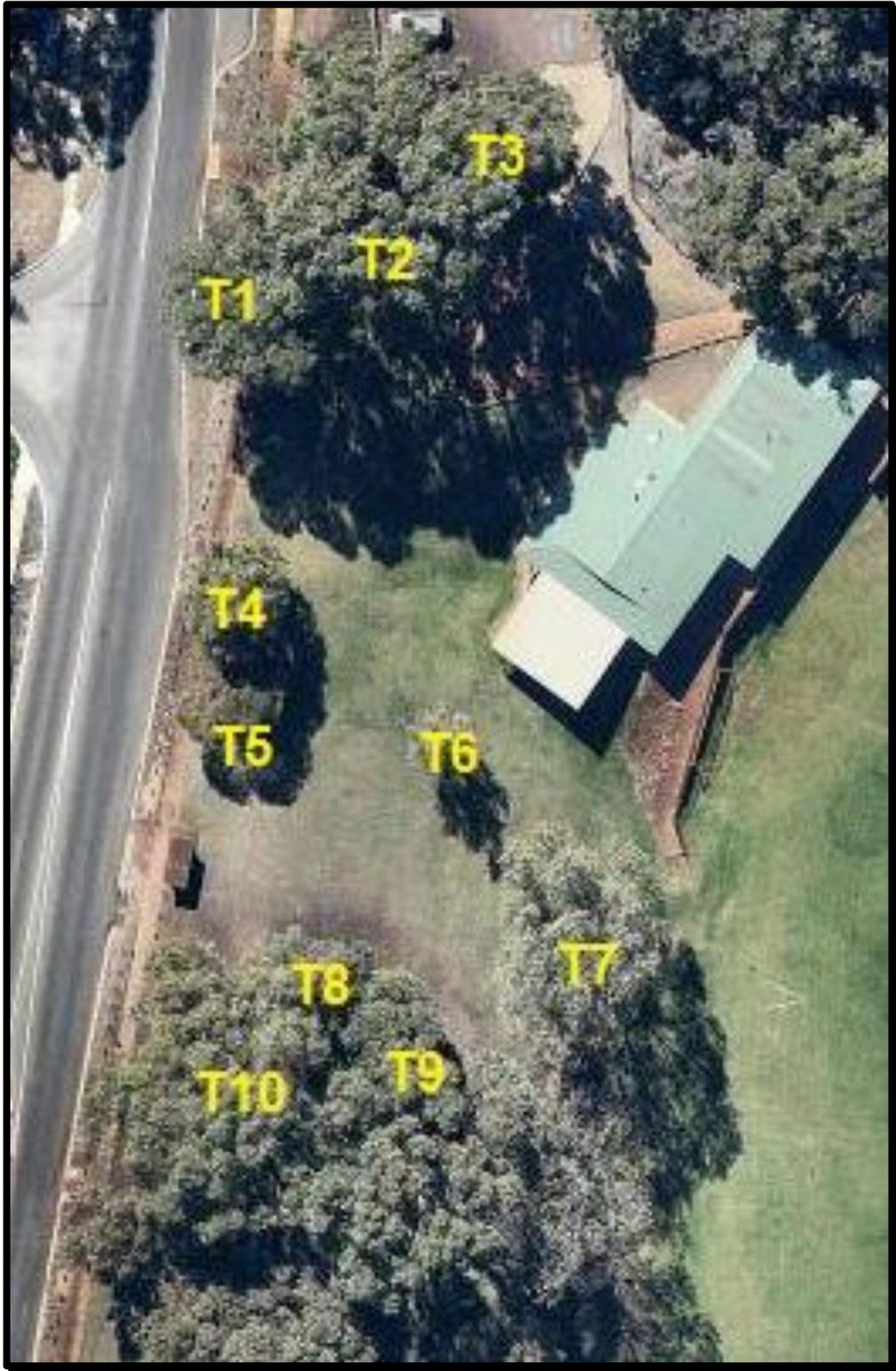
- 1.1** The Chichester Park Clubrooms are to be redeveloped. The construction will include connecting pathways and stairway, which will be adjacent to existing trees.

- 1.2** Determine the health and structural condition of the trees at present. Comment on whether the existing trees are worth retaining.

- 1.3** Determine the structural root zone and tree protection zones for the 10 inspected trees.

- 1.4** Make recommendations for the construction methodology.

- 1.5** The tree was inspected from the ground on the 19 June 2018 and 13 July 2018.

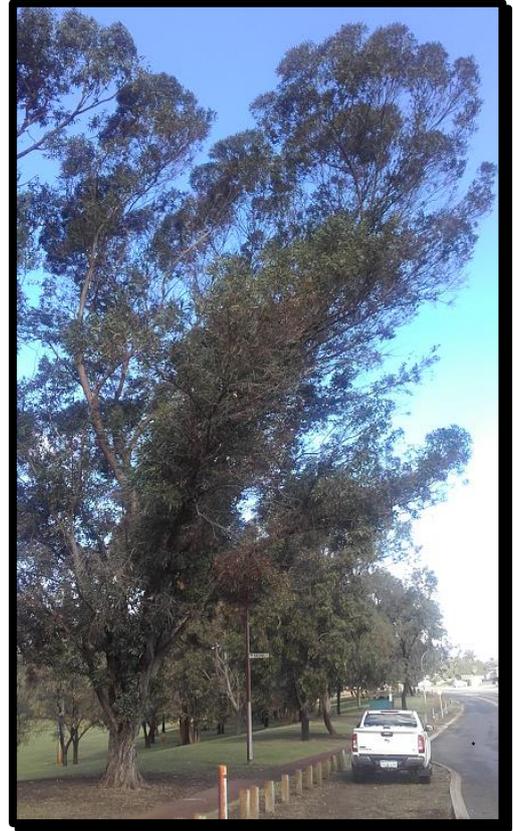


Site Map

2. Observations

2.1 Tree 1

- Early mature *Eucalyptus sp.* in moderate health.
- TPZ: 8.64m radius.
- SRZ: 3.3m radius.
- Evidence of previous limb failures, up to 300mm diameter.
- Large quantity of deadwood, up to 50mm diameter.
- Extensive internal epicormic shoot development.
- Tree is affected by witches' broom (Pest causing deformities).
- Misshapen canopy due suppression from T2.



2.2 Tree 2

- Mature *Eucalyptus gomphocephala* in moderate health.
- TPZ: 14.4m radius.
- SRZ: 3.87m radius.
- Western limb failures, up to 150 diameter, wind loading.
- Sporadic deadwood, up to 100mm diameter.
- Sparse canopy cover due to prevailing wind dehydration.
- Minor damage by witches' broom (Pest causing deformities).
- Retaining wall installed 4m to north, likely root disturbance.



2.3 Tree 3

- Mature *Corymbia maculata* in good health.
- TPZ: 5.52m radius.
- SRZ: 2.43m radius.
- Sporadic deadwood, up to 100mm diameter.
- Misshapen due to suppression from T2



2.4 Tree 4

- Semi mature *Corymbia maculata* in good health.
- TPZ: 3.72m radius.
- SRZ: 2.02m radius.
- Footpath 1.9m to the west.



2.5 Tree 5

- Semi mature *Eucalyptus petiolaris* in poor health.
- TPZ: 3.72m radius.
- SRZ: 2.02m radius.
- Tree is 300m east of a drainage pit, no visible damage.
- Multiple failures up to 100mm due to western wind lead.
- Sporadic deadwood up to 50mm diameter.



2.6 Tree 6

- Semi mature *Eucalyptus sideroxylon* in poor health.
- TPZ: 2.16m radius.
- SRZ: 1.61m radius.
- Majority of the lower canopy has declined.



2.7 Tree 7

- Early mature *Casuarina equisetifolia* in good health.
- TPZ: 6.24m radius.
- SRZ: 2.65m radius.
- The main trunk is bifurcated however the union appears sound. Monitoring of the stem is recommended.



2.8 Tree 8

- Early mature *Corymbia maculata* in moderate health.
- TPZ: 3.12m radius.
- SRZ: 1.94m radius.
- The central stem of the tree has become moribund and stunted the overall size of the canopy.
- There is significant canopy suppression from Tree 10.



2.9 Tree 9

- Early mature *Corymbia calophylla* in good health.
- TPZ: 10.8m radius.
- SRZ: 3.31m radius.
- The tree is formed from a coppice, a tree which was cut to ground level and regrown.
- The multi stemmed structure is not ideal for long term retention. Circumferential growth will result in compression of mature stems, leaving the tree prone to large failures.



2.10 Tree 10

- Early mature *Eucalyptus gomphocephala* in good health.
- TPZ: 11.4m radius.
- SRZ: 3.57m radius.
- The main trunk is bifurcated however the union appears sound. Monitoring of the stem is recommended



2.11. Fenced Banksia Woodlands area next to existing clubrooms (Assessed 13 July 18)

The trees inside the bushland fencing are predominately Jarrah (*Eucalyptus marginata*) which have been coppiced (cut to ground level and regrown), which vastly alters the trees root architecture. The location of the proposed access ramp is just within the edge of a calculated TPZ but the fact that there will be no disturbance within the bush means that the minor encroachment can be offset. Most of the root system will be within the bush anyway given the litter build up, microbial activity etc.

The area is heavily eroded so I doubt roots in this area provide much for the trees, structure or health. Pruning any exposed roots at the fence line would be best to reduce likelihood of pathogen damage.

There are really only two trees (*Acacia saligna*) close to the fence which are very short-lived species. I don't think they will be compromised but may need some minor pruning depending on the clearance required.

3. Discussion

3.1 The ten inspected trees will have some construction occur within their tree protection zone (TPZs). Tree 2 (T2) will have works occur within the structural root zone (SRZ).

3.2 Tree 5, Tree 6 and Tree 8 are not considered to be in good health and unlikely to be able to adapt to adjacent development. Tree 9 has poor structure and should not be considered for long term retention.

3.3 The installation of footpaths and stairs will require some root pruning. Any excavation within the TPZs should be undertaken by hand to expose and investigate root size and locations, relative to the required level changes. From there it can be determined if root pruning is possible or if construction methodology needs to be adapted, particularly for Tree 2.

4. Recommendations

4.1 Remove and stump grind Tree 5, Tree 6, Tree 8 and Tree 9.

4.2 Prune Tree 1, Tree 2 and Tree 10 to remove deadwood over 50mm diameter.

4.3 Determine where excavation is required and to what extent. Hand trench within TRZs to determine root size and location. Allow arborist to inspect prune roots if possible. If roots are too large and cannot be severed, advise project manager that construction methodology will need to be altered.

4.4 Do not allow works within the TPZ which will be damaging to the trees namely storing materials, mixing cement, storage of site toilets etc. It is unlikely that TPZ fencing will be able to be installed however this should be discussed with the project manager for viability.



June 2018

Final

Chichester Park Redevelopment



Prepared For:
City of Joondalup

Traffic & Parking
Assessment
Report



Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

DOCUMENT ISSUE AUTHORISATION

Issue	Rev	Date	Description	Author	Checked By	Approved By
0	0	08/06/2018	DRAFT Report	BAV/CS	CS	DNV
1	0	22/06/2018	FINAL Report	BAV/CS	DNV	DNV

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Donald Veal Consultants Pty Ltd

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1 INTRODUCTION

1.1 BACKGROUND

This traffic and parking assessment report has been prepared by Donald Veal Consultants on behalf of the City of Joondalup, with regard to the proposed redevelopment of Chichester Park Clubrooms.

The facilities are being redeveloped to better provide for the sporting clubs and teams which use Chichester Park. The redevelopment itself is not anticipated to create more traffic or parking in peak periods as the current utilisation of the park and its facilities is not expected to change.

As part of the community consultation undertaken in July / August 2017, a number of local residents raised concerns with traffic and parking issues at Chichester Park, particularly in the winter sporting season. Parking on residential verges and visibility issues / driving safety concerns were raised and feedback was received from residents living on the streets around the southern oval.

The City of Joondalup requested a parking assessment with recommendations for additional parking, car park concept designs and a traffic assessment of the area.

1.2 SITE LOCATION

The site lies within the City of Joondalup, in the suburb of Woodvale. The park is bordered by Trappers Drive, Chichester Drive, Henty Loop, Standish way and Landor Gardens. It is located approximately 5 km as the crow flies to the south of the City of Joondalup offices. The site location, in a regional context is shown in **Figure 1.1**.



Figure 1.1: Site location

Source: Googlemaps

1.3 SCOPE OF ASSESSMENT

The scope of this assessment includes the following:

- A parking survey and analysis of Chichester Park when the facilities are being used on a Sunday (game day) during the day and a Thursday (training) evening to determine parking demand and location;
- Development of concept parking options to accommodate parking demand on busy days;
- Analysis and assessment of traffic generated by the existing Chichester Park car park; and
- Recommendations for future car park supply.

2 TRAFFIC COUNTS

2.1 TRAFFIC VOLUMES

The latest traffic counts (May 2018) for Trappers Drive were provided by the City of Joondalup. These counts were used in the analysis of the Trappers Drive intersection with the Chichester Park car park. **Table 3.1** summarises the counts which are contained in full in **Appendix A**.

Table 3.1: Trappers Drive Traffic Counts, May 2018

Time Period	Vehicles per hour	Vehicles per Day
Monday – Friday (Average Weekday Traffic)		6,962
Weekday AM Peak Hour Average	516	
Weekday PM Peak Hour Average	678	
Saturday Peak Hour (10:00am)	637	
Saturday-Sunday Average		5,738
Sunday Peak Hour (11:00am -12:00 midday during football activities)	496	
Thursday Peak Hour (5:00pm -6:00pm during football activities)	667	

Source: City of Joondalup

3 PARKING SURVEY RESULTS

Parking surveys were undertaken on Sunday 27th May 2018 between 9:30am and 12:30pm, and also on Thursday 31st May 2018 between 5:30pm and 7:00pm. The survey area was divided into 13 zones, A-M, as shown in **Figure 3.1**.

A parking survey round, which is where the survey staff tallied all parked vehicles within an area, was undertaken at 30 minute intervals. Each area was again divided into park/houses or north/south side of the street and also by parking type, i.e. verge, on street, formal bays on street or car park.

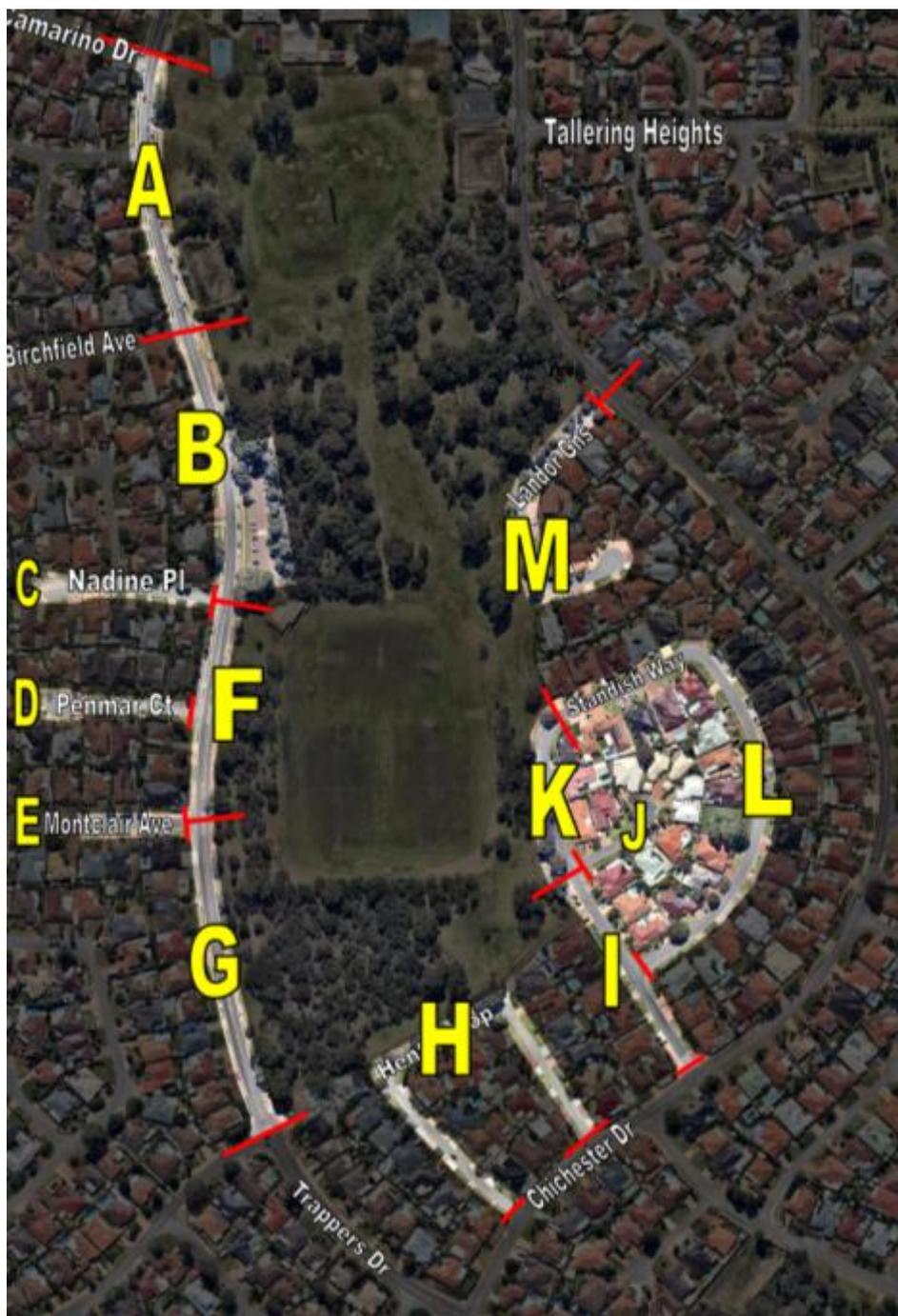


Figure 3.1: Parking Survey Area and Zones

Donald Veal Consultants (DVC) was requested to survey on Sunday 27th May 2018 as several games of football were scheduled at the park on that day. The junior clubs had matches in the morning and senior clubs had matches in the late morning and afternoon. The results for this survey are shown in **Table 3.1**.

This table shows that the maximum number of vehicles parked within the survey area during the survey period was 115 vehicles at 12:30pm. Of these, 56 (49%) parked within the main car park, off Trappers Drive. At 12:00pm the car park off Trappers Drive had 59 vehicles parked there, which is one vehicle over its marked out capacity.

Table 3.1: Sunday 27th May 2018 Summary parking results

Zone	Road	Formal Parking Capacity	9:30am	10:00am	10:30am	11:00am	11:30am	12:00pm	12:30pm
A	Trappers Dr	15	12	22	26	21	4	7	10
B	Trappers Dr	9	17	19	18	10	16	17	24
Car Park	Car Park	58	35	34	22	38	50	59	56
C	Nadine Pl		8	1	1	0	0	1	4
D	Penmar Ct		0	0	0	1	1	1	1
E	Montclair Av		1	1	3	4	3	3	3
F	Trappers Dr		0	0	0	0	0	0	0
G	Trappers Dr		0	0	0	0	0	0	0
H	Henty Loop		1	1	0	0	0	1	1
I	Standish Way		0	5	3	1	4	4	1
J	Sentry Cl		5	3	3	3	1	6	3
K	Standish Way		15	10	3	4	5	4	7
L	Standish Way		1	3	1	1	1	4	0
M	Landor Gns		9	12	8	5	4	4	5
Totals		82	104	111	88	88	89	111	115
Number bays in Car Park Empty			23	24	36	20	8	-1	2
%age Car Park Utilised			60%	59%	38%	66%	86%	102%	97%

Details of the parking surveys are shown in **Appendix B**. Key observations from the Sunday survey include:

- **Trappers Drive Zone A**, marked on street bays are well used. Verge parking park-side was busy, a shortfall of 13 bays. That is to say there was a maximum of 13 vehicles parked on the verge on Sunday, see **Appendix B** for full parking details. Verge parking house-side only busy during start of survey, for the junior clubs matches.
- **Trappers Drive Zone B**, marked on street bays well used. Verge parking park side was busy, a shortfall of 17 bays.
- **Car Park** was used more during the senior clubs matches, shortfall of 1 bay.

- **Nadine Place Zone C**, some verge parking on the north side of the street, more so during junior clubs matches.
- **Penmar Court Zone D**, no issues.
- **Montclair Avenue Zone E**, some parking during senior club matches, however there was available parking closer to the park which indicates those parked down the street were not related to the park activities. No issues.
- **Trappers Drive Zone F and G**, no issues.
- **Henty Loop Zone H**, no issues.
- **Standish Way Zone I**, verge parking on the park-side of the road during junior clubs matches, shortfall of 5 bays.
- **Sentry Close Zone J**, some parking during both junior and senior club matches.
- **Standish Way Zone K**, verge parking on the park side of the road, mostly during junior clubs matches, shortfall of 13 bays.
- **Standish Way Zone L**, no issues.
- **Landor Gardens Zone M**, verge parking on the park side of the road during junior clubs matches, shortfall of 12 bays.

A summary of where vehicles were parking on Sunday is shown in **Chart 3.1**. As shown, the majority of vehicles were using the car park off Trappers Drive, with Trappers Drive itself also being popular for parking, especially during the morning matches.

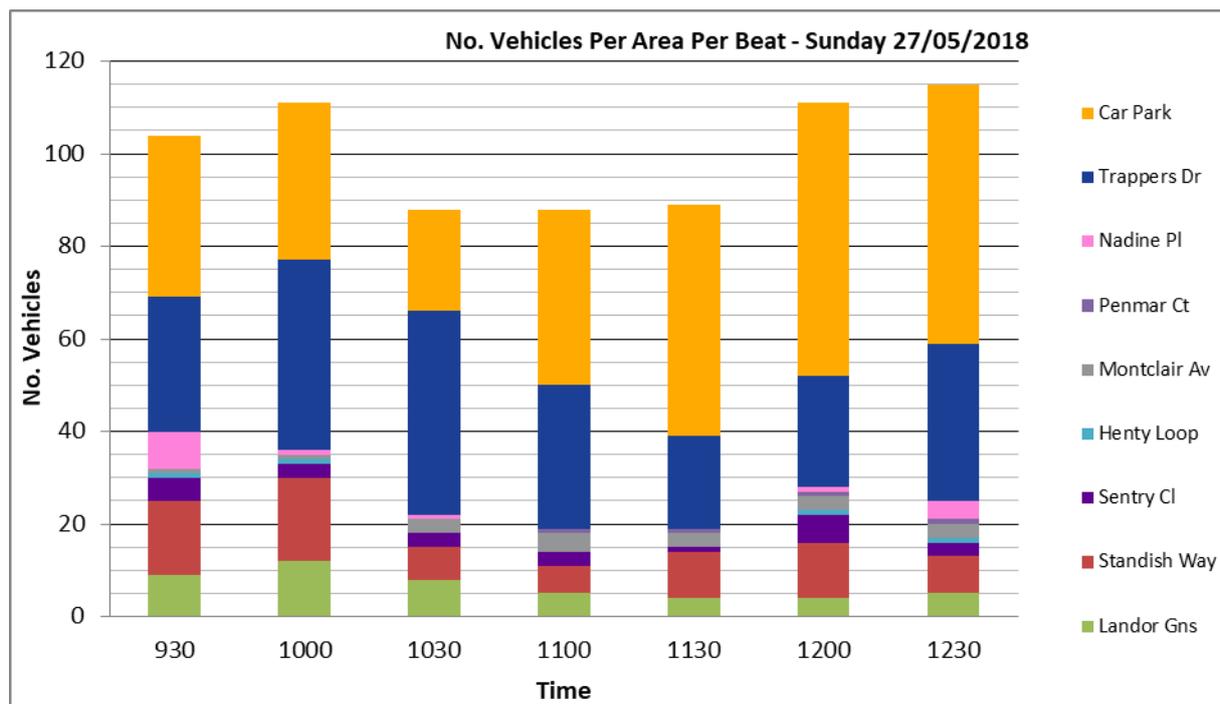


Chart 3.1: Number of Vehicles parking per area per beat on Sunday 27th May 2018

A summary of our comments on the parking per section is shown in **Figure 3.2**. The zones where there was high demand for parking are shown in red. The yellow zone indicates some possible parking issues which should clear once the red zone parking issues has been dealt with. For example, if

Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

formalised verge parking is installed in zone K the drivers parking in zone J will use the formal bays instead and will not park in zone J. The areas without issues or with low demand are shown in green.

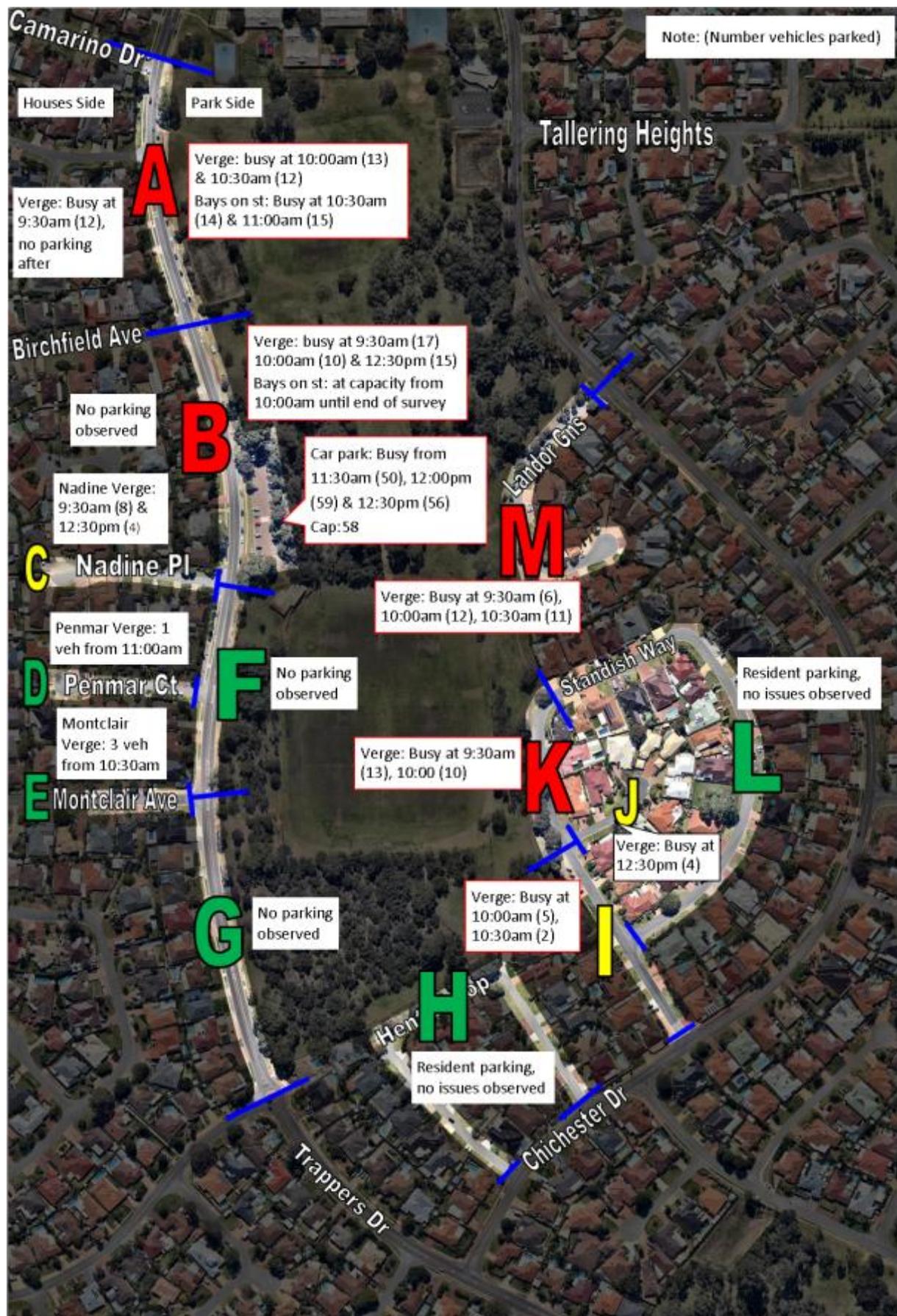


Figure 3.2: Summary comments on parking per zone for Sunday 27th May 2018

The Thursday evening surveys were conducted on the 31st May 2018. There was some rain during the evening. The results for this survey are shown in **Table 3.2**.

This table shows that the maximum number of vehicles parked within the survey area for the survey was 68 vehicles at 7:00pm. Of these, 50 (74%) were parked within the car park off Trappers Drive.

Table 3.2: Thursday 31st May 2018 Summary parking results

Zone	Road	Formal Parking Capacity	5:30pm	6:00pm	6:30pm	7:00pm
A	Trappers Dr	15	0	4	1	1
B	Trappers Dr	9	2	0	4	9
Car Park	Car Park	58	19	14	21	50
C	Nadine Pl		0	0	0	1
D	Penmar Ct		0	0	0	0
E	Montclair Av		2	3	2	1
F	Trappers Dr		0	0	0	0
G	Trappers Dr		0	0	0	0
H	Henty Loop		3	1	1	0
I	Standish Way		1	1	2	2
J	Sentry Cl		0	0	0	0
K	Standish Way		0	0	1	1
L	Standish Way		2	2	2	1
M	Landor Gns		2	2	3	2
Totals		82	31	27	37	68
Number bays in Car Park Empty			39	44	37	8
%age Car Park Utilised			33%	24%	36%	86%

Key observations from the Thursday evening survey include:

- **Trappers Drive Zone A**, marked on street bays used, but not at capacity. No verge parking observed.
- **Trappers Drive Zone B**, marked on street bays used, but not at capacity. Verge parking park side, a shortfall of 5 bays.
- **Car Park**, used more later on in the survey period, did not reach capacity.
- **Nadine Place Zone C**, no issues.
- **Penmar Court Zone D**, no issues.
- **Montclair Avenue Zone E**, some verge parking, however there was available parking closer to the park which indicates those parked down the street were not related to the park activities. No issues.
- **Trappers Drive Zone F and G**, no issues.

- **Henty Loop Zone H**, some parking recorded, likely to be residential and/or visitor parking. No issues.
- **Standish Way Zone I**, some parking recorded, likely to be residential and/or visitor parking rather than connected with the park as most of the parking was on the residential side of the street and not where drivers were parking on Sunday. No issues.
- **Sentry Close Zone J**, no issues.
- **Standish Way Zone K**, no issues.
- **Standish Way Zone L**, no issues.
- **Landor Gardens Zone M**, no issues.

A summary of where vehicles were parking on Sunday is shown in **Chart 3.2**. This shows that the most popular parking place was the car park off Trappers Drive, with Trappers Drive itself becoming busier later on during the survey. It also shows that there were significantly fewer people parking on a Thursday evening than on Sunday, a game day. If the parking issues for the Sunday were resolved then this would more than cater for any issues found on Thursday evenings.

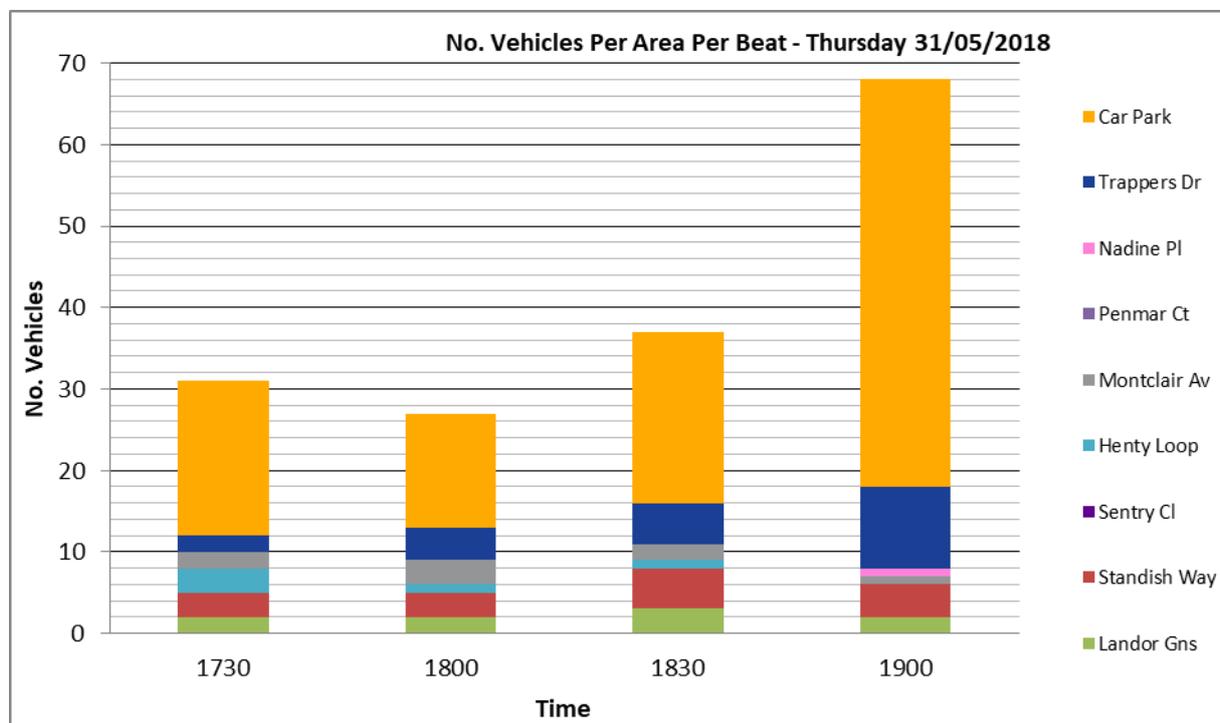


Chart 3.2: Number of Vehicles parking per area per beat on Thursday 31st May 2018

A summary of our comments on the parking per zone is shown in **Figure 3.3**. There were no zones marked red for Thursday as no parking areas reached capacity. The zone where there was some parking is shown in yellow and areas without any issues or much parking are shown in green.



Figure 3.3: Summary comments on parking per zone for Thursday 31st May 2018

4 TRIP GENERATION DISTRIBUTION & ASSIGNMENT

For new developments it is usual to undertake a trip generation, distribution and assignment exercise. This is a desktop approach to determine what level of traffic can be expected at the site (trip generation), where they come from (distribution) and which roads they use (assignment). In this instance, where the development is a renovation with no additional traffic expected, it is acceptable to analyse the existing traffic to see if improvements are required to the road network.

For this project the focus of the traffic analysis is the intersection of Trappers Drive with the main car park access, as this is the most concentrated traffic in the vicinity of Chichester Park.

Traffic volumes on Trappers Drive were obtained from traffic counts undertaken by the City of Joondalup as mentioned in Section 2 of this report. On Sunday the peak hour traffic volume is approximately 496 vehicles per hour (vph) which occurs between 11am and noon. This equates to approximately 250vph in each direction.

The peak demand for car parking occurs when one football game is about to end and players for the next are beginning to arrive. It can be assumed that the worst case scenario occurs if all car bays are vacated and filled in the space of an hour. In this case 58 vehicles (the capacity of the car park) leave the car park and another 58 take their place. A SIDRA (Signalised & unsignalised Intersection Design and Research Aid, a computer program) analysis of the intersection using these volumes indicates that no capacity problems are expected during peak demand. This was confirmed by limited observations of the intersection during the surveys conducted on Sunday 27th May, 2018.

Crash data shows that there has only been a single crash in the vicinity in the last five years (on a Wednesday in June 2013). This suggests there are no geometric or congestion issues impacting the intersection.

There is anecdotal evidence that suggests that some minor queueing develops during busy periods. It is possible that some minor queueing could develop in the car park as vehicles leave. Also, if there is a vehicle waiting to leave the car park, vehicles turning in may hesitate as the road width into the car park is only 6.0m wide, thus temporarily creating minor queues on Trappers Drive. Again, the crash statistics indicate that this does not create a dangerous situation.

A further factor may be the design of the car park itself. If users approach from the south it is possible but not easy to see if there are any vacancies in the car park. If approaching from the north it is not possible to see any vacancies. If a driver enters the car park but does not find a vacancy, there is no opportunity to easily circulate and exit. Instead, they have to perform a 180° turn in the car park, which is not an easy manoeuvre within the confines of a parking aisle.

Concept designs to alleviate the impact of the narrow entrance and circulation are discussed in Section 5.1.

The parking survey results indicate that during the senior games on Sunday morning the car park was effectively full. However, earlier in the morning, when the junior teams were active, the car park was not full, albeit parking in the surrounding area (including some verges) was well utilised. It may be that the car park is seen to be associated with the clubrooms which the junior teams use less. It is assumed that parents of junior players park as close to the field on which their child is playing. For the senior games however much of the socialising occurs around the clubrooms and therefore the attraction to car park nearby. We noted that the car park was full during this time which also tends to suggest that circulation was not considered an issue by the users.

5 CAR PARK CONCEPT DESIGN

This section identifies a list of possible solutions to the parking issues identified. In addition, based on our parking experience, we have selected a subset of these options as our recommendations. There are many factors which affect parking solutions including varying demand and cost. Our recommendations take these factors into account.

5.1 EXISTING CAR PARK PROPOSALS

In the previous section it was identified that there is anecdotal evidence that the entrance to the existing car park is narrow and may cause some minor delays. Also there is no circulation through the car park and drivers are not able to easily circulate to exit the car park.

5.1.1 *Option 1 – One-way System*

To address the issue of circulation and potential for congestion it would be possible to create a one-way system through the car park from north to south as shown in **Figure 5.1**. The entrance could be moved to the northern end of the car park with no net loss of car parking. The exit could be to the south via a narrow one-way exit to align with Nadine Place. Whilst this option can be accommodated from a road geometry perspective, it is possible that there are services in the vicinity which would be costly to move. It may also be necessary to prune the lower limbs of the large gum tree in this location and possibly provide a retaining wall on the clubrooms side of the exit road due to the crossfalls. Trees would also have to be taken into careful consideration if this option is explored, as existing trees must be retained and root protection zones need to be respected. DVC recommends that further investigation is undertaken to prove this as a realistic option.

A mini roundabout at the intersection of Trappers Drive and Nadine Place would provide a controlled one-way exit for traffic from the car park. A mini roundabout would also have a traffic calming effect on potential speeding along Trappers Drive. Trappers Drive is a bus route so the design of the roundabout would need to ensure that it can be easily negotiated by buses and with minimum discomfort to passengers.

Even if the one-way system is not introduced through the car park, the introduction of a mini roundabout at the intersection of Trappers Drive and Nadine Place would assist parking and assist traffic from Nadine Place to enter Trappers Drive during busy periods. If parking is provided south of Nadine Place along the eastern edge of Trappers Drive (see Section 5.2) the mini roundabout would give drivers the opportunity to turn without performing a midblock U-turn. Similarly, traffic from the north could use the roundabout to U-turn to return to the entrance of the car park.

5.1.2 *Option 2 – Widen Existing Entrance*

If a one-way system through the car park is not achievable, it would be possible to widen the existing two-way entrance as shown in **Figure 5.2**. This would provide easier entry and exit and reduce potential delays and frustration there. There would be no loss of car bays.

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Project: Chichester Park Traffic & Parking Assessment



NOTES:

1. CONCEPT ONLY, ROUNDABOUT TO CATER FOR DESIGN VEHICLE
2. NEARMAPS BACKGROUND DATED 19.12.2017

Figure 5.1: One-way System Concept design

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Figure 5.2: Widening Car Park Entrance Concept Design

5.2 NEW CAR PARKING PROPOSALS

The car parking surveys (as summarised in **Figure 3.2**) provide evidence of where there is high car parking demand and thus where additional car parking might be required. Similarly, the community consultation exercise undertaken by the City of Joondalup in July/August 2017 also provides some anecdotal feedback of car parking problems, albeit a more subjective view.

Four areas of high demand were identified in **Figure 3.2**; these are areas where vehicles use the verge for parking, namely Zones, A, B, K and M (the red zones). Parking concepts plans are largely focussed on these zones although they will have some knock-on effect on Zones C, I and J (the yellow zones).

The results for Zone C (Nadine Place) indicate that there is some limited verge parking early on Sunday mornings which reduces later in the day. This may be associated with visitors to the local residents rather than any park related activity as there is ample available parking in the Chichester Park car park at these times. Later, when the car park was full, there was much less demand for verge parking in Nadine Place.

Zone I showed some verge parking during the early (juniors) fixtures but this was mostly at the southern end of the park along Standish Way. Zone J (Sentry Close) experienced some verge parking during the latter stages of the survey when there was little or no verge parking adjacent to the park. Hence, similar to Nadine Place, the verge parking in Zone J was most likely related to visitors and activities of local residents.

The remaining zones (D, E, F, G and H) showed no parking activity which might be related to the events at the park.

5.2.1 *Off-street Parking Concept Proposals*

DVC has identified three potential sites for off-street parking as shown in **Figure 5.3** and shown as locations 1, 2 and 3.

5.2.1.1 *Location 1 – Trappers Drive Off Street Parking North of Existing Car Park*

A concept layout for Location 1 is shown in **Figure 5.4**. This shows a car park could readily accommodate 30 vehicles with potential for further expansion. This provision would alleviate verge parking along the northern and central parts of Trappers Drive during the early morning (junior) fixtures and serve as an overflow area for the main car park during the seniors' matches.

At this stage DVC is not aware of parking problems during the summer seasons and therefore the car park at Location 1 may be introduced as an informal (grassed) car park which is simply demarcated by wooden posts (or similar). It could be controlled by moveable bollards at the entrance which can be raised or lowered as required, or by a simple chain, to suit demand. Alternatively the car park at Location 1 could be paved and marked as a formal car park, but clearly this has higher cost implications.

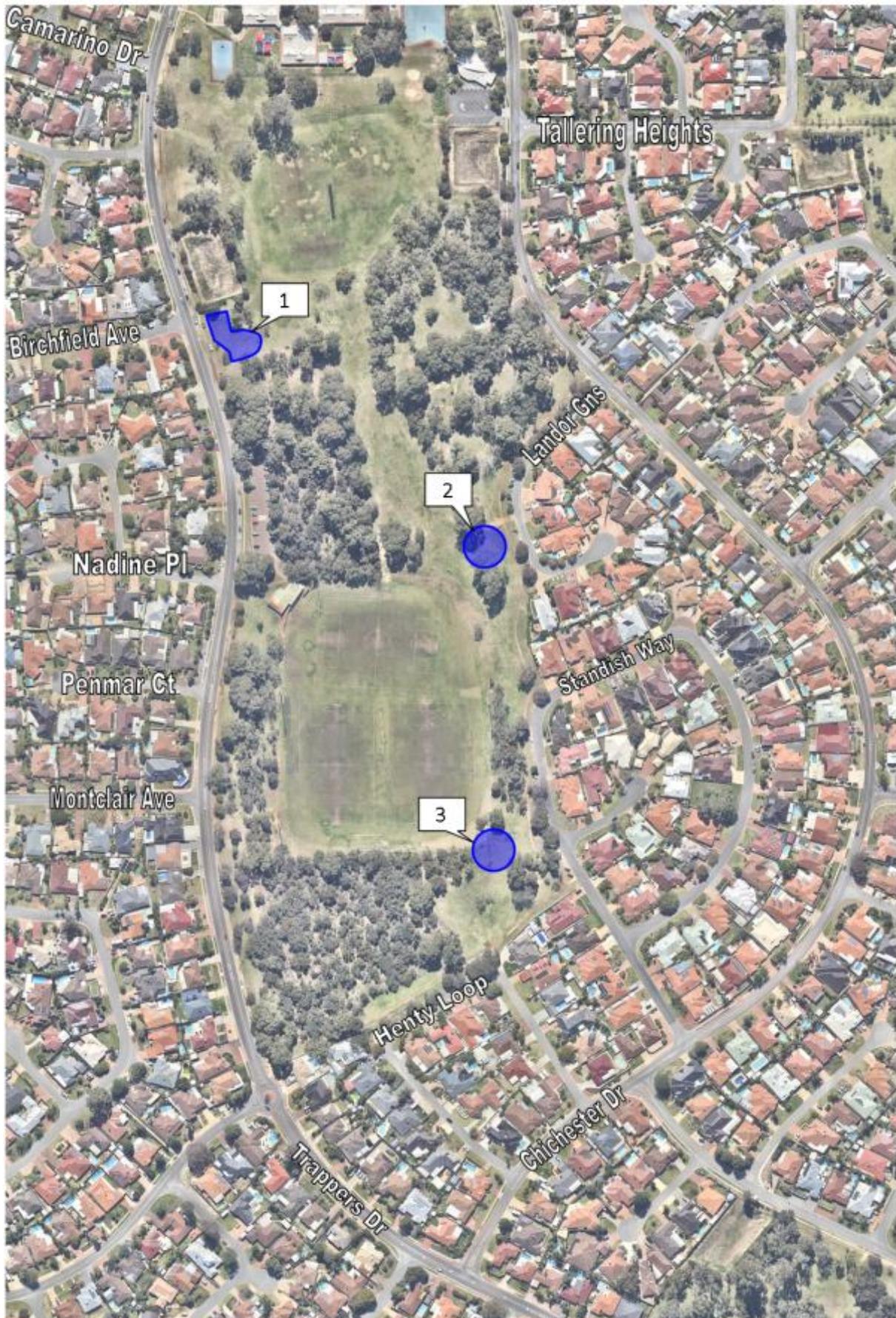
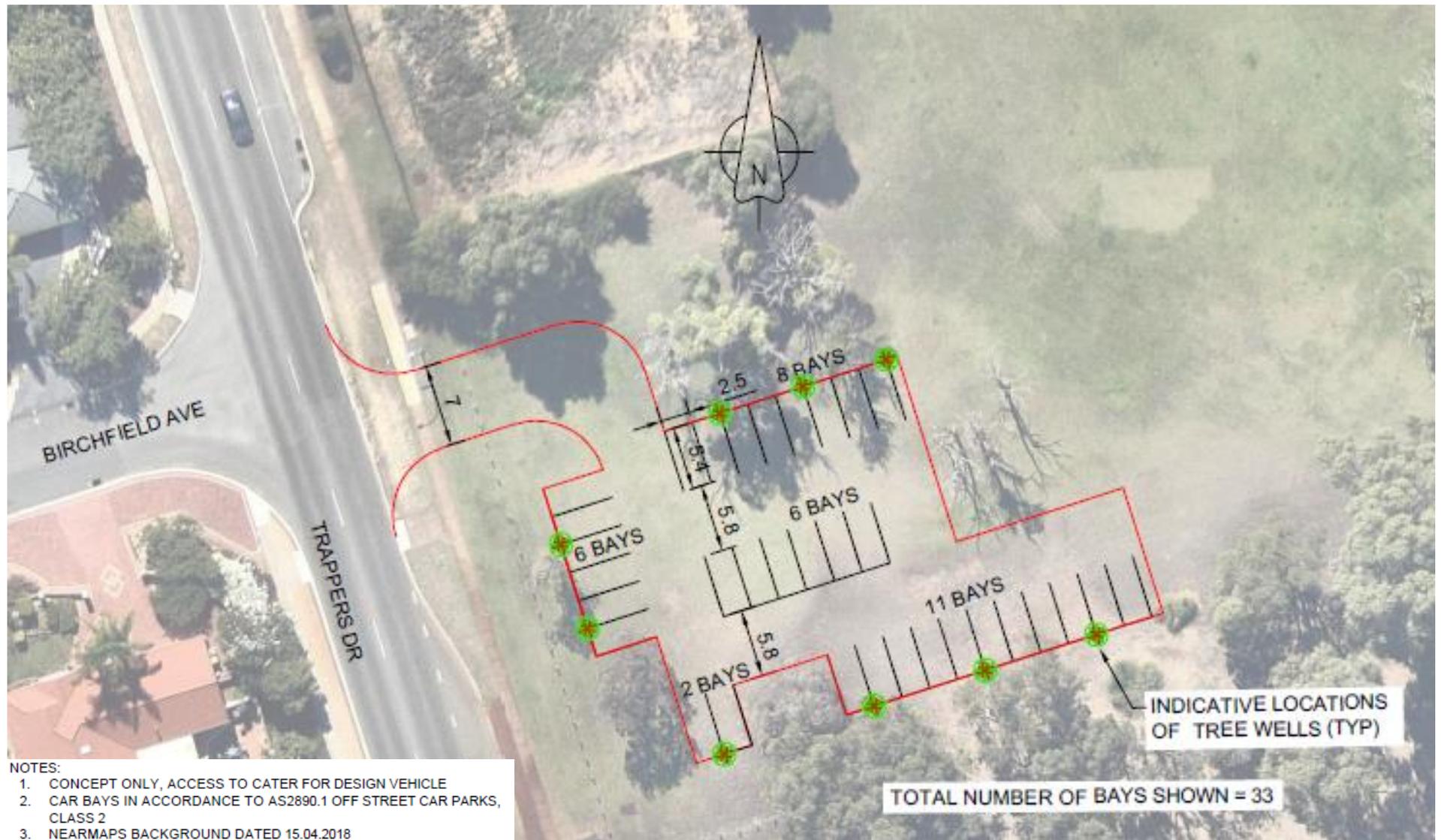


Figure 5.3: Potential sites for off street parking

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Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

Figure 5.4: Trappers Drive Off Street Parking North of Existing Car Park Concept Design (Location 1)

5.2.1.2 Location 2 – Landor Gardens Off Street Car Park

A concept layout for 31 bays at Location 2, adjacent to Landor Gardens, is shown in **Figure 5.5**. This car park would alleviate verge parking during the early morning fixtures. Similar to Location 1, it could be developed as a temporary overflow car park or it could be paved and introduced permanently. If Location 2 is introduced it should be accompanied by parking restrictions (bollards or signing) along the verges, otherwise parking is likely to continue along the verges.

5.2.1.3 Location 3 – Standish Way Off Street Car Park

A concept layout for 22 bays at Location 3, adjacent to Standish Way, is shown in **Figure 5.6**. There is ample space to expand this car park if necessary. Further detail is required for the access off Standish Way in order to avoid any trees. However, the site visit and Nearmaps show that there are adequate gaps between the trees to provide access. A car park at Location 3 would alleviate verge parking along Standish Way and could be developed as a temporary or permanent car park. Again, parking restrictions should be introduced along the verges of Standish Way if Location 3 is introduced. Location 3 would also help alleviate any parking issues along Sentry Close (Zone J) and the southern part of Standish Way (Zone I).

5.2.2 On-street Parking Proposals

5.2.2.1 Option 1 – Trappers Drive

DVC has identified that additional on-street car parking could be formally introduced along Trappers Drive (south of Nadine Place) as shown in **Figure 5.7**. More than 18 parallel car bays could be introduced plus others are possible further south, although bays further away from the clubroom will be less attractive. Parallel bays will require the timber bollards currently adjacent to the road to be moved. Similarly, the footpath on the southern side of Trappers Drive will need to be realigned although there is ample opportunity to do this between the trees on top of the embankment.

It is also possible to introduce angled on-street parking along some sections of Trappers Drive (see **Figure 5.7**). A combination of parallel and angled parking may be the best option as parallel bays can be introduced where trees are closer to the road and angled bays used where there is more space between the trees.

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NOTES:

1. CONCEPT ONLY, ACCESS TO CATER FOR DESIGN VEHICLE
2. CAR BAYS IN ACCORDANCE TO AS2890.1 OFF STREET CAR PARKS, CLASS 2
3. NEARMAPS BACKGROUND DATED 11.02.2017



Figure 5.5: Landor Gardens Off Street Car Park Concept Design (Location 2)

Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment



Figure 5.6: Standish Way Off Street Car Park Concept Design (Location 3)

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Project: Chichester Park Traffic & Parking Assessment



Figure 5.7: Trappers Drive On Street Parking Concept Design

5.2.2.2 Option 2 – Landor Gardens

Figure 5.8 shows conceptually how parallel and angled parking could be introduced along Landor Gardens. The benefits of introducing formal on-street parking here are somewhat questionable. Formal parking seldom produces more parking capacity than informal parking as motorists can squeeze in between trees where a formal car park bay is not possible. However, formal car parking does indicate to local residents that they should expect parking at the site and that vehicles are expected to park there (and not on property verges). Formal parking also prevents erosion and damage to the verge which can look unsightly. While the number of bays provided does not quite meet the demand expected during the football season, it would be ample for casual use at other times. During the busier times vehicles are likely to be parked informally between trees and further up the street.

We estimate that up to eight parallel bays or ten 30° bays could be built along Landor Gardens which requires only a limited number of timber bollards to be moved. If 45° parking is introduced then more bays could be provided albeit more timber bollards would need to be moved.

5.2.2.3 Option 3 – Standish Way

Similarly on-street parking can be provided at Standish Way as shown in **Figure 5.9**. Between 12 and 16 bays could be constructed against the park using parallel or 30° angled parking. Some timber bollards and a small section of the pedestrian footpath would need to be moved at the northern section of the parking. A small turning circle is possible at the northern end of the parking to discourage vehicles from exiting via the Standish Way loop.

It is also possible to introduce 90° parking here which would provide more bays but would require more wooden bollards and footpath to be moved.

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Figure 5.8: Landor Gardens On Street Parking Concept Design

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Figure 5.9: Standish Way On Street Parking Concept Design

6 RECOMMENDATIONS

The Sunday parking survey has shown that there are two distinct user groups at Chichester Park. The early morning fixtures are for junior players, many of whom are assumed to be local residents to the area. At busy times junior games extend to the north oval. Parents who drive to the grounds attempt to park as close as possible to the pitch on which their child is playing. They also know the local area well which explains the heavier use of local streets such as Landor Gardens and Standish Way. It is believed that they do not tend to use the clubroom and therefore the Chichester Park car park has spare capacity during the junior events.

The second group comprises senior players. While they are affiliated to the local football teams (as members or opposition) they are not necessarily local residents. They also use the clubrooms facilities (change rooms and kiosk) and therefore look for parking closer to the clubrooms. This explains the low use of verge parking along Landor Gardens and Standish Way, but higher use of verge parking along Trappers Drive.

The parking surveys were conducted on two single days which we understand had typical football activities, which is to say, days which did not include any club organised special events and/or finals which would attract additional vehicles.

Our recommendations are therefore aimed at ensuring that both juniors and senior user groups are catered for and that the typical demands surveyed are met. These recommendations are as follows:

Recommendation 1 - On Street Parking Trappers Drive

Provide on-street parking (18 bays) along Trappers Drive south of Nadine Place. This will provide parking for junior players playing on pitches adjacent to Trappers Drive and senior players wanting to park close to the clubrooms.

Recommendation 2 - Seasonal Car Park off Trappers Drive

Introduce a 'seasonal' car park at Location 1 opposite Birchfield Avenue (33 bays). This area should be demarcated by timber bollards and secured by moveable bollards or a chain or gate at the entrance off Trappers Drive. Moveable bollards could be raised or lowered manually by the football clubs according to seasonal demand. Efforts should be made to encourage home team players to use this car park and free up the existing car park for visitors. It is recommended that this car park is not paved.

Recommendation 3 - On Street Parking Landor Gardens

Provide on-street parking on Landor Gardens (10 bays) and Standish Way (16 bays) adjacent to the park. Consider 90° angle parking if more bays are deemed necessary and if budget allows for moving the footpath and timber bollards. If parallel parking bays or angled bays less than 90° are used at Standish Way, provide a small turning bay at the northern end.

Recommendation 4 - Widen Main Car Park Entrance

Widen the entrance to the main car park adjacent to the clubrooms as shown to facilitate easier entry and exit to the car park. In our view one-way circulation through the car park is not considered necessary.

Recommendation 5 – One-way System in Main Car Park

Whilst a one-way system is not considered necessary to aide circulation within the car park, it would assist with controlling traffic speeds on Trappers Drive if introduced together with a new roundabout. As a medium term solution further investigate the option of a one-way system through the existing car park on Trappers Drive and provide a narrow one-way exit to align with Nadine Place. A mini roundabout at the intersection of Trappers Drive and Nadine Place should also be investigated to control turning movements and reduce the speed environment on Trappers Drive.

Recommendation 6 - Monitor

Monitor the use of parking around Chichester Park once the above upgrades have been introduced to confirm whether they have successfully resolved the parking demand issues or whether any further measures or adjustments are needed.

APPENDIX A: TRAPPERS DRIVE TRAFFIC SURVEY

MetroCount Traffic Executive Weekly Vehicle Counts

WeeklyVehicle-2 -- English (ENA)

Datasets:

Site: [131_117291_002250] Trappers Dr - N of Nadine PI
Attribute: [-31.788195 +115.787582]
Direction: 7 - North bound A>B, South bound B>A. Lane: 0
Survey Duration: 12:40 Tuesday, 15 May 2018 => 12:13 Wednesday, 23 May 2018,
Zone:
File: 131_117291_002250 0 2018-05-23 1213.EC0 (Plus)
Identifier: K415KK90 MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm: Factory default axle (v5.03)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 12:41 Tuesday, 15 May 2018 => 12:13 Wednesday, 23 May 2018 (7.98093)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 51400 / 51427 (99.95%)

Weekly Vehicle Counts

WeeklyVehicle-2

Site: 131_117291_002250.0.1NS
Description: Trappers Dr - N of Nadine Pl
Filter time: 12:41 Tuesday, 15 May 2018 => 12:13 Wednesday, 23 May 2018
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon 14 May	Tue 15 May	Wed 16 May	Thu 17 May	Fri 18 May	Sat 19 May	Sun 20 May	Averages 1 - 5	1 -
7									
Hour									
0000-0100	*	*	10	17	14	45	56	13.7	
28.4									
0100-0200	*	*	7	0	9	30	27	5.3	
14.6									
0200-0300	*	*	3	7	7	11	40	5.7	
13.6									
0300-0400	*	*	7	9	6	12	8	7.3	
8.4									
0400-0500	*	*	14	19	15	11	8	16.0	
13.4									
0500-0600	*	*	94	84	59	16	14	79.0	
53.4									
0600-0700	*	*	247	235	227	49	31	236.3	
157.8									
0700-0800	*	*	426	427	515	197	115	456.0	
336.0									
0800-0900	*	*	491	534	523	377	250	516.0	
435.0									
0900-1000	*	*	336	377	385	579	411	366.0	
417.6									
1000-1100	*	*	364	425	382	637	447	390.3	
451.0									
1100-1200	*	*	437	463	398	623	496	432.7	
483.4									
1200-1300	*	183	463	375	437	606	497	364.5	
426.8									
1300-1400	*	599	389	375	410	539	428	443.3	
456.7									
1400-1500	*	665	443	396	455	454	362	489.8	
462.5									
1500-1600	*	837	542	617	679	439	350	668.8	
577.3									
1600-1700	*	705	589	638	648	445	345	645.0	
561.7									
1700-1800	*	647	701	667	697	489	359	678.0	
593.3									
1800-1900	*	432	561	504	463	309	272	490.0	
423.5									
1900-2000	*	217	255	239	284	223	150	248.8	
228.0									
2000-2100	*	154	139	194	201	160	87	172.0	
155.8									
2100-2200	*	102	118	130	137	165	66	121.8	
119.7									
2200-2300	*	38	69	68	120	120	17	73.8	
72.0									
2300-2400	*	15	18	34	105	95	10	43.0	

Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

14.5

Totals

0700-1900	4952	5491	*	*	*	*	*	5163.5
								5163.5
0600-2200	5564	6204	*	*	*	*	*	5830.5
								5830.5
0600-0000	5609	6253	*	*	*	*	*	5877.5
								5877.5
0000-0000	5730	6365	*	*	*	*	*	5996.2
								5996.2
AM Peak	0800	0800	0800	*	*	*	*	
	449	533	515	*	*	*	*	
PM Peak	1600	1700	*	*	*	*	*	
	571	666	*	*	*	*	*	

* - No data.

Weekly Vehicle Counts

WeeklyVehicle-2

Site: 131_117291_002250.0.1NS
Description: Trappers Dr - N of Nadine Pl
Filter time: 12:41 Tuesday, 15 May 2018 => 12:13 Wednesday, 23 May 2018
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	<u>Mon</u>	<u>Tue</u>	<u>Wed</u>	<u>Thu</u>	<u>Fri</u>	<u>Sat</u>	<u>Sun</u>	<u>Averages</u>	
	21 May	22 May	23 May	24 May	25 May	26 May	27 May	1 - 5	1 -
7									
Hour									
0000-0100	5	7	5	*	*	*	*	5.7	
5.7									
0100-0200	4	4	5	*	*	*	*	4.3	
4.3									
0200-0300	3	2	6	*	*	*	*	3.7	
3.7									
0300-0400	2	4	4	*	*	*	*	3.3	
3.3									
0400-0500	19	15	18	*	*	*	*	17.3	
17.3									
0500-0600	88	80	85	*	*	*	*	84.3	
84.3									
0600-0700	204	247	239	*	*	*	*	230.0	
230.0									
0700-0800	380	442	432	*	*	*	*	418.0	
418.0									
0800-0900	449	533	515	*	*	*	*	499.0	
499.0									
0900-1000	359	383	388	*	*	*	*	376.7	
376.7									
1000-1100	327	336	357	*	*	*	*	340.0	
340.0									
1100-1200	354	336	369	*	*	*	*	353.0	
353.0									
1200-1300	343	384	78	*	*	*	*	268.3	
268.3									
1300-1400	342	380	*	*	*	*	*	361.0	
361.0									
1400-1500	404	381	*	*	*	*	*	392.5	
392.5									
1500-1600	532	578	*	*	*	*	*	555.0	
555.0									
1600-1700	571	638	*	*	*	*	*	604.5	
604.5									
1700-1800	550	666	*	*	*	*	*	608.0	
608.0									
1800-1900	341	434	*	*	*	*	*	387.5	
387.5									
1900-2000	198	215	*	*	*	*	*	206.5	
206.5									
2000-2100	123	157	*	*	*	*	*	140.0	
140.0									
2100-2200	87	94	*	*	*	*	*	90.5	
90.5									
2200-2300	32	33	*	*	*	*	*	32.5	
32.5									
2300-2400	13	16	*	*	*	*	*	14.5	

Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

46.2

Totals

0700-1900	*	*	5742	5798	5992	5694	4332	5940.3
5624.8								
0600-2200	*	*	6501	6596	6841	6291	4666	6719.1
6286.1								
0600-0000	*	*	6588	6698	7066	6506	4693	6835.8
6404.3								
0000-0000	*	*	6723	6834	7176	6631	4846	6962.8
6536.1								
						SAT	SUN	
AM Peak	*	*	0800	0800	0800	1000	1100	
	*	*	491	534	523	637	496	
PM Peak	*	1500	1700	1700	1700	1200	1200	
	*	837	701	667	697	606	497	

* - No data.

AVERAGES
WEEK-DAY
TRAFFIC

TAPPERS DR N OF NADWEL PL.

AWT 6962 VPD

APPENDIX B: SURVEY RESULTS

Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

City of Joondalup	Day Sunday	Date 27/05/18	Weather Cloudy/Rain
Parked Vehicle Volumes By Zone	Location Trappers Dr, Nadine Pl, Penmar Ct, Montclair Av Henty Loop, Standish Way, Sentry Cl & Landor Gns		Suburb Woodvale
	Job No. LG160.17	Site Type On Street, Verge & Car Park, Parking	
Donald Veal Consultants	Duration 3.5 Hrs	No. Beats 7	

Zone No.	Road	Side	Location	Capacity	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 5	ROUND 6	ROUND 7
					930	1000	1030	1100	1130	1200	1230
A	Trappers Dr	PARK	Bays on St	15		9	14	15	4	7	10
			On St	0							
			Verge	29	13	12	5				
		HOUSES	On St	5							
			Verge	12	12		1				
B	Trappers Dr	PARK	Bays on St	9		9	9	9	9	9	9
			On St	0							
			Verge	31	17	10	9	1	7	8	15
		HOUSES	On St	0							
			Verge	21							
CAR PARK				58	35	34	22	38	50	59	56
C	Nadine Pl	NORTH	On St	0							
			Verge	14	8	1	1			1	4
		SOUTH	On St	0							
			Verge	11							
D	Penmar Ct	NORTH	On St	0							
			Verge	9			1	1	1	1	
		SOUTH	On St	0							
			Verge	12							
E	Montclair Av	NORTH	On St	0							
			Verge	8		1	3	4	3	3	3
		SOUTH	On St	4	1						
			Verge	2							
F	Trappers Dr	PARK	On St	0							
			Verge	0							
		HOUSES	On St								

Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

Zone No.	Road	Side	Location	Capacity	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 5	ROUND 6	ROUND 7
					930	1000	1030	1100	1130	1200	1230
			Verge	17							
G	Trappers Dr	PARK	On St	0							
			Verge	11							
		HOUSES	On St	0							
			Verge	19							
H	Henty Loop	OUTSIDE / PARK	On St	34						1	1
			Verge	2	1	1					
		INSIDE / HOUSES	On St	0							
			Verge	33							
I	Standish Way	PARK	On St	2			1	1		2	1
			Verge	15		5	2		1		
		HOUSES	On St	1					1		
			Verge	14					2	2	
J	Sentry Cl	NORTH	On St	1		1	1	1	1		1
			Verge	5		2	2	2		4	2
		South	On St	2	2					1	
			Verge	10	3					1	
K	Standish Way	PARK	On St	1	1		1				
			Verge	18	13	10	2	3	4	1	4
		HOUSES	On St	1	1			1	1		1
			Verge	10						3	2
L	Standish Way	OUTSIDE	On St	0							
			Verge	33	1	2			1	1	
		INSIDE	On St	1		1	1	1			
			Verge	25						3	
M	Landor Gns	PARK	On St	28							
			Verge	2	6	12	7	5	1	1	2
		HOUSES	On St	12							
			Verge	6	3		1			3	3
No. Of Veh Parked				543	104	111	88	88	89	111	115

Client: City of Joondalup

Project: Chichester Park Traffic & Parking Assessment

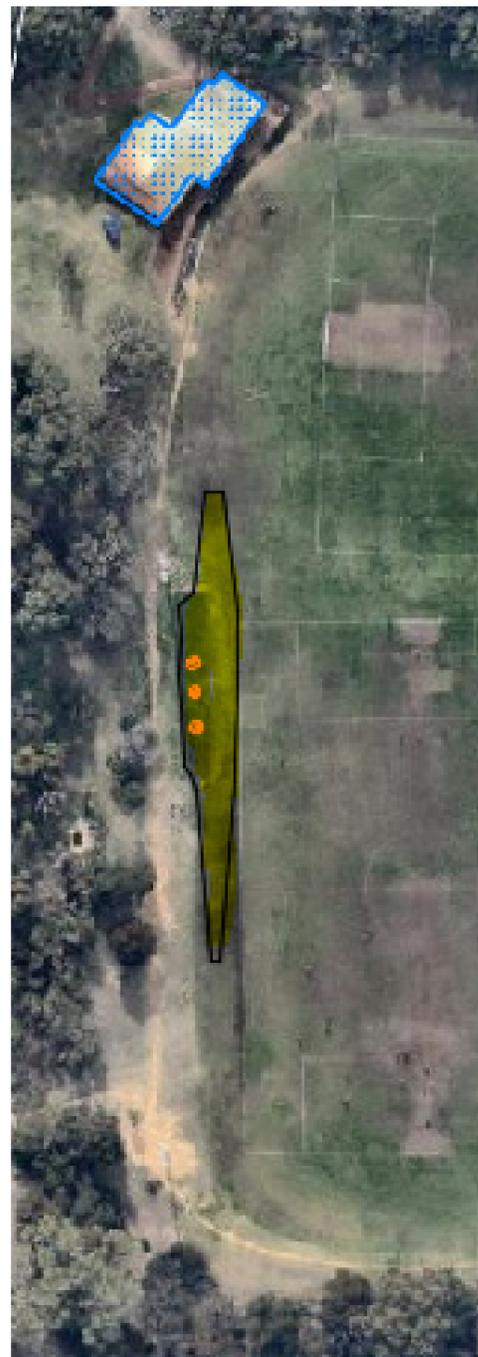
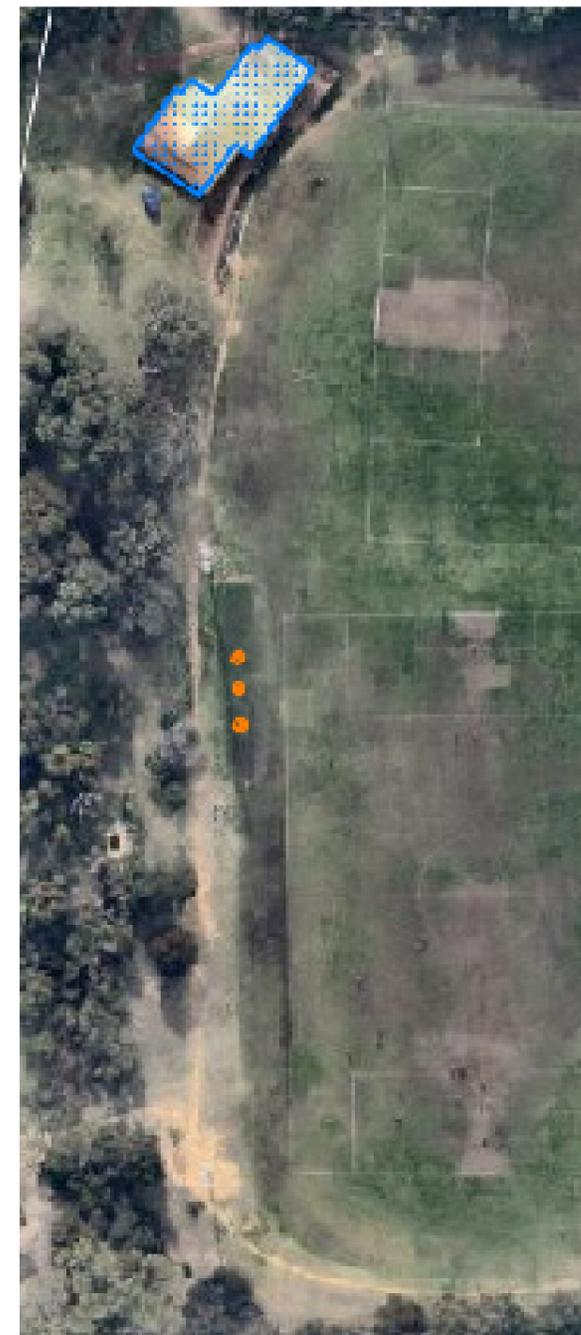
City of Joondalup	Day Thursday	Date 31/05/18	Weather Cloudy/Rain
Parked Vehicle Volumes By Zone	Location Trappers Dr, Nadine Pl, Penmar Ct, Montclair Av Henty Loop, Standish Way, Sentry Cl & Landor Gns		Suburb Woodvale
	Job No. LG160.17	Site Type On Street, Verge & Car Park, Parking	
Donald Veal Consultants	Duration 2 Hrs	No. Rounds 4	

Zone No.	Road	Side	Location	Capacity	ROUND 1	ROUND 2	ROUND 3	ROUND 4
					1730	1800	1830	1900
A	Trappers Dr	PARK	Bays on St	15		4	1	1
			On St	0				
			Verge	29				
		HOUSES	On St	5				
			Verge	12				
B	Trappers Dr	PARK	Bays on St	9	2		4	4
			On St	0				
			Verge	31			5	
		HOUSES	On St	0				
			Verge	21				
CAR PARK				58	19	14	21	50
C	Nadine Pl	NORTH	On St	0				
			Verge	14			1	
		SOUTH	On St	0				
			Verge	11				
D	Penmar Ct	NORTH	On St	0				
			Verge	9				
		SOUTH	On St	0				
			Verge	12				
E	Montclair Av	NORTH	On St	0				
			Verge	8	2	3	2	1
		SOUTH	On St	4				
			Verge	2				
F	Trappers Dr	PARK	On St	0				
			Verge	0				

Zone No.	Road	Side	Location	Capacity	ROUND 1	ROUND 2	ROUND 3	ROUND 4
					1730	1800	1830	1900
		HOUSES	On St					
			Verge	17				
G	Trappers Dr	PARK	On St	0				
			Verge	11				
		HOUSES	On St	0				
			Verge	19				
H	Henty Loop	OUTSIDE / PARK	On St	34				
			Verge	2	2			
		INSIDE / HOUSES	On St	0	1		1	
			Verge	33		1		
I	Standish Way	PARK	On St	2				
			Verge	15				
		HOUSES	On St	1				1
			Verge	14	1	1	2	1
J	Sentry Cl	NORTH	On St	1				
			Verge	5				
		South	On St	2				
			Verge	10				
K	Standish Way	PARK	On St	1				
			Verge	18				
		HOUSES	On St	1				
			Verge	10			1	1
L	Standish Way	OUTSIDE	On St	0				
			Verge	33				
		INSIDE	On St	1				
			Verge	25	2	2	2	1
M	Landor Gns	PARK	On St	28				
			Verge	2	1	1	1	
		HOUSES	On St	12				
			Verge	6	1	1	2	2
No. Of Veh Parked				543	31	27	37	68

Chichester Park south - flooding extents

Observed flooding May-June 2018

Estimated flooding with 150m³ of underground drainageEstimated flooding with 240m³ of underground drainage

Note that while underground drainage will make a significant improvement to the flooding, it can not be guaranteed that there will never be flooding again. It is likely that a major or high intensity event will flood the area, however, the works will control most storms in most years so that there is minimal impact on the playing surface.

PROJECT: COJ Chichester Park Redevelopment

Itemised costs

Item	Description	Qty	Unit	Rate	Total
<u>ITEMISED COSTS</u>					
<u>Costs including preliminaries, design contingencies, building contingencies, escalation and professional fees:</u>					
1	Community sporting facility				2,543,120
2	Site preparation and demolition works				170,000
3	Paths, stairs & vehicle ramp				243,350
4	Additional parking area 4.3				283,830
5	Additional parallel parking (A, B, C)				83,230
6	Utilities/site services including headwork allowances				293,250
7	BBQ/picnic/drink fountain				42,260
8	Landscaping				313,960
9	PV panels				40,000
10	CCTV				60,000
11	Temporary facilities				104,000
12	Oval drainage - underground storage				185,000
13	Power upgrade				50,000
14	Artwork				31,000
					<u>TOTAL</u>
					<u>4,443,000</u>