

Technical Memorandum

Title Flipside Circus – Maritime Precinct
Transport Assessment

Client Economic Development Queensland
(EDQ)

Project No CEB06442A

Date 01/03//2021

Status Final

Author Andy Johnston

Discipline Traffic and Transport

Reviewer Andy Johnston (RPEQ: 24764)

Office Brisbane

1 Introduction

Cardno has been commissioned by Economic Development Queensland (EDQ) to undertake a transport assessment of the Flipside Circus within the Maritime 3 Precinct at Northshore Hamilton, located at the eastern end of the priority development area (PDA).

Flipside Circus is Queensland's largest youth arts organisation. It is a not-for-profit company that delivers:

- > Regular classes and training right across Queensland;
- > An artistic program of performances by, for, and with children and young people;
- > Community and social circus programs;

Support for Queensland's world beating circus artists and companies.

Flipside Circus's training centre will support training, performance, and community programs, as well as supporting circus artists and companies.

The purpose of this technical memorandum is to provide EDQ:

- > Traffic impact assessment focused on the qualitative traffic impacts on the external traffic network
- > Car parking demand required as per the Northshore Hamilton PDA Development Scheme
- > Transport design review focusing on servicing and access to the development and integration with the existing facilities in alignment with BCC TAPS.

1.1 Site Location

Figure 1-1 shows the proposed site location within the overall PDA site. Further details of the specific uses and operation of the proposed site are included in Section 2 of this report.

Figure 1-1 Flipside Precinct Site Location



Source: Nearmap

2 Proposed Maritime Precinct Plan

Flipside is located within the Maritime 3 Precinct, which was previously assessed by Cardno in a Transport Statement dated 7 July 2020. Figure 2-1 indicates the potential land uses which are intended to be accommodated on site and the location of Flipside Circus for context.

Figure 2-1 Proposed Maritime 3 Precinct – Option 1

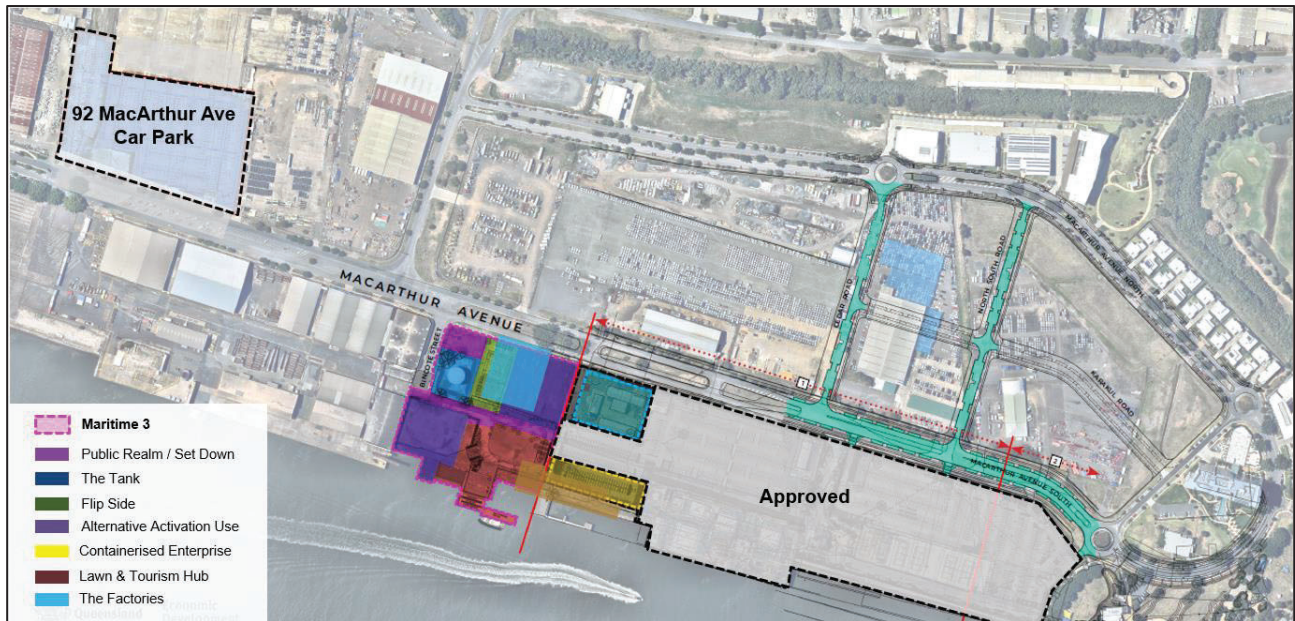


Table 2-1 outlines each land use in the options and the respective site area in square meters (sq.m). There are seven different areas with a total of 26,700 sq.m of site area.

Table 2-1 Land Uses of Maritime 3 Precinct

Area	Land Use	Site Area (sq.m)
Public Realm & Set Down	Community (ancillary)	2,347
The Tank	Community (ancillary)	2,000
Flipside	Indoor recreation	2,000
Alternative Activation Sitea	Community (ancillary)	7,000 (2 x 3,500)
Containerised Enterprise	Office	800
Transitional Public Park	Community	7,800
Total		21,947

2.2 Flipside Circus Operation

2.2.1 Overview of Operations

Flipside Circus previously operated in Alderley and have decided to relocated to a purpose-built facility at Northshore Hamilton. Participants can range in age from 18-months to 60+ years, however are predominately children and young people aged 18-months to 20 years. The majority of circus school programs take place outside of school hours (3.30pm – 8.30pm weekdays and 8am – 4pm Saturdays), with pre-school programs taking place weekday mornings.

The pre-COVID Flipside class schedule has been provided in Appendix A and this has been utilised to assess the future impact of the Flipside Circus at Northshore.

2.2.2 Typical Class Sizes

Information provided to Cardno by Flipside identify that Flipside's circus school had approximately 360 – 400 students enrolled at any given time in 2019. Enrolments at the pop-up site, 33 MacArthur Avenue are running at 200-230 at any given time. For the purposes of this assessment Cardno has assumed that patronage will rise to pre-COVID levels. Further information from Flipside outlines that the following number of students were on site at key class times:

- > Weekdays AM are predicted to have 10 to 20 students per class;
- > Weekdays 3pm to 6pm are predicted have 100 to 125 attendees;
- > Weekdays 6pm to 8pm are predicted have 50 to 75 attendees;
- > Saturdays 8am to 12pm are predicted have 95 to 115 attendees;
- > Saturdays 12pm to 2pm are predicted have 35 to 55 attendees; and
- > Saturdays 2pm to 4pm are predicted have 32 to 64 attendees.

For the purposes of this assessment Cardno has assumed the maximum number of attendees for each time period so as to undertake a conservative assessment.

2.2.3 Staff Numbers

Based on information from Flipside Circus' Alderley operations approximately 21 employees etc would be on site on any week day:

- > 6 administration staff, usual hours 9am – 5pm;
- > 2 tenants onsite, usual hours 9am – 5pm;
- > 1-10 open training participants 10am – 2pm;
- > 5 trainers 3pm – 8pm.

On the weekends training staff only are assumed to be onsite.

2.2.4 Modal Split

The results of travel survey information undertaken by at Flipside Circus' Alderley operation were provided to Cardno and reproduced in Table 2-2 below.

Table 2-2 Flipside Travel Modal Split

Age Group	Drive	Public Transport	Carpool
Adults	75%	15%	10%
Staff	75%	15%	10%
Junior (0-10 years)	85%	5%	10%
Intermediate (11-18 Years) ¹	85%	5%	10%

¹ Note: 50% of parents of 11- 17 year old's drop off and return while 50% stay and park

2.2.5 Typical Weekday Operation Traffic Assessment

Cardno has reviewed the pre-COVID class schedule and used Monday as a baseline for assessment of the future operation. Monday was chosen as it had the highest number of classes and should provide a conservative assessment. Table 2-3 outlines the typical class schedule assessed along with the number of students assumed to use each class.

Table 2-3 Weekday Class Schedule

Class Time	Age Range	Student Numbers	Student Numbers per Class (max)
9:30 - 10:30	Junior (0-10 years)	10 to 20	20
10:35 - 11:30	Junior (0-10 years)	10 to 20	20
15:30 - 16:25	Junior (0-10 years)	100 to 125 between 3pm and 6pm	31
16:30 - 17:30	Intermediate (11-18 Years)		31
16:30 - 18:30	Intermediate (11-18 Years)		31
16:30 - 18:30	Intermediate (11-18 Years)		31
18:30 - 20:30	Adults	50 to 75 between 6pm and 8pm	25
18:30 - 20:30	Adults		25
18:30 - 20:30	Adults		25

Based on the class schedule identified in Table 2-3 and the typical modal split identified in Table 2-3 Cardno has predicted a maximum arrival/departure profile for a typical weekday. This is presented in table 2-4.

Table 2-4 Weekday Arrival Departure Profile

Hour Beginning	Car Trips Arriving	Car Trips Departing	Carpool Trips Arriving	Carpool Trips Departing	PT Trips Arriving	PT Trips Departing
9:00	23	0	3	0	2	0
10:00	25	17	3	2	3	1
11:00	0	17	0	2	0	1
15:00	30	8	4	1	2	2
16:00	120	27	9	3	5	2
17:00	0	46	0	4	0	3
18:00	56	80	8	6	11	3
20:00	0	60	0	8	0	12

The highest traffic movement is predicted to occur between 16:00 and 17:00 and would result in 147 two-way trips during this hour. Given the capacity of the surrounding road network it is unlikely that the impact of these trips would have a significant impact on the operation of the local road network.

2.2.6 Typical Saturday Operation Traffic Assessment

Cardno has reviewed the pre-COVID class schedule and used Monday as a baseline for assessment of the future operation. Monday was chosen as it had the highest number of classes and should provide a conservative assessment. Table 2-3 outlines the typical class schedule assessed along with the number of students assumed to use each class.

Table 2-5 Saturday Class Schedule

Class Time	Age Range	Public Transport	Student Numbers per Class (max)
08:00 - 10:00	Junior (0-10 years)	95 to 115 arriving between 8am and 12pm	38
08:45 - 09:45	Junior (0-10 years)		38
10:00 - 10:55	Junior (0-10 years)		38
10:00 - 12:00	Junior (0-10 years)	35 to 55 arriving between 10 and 1pm	14
10:00 - 12:00	Intermediate (11-18 Years)		14
11:00 - 12:00	Junior (0-10 years)		14
12:00 - 13:00	Junior (0-10 years)	32 to 64 between 1pm and 4pm	14
13:00 - 15:15	Junior (0-10 years)		64

Based on the class schedule identified in Table 2-5 and the typical modal split identified in Table 2-3 Cardno has predicted a maximum arrival/departure profile for a typical Saturday. This is presented in table 2-6.

Table 2-6 Saturday Arrival Departure Profile

Hour Beginning	Car Trips Arriving	Car Trips Departing	Carpool Trips Arriving	Carpool Trips Departing	PT Trips Arriving	PT Trips Departing
8:00	69	0	8	0	5	0
9:00	0	33	0	4	0	2
10:00	62	33	7	4	3	2
11:00	12	33	1	4	1	2
12:00	10	41	1	4	2	2
13:00	82	10	6	1	3	2
15:00	0	85	0	7	0	4

The highest traffic movement is predicted to occur between 10:00 and 11:00 and would result in 95 two-way trips during this hour. Given the capacity of the surrounding road network and the fact that this occurs outside of the Eat Street hours of operation, it is unlikely that the impact of these trips would have a significant impact on the operation of the local road network.

2.2.7 Parking Assessment

Using the car trip arrival departure profiles identified in Tables 2-4 and 2-6 Cardno were able to estimate the parking accumulation for the proposed Flipside Circus at Northshore Hamilton.

Figure 2-2 Weekday Parking Accumulation Estimate

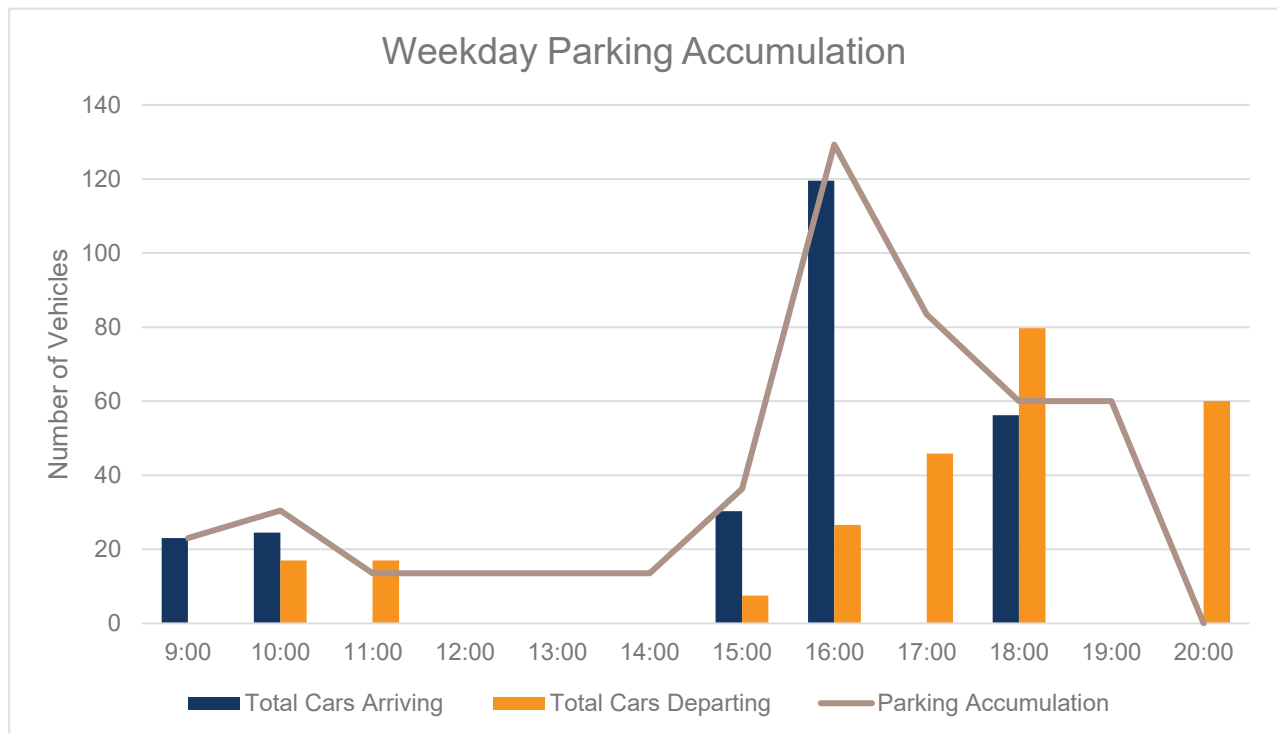
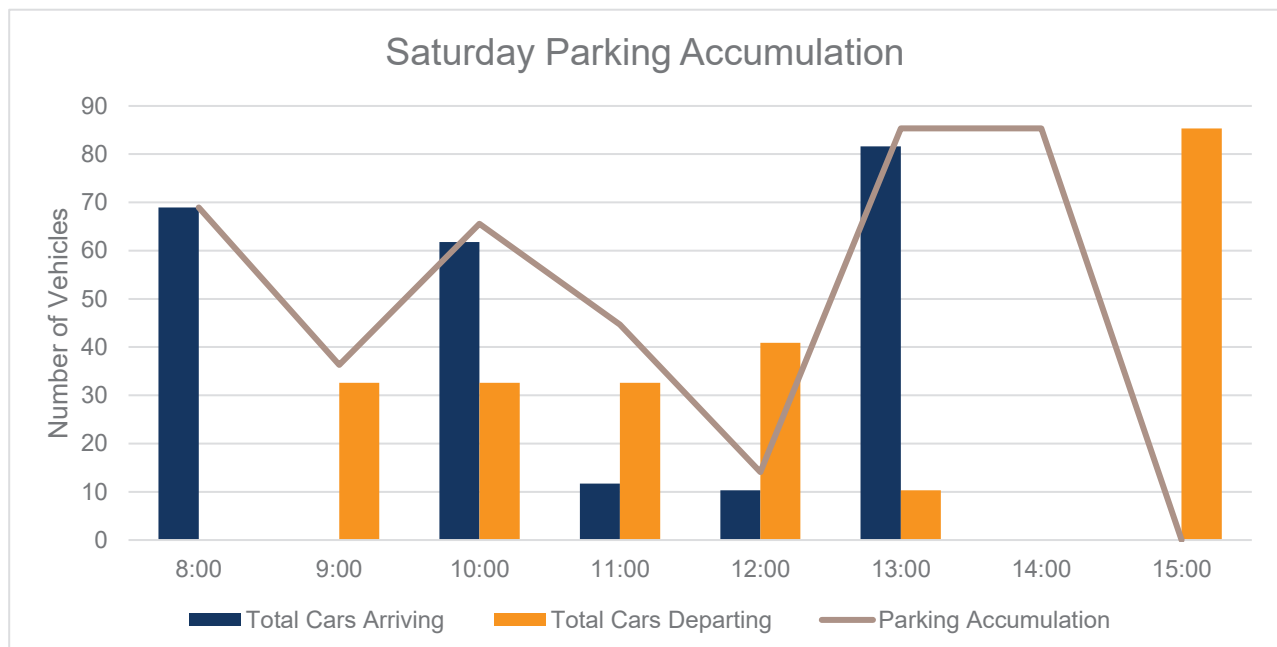


Figure 2-3 Saturday Parking Accumulation Estimate



The parking accumulation assessment outlines that a maximum weekday parking requirement of 129 between 16:00 and 17:00 and a maximum Saturday parking requirement of 85 between 13:00 and 15:00.

2.2.8 Parking Availability

The previous transport study for the Maritime precinct, undertaken by Cardno in 2015, assessed the parking demand for the precinct. Figure 4-3 depicts the proposed development areas assessed in the 2015 report. The parking assessment identified a peak parking demand for the proposed uses as 1,056 spaces. This precinct has been approved for development.

Figure 2-4 2015 Proposed Maritime Precinct Land Use Site Areas



Source: Nearmap

Given the overall maritime precinct, including the Maritime 3 precinct, provides 1,866 parking spaces, there will be sufficient parking to cater for the proposed Flipside Circus users. A summary of the parking requirements is outlined in Table 4-2.

Table 2-7 Maritime Precinct - Parking Requirements and Provision

Area	Minimum Parking Requirement (spaces)	Parking Provision (spaces)
Maritime Precinct (<i>Approved</i>)	1,056	1,254
92 MacArthur Ave	-	612
Maritime 3 Precinct (excluding Flipside)	195	0
Total	1,351	1,866

2.2.9

2.2.10 Flipside Circus Events

Information from Flipside Circus identifies that “*Flipside hosted 15 public events/performances in 2019. These were mostly seated performances with capacities of approximately 150 attendees. The majority of Flipside’s performances took place at other venues (Brisbane Powerhouse, QPAC, Judith Wright Centre).*” They have communicated to Cardno that they plan to increase public events/performances in the new space.

They predict that they would have events which are split between seated performances and other events. They predict that these events would have the following number of visitors attending events:

- > Seated performances – 80-160 attendees
- > Other events – 20-200 attendees

In addition, there would be between 10 to 30 performers at each event. Surveys undertaken by Flipside identified the modal split for these events, these are outlined in Table 2-8.

Table 2-8 Flipside Travel Modal Split

Age Group	Drive	Public Transport	Carpool
Visitors	85%	5%	10%
Performers	70%	25%	5%

The minimum and maximum number of trips associated with each event are outlined in Table 2-9.

Table 2-9 Saturday Arrival Departure Profile

	Car Trips Arriving	Car Trips Departing	Carpool Trips Arriving	Carpool Trips Departing	PT Trips Arriving	PT Trips Departing
Maximum	191	191	21	21	18	18
Minimum	23	23	3	3	3	3

The maximum number of arrival and departure car trips is 193 which would likely arrive and depart in different hours. This would not constitute a major event such as Eat Street or Cirque Du Soleil and would not require specific traffic management.

3 Design Review

3.1 Refuse Collection Facilities

Refuse collection for the proposed development are envisioned to be located in a shared facility which will serve the Maritime Precinct. This facility is proposed to be located on the south west corner of the Factories Precinct with tenants and facilities management taking their bins these to be collected on specified days.

EDQ's Place Management Agents (CBRE) already have a contract in place with JJ Richards to collect refuse from EDQ's "Lawn and Riverfront Area" to the east of Eat Street and also The Factories precinct. This contract will be extended to collect refuse from The Park & other tenancies (including Flipside) can be recharged through outgoings for their use of this service.

The refuse collection vehicles will be able to load in the driveway next to the bin storage area. This will not block off more than half of the access driveway which conforms with guidance in the Brisbane City Council Access Parking and Servicing Planning Scheme Policy. Turnaround facilities will be provided between Maritime 3 and Think Street Precincts. This is shown, along with swept path analysis in drawing CEB06642-SK-28.

3.2 Bus Loading Facility

A swept path assessment was undertaken, refer to drawing CEB06642-25-A attached in Appendix B, which identified the requirements of a 14.5m bus to service the site. The drawing illustrates that with the current design, the coach is able to safely and efficiently manoeuvre through the site.

It should also be noted that this loading facility would likely only be used for event type scenarios and would not be a day to day occurrence at the Maritime Precinct.

3.3 Pedestrian Crossing Facilities

Much of the parking for Flipside is located in the Maritime Precinct to the east of the development. In order to safely access these car parking Cardno has recommended two zebra crossing facilities to be installed along the car parks internal access driveway. The indicative locations of these facilities are shown in CEB06642-SK-28.

3.4 Passenger Set Down Area

A passenger set down area is provided for the precinct (including Flipside) to the west of the flipside development. A swept path analysis and indicative line marking and signage plan is provided in CEB06642-SK-27.

4 Summary

Cardno has been commissioned by EDQ to undertake a transport assessment of the Flipside Circus at Northshore Hamilton, located at the eastern end of the PDA. In terms of the transport aspects of the site, the following conclusions have been determined:

- > The precinct will accommodate a recreational and public events space
- > The parking and access for the site has been designed to ensure access for a 14.5m coach to manoeuvre through the site, to service small scale cultural events
- > A passenger set down area has been provided to the west of the Flipside Circus which will service the Maritime precinct. This has been subject to a swept path analysis and will be appropriately signed and line marked
- > Traffic assessment of the internal road network has determined that the existing road network form will be appropriate to accommodate the weekday peak traffic movements
- > Parking demand assessment has identified that a peak demand of 129 spaces is anticipated for the Flipside Circus, which is adequately accommodated by the overall provision of 1,866 spaces across the Maritime precinct.

Overall, the proposed maritime precinct is considered to be suitably designed to accommodate the design vehicle movements. Sufficient parking is provided on-site and the traffic operations of the existing road network are considered to be acceptable.

APPENDIX

A

FLIPSIDE CLASS SCHEDULE

FLIPSIDE CIRCUS

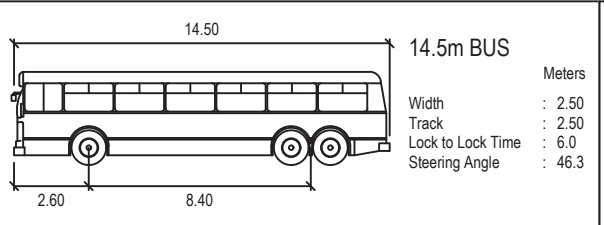
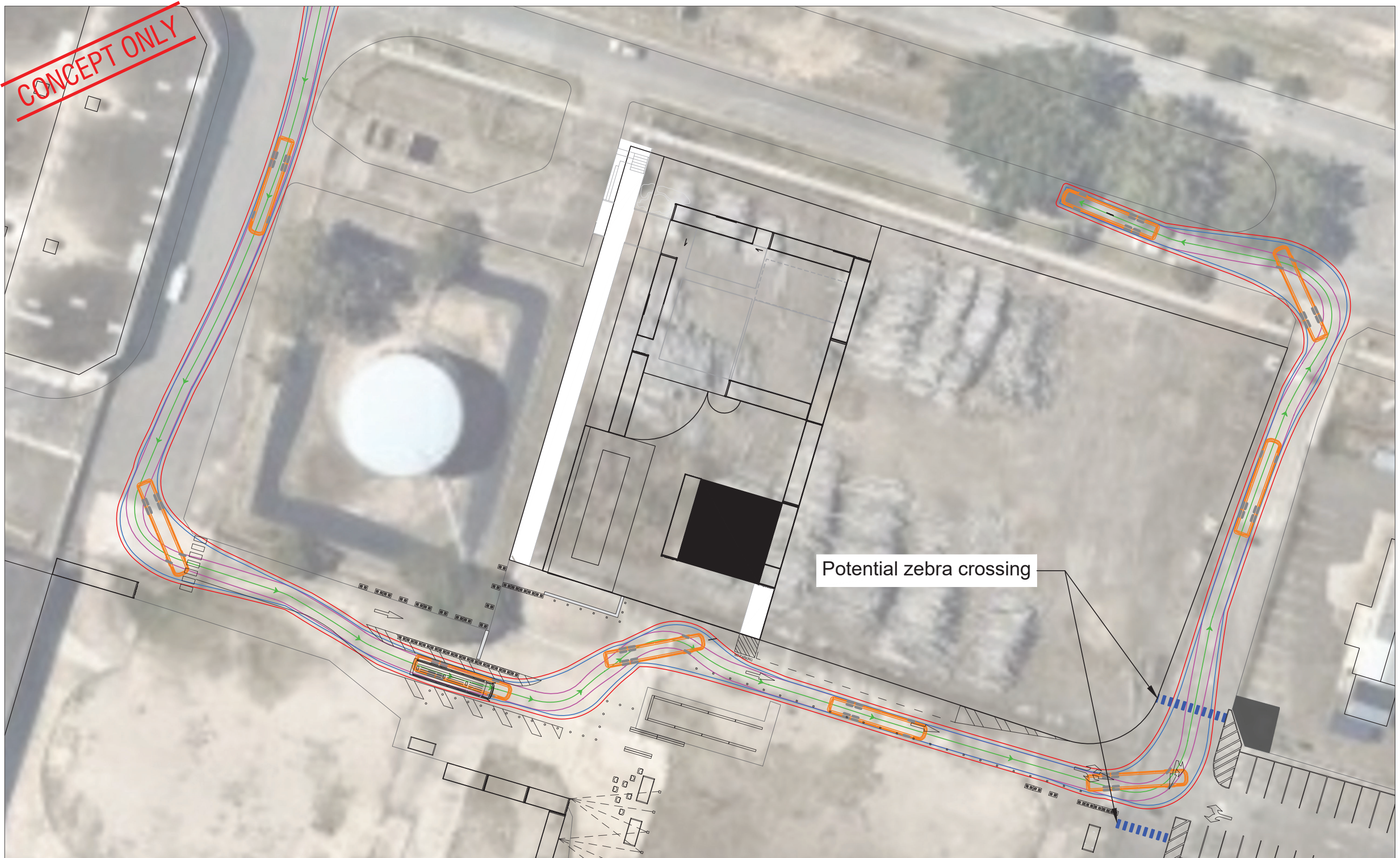
WEEKLY SCHEDULE TERM ONE AND TWO 2020

MONDAY		T1 - 9 Weeks From 3 February – 30 March		T2 - 9 Weeks From 20 April – 22 June	
Class Name	Age Group	Start	Finish	T1 Cost	T2 Cost
Circus Play (& their big person) (\$20 casual classes available)	18 months - 3 years	9:30	10:15	\$135	\$135
Giggles (& their big person) (\$23 casual classes available)	3 - 4 years	10:35	11:30	\$162	\$162
Flipperooos	4 - 7 years	3:30	4:25	\$189	\$189
Taste of Circus	6 - 12 years	4:30	5:30	\$189	\$189
Intermediate Senior 11 - 17 years	11 - 17 years	4:30	6:30	\$378	\$378
Performance Program: Troupe (by audition) Class fee covers all committed training days	8 - 18 years	4:30	6:30	\$860	\$860
*Specialist Class – Intro to Acrobatics	8 - 17 years	6:30	8:00	\$284	\$284
*Specialist Class – Intro to Mixed Aerials	8 - 17 years	6:30	8:00	\$284	\$284
Adults - Mixed Circus (all levels)	18+	6:30	8:00	\$297	\$297
TUESDAY		T1 - 10 Weeks From 28 January – 31 March		T2 - 10 Weeks From 21 April – 23 June	
Performance Program: Step Ups Performance (Tue and Sat) (by invitation)	8 - 17 years	4:00	6:30	\$650	\$650
Performance Program: Troupe (by audition)	8 - 18 years	4:30	7:30	See Monday	
*Specialist Class – Intermediate Mixed Aerials (minimum skill level required)	8 - 18 years	6:30	8:30	\$400	\$400
WEDNESDAY		T1 - 10 Weeks From 29 January – 1 April		T2 - 10 Weeks From 22 April – 24 June	
Flipperooos	4 - 7 years	3:30	4:25	\$210	\$210
Circus Foundations Junior 6 - 10 years (Mid week special rate)	6 - 10 years	4:30	6:30	\$380	\$380
Intermediate Junior 6 - 10 years	6 - 10 years	4:30	6:30	\$420	\$420
Intermediate Senior 11 - 17 years	11 - 16 years	4:30	6:30	\$420	\$420
*Specialist – Advanced acrobatics and tumbling (minimum skill level required)	8 - 17 years	6:30	8:00	\$315	\$315
*Specialist – Juggling & Manipulation – Casual classes available on request. (minimum skill level required)	8 years +	6:30	8:00	\$315	\$315
*Specialist – Advanced Mixed Aerials – (by invitation)	8 - 17 years	6:30	8:30	\$400	\$400
Adults – Hoot Camp (all levels)	18 years +	6:30	8:00	\$330	\$330
THURSDAY		T1 - 10 Weeks From 30 January – 2 April		T2 - 10 Weeks From 23 April – 25 June	
Taste of Circus	6 - 12 years	3:30	4:30	\$210	\$210
Circus Foundations Junior 6 - 10 years (Mid week special rate)	6 - 10 years	4:30	6:30	\$380	\$380
Circus Foundations Senior 11 - 17 years (Mid week special rate)	11 - 17 years	4:30	6:30	\$380	\$380
Performance Program: Troupe (by audition)	8 - 18 years	4:30	7:30	See Monday	
Adults – Intro to Mixed Aerials	18 years +	6:30	8:00	\$330	\$330
Adults – Intermediate & Advanced Mixed Aerials	18 years +	6:30	8:30	\$440	\$440
FRIDAY		T1 - 10 Weeks From 31 January – 3 April		T2 - 10 Weeks From 24 April – 26 June	
Circus Play (& their big person)	18 months - 3 years	9:30	10:15	\$150	\$150
Giggles (& their big person)	3 - 4 years	10:35	11:30	\$180	\$180
Risky Business - Teens	12 - 18 years	4:30	6:30	\$420	\$420
SATURDAY		T1 - 10 Weeks From 1 February – 4 April		T2 - 9 Weeks From 2 May – 27 June	
Circus Foundations Junior 6 - 10 years	6 - 10 years	8:00	10:00	\$420	\$378
Giggles (& their big person)	3 - 4 years	8:50	9:45	\$180	\$162
Flipperooos	4 - 7 years	10:00	10:55	\$210	\$189
Taste of Circus	6 - 12 years	11:00	12:00	\$210	\$189
Intermediate Junior 6 - 10 years	6 - 10 years	10:00	12:00	\$420	\$378
Intermediate Senior 11 - 17 years	11 - 17 years	10:00	12:00	\$420	\$378
Explore the Possibilities	3 - 10 years	12:00	1:00	\$550	\$495
Performance Program: Step Ups Skills (by invitation)	8 - 17 years	1:00	3:30	\$420	\$378
Performance Program: Step Ups Performance (Tue and Sat) (by invitation)	8 - 17 years	1:00	3:30	See Tuesday	
FLYING TRAPEZE					
Mixed flyers (Intro to Advanced) 7 Weeks Saturday 1 February to 14 March	6 - 17 years	11:00	12:30	\$315	\$315
Beginner flyers 4 Weeks Saturday 22, 29 February, 7 and 14 March	6 - 17 years	9:00	10:30	\$180	\$180
Teen flyers (Fly Club) 7 Weeks Thursday 30 January to 12 March	12 - 17 years	6:00	7:30	\$315	\$315

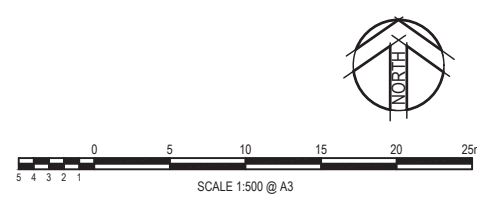
APPENDIX

B

SWEPT PATH DRAWINGS



SWEPT PATH LEGEND	
	VEHICLE BODY
	FRONT TIRES
	VEHICLE PATH
	VEHICLE CLEARANCE (500mm)
	VEHICLE

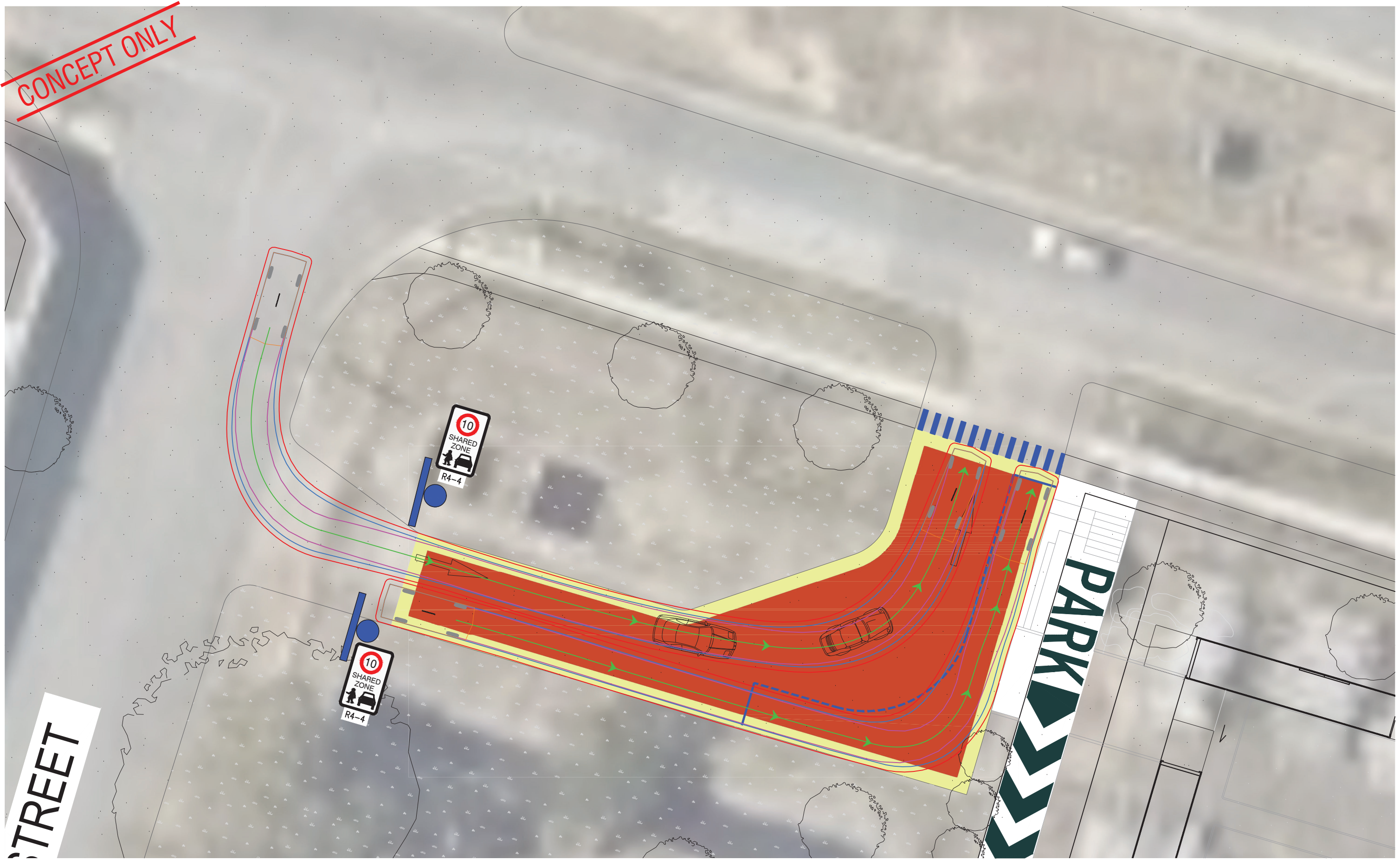


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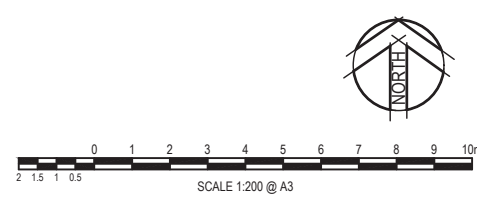


Cardno (Qld) Pty Ltd | ABN 57 051 074 992
Level 11, 515 St Paul's Terrace
Fortitude Valley, QLD 4006
Tel: 07 3369 9822 Fax: 07 3369 9722
Web: www.cardno.com.au

Economic Development Queensland				
Northshore Hamilton				
Maritime Precinct				
Bus Swept Path				
Drawn T.Islam	Date 01/03/2021	Scale 1:500	Size A3	Revision A
Drawing Number CEB06642 - SK25				



CAD File: G:\CEB06642 - Hamilton North\Shore\6642 - ACAD\CEB06642-Maritime Precinct Concept.dwg
Imagery supplied by nearmap, January 2021



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Economic Development Queensland			
Northshore Hamilton			
Maritime Precinct			
B99 Swept Path			
Drawn T.Islam	Date 12/01/2021	Scale 1:200	Size A3
Drawing Number CEB06642 - SK27			Revision A

CONCEPT ONLY

TIMBER YARD

Potential zebra crossing

Future Refuse collection Hub

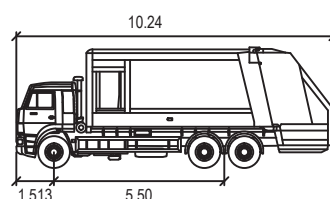
THE FACTORIES

MARITIME 03 PARK

ss in south east corner of the development

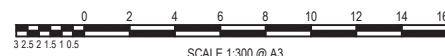
SWEPT PATH LEGEND

- VEHICLE BODY
- FRONT TIRES
- VEHICLE PATH
- VEHICLE CLEARANCE (500mm)
- VEHICLE



* TAPS Code Rear Lift

	Meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 40.3
Travel Height	: 3.6
Operating Height	: 3.6



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Fortitude Valley, QLD 4006
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Economic Development Queensland
Northshore Hamilton
Maritime Precinct
Rear Loader 10.24m Swept Path

Drawn T.Islam	Date 01/03/2021	Scale 1:300	Size A3
Drawing Number CEB06642 - SK28			Revision B