TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS

RESPONSE TO REQUESTS FOR INFORMATION (RFI)

Proposed Waste Management facility (SSD-62855708)
2-4 Hale Street, Botany

Reference: 23.464r07v05
Date: September 2025

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DOCUMENT VERIFICATION

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1. INTRODUCTION

1.1 Overview

TRAFFIX has undertaken a detailed review of comments received from the Department of Housing and Infrastructure (DPHI) dated 4th June 2025 and Bayside Council dated 12 May 2025 in relation to the subject State Significant Development (SSD) application (SSD-62855708) involving the proposed Construction and Demolition (C & D) waste management facility located at 2-4 Hale Street, Botany. TRAFFIX responses to both agencies' comments are provided in this report also having regard for a meeting which occurred with TRAFFIX, Council, the DPHI and the client on Tuesday 29 July and a separate meeting which occurred prior to the abovementioned meeting with the DPHI on Wednesday 16 July 2025. TRAFFIX has also provided email responses to subsequent correspondence received from Council dated 22nd September 2025 as discussed in Section 3.3 below..

1.2 Executive Summary

- The proposed development equates to a net reduction of nine (-9) vehicle trips per hour during the critical weekday morning and afternoon network peak periods when accounting for the approved operation currently in affect.

  Passenger Car Units (CPU's) are not to be confused with trip generation. CPU's refer to a parameter in transport modelling used to account for impacts of non-standard vehicles on traffic flows within a model and are not to be used to calculate vehicle trip generation, which is calculated in nominal terms, independently of the class of vehicle.

- Transport for NSW (TfNSW) have no further requirements and are not opposed to the subject development in terms of traffic impacts on the surrounding road network in accordance with their correspondence letter dated 30 August 2024 (TfNSW Reference: SYD24-00365/02).

- All queuing will be accommodated within the subject site with minimal (if any) impacts to the surrounding road network.

2. RESPONSE TO DPHI COMMENTS

TRAFFIX has been forwarded the most recent set of comments from DPHI as contained in their letter dated 4 June 2025.

TRAFFIX has reviewed all relevant comments and has responded to each item below. This is with reference to the revised Traffic Impact Assessment (TIA) report, which accompanied the amended SSD application (Ref: 23.464r01v14 dated 20 March 2025) which was prepared to address the first round of comments from both DPHI and Council.

It is emphasised that Transport for NSW (TfNSW) has confirmed that there are no further requirements, and the proposed development is unlikely to have a significant impact on the classified road network in their letter dated 30 August 2024 (TfNSW Reference: SYD24-00365/02).

DPHI Comment Summary Table

DPHI Comment	Relevant Section Addressed in TIA
Section 9.2.4 "In addition to the peak cumulative vehicle trip generation estimates provided, please provide total daily heavy vehicle and light vehicle movements for the development."	Section 9.2.4
Section 9.5.5 Hale Street and Foreshore Road Intersection "It is unclear why the SIDRA INTERSECTION modelling results for the future year (with and without the development) result in an improvement in the degree of saturation, average delay and the level of service predicted as compared to the base case (with and without the development). Please provide further commentary to explain this."	Section 9.5.5
Section 9.5.7 Hale Street and Site Access Driveways Intersections "The commentary under Table 15 states that both site access driveways are expected to operate 'satisfactorily' under the assessment scenarios, even though the Hale St / heavy vehicle access driveway intersection is predicted to operate at a Level of Service D, which is defined as 'operating near capacity' in	Section 9.5.7

TfNSW guidance. This should be corrected and addressed as appropriate."	
Appendix E – Swept Path Analysis "The swept path analysis shows the movement of a B-double exiting the site on a separate drawing to the swept path of a B-double accessing the site. It is not possible to determine if there will be any conflicts if these two movements occur simultaneously. Please provide a plan that shows a B- double entering and exiting the site simultaneously demonstrating that this movement can occur safely and without any conflict to either vehicle or on-street parking, and without crossing the centreline of Hale Street."	Appendix E
Email from NSW Ports dated 8th May 2025 provided in **Attachment 1** for reference.	Section 9.8 and Appendix E of the TIA Reference should also be made to TRAFFIX response to the DPHI email outlined in Section 2.2 below responding to how all trucks will be accommodated onsite without queuing of vehicles affecting the surrounding road network.

2.1 DPHI Comments Dated 4th June 2025

2.1.1 Section 9.2.4 Cumulative Heavy Vehicle Trip Generation

In addition to the peak cumulative vehicle trip generation estimates provided, please provide total daily heavy vehicle and light vehicle movements for the development.

TRAFFIX Response:

The total daily heavy vehicle trip generation estimates are contained in Table 9 and 10 of the amended TIA and summarised below:

A total of 350 heavy vehicle movements per day, comprising:

- 135 inbound Heavy Rigid vehicles;
- 8 inbound articulated vehicles;

- 14 outbound truck and dog combinations; and,
- 18 outbound semi-trailer combinations.

Separately, daily light vehicle movements are estimated as follows:

A total of 66 light vehicle movements per day based on the following assumptions:

- Three (3) shifts over the day; and,
- All 11 staff spaces are fully utilised for each shift. Noting this is unlikely to occur for all three shifts especially the night shift so this is assumption is considered conservative.

Visitor traffic, consisting solely of light vehicles, is expected to be minimal and sporadic. In the context of this assessment, it is considered negligible given the conservative assumptions already adopted for staff vehicle movements.

It should be appreciated that daily vehicle movements are not considered necessary for the purposes of traffic impact assessment, which appropriately focuses on the critical AM and PM commuter peak periods when the road network is under the greatest demand.

2.1.2 Section 9.5.5 Hale Street and Foreshore Road Intersection

It is unclear why the SIDRA INTERSECTION modelling results for the future year (with and without the development) result in an improvement in the degree of saturation, average delay and the level of service predicted as compared to the base case (with and without the development). Please provide further commentary to explain this.

TRAFFIX Response:

SIDRA modelling of the Hale Street and Foreshore Road intersection under both existing and existing plus development scenarios has been calibrated to current conditions. This calibration includes allocating additional green time to the lower order road (Hale Street) to achieve a satisfactory Level of Service (LoS) D, directly addressing Council's earlier concerns regarding traffic modelling.

This approach also highlights that even minor improvements to the lower order road can induce a notable increase in the intersection's overall Degree of Saturation (DoS), Average Vehicle Delay (AVD), and consequently worsen the LoS.

When the SIDRA model is processed for future year scenarios for sensitivity testing, the signal cycle time defaults to the "Practical Cycle Time." In such cases, the model logically allocates more green time to the critical classified road network to accommodate expected background traffic growth. This results in longer delays on Hale Street which carries substantially fewer vehicles but has a relatively minor impact on the operation of the overall intersection and the wider road network. In fact, this configuration improves overall intersection performance, achieving a better DoS, lower AVD, and an improved LoS compared to the existing condition that attempts to prioritise the lower order road at the expense of the broader road network operation.

In any event, both the existing and existing plus development scenarios are expected to operate satisfactorily at LoS C or better, depending on the adopted cycle time. This confirms that the intersection will continue to perform acceptably in accordance with the TfNSW Guide to Traffic Impact Assessment (2024), and that external infrastructure upgrades are not required from a traffic engineering perspective to accommodate the proposed development.

2.1.3 Section 9.5.7 Hale Street and Site Access Driveways Intersections

The commentary under Table 15 states that both site access driveways are expected to operate 'satisfactorily' under the assessment scenarios, even though the Hale St / heavy vehicle access driveway intersection is predicted to operate at a Level of Service D, which is defined as 'operating near capacity' in TfNSW guidance. This should be corrected and addressed as appropriate.

TRAFFIX Response:

The objective of the SIDRA modelling for the site access driveway is to ensure that any delays on the public road resulting from vehicles decelerating to turn into the site remain within acceptable tolerances, and that the 95th percentile queue based on the estimated traffic exiting the site can be appropriately accommodated within the site boundaries. The modelling is not intended to determine the "capacity" of the vehicular access driveway itself. Rather, the focus is on ensuring the public road maintains a Level of Service (LoS) A to minimise any impacts on the wider road network, while any delays or queuing within the site are considered operational matters. These internal operations have been separately assessed and demonstrated to be fully accommodated within the site boundaries.

2.1.4 Appendix E – Swept Path Analysis

The swept path analysis shows the movement of a B-double exiting the site on a separate drawing to the swept path of a B-double accessing the site. It is not possible to determine if there will be any conflicts if these two movements occur simultaneously. Please provide a plan that shows a B- double entering and exiting the site simultaneously demonstrating that this movement can occur safely and without any conflict to either vehicle or on-street parking, and without crossing the centreline of Hale Street.

TRAFFIX Response:

The swept path analysis provided in **Appendix C** of the amended TIA has been separated in response to earlier Council comments to prevent further misinterpretation of the swept path diagrams raised in the first round of comments.

It should also be corrected that a vehicle entering the site and a vehicle exiting the site cannot occur "simultaneously" under Rule 74 of Australian Road Rules (ARR), reproduced below:

> *ARR Rule 74(2):*
>
> *A driver entering a road from a place that is not a road (such as a driveway, carpark, or private property) must give way to—*
>
> *(a) any vehicle travelling on the road or turning into the road; and*
>
> *(b) any pedestrian on the footpath, or a path or nature strip that the driver crosses to enter the road.*

Having considered the above, **Figure 1** below clearly demonstrates a 26m B-double vehicle will be able to satisfactorily enter the site whilst another 26m B-double vehicle is waiting to exit the site, under conservative operational assumptions.

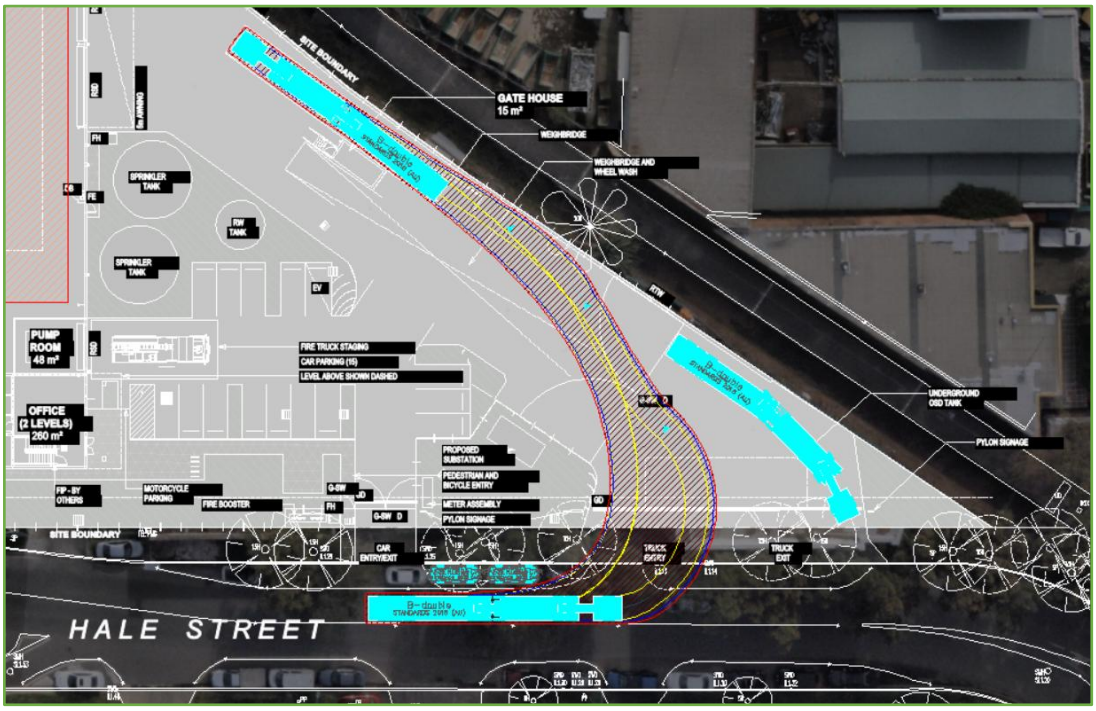


Figure 1: 26m B-Double Vehicle Entering the Site

2.2 DPHI Email Response Dated 29th July 2025

In addition to the above, TRAFFIX received the following correspondence from DPHI on 29th July 2025 and TRAFFIX provided the following responses:

"***Traffic:***

- *Clear evidence-based demonstration that the proposed development will generate less traffic than the existing site, taking into account the differences in vehicle sizes. This should be presented in a table format utilising PCU values per hour for daily and peak hour movements for the existing and proposed development*"

TRAFFIX Response:

Passenger Car Unit (PCU) is a parameter in SIDRA used to improve the accuracy of the model by accounting for the unique impacts various vehicles have on traffic flows within the model. The PCU parameter accounts for the fact that a heavy vehicle requires additional time and distance to accelerate and brake and adopting this (PCU) parameter improves the accuracy of the model by taking into account these unique heavy vehicle operating characteristics

when assessing intersection performance. The PCU parameter is NOT a mechanism to assess a development's vehicle trip generation potential. Vehicle trips are assessed in terms of vehicle trips in nominal terms, regardless of vehicle type, to accurately reflect the number of vehicle movements generated by the development.

The proposition of applying a PCU factor to assess vehicle trip generation has no utility or meaning. Indeed, TfNSW Guidelines does not distinguish between heavy vehicle and light vehicle trips when assessing the traffic generating potential of a development and it cannot be used as an input in the SIDRA model in place of nominal vehicle trips. Hence, it is clear the subject development will generate less traffic than the existing approved development as assessed in the TIA prepared by TRAFFIX.

- *"Details of management measures / contingencies to be adopted to ensure queuing does not occur on the site in the event of a malfunction or breakdown or other unexpected operational scenario. Coombes must commit to implementing these measures as part of an operational traffic management plan – where possible, the effectiveness of these measures is to be documented based on existing KLF operational experience"*

TRAFFIX Response:

The above measures and contingencies are to be addressed by the operator separately.

- *"clear evidence-based demonstration that the queue of trucks on the site will continue to move despite unloading stages taking longer than the incoming vehicle inspection stages. This should include truck dwell time data for review"*

TRAFFIX Response:

All onsite truck movements will be managed to ensure unacceptable queuing of vehicles does not occur onsite. The queuing analysis prepared by TRAFFIX clearly demonstrates that a minimum of seven (7) articulated vehicles can be accommodated onsite at any one time and that this entire process takes less than 10 minutes even after accounting for the length of time required to proceed though all stages of the queue, regardless of the time each individual stage takes to process based on the stage processing times provided to TRAFFIX which are understood to be conservative. That is, the subject development can accommodate a minimum of 42 vehicles per hour, and the peak arrival rate is 13 vehicles per hour. The queuing analysis provided by TRAFFIX shows there is effectively a 0% change of seven (7) vehicles

queuing onsite, there is even less chance of seven (7) articulated vehicles queuing onsite and even if this extremely unlikely event were to occur, truck arrivals can be managed onsite by the operator to ensure additional vehicles do not access the site in the event of queuing saturation. The above has been confirmed by the operator in the meeting held with Council on Monday 28th July based on the operators' extensive experience managing other similar developments.

- *"Details of how trucks collecting waste will not conflict with incoming vehicles unloading waste – to be supported by commentary and figures clearly demonstrating how this will be achieved."*

TRAFFIX Response:

Reference should be made to the swept path analysis provided in **Attachment 3** showing the satisfactory truck movements to / from the proposed breakdown bay. Implementation of measures as part of an operational traffic management plan is an enforcement matter is to be addressed by the operator.

2.3 DPHI Email Response Dated 8th August 2025

In addition to the above correspondence outlined in Section 2.2, TRAFFIX received the following correspondence from DPHI on 8th August 2025 and TRAFFIX provided the following response:

DPHI correspondence dated 8th August 2025"

"Other traffic consultants have used the PCA comparison approach to demonstrate traffic impacts from existing versus proposed developments.

For example the Talavera Road Multi-level Warehouse https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-46011220%2120230209T041054.045%20GMT

A similar analysis has been requested for the ALDI Automated Distribution Centre currently under assessment.

In terms of on-site queuing, please also refer to the Minto Resource Recovery Facility and Mortdale Resource Recovery Facility applications. On-site queuing was a key issue for these

assessments. Please use these to also inform your response on this issue to ensure the response is clearly presented and consistent with assessments carried out for other RRFs. It is noted the information provided by the Applicants for these applications gave a very clear indication of how trucks would be able to queue and manoeuvre around the site, including details of the tip and spread area and a truck 'stacking plan', and details of how incoming waste vehicles unloading at the site would avoid waste collection vehicles to be loaded at the site. An a-typical, worst-case scenario was also assessed to demonstrate how queuing would be avoided on the public road network."

TRAFFIX provided the following response on 8th August 2025:

TRAFFIX Response:

The fact the ASON report prepared for Talavera Road expresses traffic volumes in PCU's has no significance in terms of how traffic generated by a development is ultimately assessed. The ASON report seems to have adopted PCU's to demonstrate a point that traffic generated by the development would also result in a lower vehicle flow rate when accounting for PCU's (for what reason I am unsure, presumably because they have elected to incorrectly asses traffic generation based on PCU's to prove a theoretical point), however this has no relevance when assigning vehicle trips generated by the subject development to the surrounding road network. Vehicle trip generation is still assessed based on nominal vehicle trips, regardless of vehicle size.

Austroads Guidelines refers simply refers to the fact that traffic flows are more accurately assessed when accounting for PCU's when undertaking a capacity analysis of surrounding roads and intersections, which is what the SIDRA model has already done based on a PCU factor of 2.5 which has been applied for heavy vehicles. We cannot apply a PCU factor of 2.5 for heavy vehicles AND incorrectly add additional trips based on PCU's. Again, this practice is not referred to in the TfNSW Guidelines.

3. RESPONSE TO COUNCIL COMMENTS

3.1 Council Letter Dated 12 May 2025

TRAFFIX has been forwarded the most recent set of comments from Council concerning the proposal as contained in their letter dated 12 May 2025.

TRAFFIX has reviewed all relevant comments and has responded to each item below. This is with reference to the revised Traffic Impact Assessment (TIA) report, which accompanied the amended SSD application (Ref: 23.464r01v14 dated 20 March 2025) which was prepared to address the first round of comments from both DPHI and Council.

It is reiterated that Transport for NSW (TfNSW) has confirmed that there are no further requirements, and the proposed development is unlikely to have a significant impact on the classified road network in their letter dated 30 August 2024 (TfNSW Reference: SYD24-00365/02).

Council Comment Summary Table

Council Comment	Relevant Section Addressed in TIA
a) The queueing experienced on Hale Street on the approach to the intersection of Hale Street and Foreshore Road is unacceptable. Council notes there is no realistic ability to upgrade the intersection as that would require upgrading the bridge. However, it is possible to improve the traffic signal cycle times to improve the level of service of the Hale Street approach to the intersection by implementing minimum cycle limits in SCATS. The applicant needs to investigate the feasibility of this with TfNSW.	Section 9.7
b) The queueing analysis is incorrectly calculated as an M/M/7 scenario. Realistically, there are two separate queues which follow in series: c) i. The initial entry and spotter inspection, which is an M/M/7 scenario, and; ii. The subsequent procedure, which includes pre-operational weighing on the weighbridge, manoeuvring into site, offloading waste material, manoeuvring out and post-operational weighing, which is an M/M/1 scenario since only one weighbridge	Section 9.8

is present and the site cannot offload material from multiple trucks at once. d) Therefore, the service time (T) in Appendix D is incorrect. Additionally, the queue is likely to grow since the subsequent procedure (after entry and spotter inspection) would take 9m30s, and trucks arrive at a rate of one truck every 4m36s (assuming best case- uniformly distributed arrival time). Hence, the flow of vehicles through the development is likely to take far longer to process and will likely result in queues of vehicles extending onto the road network. This site is very constrained as truck arrival and departure is serviced by a single lane road with a relatively short length that does not offer any other circulation options (given large trucks such as B- Doubles cannot use the roundabout to turn around or drive anywhere else to circulate). So, if the site becomes full of trucks and additional trucks arrive, there is nowhere else for trucks to go other than wait on the road resulting in intolerable congestion.	
e) A plan showing seven (7) 25.0m – 26.0m B-Doubles as part of Appendix E. as identified in Section 9.8, Drawing 23.464 TX.02 is titled "Site Circulation and Queueing", but does not show where vehicles can queue. Additionally, a bottleneck effect is likely to occur since a truck might park another truck in while waiting.	Appendix E
f) Council requests for the Traffic Engineer to confirm that the SIDRA modelling has been undertaken as a network model including all modelled intersections, as opposed to separated intersection models, to confirm that queueing is not expected to occur over key intersection/ site accesses.	Section 9.5.4
g) The basis for the "truck on site dwell times" listed on Table 17 (page 16 of the TIA) shall be confirmed. It is not appropriate to provide this data without providing evidence such as a case study of footage of a similar site. The truck dwell times need to be firmly substantiated by supporting evidence as these truck dwell times in the TIA appear to be very short.	Section 9.8
h) The dimensions of the Large Truck as identified in SIDRA must be confirmed, either in the form of PCUs, or length (m), to ensure that the dimension of the Large Truck is representative of the average vehicle servicing the site	Appendix C

3.2 Council Comments

3.2.1 Traffic Impacts

a) The queueing experienced on Hale Street on the approach to the intersection of Hale Street and Foreshore Road is unacceptable. Council notes there is no realistic ability to upgrade the intersection as that would require upgrading the bridge. However, it is possible to improve the traffic signal cycle times to improve the level of service of the Hale Street approach to the intersection by implementing minimum cycle limits in SCATS. The applicant needs to investigate the feasibility of this with TfNSW

TRAFFIX Response:

The performance of a signalised intersection is required to be assessed based on the overall performance of the intersection in accordance with TfNSW Guidelines, not a single approach. TfNSW would need to agree to implement any changes to SCATS since they are the authority responsible for the management and operation of all signalised intersections. TfNSW will not change signal timings to improve the performance of a minor approach, nor should they, as priority is always given to the traffic along the primary road. Furthermore, TfNSW have no further comments. Importantly, the subject development is not making the existing traffic situation worse, it is improving the situation by removing traffic from the network, including the approach along Hale Street.

In addition, the model prepared by TRAFFIX did NOT discount the traffic generated by the existing development (currently operational). That is, the net traffic (existing minus proposed) was not assessed and was conducted to provide a conservative assessment of the potential impacts at the above intersections.

b) The queueing analysis is incorrectly calculated as an M/M/7 scenario. Realistically, there are two separate queues which follow in series:

i. The initial entry and spotter inspection, which is an M/M/7 scenario, and;

ii. The subsequent procedure, which includes pre-operational weighing on the weighbridge, manoeuvring into site, offloading waste material, manoeuvring out and post-operational weighing, which is an M/M/1 scenario since only one weighbridge is present and the site cannot offload material from multiple trucks at once.

Therefore, the service time (T) in Appendix D is incorrect. Additionally, the queue is likely to grow since the subsequent procedure (after entry and spotter inspection) would take 9m30s, and trucks arrive at a rate of one truck every 4m36s (assuming best case- uniformly distributed arrival time).

Hence, the flow of vehicles through the development is likely to take far longer to process and will likely result in queues of vehicles extending onto the road network. This site is very constrained as truck arrival and departure is serviced by a single lane road with a relatively short length that does not offer any other circulation options (given large trucks such as B- Doubles cannot use the roundabout to turn around or drive anywhere else to circulate). So, if the site becomes full of trucks and additional trucks arrive, there is nowhere else for trucks to go other than wait on the road resulting in intolerable congestion.

TRAFFIX Response:

The queuing assessment that has been undertaken is not an M/M/7 queue, it is a staged M/M/1 queue since only one truck can be serviced at any one time at each stage within the queue. Arrivals are not uniformly distributed as inferred by Council, rather they are random arrivals based on a Poisson distribution model and truck arrivals are assessed in terms of probabilities rather than a uniform arrival rate, which is how the queuing assessment has been undertaken in accordance with Austroads Guidelines. Expressing truck arrivals as uniform arrivals per unit of time, even in the misguided attempt to prove a theoretical point, has no relevance in terms of how the queuing assessment is undertaken. In short, the queuing assessment undertaken by TRAFFIX clearly demonstrates the 98th percentile queue is comfortably accommodated onsite.

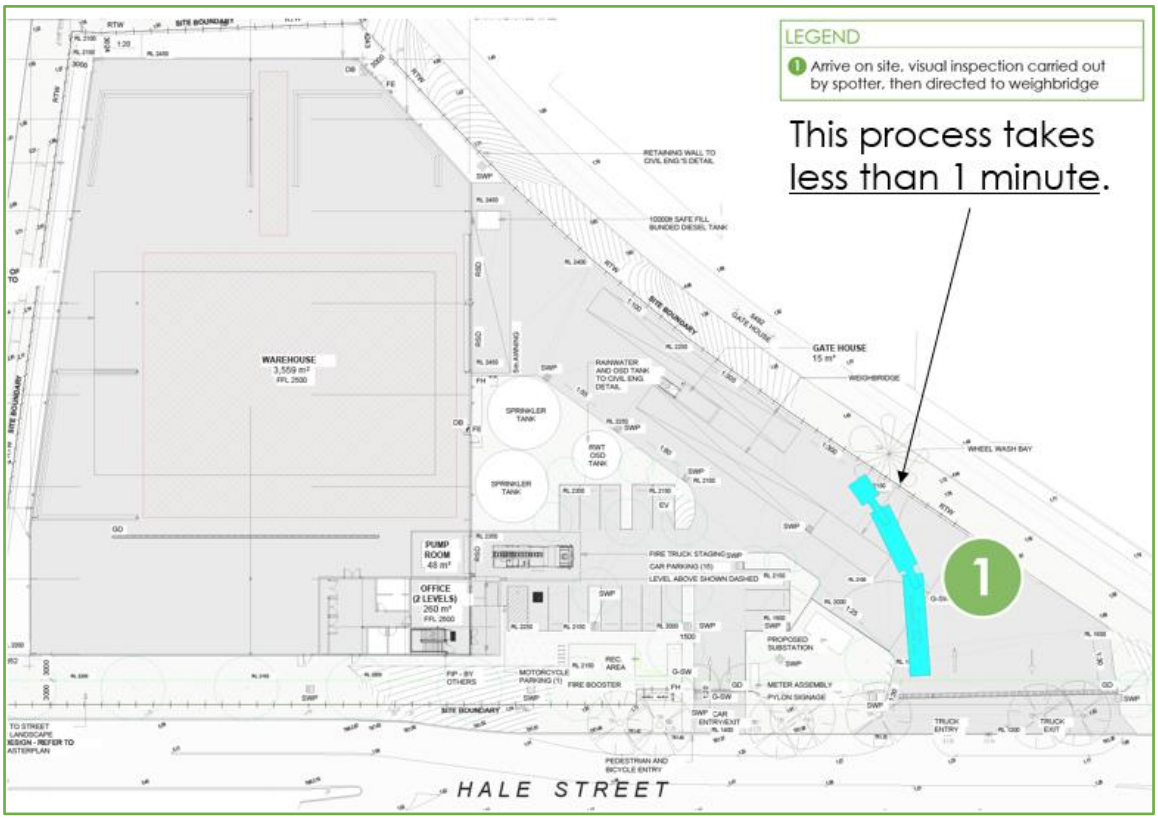
The queuing assessment undertaken by TRAFFIX represents the actual operational flow on site. The operations occur in a controlled, sequential, and integrated manner, supported by multiple service points (e.g., weighbridges, bays), allowing several trucks to be processed simultaneously within a unified system.

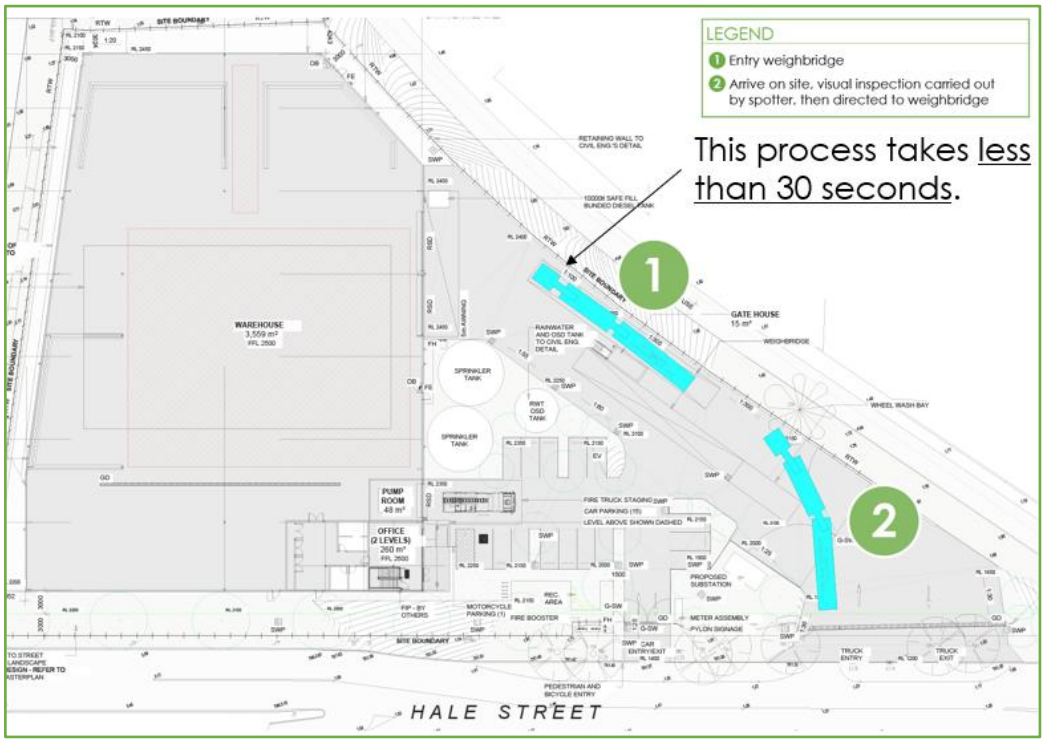
The entire process, including pre-weighing, manoeuvring, offloading, and post-weighing follows a structured and predictable sequence. This setup supports parallel processing, which has been accurately captured, reflecting the coordinated and managed nature of operations.

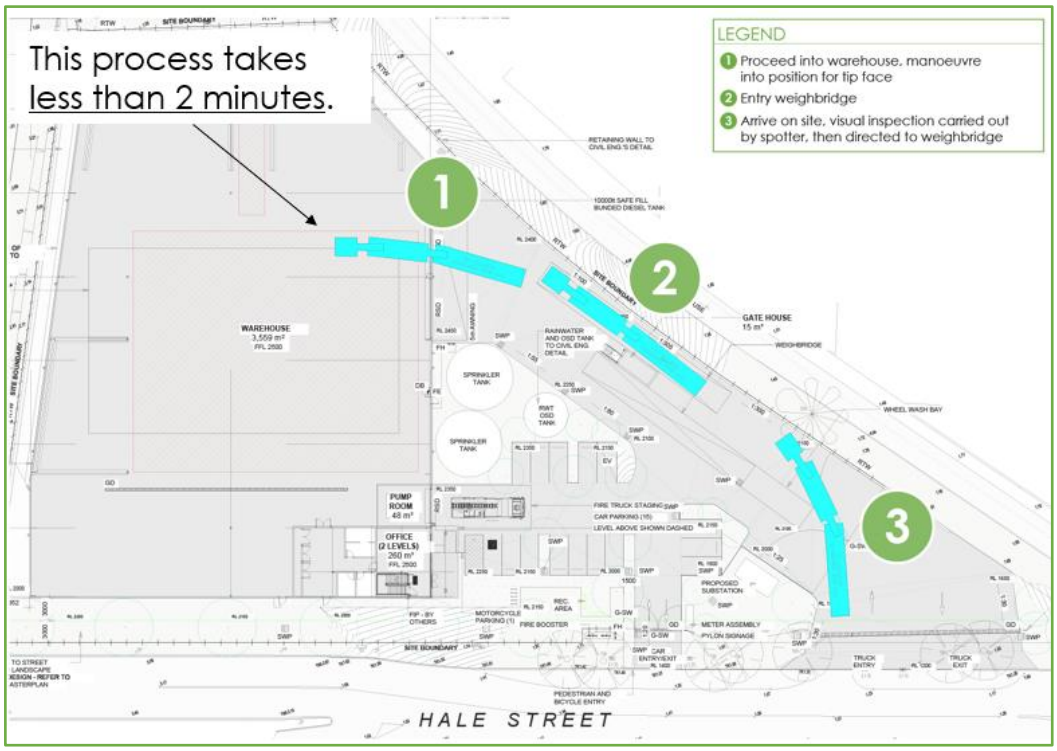
Site personnel will actively manage truck movement through the process to optimise flow and minimise idle time, ensuring efficient use of the available service points.

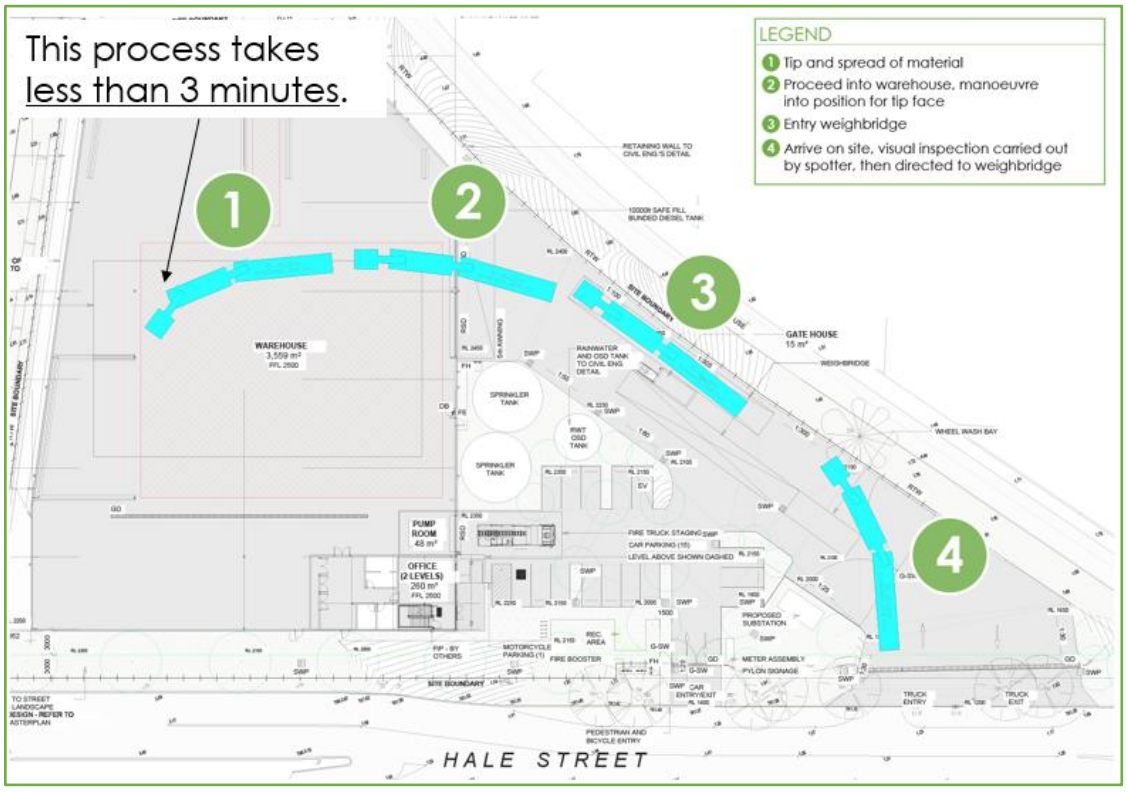
For clarity, the time it takes to complete each stage within the queue process is demonstrated in the below diagrams. It is evident the entire process takes less than 10 minutes to process at least 7 vehicles, and therefore a service rate of 42 vehicles per hour (which is the rate adopted in the queuing analysis which accompanied the TIA) is valid and is based on very conservative

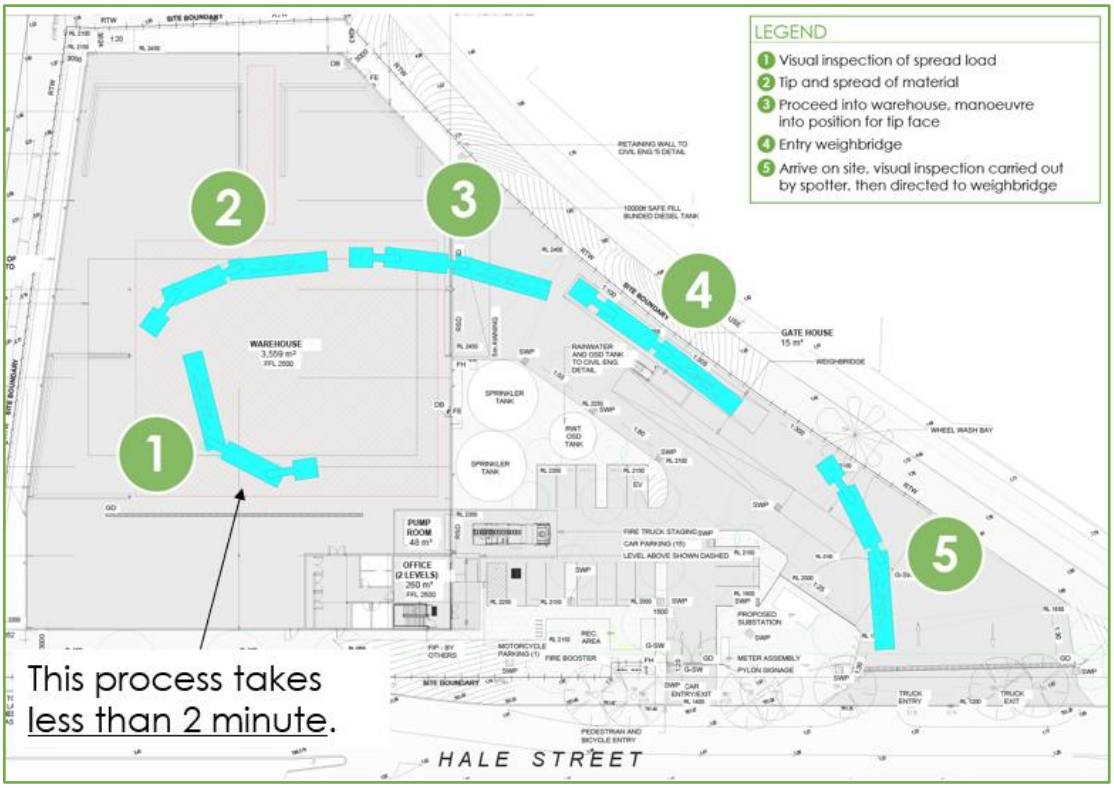
inputs whereby seven (7) B-doubles are queued onsite which will statistically never occur. It is emphasised that Council has also concluded that queuing is unlikely to impact the surrounding road network as detailed in the conclusion of their correspondence provided in **Attachment 2**, notwithstanding Council's methodology underpinning their analysis, which was not undertaken in accordance with Austroads Guidelines and has no relevance.

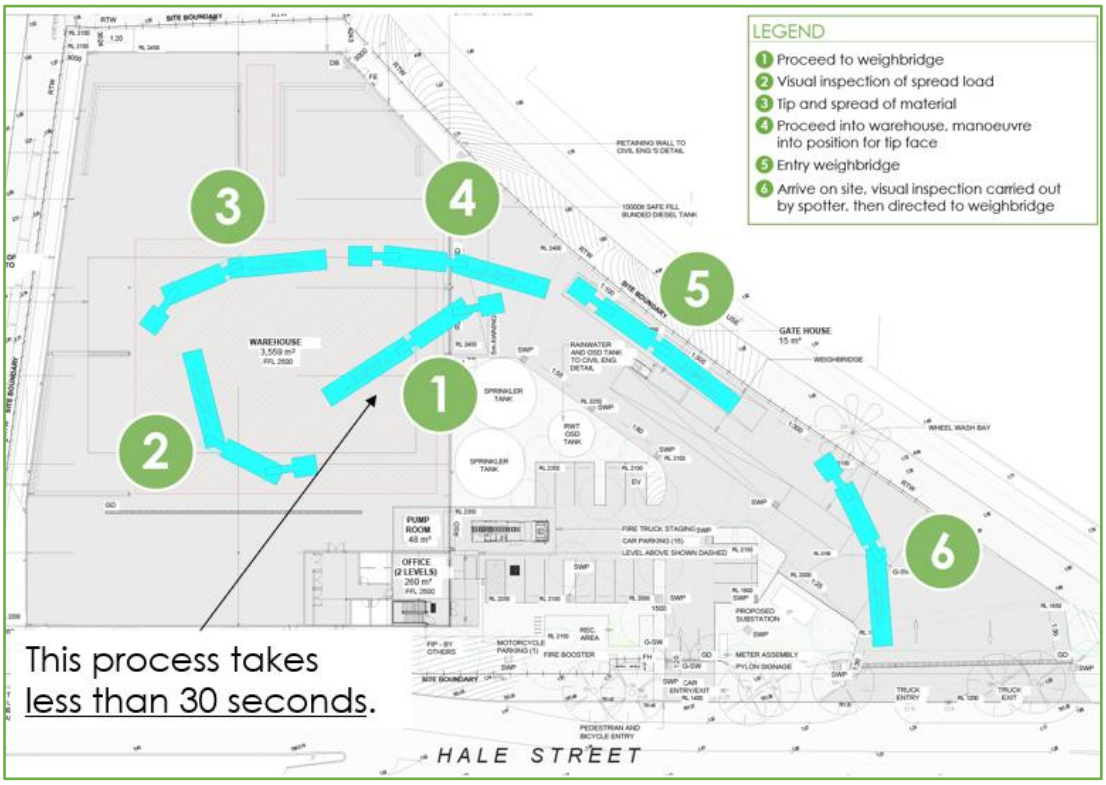


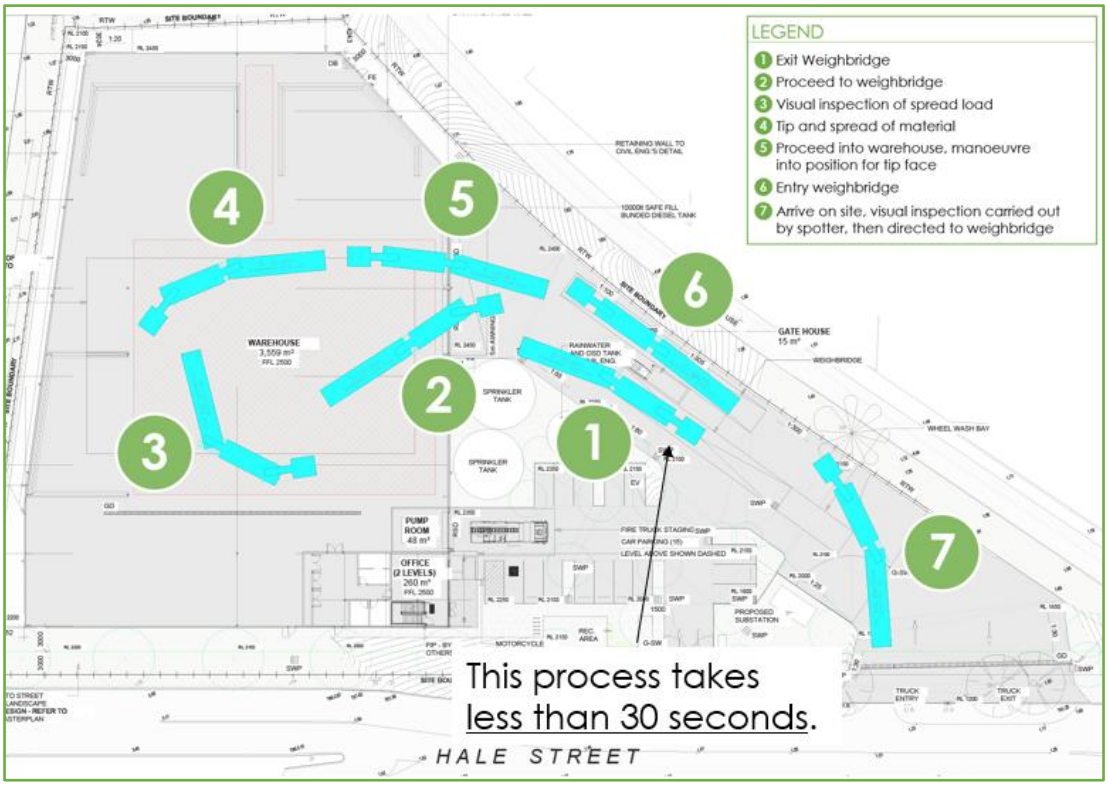

LEGEND
1 Entry weighbridge
2 Arrive on site, visual inspection carried out by spotter, then directed to weighbridge
This process takes less than 30 seconds.
1
2
WAREHOUSE
3,559 m²
FFL 2550
GATE HOUSE
15 m²
WEIGHBRIDGE
WHEEL WASH BAY
PUMP ROOM
48 m²
OFFICE
(2 LEVELS)
260 m²
FFL 2550
SITE BOUNDARY
HALE STREET


This process takes less than 2 minutes.
LEGEND
1 Proceed into warehouse, manoeuvre into position for tip face
2 Entry weighbridge
3 Arrive on site, visual inspection carried out by spotter, then directed to weighbridge
1
2
3
WAREHOUSE
3,559 m²
FFL 2550
GATE HOUSE
15 m²
WEIGHBRIDGE
WHEEL WASH BAY
PUMP ROOM
48 m²
OFFICE
(2 LEVELS)
260 m²
FFL 2550
SITE BOUNDARY
HALE STREET


This process takes
less than 3 minutes.
LEGEND
1 Tip and spread of material
2 Proceed into warehouse, manoeuvre into position for tip face
3 Entry weighbridge
4 Arrive on site, visual inspection carried out by spotter, then directed to weighbridge
WAREHOUSE
GATE HOUSE
HALE STREET


LEGEND
1 Visual inspection of spread load
2 Tip and spread of material
3 Proceed into warehouse, manoeuvre into position for tip face
4 Entry weighbridge
5 Arrive on site, visual inspection carried out by spotter, then directed to weighbridge
This process takes
less than 2 minute.
WAREHOUSE
GATE HOUSE
HALE STREET


LEGEND
1 Proceed to weighbridge
2 Visual inspection of spread load
3 Tip and spread of material
4 Proceed into warehouse, manoeuvre into position for tip face
5 Entry weighbridge
6 Arrive on site, visual inspection carried out by spotter, then directed to weighbridge
This process takes less than 30 seconds.
HALE STREET


LEGEND
1 Exit Weighbridge
2 Proceed to weighbridge
3 Visual inspection of spread load
4 Tip and spread of material
5 Proceed into warehouse, manoeuvre into position for tip face
6 Entry weighbridge
7 Arrive on site, visual inspection carried out by spotter, then directed to weighbridge
This process takes less than 30 seconds.
HALE STREET

In the unlikely event a truck breaks down or is required to depart from the queue, a truck stacking area has been provided within the site as presented in the swept path analysis in **Attachment 3.**

c) A plan showing seven (7) 25.0m – 26.0m B-Doubles as part of Appendix E. as identified in Section 9.8, Drawing 23.464 TX.02 is titled "Site Circulation and Queueing", but does not show where vehicles can queue. Additionally, a bottleneck effect is likely to occur since a truck might park another truck in while waiting.

TRAFFIX Response:

In order for the above-described situation to occur, seven (7) B-doubles would need to be queued onsite simultaneously. The probability of seven vehicles queuing onsite, not even considering whether they are B-Doubles, is 0% in accordance based on the queuing assessment undertaken. Even if this somehow were to occur, the site is actively managed to ensure a queue never extends onto the public road network. Reference should be made to the swept path analysis presented in **Attachment 3** showing how vehicles will queue throughout the site.

d) Council requests for the Traffic Engineer to confirm that the SIDRA modelling has been undertaken as a network model including all modelled intersections, as opposed to separated intersection models, to confirm that queueing is not expected to occur over key intersection/ site accesses.

TRAFFIX Response:

SIDRA Network Modelling is not required for the Hale St/Foreshore Rd intersection and Hale St/Luland St intersection because:

- These two intersections are not coordinated by traffic signals.
- These two intersections are sufficiently far apart and not in a staggered arrangement.
- The 98th percentile queue determined from all SIDRA modelling scenarios show the queues do not extend to or beyond either intersection.

e) The basis for the "truck on site dwell times" listed on Table 17 (page 16 of the TIA) shall be confirmed. It is not appropriate to provide this data without providing evidence such as a case study of footage of a similar site. The truck dwell times need to be firmly substantiated by supporting evidence as these truck dwell times in the TIA appear to be very short.

TRAFFIX Response:

TRAFFIX has been informed that the traffic justification for the proposed recycling facility at 2–4 Hale Street, Botany, is based on operational data from a comparable site, KLF's Camellia Waste Recycling Facility, which operates under EPL 12700 at 16 Grand Avenue, Camellia, NSW.

f) The dimensions of the Large Truck as identified in SIDRA must be confirmed, either in the form of PCUs, or length (m), to ensure that the dimension of the Large Truck is representative of the average vehicle servicing the site

TRAFFIX Response:

PCU, which stands for Passenger Car Unit helps compare trucks to regular cars in traffic models (i.e. SIDRA). When we used SIDRA (a traffic modelling tool) to study the traffic from this project, is was assumed that heavy vehicles counts are equivalent to 2.5 cars on the road. The reason 2.5 was adopted in the SIDRA model is because it's a conservative number, even though Austroads states a large truck like a B-Double is only about 2.1 cars.

3.3 Subsequent Council Correspondence Dated 22 September 2025 & Responses

Subsequent correspondence was received from Council in relation to the SIDRA model which underpinned the Transport Impact Assessment (TRAFFIX reference: 23.464r01r01v14 dated March 2025). TRAFFX has since provided responses to each item raised by Council. Reference should be made to this correspondence provided in **Attachment 4**. Reference should also be made to the survey results presented in **Attachment 5** and the SIDRA modelling results presented in **Attachment 6.**

Attachment 1

NSW Ports Correspondence

Sally Munk

From: Anja Morgan <anja.morgan@nswports.com.au>
Sent: Thursday, 8 May 2025 12:24 PM
To: Sally Munk
Subject: RE: SSD-62855708 Waste Management Facility, Botany

Hi Sally,

Thank you for the opportunity to respond to this. We do not have a further submission but merely raise some further questions about impacts on the road network.

We have reviewed the response to submission document and the new updated reports/plans submitted. Overall, we appreciate the additional information required however are still concerned about potential queuing of vehicles.

The proposed movement of vehicles to and from the site includes a turning circle within the warehouse. With the proposed 26 (13 trucks either direction) truck movements per peak hour it is unclear how this will be managed.

Assuming that every truck requires either unloading/loading when in the warehouse, is the applicant stating that this can be done within two – three minutes (26 x 2 = 52 minutes). If it cannot be done, where will other trucks be standing?

We are also concerned about the trucks not utilising the warehousing turning circle and backing out of the site thus creating additional concerns. This will further add to potential traffic congestion and queuing. Could there be a condition added that the exit from site can only occur in forward direction?

Thank you for your consideration of our additional comments.

Attachment 2

Council Queuing Assessment

Queueing Analysis of 2-4 Hale St, Botany

1. Introduction

This document outlines Bayside Council's understanding of the queueing arrangement for the proposed recycling facility at 2-4 Hale St, Botany, as well as out independent assessment. Ultimately, this aims to inform the conditions presented regarding queueing on Hale Street, and inform the promponent and operations staff on how to avoid queueing onto public domain.

The document will be structured as follows:

- 2. Project History and Provided Documentation
- 3. Description of Operations
- 4. Calculation of Queueing
- 5. Conclusion

2 Project History and Provided Documentation

Bayside Council was first advised of this project in January 2024. Several pre-lodgement meetings were held to discuss technical challenges for the development such as flood modelling. The Environmental Impact Statement including a Traffic Impact Assessment (Appendix G - CM: 24/218645) was exhibited from 07 August 2024 until 03 September 2024. Council had provided a submission in response to the EIS on 09 September 2024 (CM: 24/244747) raising a variety of concerns including level of service at the Hale Street/Foreshore Road intersection and queueing within the site itself.

A meeting was held between the proponent, their consultants and Council's engineers on 28 October 2024 to discuss the traffic issues. The proponent provided an amended TIA on 12 November 2024 (CM: 24/333625). Council provided comments to the proponent on the updated TIA on 3 December 2024 (CM: 24/355747). The proponent responded to the comments in an email on 5 December 2024 (CM: 24/358520) re-affirming their position on Council's concerns.

The proponent submitted their Response to Submissions report on 28 April 2025 including an updated Traffic Impact Assessment (Appendix C – CM: 25/136556). Council provided a response to the RTS to DPHI on 12 May 2025 (CM: 25/148359). Subsequently a further meeting was held between Council's engineers and the proponent's consultants. The proponent provided additional information in relation to the traffic modelling assumptions and data files in an email on 1 August 2025 (CM: 25/242116).

Queueing RFI Raised

Regarding CM: 25/148359, the matter to be addressed in this document has been reproduced:

> b) The queueing analysis is incorrectly calculated as an M/M/7 scenario. Realistically, there are two separate queues which follow in series:
>
> i. The initial entry and spotter inspection, which is an M/M/7 scenario, and;
>
> ii. The subsequent procedure, which includes pre-operational weighing on the weighbridge, manoeuvring into site, offloading waste material, manoeuvring out and post-operational weighing, which is an M/M/1 scenario since only one weighbridge is present and the site cannot offload material from multiple trucks at any time.
>
> Therefore, the service time (T) in Appendix D is incorrect. Additionally, the queue is likely to grow since the subsequent procedure (after entry and spotter inspection) would take 9m30s, and trucks arrive at a rate of one truck every 4m36s (assuming best case- uniformly distributed arrival time). Hence, the flow of vehicles through the development is likely to take far longer to process and will likely result in queues of vehicles extending onto the road network. This site is very constrained as truck arrival and departure is serviced by a single lane road with a relatively short length that does not offer any other circulation options (given large trucks such a B-Doubles cannot use the roundabout to turn around or drive anywhere else to circulate) . So, if the site becomes full of trucks and additional trucks arrive, there is nowhere else for trucks to go other than wait on the road resulting in intolerable congestion.

At the meeting dated 29 June 2025 (and subsequent email on August 1 August 2025), the proponent responded to the comment, and provided a slide deck (TRAFFIX's Slide Deck) as well as excel calculations (TRAFFIX's Excel Sheet), which are appendixed.

3 Description of Operations

The TIA's description of operations is reproduced below:

Activity No.	Activity	Time – HRV	Time – B-Double
1	Arrive on site, visual inspection by spotter, directed to weighbridge	< 30 seconds	< 1 minute
2	Weighbridge (entry)	< 30 seconds	< 30 seconds
3	Waste Sorting – enter warehouse and manoeuvre	< 1 minute	< 2 minutes
4	Tip and spread of material	1 minute	2–3 minutes
5	Visual inspection of spread load	1 minute	2 minutes

Activity No.	Activity	Time – HRV	Time – B-Double
6	Departure to weighbridge	30 seconds	30 seconds
7	Weighbridge (exit)	< 30 seconds	< 30 seconds
	Total	**< 7 minutes**	**Approx. 10 minutes**

Additionally, it is acknowledged that:

- Vehicles can queue one after another, as described in TRAFFIX's slide deck. This was not considered in Bayside Council's initial assessment.
- TRAFFIX has previously demonstrated that they can fit multiple vehicles on-site

However, Bayside Council note the following considerations:

- TRAFFIX has modelled M/M/7, which presumes that 7 trucks can independently be serviced by the site, meaning that, in theory, 7 trucks can tip and spread at the same time, or 7 trucks can be weighed at the weighbridge at any time.
- According to the plans, there is only one (1) entry and one (1) exit weightbridge.
- According to the meeting dated 29 July 2025, the proponent had advised that only one vehicle can be tipping and spreading at any time.

Therefore, the modelling of the whole operation as M/M/7 would be inaccurate. For reference, TRAFFIX's queueing assessment has been reproduced below.

No of Vehicles (n)	P(n)	P(>n)	P(<n)
0	69.0%	30.952%	69%
1	21.4%	9.580%	90%
2	6.6%	2.965%	97%
3	2.0%	0.918%	99%
4	0.6%	0.284%	100%
5	0.2%	0.088%	100%
6	0.1%	0.027%	100%
7	0.0%	0.008%	100%

This suggests that 99% of the time, less than 3 vehicles would be somewhere on-site/ in the system.

As Council have outlined, Council acknoweldges that the arrival of vehicles on-site and their visual inspection can be done by any spotter and therefore can be modelled as M/M/7.

The rest of the procedure can be modelled as M/M/1, with each activity's service rate determining the arrival rate of the subsequent activity.

3.1 Critical State

The determinable critical state seems to be at 7 vehicles according to the plans and swept paths presented, since it has not been demonstrated that vehicles can pass each other at the layback, so exiting vehicles may be obstructed by entering vehicles, and cause queueing to overflow onto the street. That is, **if more than 7 vehicles are queued, then vehicles looking to exit cannot exit as they are blocked by vehicles waiting to be weighed at the weighbridge, and the whole queue will stagnate.**

4 Calculation of Queueing

4.1 Explaination of M/M/c

The M/M/c Queue is the simplest queue model, which models:

- M: Markovian/ Poisson Arrival Times
- M: Markovian/ Exponential Service Times
- c: Number of servers

To intuitively explain the queuing problem, the following analogy has been prepared:

Shopper queue up to pay at random times, which is modelled by a poisson distribution.

Each shopper has different speed to scan groceries, as well as different numbers of groceries, so there is a theoretical quickest time someone could pay (imagining they are simply buying one drink and pay by card), but there is no upper limit to how long someone could take (say they pay by cash and are buying 2 weeks worth of groceries). This is modelled with the exponential distribution.

The variable c is the number of self-checkout machines available. The more you have, the more the supermarket can service simultaneously.

4.1 Expected Queueing of B-Double and HRV

The coding methodology has been shown below for transparency. The overall framework is as follows:

1. Initialise arrival rates, stages as described by TRAFFIX for both HRV and AV
2. Simulate randomised truck flows, using the following procedure:

a. Trucks arrive on-site according to a Poisson distribution, with the mean arrival time being 13 vehicles per hour.

b. All trucks may be processed independently through Activity No. 1, an M/M/7 process

c. The inspection time will be modelled with a

In [ ]:

```python
import numpy as np
import matplotlib.pyplot as plt

# --- Configuration ---
np.random.seed(42)
arrival_rate = 13 / 3600  # 13 trucks per hour
# this is to simulate a large number of data for model stability,
# and not indicative of actual number of trucks arriving etc.
num_trucks = 4000
stage_names = [
    'Arrival Inspection',
    'Entry Weighbridge',
    'Sorting',
    'Tipping',
    'Inspection',
    'Exit Weighbridge'
]

# HRV & B-Double mean service times (in seconds)
stage_means_hrv = [30, 30, 60, 60, 60, 30]
stage_means_bdouble = [60, 60, 120, 120, 120, 60]

def simulate_truck_flow(stage_means, arrival_rate, num_trucks, stage_names):
    raw_arrival_times = np.cumsum(
        np.random.exponential(scale=1/arrival_rate, size=num_trucks))

    # M/M/7 for arrival inspection
    num_spotters = 7
    spotter_available_times = np.zeros(num_spotters)
    arrival_inspection_start = np.zeros(num_trucks)
    arrival_inspection_end = np.zeros(num_trucks)

    for i in range(num_trucks):
        next_available = np.argmin(spotter_available_times)
        spotter_ready = spotter_available_times[next_available]
        start = max(raw_arrival_times[i], spotter_ready)
        service_time = np.random.exponential(scale=stage_means[0])
        end = start + service_time
        arrival_inspection_start[i] = start
        arrival_inspection_end[i] = end
        spotter_available_times[next_available] = end

    # Initialize arrays
    truck_stage_start = np.zeros((num_trucks, len(stage_names)))
    truck_stage_end = np.zeros_like(truck_stage_start)
    truck_stage_start[:, 0] = arrival_inspection_start
    truck_stage_end[:, 0] = arrival_inspection_end

    # M/M/1 for remaining stages
    for stage in range(1, len(stage_names)):
        queue_available_time = 0
        for i in range(num_trucks):
            arrive = truck_stage_end[i, stage - 1]
            start = max(arrive, queue_available_time)
            service_time = np.random.exponential(scale=stage_means[stage])
            end = start + service_time
            truck_stage_start[i, stage] = start
            truck_stage_end[i, stage] = end
            queue_available_time = end
```

```
    return truck_stage_start, truck_stage_end


def plot_timeline(truck_stage_start, truck_stage_end, stage_names, title, num_tr
    plt.figure(figsize=(11, 6))
    colors = plt.cm.viridis(np.linspace(0, 1, len(stage_names)))

    for i in range(min(num_trucks_to_plot, truck_stage_start.shape[0])):
        for stage in range(len(stage_names)):
            plt.hlines(
                i,
                truck_stage_start[i, stage],
                truck_stage_end[i, stage],
                colors=colors[stage],
                linewidth=6
            )

    plt.xlabel("Time (seconds)")
    plt.ylabel("Truck ID")
    plt.title(title)
    plt.legend(stage_names, title="Stages", bbox_to_anchor=(1.05, 1), loc='upper
    plt.grid(True, axis='x', linestyle='--', alpha=0.5)
    plt.tight_layout()
    plt.show()
```

In [ ]:

```
import pandas as pd
from collections import Counter

def summarise_truck_occupancy(truck_stage_start, truck_stage_end):
    # Compute occupancy at each second
    all_start_times = truck_stage_start.min(axis=1)
    all_end_times = truck_stage_end.max(axis=1)
    event_times = np.arange(start=0, stop=int(all_end_times.max()) + 1, step=1)

    active_counts = []
    for t in event_times:
        trucks_present = np.sum((all_start_times <= t) & (all_end_times > t))
        active_counts.append(trucks_present)

    # Count how often each number of trucks was present
    count = Counter(active_counts)
    total = len(active_counts)

    # df with P(n)
    max_n = max(count.keys())
    rows = []
    for n in range(9):
        p_n = count.get(n, 0) / total
        p_gt_n = sum(count.get(k, 0) for k in range(n + 1, max_n + 1)) / total
        p_lt_n = 1 - p_n - p_gt_n
        rows.append({
            "No of Vehicles (n)": n,
            "P(n)": round(p_n * 100, 1),
            "P(>n)": round(p_gt_n * 100, 3),
            "P(<n)": round(p_lt_n * 100, 0)
        })
```

```
    df = pd.DataFrame(rows)
    return df
```

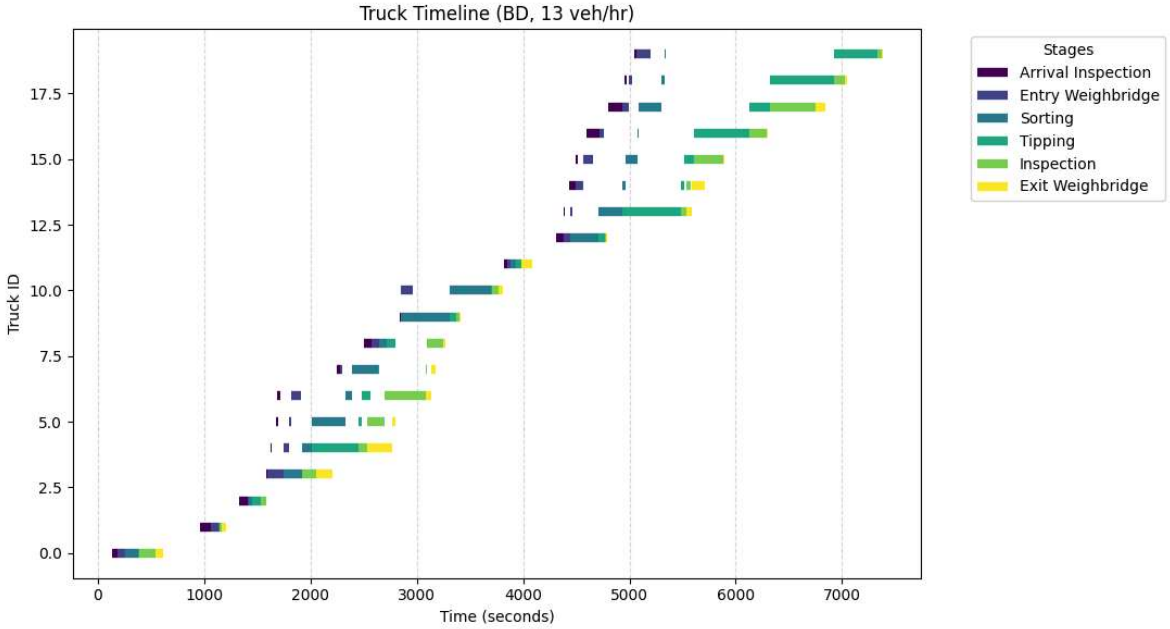
4.2 Output for B-Double

The below outlines the queueing for all B-Doubles, to mirror how TRAFFIX has undertaken their assessment. It is noted that this is extremely conservative.

In [ ]:
```
start_times, end_times = simulate_truck_flow(stage_means_bdouble, arrival_rate,
plot_timeline(start_times, end_times, stage_names, "Truck Timeline (BD, 13 veh/h



# Plot occupancy
summarise_truck_occupancy(start, end)
```



Out[ ]:

	No of Vehicles (n)	P(n)	P(>n)	P(<n)
0	0	34.0	66.022	0.0
1	1	32.8	33.186	34.0
2	2	19.4	13.778	67.0
3	3	8.8	4.948	86.0
4	4	3.1	1.853	95.0
5	5	1.2	0.634	98.0
6	6	0.5	0.139	99.0
7	7	0.1	0.031	100.0
8	8	0.0	0.000	100.0

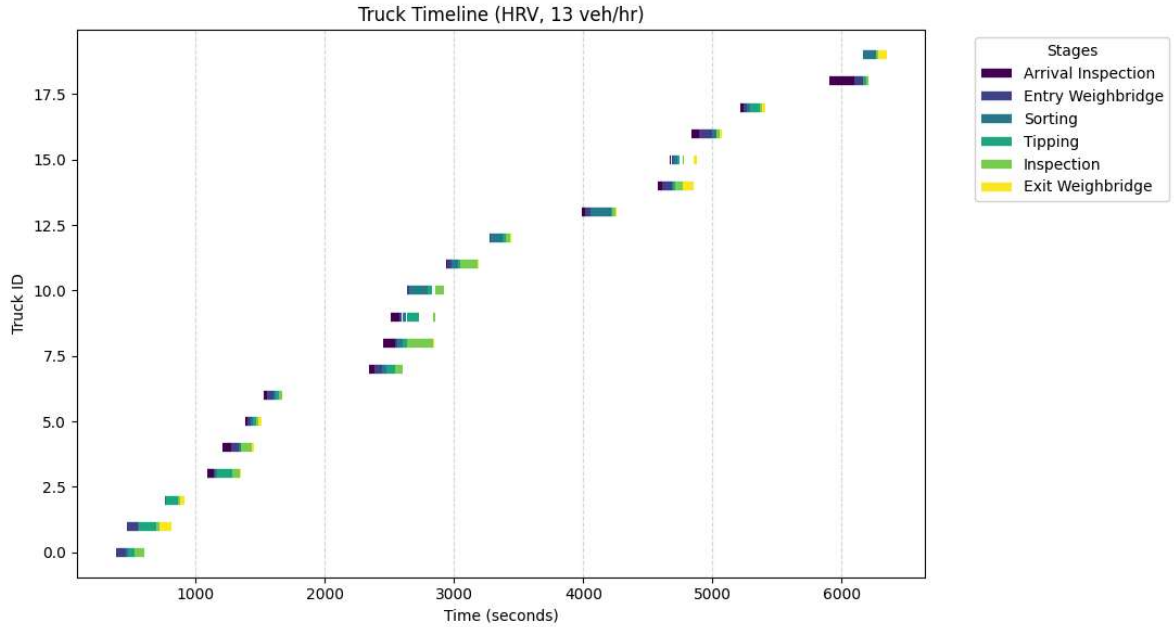
It is noted that there would be 7 vehicles in the system 3.9% of the time. Once again, this is a conservative assessment, but would clearly demonstrate that a critical state is possible.

4.3 Output for HRVs

The below instead presumes all vehicles are HRVs instead.

In [ ]:
```
start_times, end_times = simulate_truck_flow(stage_means_hrv, arrival_rate, num_
plot_timeline(start_times, end_times, stage_names, "Truck Timeline (HRV, 13 veh/

# Plot occupancy
summarise_truck_occupancy(start, end)
```



Out[ ]:

	No of Vehicles (n)	P(n)	P(>n)	P(<n)
0	0	34.0	66.022	0.0
1	1	32.8	33.186	34.0
2	2	19.4	13.778	67.0
3	3	8.8	4.948	86.0
4	4	3.1	1.853	95.0
5	5	1.2	0.634	98.0
6	6	0.5	0.139	99.0
7	7	0.1	0.031	100.0
8	8	0.0	0.000	100.0

This indicates that generally (around 99% of the time), the site would only service less than 6 vehicles, and 7 vehicles is not a realistic occurence.

4.3 Calculating Acceptable Fleet Makeup

We can determine what makeup of the fleet would be acceptable at peak times - it is determined already that 100% B-Doubles will eventually cause delay issues, and 100%

HRVs would be unlikely to cause delay issues but would naturally be fiscally disadvantageous.

Bayside Council deem that the system would be accepted as long as there are only up to 7 vehicles in the system, as vehicles will be unable to move once there are 8 vehicles.

Bayside Council have assessed acceptable vehicle makeup by adjusting the truck processing time as follows:

$$\mathbf{T}_{\text{weighted mean}} = \eta * \mathbf{T}_{HRV} + (1 - \eta) * \mathbf{T}_{BD}$$

Where:

- η is the percentage of trucks that are HRV-sized, and $1 - \eta$ is the percentage of trucks that are B-Doubles.
- $\mathbf{T}_{\text{weighted mean}}$ is the average time it would take for the average truck to go through each process.
- $\mathbf{T}_{\text{HRV}}$ is the time for an HRV, i.e. $\begin{bmatrix} 30 & 30 & 60 & 60 & 60 & 30 \end{bmatrix}^T$
- $\mathbf{T}_{\text{BDouble}}$ is the time for a B-Double, i.e $\begin{bmatrix} 60 & 60 & 120 & 120 & 120 & 60 \end{bmatrix}^T$

In [ ]:
```python
eta = np.arange(0, 1, 0.1)

def run_eta_scenarios_avg(
    eta_values, stage_means_hrv, stage_means_bdouble,
    arrival_rate, num_trucks, stage_names,
    runs=10
):
    all_runs = []

    for _ in range(runs):
        run_summary = run_eta_scenarios(
            eta_values=eta_values,
            stage_means_hrv=stage_means_hrv,
            stage_means_bdouble=stage_means_bdouble,
            arrival_rate=arrival_rate,
            num_trucks=num_trucks,
            stage_names=stage_names
        )
        all_runs.append(run_summary)

    combined = pd.concat(all_runs)

    # Average P(n), P(>n), P(<n) grouped by η and vehicle count n
    avg_summary = (
        combined
        .groupby(["η", "No of Vehicles (n)"], as_index=False)
        .agg({
            "P(n)": "mean",
            "P(>n)": "mean",
            "P(<n)": "mean"
        })
    )
```

```
    return avg_summary

# Re-run the averaging process now that the function is restored
df_summary_avg = run_eta_scenarios_avg(
    eta_values=eta,
    stage_means_hrv=stage_means_hrv,
    stage_means_bdouble=stage_means_bdouble,
    arrival_rate=13 / 3600,
    num_trucks=100,
    stage_names=stage_names,
    runs=10
)
```

In [ ]:
```
from IPython.display import display
display(df_summary_avg)
```

	η	No of Vehicles (n)	P(n)	P(>n)	P(<n)
0	0.0	0	10.22	89.7758	0.0
1	0.0	1	19.42	70.3594	10.1
2	0.0	2	21.87	48.4897	29.5
3	0.0	3	15.35	33.1551	51.5
4	0.0	4	11.59	21.5742	66.9
...	...	...	...	...	...
75	0.9	3	8.21	6.0281	85.7
76	0.9	4	3.65	2.3723	93.9
77	0.9	5	1.41	0.9529	97.6
78	0.9	6	0.49	0.4646	99.1
79	0.9	7	0.44	0.0241	99.5

80 rows × 5 columns

4.4 Result

The site can operate without critical queueing as long as the mixture of vehicles is approximately 50/50 between B-Doubles and HRVs. This is to inform the proponent and operations team on how best to ensure that critical queuing does not occur, but ensuring queueing does not occur should be managed by operations staff how they see fit.

5. Conclusion

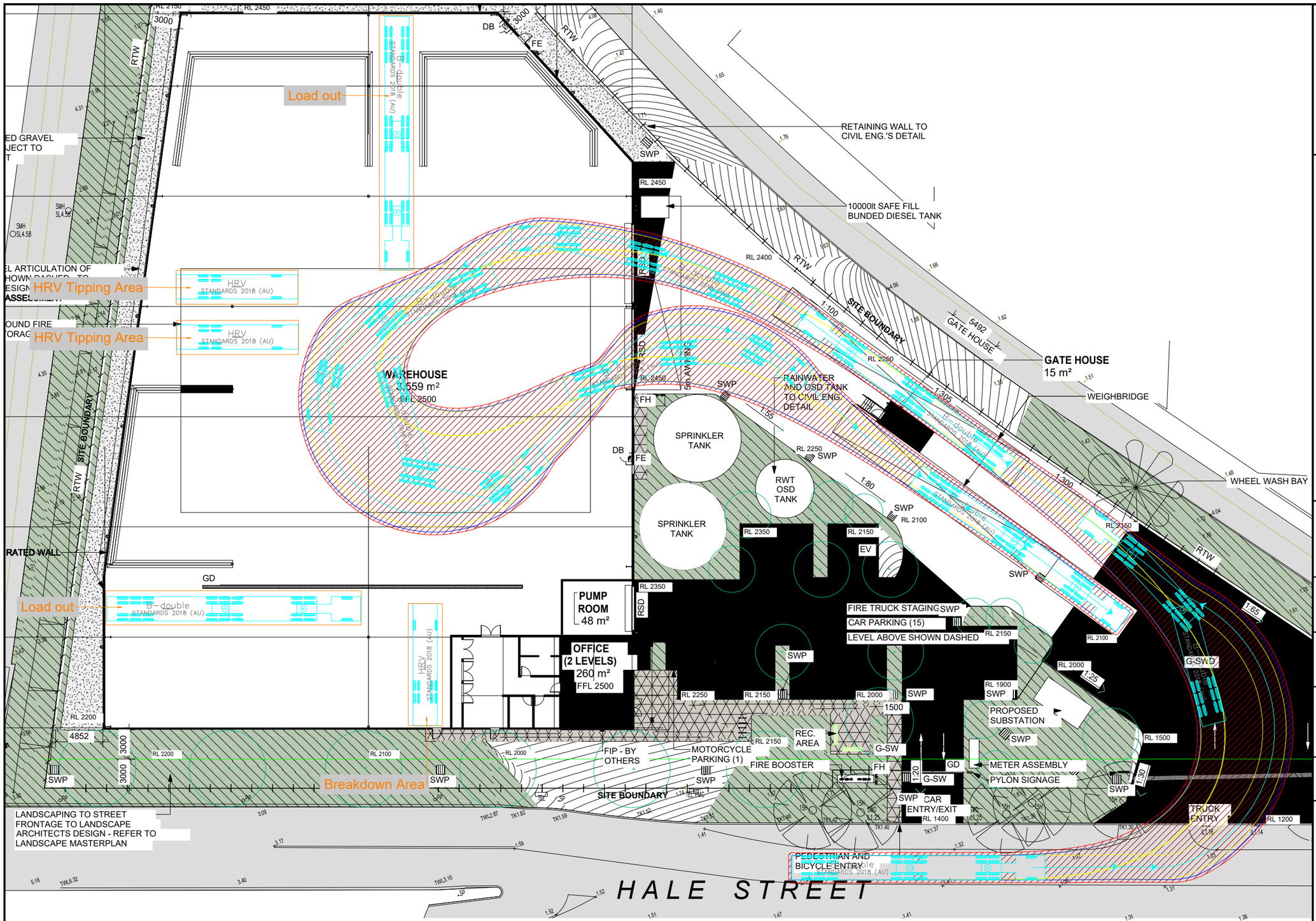
Bayside Council have independently reviewed the expected queueing at 2-4 Hale Street, Botany, using the updated information provided by TRAFFIX, particularly noting that vehicles are able to stand in the queue behind each process.

However, the range of possible outcomes depends heavily on the make-up of the expected fleet (a fleet of all B-Doubles would be potentially problematic, whereas a fleet of HRVs would be highly unlikely to exceed 7 vehicles).

The proponent and operations team have been asked to note this assessment for their own information and ensure that the site does not experience queueing that overflows onto public space.

Attachment 3

Swept Path Analysis



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards *(AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Reid Campbell

Client
KLF Group

Scale / Plan Orientation

0 2 4 6 8m
1:500 @ A3

Project Description
C&D Waste Transfer Station, Botany

Drawing Prepared By

TRAFFIX
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t: +61 2 8324 8700
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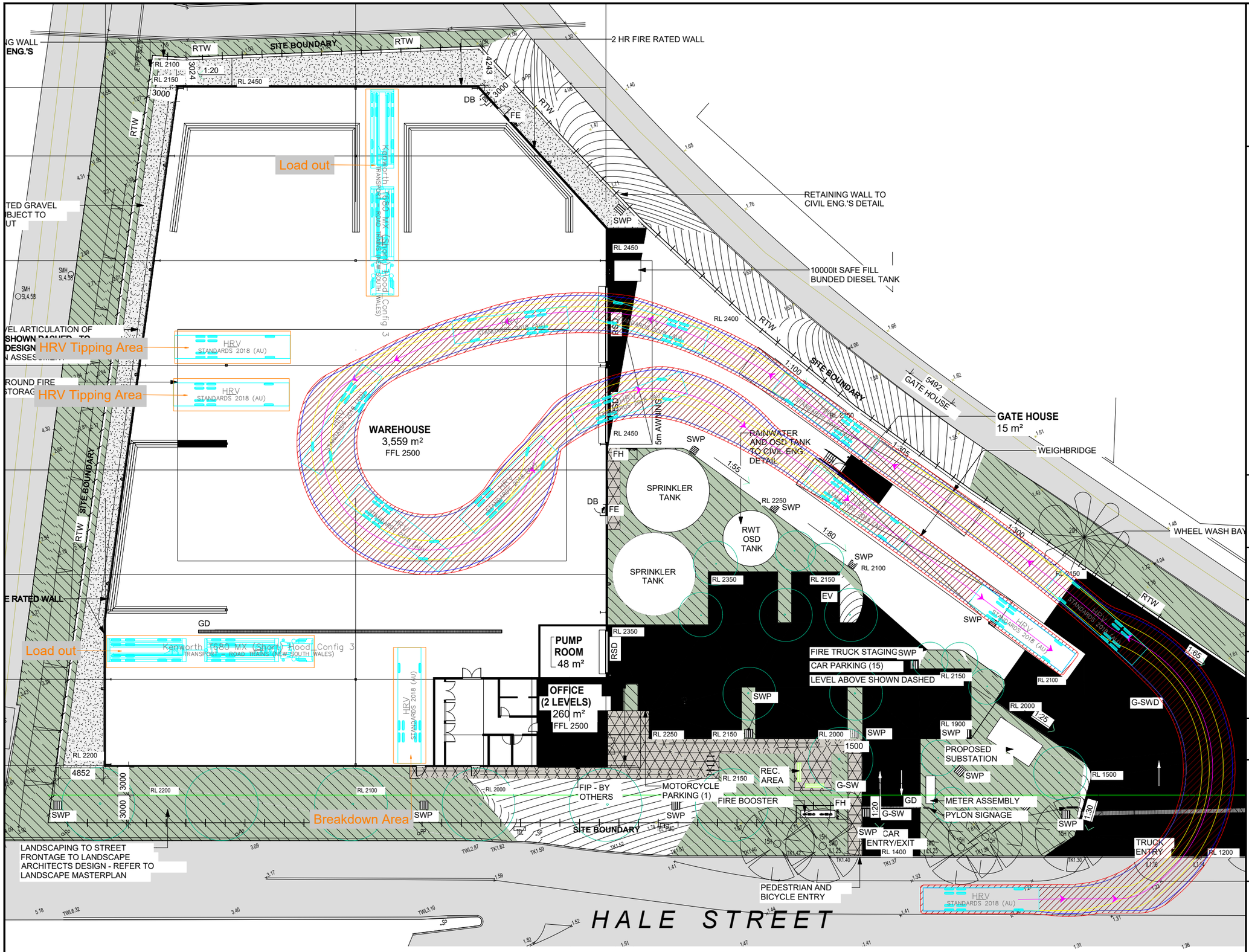
Drawing Title
Site Plan (Rev. L)
Design Vehicle: 26m B-Double
Movement: Site Circulation including Queing

Drawn:	Checked:	Date:
AB	TY	04-12-24

23.464d01v11 TRAFFIX [241204 Plans] Design Review JP.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
23.464	RFI	TX.04	A



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Rev.	Revision Note	By.	Date

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- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Reid Campbell

Client
KLF Group

Scale / Plan Orientation
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1:500 @ A3

Project Description
C&D Waste Transfer Station, Botany

Drawing Prepared By

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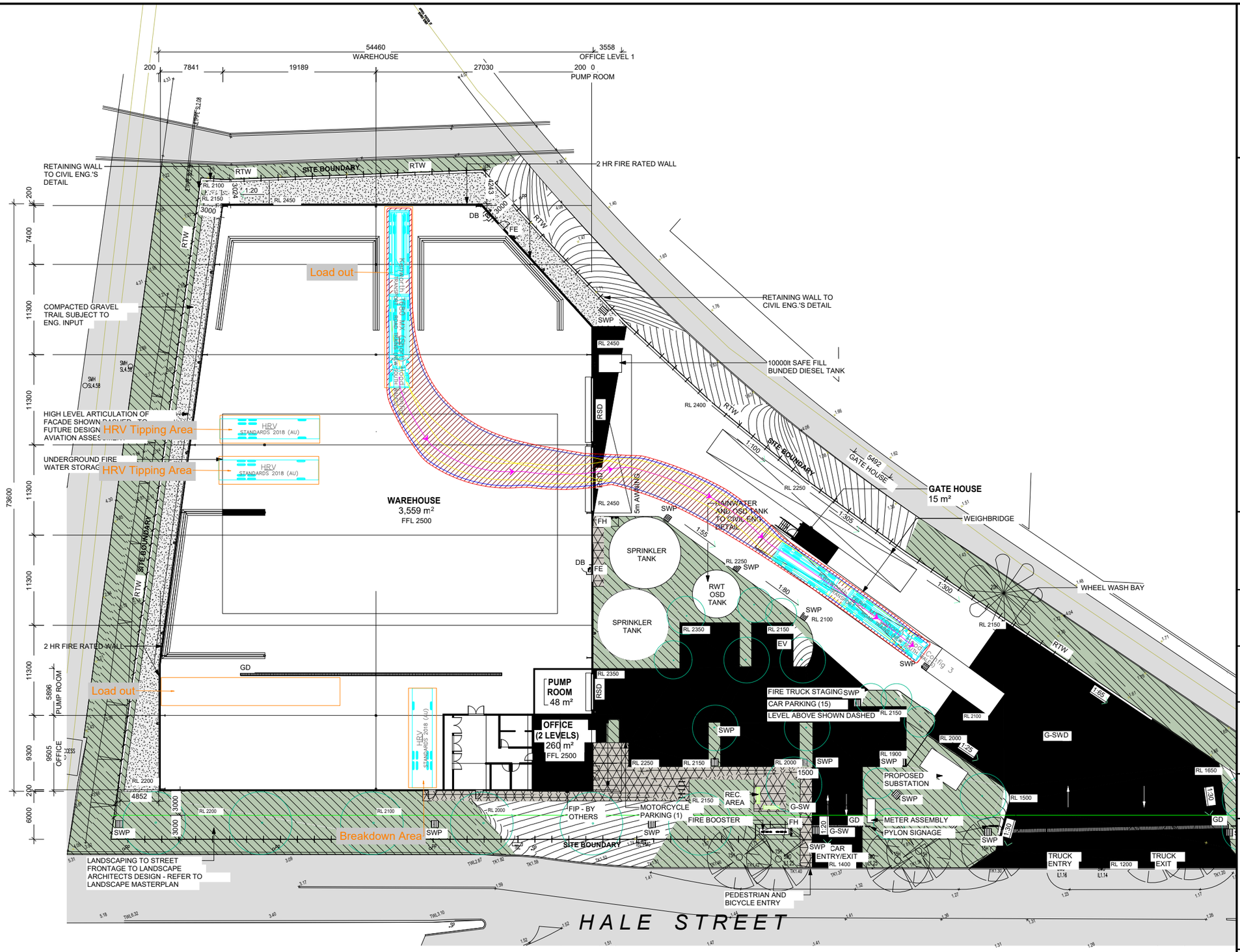
PO Box 1124
Strawberry Hills, NSW 2012
t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title
Site Plan (Rev. L)
Design Vehicle: 12.5m HRV
Movement: Site Circulation including Queing

Drawn:	Checked:	Date:
AB	TY	04-12-24

23.464d01v11 TRAFFIX [241204 Plans] Design Review JP.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
23.464	RFI	TX.05	A



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards *(AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Reid Campbell

Client
KLF Group

Scale / Plan Orientation

0 2 4 6 8m
1:500 @ A3

Project Description
C&D Waste Transfer Station, Botany

Drawing Prepared By

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS
Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills, NSW 2012
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f: +61 2 9830 4481
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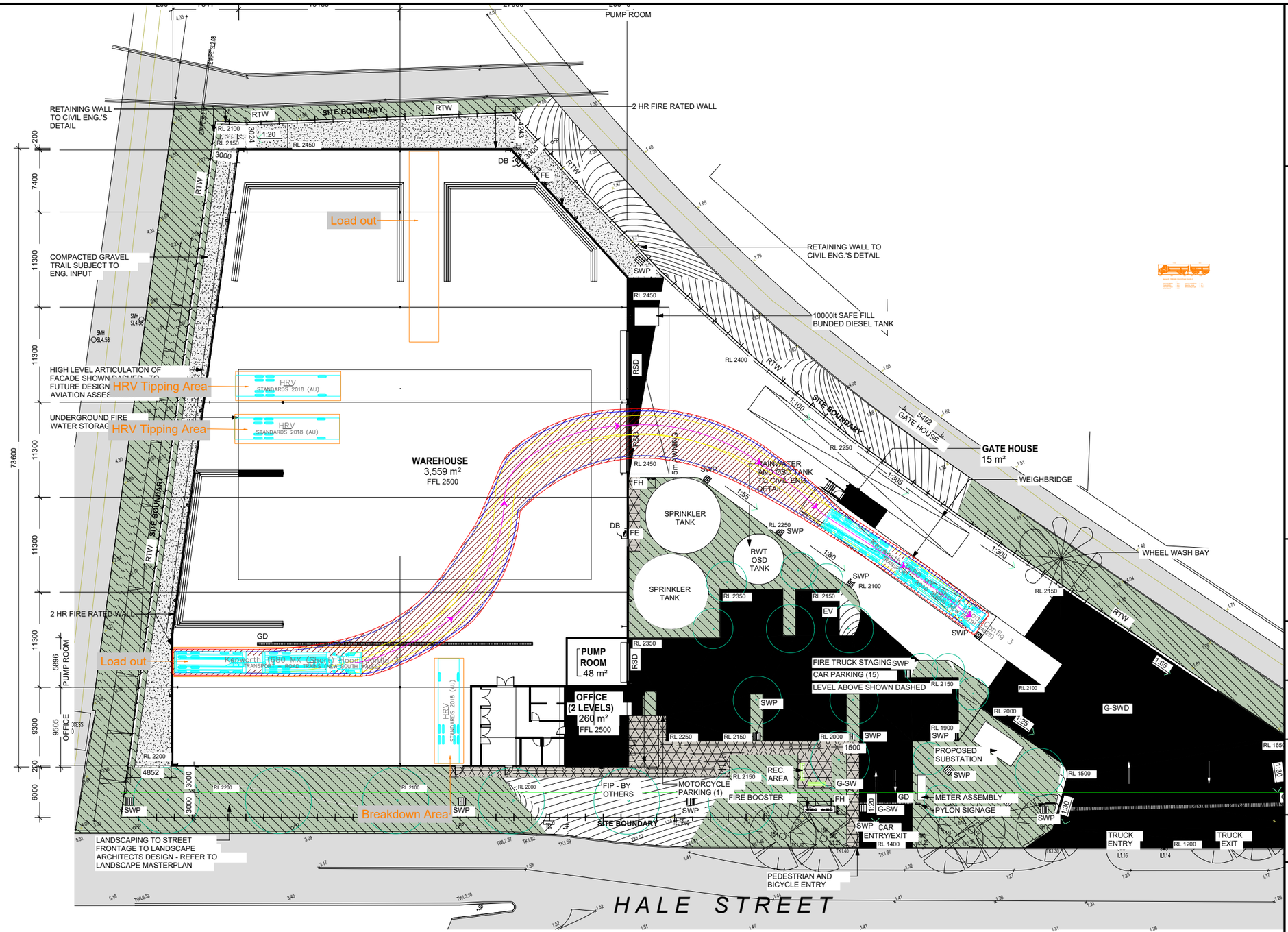
Drawing Title
Site Plan (Rev. L)
Design Vehicle: 22.2m Truck & Dog
Movement: Egress Manoeuvre

Drawn:	Checked:	Date:
AB	TY	04-12-24

23.464d01v11 TRAFFIX [241204 Plans] Design Review JP.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
23.464	RFI	TX.06	A



Notes:

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Rev.	Revision Note	By.	Date

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Reid Campbell

Client
KLF Group

Scale / Plan Orientation
0 2 4 6 8m
1:500 @ A3

Project Description
C&D Waste Transfer Station, Botany

Drawing Prepared By

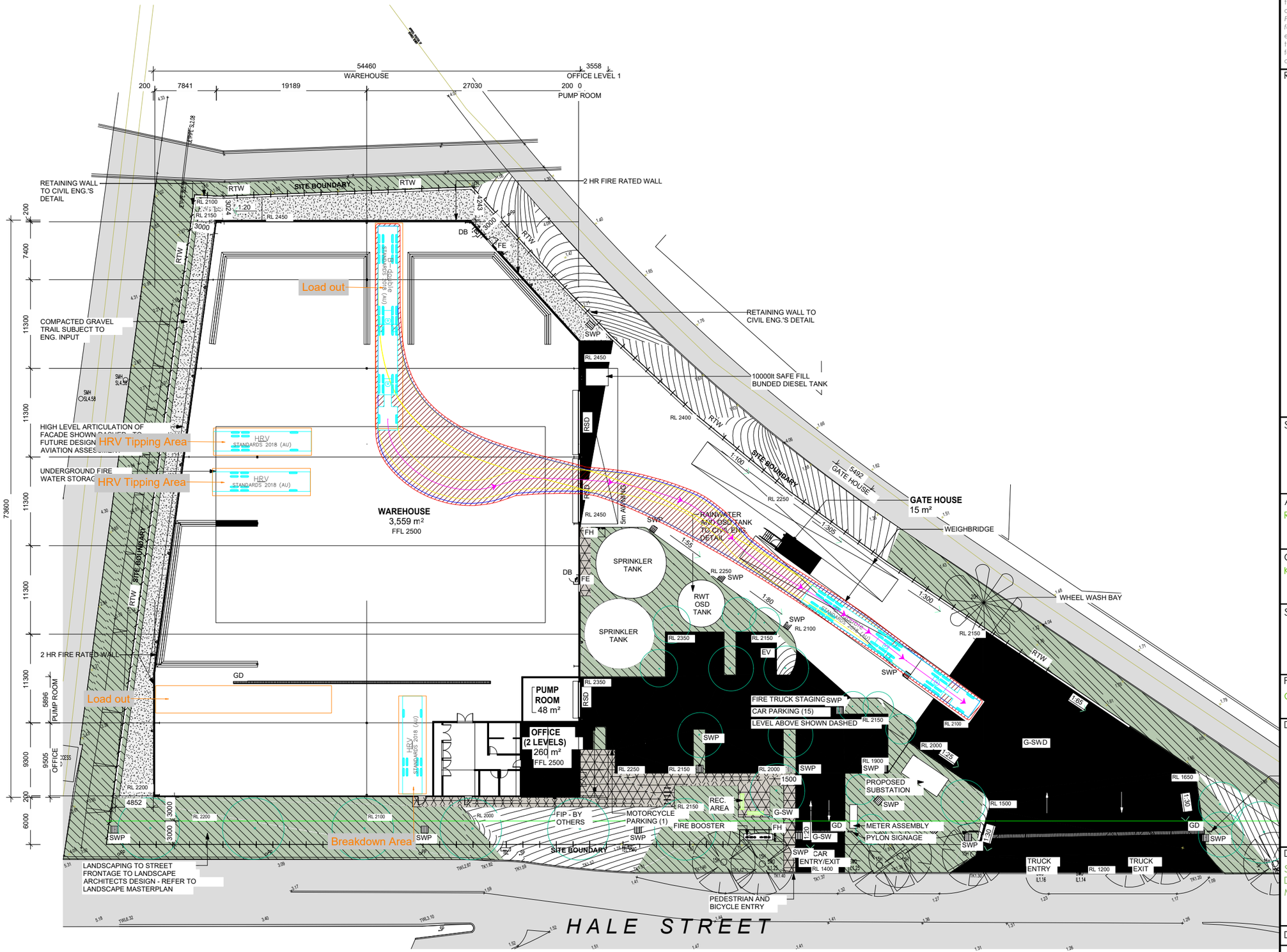
TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS
Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills, NSW 2012
t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title
Site Plan (Rev. L)
Design Vehicle: 22.2m Truck & Dog
Movement: Egress Manoeuvre

Drawn:	Checked:	Date:
AB	TY	04-12-24

23.464d01v11 TRAFFIX [241204 Plans] Design Review JP.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
23.464	RFI	TX.07	A



Notes:

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Rev.	Revision Note	By.	Date

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Reid Campbell

Client
KLF Group

Scale / Plan Orientation

0 2 4 6 8m
1:500 @ A3

Project Description
C&D Waste Transfer Station, Botany

Drawing Prepared By

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS
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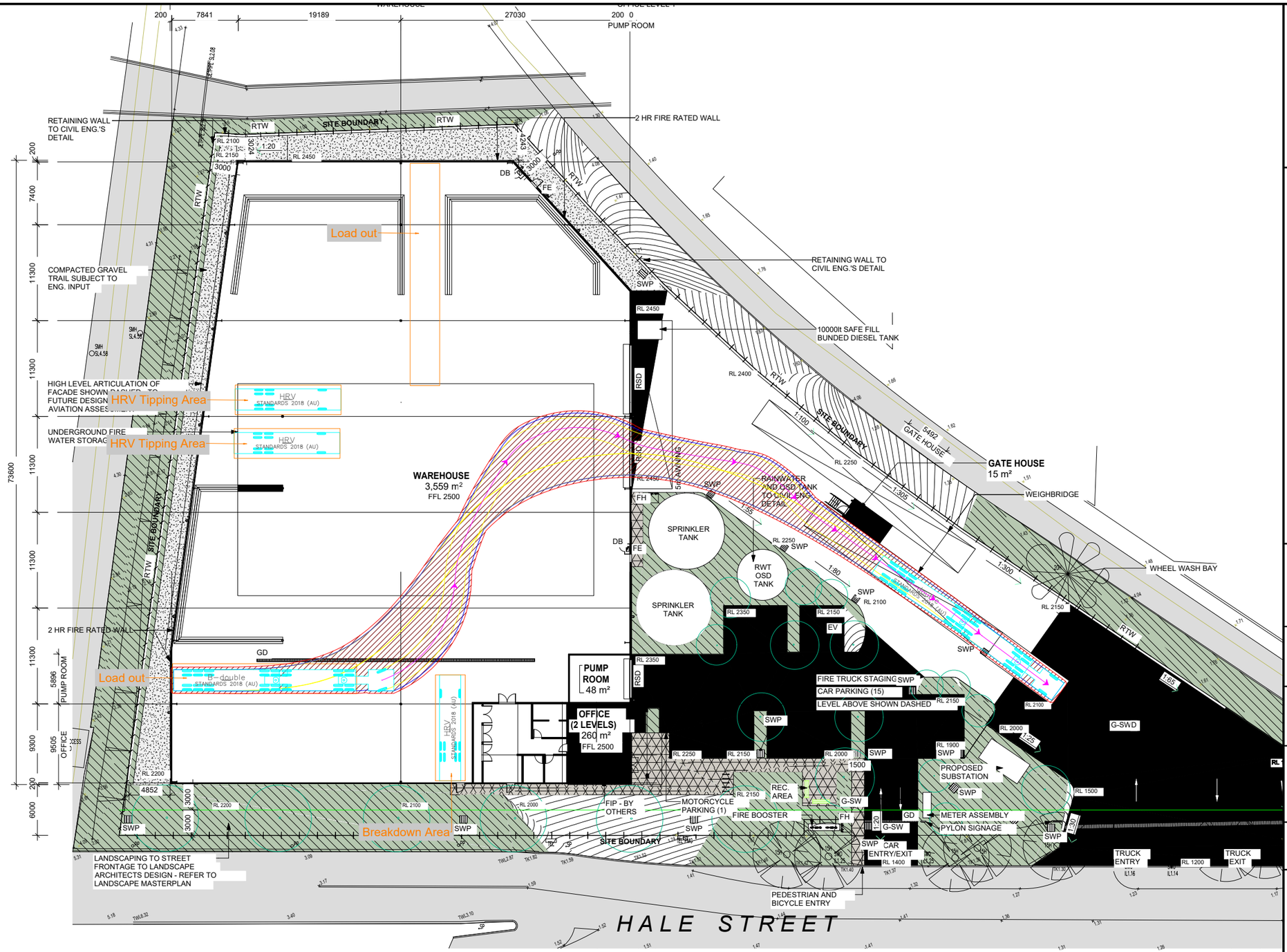
PO Box 1124
Strawberry Hills, NSW 2012
t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title
Site Plan (Rev. L)
Design Vehicle: 26.0m B-Double
Movement: Egress Manoeuvre

Drawn:	Checked:	Date:
AB	TY	04-12-24

23.464d01v11 TRAFFIX [241204 Plans] Design Review JP.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
23.464	RFI	TX.08	A



Notes:

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Rev.	Revision Note	By.	Date

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Reid Campbell

Client
KLF Group

Scale / Plan Orientation
0 2 4 6 8m
1:500 @ A3

Project Description
C&D Waste Transfer Station, Botany

Drawing Prepared By

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS
Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills, NSW 2012
t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title
Site Plan (Rev. L)
Design Vehicle: 26.0m B-Double
Movement: Egress Manoeuvre

Drawn:	Checked:	Date:
AB	TY	04-12-24

23.464d01v11 TRAFFIX [241204 Plans] Design Review JP.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
23.464	RFI	TX.09	A

Attachment 4

Council Correspondence Dated 22 September 2025 & Responses

Justin Pindar

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Wednesday, 24 September 2025 8:20 AM
To: Robert McKinlay
Cc: Josh Ford; victoria@elementenvironment.com.au; Elena Ivanova
Subject: FW: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding (23.464)
Attachments: 23152 - Hale Street and Foreshore Road - BOTANY.pdf; 23152 - Hale Street and Foreshore Road - BOTANY.xlsm; 24229 - Hale Street - Luland Street - BOTANY.pdf; 24229 - Hale Street - Luland Street - BOTANY.xlsm

Hi Robert,

Thanks again for providing your comments on the SIDRA model. Our traffic engineer has provided responses to each item in blue below, and additionally notes:

"Since it has been established that Council agrees with the traffic generation analysis adopted in the TIA resulting in a net reduction in traffic volumes in comparison with the current approved development, surely it must now also be concluded that impacts to nearby intersection performance will also be negligible and even slightly improved in comparison with the current approved development, which was essentially the conclusion that TfNSW also arrived at. This is separate to the other technical comments to which we responded to yesterday."

As previously discussed, DPHI is looking for us to close out any residual comments from your team prior to our formal Response to the RFI's, in order to avoid the Department referring the application back to Council. We would greatly appreciate the opportunity to meet to close out their remaining queries. Acknowledging Council's prior qualified acceptance of the queuing assessment, as well as the below acceptance of traffic generation analysis, we are confident that our teams should now be able to close out the below.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Monday, September 22, 2025 1:50:28 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>

Subject: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

Our traffic engineers have provided the following comments, and the attached results exported from SIDRA which relate to the penultimate bullet point below.

Finished reviewing the SIDRA model and comments are as follows:

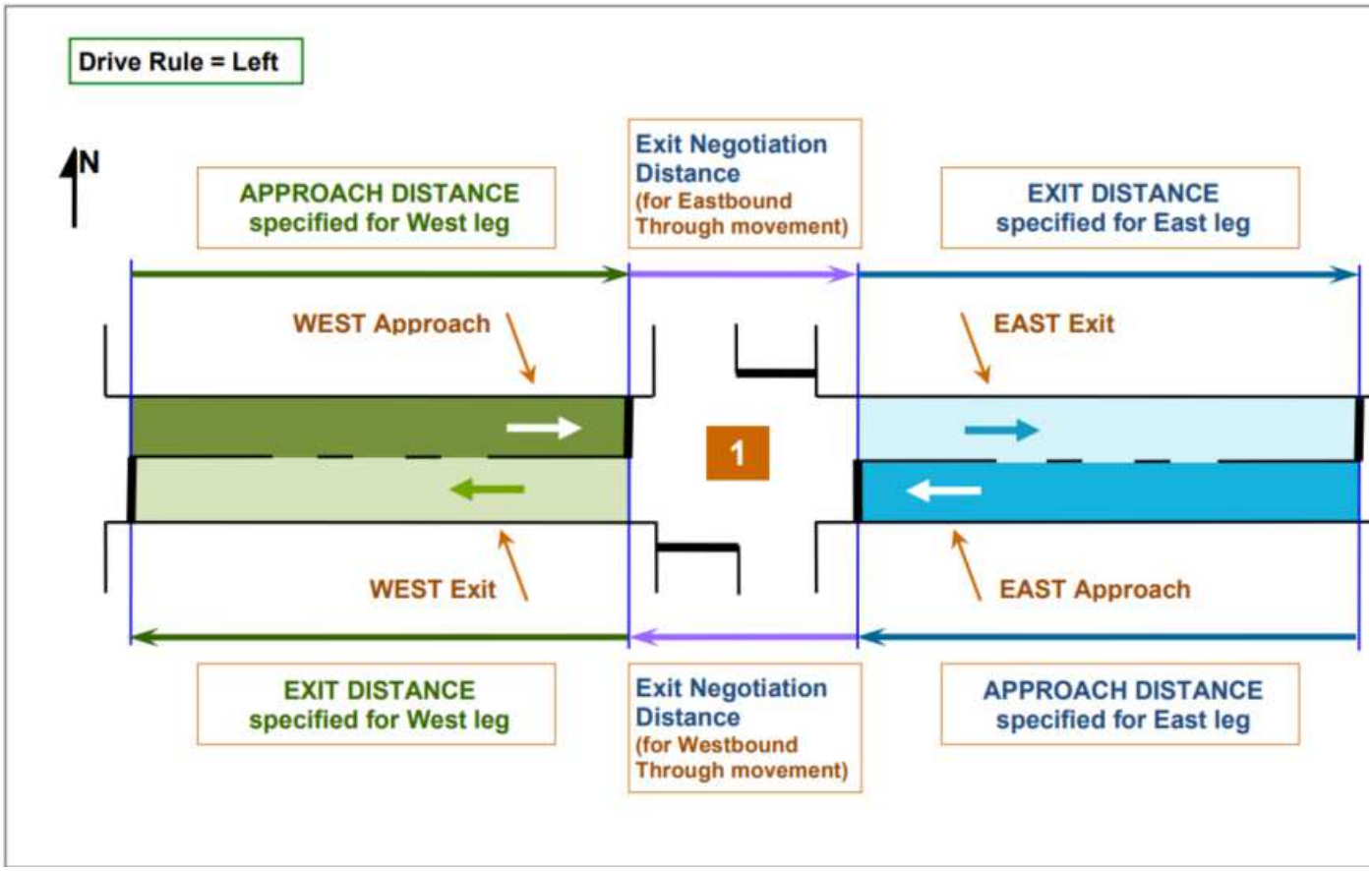
- *Traffic generation analysis has been checked and is acceptable, noting that there's an updated guide for traffic generation (TfNSW GTIA 2025) but since the original assessment was undertaken in late 2023 (according to document control table at the front of the TIA), it'd be unreasonable for them to have updated. In addition, since the generation rate was used to estimate existing volume, rather than proposed volume (which was done with a first-principles assessment), it would increase the net reduction.*
    - *Old rates (GTGD 2022) are 1 trip per 100m^2 GFA*
    - *New rates (GTIA 2024) are:*
        - *1.69 trips per 100m^2 GFA in the AM and*
        - *1.20 trips per 100m^2 in the PM*
- *All individual intersections have been modelled to accurately reflect real conditions, however:*
- *The intersections have not been modelled as a network, and accurate section lengths have not been included (e.g., the eastern leg of the Hale St x Foreshore Rd intersection should be something like 130m, since it's 130m from the passenger vehicle access. This is imperative especially for a development in which the primary traffic contention is regarding queueing, as queues can flow past an intersection and begin to cause network failures. The approach length is measured back to the nearest intersection in accordance with SIDRA guidelines which is how the intersection was modelled. There is no requirement to model the access as a 'network' since they do not meet the criteria for a networked model. This was covered in our meeting/presentation with Council.*

See below extract from the SIDRA modelling guideline regarding the correct way to measure approach distance. Clearly the distance is measured between two intersections and does not require individual driveways to be modelled.

SIDRA INTERSECTION 9.1 User Guide

Approach Distance

Approach Distance (m/ft) is the midblock distance between two intersections in t travel direction on an intersection leg (*Figure 5.2.4*). **Approach Distance** for intersection leg determines the **Approach Lane Lengths** and the **Approach Travel Di**



- *Gap acceptance parameters are appropriate and are the same defaults as industry standard, which is based off ARRB research (Arcelik 1994)*
- *The TIA report and its appendices do not include the recorded intersection survey data, hence Council cannot verify that the volumes inputted in the SIDRA model match surveyed volumes Please find attached.*
- *The TIA does not report the scenario of the future performance of the site accesses, but the HV access were modelled in the SIDRA model for "INTERNAL USE ONLY", which shows trucks queueing with average delays of some 90-130s during peaks. Council requests clarification on why the site accesses in the scenario named "Future Year Scenario (10 year horizon) + Development" was not reported on. The intersection of the driveway with Hale Street was only modelled only to demonstrate that traffic flow along Hale Street would not be impacted as this was previously requested by Council. As previously mentioned to Council, it was not modelled to assess queuing impacts within the site internally (we did a separate queuing analysis for this) and it was not modelled to assess future 10-year traffic growth impacts like the other intersections.*
- *The SIDRA model has inconsistent phasing methodology (the signal phasing is set to "user input cycle time" in the AM peak and "site optimum" in the PM peak). Council requests clarification on why this change was made. This was done in response to Council's earlier request to optimise intersection performance. Regardless, TfNSW have not raised any issues with the modelling of this intersection and it is ultimately a TfNSW controlled intersection in any case as previously stated.*

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Tuesday, 16 September 2025 2:44 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Thank you for the update and look forward to receiving your response by next Wednesday. Would be good to get a further update on Friday just to check in and see how the team is tracking for next week.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

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E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Tuesday, 16 September 2025 9:46 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

Thank you for the call yesterday. As an update, the solution to the technical problem has been a delayed a little further. The Traffic engineers now hope to have a response back to you by Wednesday next week and will try to deliver before then if possible. They are aware of how this issue is holding your project up.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

---

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Thursday, 11 September 2025 8:33 AM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hello Robert,

Thank you for the update and look forward to hearing back from you very soon.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Wednesday, 10 September 2025 11:32 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

I have followed up with our engineers. They believe they are close to a resolution on the problem, hopefully by the end of this week. In that context they'd prefer to assess the data independently so they can draw their own conclusions. This project is a top priority for them and will action it ASAP. They appreciate your patience.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

---

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Wednesday, 10 September 2025 10:27 AM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Good morning, Robert,

Following up from our telephone conversation on Monday, do you have an update from your traffic engineering team in relation to either the technical problems or if there is an alternative approach to review the information previously provided in relation to our intersection assessment and modelling. We would note that the output summaries provided in the appendix of the TIA as well as the additional information provided following our meeting on 29 July 2025 should be sufficient for Council to finalise their review. We appreciate your efforts to close this out as quickly as possible given this matter has been dragging on for some several weeks.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Tuesday, 2 September 2025 10:33 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

Our traffic engineers have again advised me that they do not have an ETA yet for resolution of their technical problems. Unfortunately this issue is delaying their assessment of several projects and they do not have a way around it at this time.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

---

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Monday, 1 September 2025 4:21 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: CM: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Hope you had a good weekend.

Following up on your traffic team's review of the outstanding traffic advice – your update would be much appreciated. Noting that the Department has advised that given Council's advice on traffic is quite critical, their preference is for us to hold on finalising and submitting our documentation until we receive your feedback.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Wednesday, 27 August 2025 8:55 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>

Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

I don't have any specific ETA on the remaining traffic advice. The traffic team's service provider is making progress towards resolution of the problem.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

Bayside Council acknowledges the Bidjigal Clan, the traditional owners of the land on which we meet and work, and acknowledges the Gadigal people of the Eora Nation. Bayside Council pays respects to Elders past and present.

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Tuesday, 26 August 2025 8:44 AM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Good morning, Robert,

Hoping you could please provide an update on the last remaining matter in relation to Traffic.

Look forward to hearing from you soon.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Nellie O'Keeffe
Sent: Thursday, 21 August 2025 11:53 AM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford

<Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Thank you for providing the below on flooding. The Council's in principle acceptance is very welcome news. We will ensure that the flood report provides the information requested.

Look forward to receiving your further update following the traffic engineering team's review of the intersection assessment.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Thursday, 21 August 2025 10:51 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

Atef has provided the following comments on flooding, if anything needs clarification please let me know.

> *After reviewing the proposal is acceptable in principle for the attached civil drawings pending the final set of stormwater plans.*

The email correspondence from TU FLOW to be provided in the appendix of the updated flood report as per the flood modelling explanation note.

The Program Developers (via support@tuflow.com) – provided the following advice.

> *"The afflux you see may be associated with the change in ground elevation at the edge of your raised development pad. Despite applying a map cutoff depth to remove mapped sheet flow extents, at the interface of the computed sheet flow and surrounding flood flow TUFLOW is deriving the ASC output grid from computational results at model cell centres – interpolating to the higher water level up the slope (see e.g. diagram below). Further to this, the results at these computational points are interpolated to centres of half cells (the Grid Output Cell Size default), to a regular north-south aligned grid (if the model orientation is angled), and to a grid origin rounded to the set Grid Output Cell Size (by default)"* -

The flood report to include the methodology on how the box culvert was designed in TU FLOW. A cut and fill plan to be provided to show the area of cut to fill for the displacement of floodwater in the final package and all modelling files including the raster files to be provided to be provided as well.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

---

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Wednesday, 20 August 2025 5:11 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Thank you for the update and appreciate the effort of your engineering team to help with closing out traffic and flooding matters.

We look forward to receiving further updates on the traffic intersection assessment and the flooding, hopefully by the end of the week.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Wednesday, 20 August 2025 4:35 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

At this stage further meetings are unlikely to resolve anything on our side.

Traffic
Please see the attached queueing analysis from our traffic engineers. Essentially it confirms that your site can operate without queueing onto Hale Street provided the proportion of B-double vehicles does not exceed 50%. We will supply this as an appendix to our broader traffic comments, including recommendations as to how Council's residual concern could be mitigated by conditions of consent.

The traffic engineers are still encountering technical issues which are delaying their intersection assessment. The team have escalated this issue with our service providers but do not have an ETA yet on that component.

Flooding
Atef has advised that he will provide some draft summary comments to me by tomorrow. I appreciate this deadline has shifted several times. I will continue to check in with him and his Coordinator ensure this work receives priority attention.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Tuesday, 19 August 2025 4:38 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>

Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Appreciate any updates from the work over the weekend on flooding and when we may expect to receive a response on traffic. Happy to get the team together for a meeting if that would help to discuss any queries or feedback?

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Friday, 15 August 2025 3:29 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

Further to my last email, the engineers have promised to work over the weekend on the flooding information. I hope to have something for you by Tuesday.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

Bayside Council acknowledges the Bidjigal Clan, the traditional owners of the land on which we meet and work, and acknowledges the Gadigal people of the Eora Nation. Bayside Council pays respects to Elders past and present.

From: Robert McKinlay
Sent: Thursday, 14 August 2025 4:11 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>

Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

I apologise for the delay.

- Traffic: the team are making good progress on a technical response and a recommendation which may resolve the queueing concerns. I hope to share it with you and DPHI soon.
- Flooding: I am still chasing our engineers on this matter. I will advise as soon they provide me with their response.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

Bayside Council acknowledges the Bidjigal Clan, the traditional owners of the land on which we meet and work, and acknowledges the Gadigal people of the Eora Nation. Bayside Council pays respects to Elders past and present.

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Thursday, 14 August 2025 8:23 AM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Further to our telephone conversation on Monday, can you please provide an update on the items below?

We understand that the Department is keen to resolve any outstanding matters so another round of agency reviews will not be required. We are in the process of updating our reports ready for submission and would therefore appreciate your prompt response and feedback on flooding and traffic.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Friday, 8 August 2025 3:45 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>; Lisa Ho <Lisa.Ho@bayside.nsw.gov.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

On Flooding: Atef says he will have more to tell me on Monday.

On Traffic: Jason has prepared some detailed queue modelling, but I'd like to run it past Josh before we share it with you. There are some technical issues delaying their work to validate the intersection modelling, but they are making progress.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Friday, 8 August 2025 10:42 AM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Noting your email below, I would appreciate an update today on timing for Council's response to information we have provided both for **flooding / stormwater** and **traffic.**

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Monday, 4 August 2025 9:17 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Nellie,

I have followed up with Atef and asked him to make this a priority. He doesn't have an ETA for our response yet.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Thursday, 31 July 2025 4:16 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Following up on the information provided 2 weeks ago, can you please provide an update on timing at your end?

Many thanks,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Monday, 21 July 2025 9:21 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>
Subject: RE: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Thanks Nellie,

I have provided this to our engineers for their consideration.

Kind regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Thursday, 17 July 2025 6:21 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Peter Harbour <Peter.Harbour@cjarms.com>; ben.wilson@cjarms.com; Josh Ford <Josh.Ford@bayside.nsw.gov.au>; Victoria Hale <victoria@elementenvironment.com.au>; Elena Ivanova <elena@coombesgroup.com.au>
Subject: CM: RE: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding

Hi Robert,

Further to our meeting yesterday and our recent flood modelling work, we provide the following and attached advice in relation to our proposed development at 2 Hale Street, Botany.

In order to mitigate the affluxes that were occurring in the original submission we have introduced a large culvert across part of the developed site to restore the flow regime between the Sydney Water channel and Hale Street.
The attached word document describes the general approach to this additional modelling and the associated parameters used for Council's review. We appreciate Council's offer to review the data and look forward to a positive outcome – or any follow up information to help achieve this.

The supporting raster files (and a copy of the note) are found on this link.
https://www.dropbox.com/scl/fo/jyzbnkvnoucazm8xq5k3m/AM3Qf6xNirpsdOh560YQMFQ?rlkey=c19dj8sf4zlg729zpfziaqmo7&st=bwunwieq&dl=0

In addition, please find attached some preliminary civil engineering plans associated with the stormwater management proposal for the site, which includes updated/refined levels reflecting the design changes made to inform the modelling and its improved performance – as well as the proposed stormwater network we intend to detail up to drain the site. Understanding that this is a development application phase and that there are future detailed design phases, we feel that this work goes to demonstrate that the site can be developed and manage stormwater and flooding appropriately. We believe the project is ready for approval to move onto the next phase of development.

We are happy for your engineering team to reach out to CJ Arms directly (Ben and Peter both copied into this email) if there are any technical questions. Once approved in-principle we understand the next step is to make the necessary amendments to the supporting documents of the original application to close out these queries.

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

-----Original Appointment-----
From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Thursday, 10 July 2025 12:16 PM
To: Robert McKinlay; Josh Ford; Atef Syed; Christopher Thompson; Karim Elazar; Haven Barr; Sally Munk; Victoria Hale; Elena Ivanova; Nellie O'Keeffe; ben.wilson@cjarms.com; Peter Harbour
Subject: Meeting - SSD 62855708 - Waste Management Facility -2 Hale Street, Botany - Further Stormwater and Flooding
When: Tuesday, 15 July 2025 3:00 PM-4:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.
Where: Microsoft Teams Meeting; Customer Service Centre G2

Hi All,

We are meeting because the proponent wishes to present further information in relation to this SSD regarding Floodplain Management and Stormwater Management.

The proponent and consultants are joining online.

The proponent will be represented by:
Ben Wilson – CJ Arms
Peter Harbour – CJ Arms

Victoria Hale – Element Environment
Elena Ivanova – Coombes Property Group

NSW Department of Planning, Housing and Infrastructure will be represented by:
Sally Munk – Principal Planner, Industry Assessments

Attending from Bayside Council:
Atef Syed - Senior Development Engineer
Christopher Thompson – Development Engineer
Karim Elazar – Coordinator - Public Domain & Referrals
Josh Ford – Coordinator Planning Policy
Robert McKinlay – Senior Urban Planner
Haven Barr – Cadet Planner

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 451 038 453 298 6

Passcode: BQ2Sa3cQ

For organizers: Meeting options

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Wednesday, 9 July 2025 1:53 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Thanks Robert. Glad to hear you're hanging in there! Let me check with the team and I'll come back to you as soon as possible. Please hold the time.

Many thanks,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Wednesday, 9 July 2025 1:50 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Hi Nellie,

I'm doing ok. Plenty of others are falling sick around me though with cold and flu. At this time there's just a 1 hour window available early next week for our engineers and us: **Tuesday 3pm -4pm**
Let me know if that doesn't suit and I will look at the back half of the week too.

Thanks,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Tuesday, 8 July 2025 3:06 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Hi Robert,

Hope you've been well.

CJ Arms have been working on the flood modelling and culvert design since we last met and we would like to set up a further meeting early to mid-next week to provide you and your engineering team (and DPHI) an update. Would you mind coming back to me with some dates / times that work for you and your team, please?

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Friday, 30 May 2025 9:26 AM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Hi Nellie,

That's understandable, online can work too. I think for ease of connecting to our meeting room's video conferencing equipment, it's best if I send the invites out.

If you can confirm the email addresses of the invitees on your side please.
I have:

- Victoria Hale victoria@elementenvironment.com.au
- Elena Ivanova elena@coombesgroup.com.au
- Sally Munk sally.munk@planning.nsw.gov.au

Please send through the emails for:

- Ben Wilson – CJ Arms
- Peter Harbour – CJ Arms

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Friday, 30 May 2025 7:58 AM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Hi Robert,

Thank you for your patience whilst I check availability with the team. We would like to go ahead with the meeting on Wednesday 4 June at 2pm but we will need to attend online due to consultant availabilities interstate.

Our attendees will be:

Ben Wilson – CJ Arms
Peter Harbour – CJ Arms
Victoria Hale – Element Environment

Elena Ivanova – Coombes Property Group

I will also be inviting Sally Munk from the Department at her request.

Unfortunately, I am unable to make the meeting as I will be travelling for work. Ben will be leading the meeting.

Would you like us to send an invite or will you?

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Wednesday, 28 May 2025 3:18 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Hi Nellie,

The engineers are ok with an in-person meeting for an hour in the 2pm-4pm window on Wednesday afternoon. Our office typically has a shortage of meeting rooms, so I've booked a 16 person room for the 2pm-3pm timeslot. We can move it up to an hour later at this stage if required.
The room is equipped with MS Teams equipment, so if any of your team wish to join remotely that should also be possible.

At this stage, these attendees are confirmed:

Atef Syed - Senior Development Engineer
Christopher Thompson – Development Engineer
Karim Elazar – Coordinator - Public Domain & Referrals

I'm still waiting for confirmation from the following:

Neville Naicker - Coordinator Asset Planning
Josh Ford – Coordinator Planning Policy (on leave until tomorrow)

If that all works for you, I'll issue an invite for the above.

Kind Regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

---

From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Tuesday, 27 May 2025 4:52 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Thanks for the quick response, Robert.

Our preference would be for an in person meeting in your offices and not sure if 30 minutes would be quite long enough. Would there be any chance we could find an hour next week?

Kind regards,

Nellie O'Keeffe
Executive Development Director
Coombes Property Group

M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

From: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Sent: Tuesday, 27 May 2025 4:39 PM
To: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Apologies, that date should be 4 June 2025.

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Robert McKinlay
Sent: Tuesday, 27 May 2025 4:36 PM
To: 'Nellie O'Keeffe' <Nellie@coombesgroup.com.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>; Josh Ford <Josh.Ford@bayside.nsw.gov.au>
Subject: RE: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Hi Nellie,

Thank you, I'm well. At this point there's tentative availability for our engineers for a short meeting (30 minutes) on Wednesday 4 May 2025 between 2pm and 4pm. Does this work for your team? If not, it may need to be the week after.

I've received confirmation from **Christopher Thompson – Development Engineer** and **Karim Elazar – Coordinator - Public Domain & Referrals** so the stormwater aspects should be covered.
I'm still waiting on a response from **Neville Naicker - Coordinator Asset Planning** who would handle the flooding matters. I'll follow up with him in the next day or two to try and lock this down.

Kind regards,

Robert McKinlay
Senior Urban Planner
444-446 Princes Highway, Rockdale NSW 2216
T 9366 3724
E Robert.McKinlay@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

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From: Nellie O'Keeffe <Nellie@coombesgroup.com.au>
Sent: Tuesday, 27 May 2025 3:42 PM
To: Robert McKinlay <Robert.McKinlay@bayside.nsw.gov.au>
Cc: Elena Ivanova <elena@coombesgroup.com.au>
Subject: Waste Management Facility, Botany SSD-62855708 - Advice on Submissions Report

Hi Robert,

Trust this email finds you well.

We have recently received your advice on our Submissions Report for our proposed Waste Management Facility at 2-4 Hale Street, Botany. We are considering your advice and would like to arrange a meeting with your team to discuss your comments and some options we'd like to present in relation to Floodplain Management and Stormwater Management.

Would you please confirm your availability for a meeting, preferably next week (w/c 2 June).

Many thanks,

Nellie O'Keeffe
Executive Development Director

Level 5, 2 Grosvenor Street
Bondi Junction NSW 2022
T: +61 2 9389 6111
M: +61 400 208 658
E: nellie@coombesgroup.com.au
W: coombespropertygroup.com.au

Attachment 5

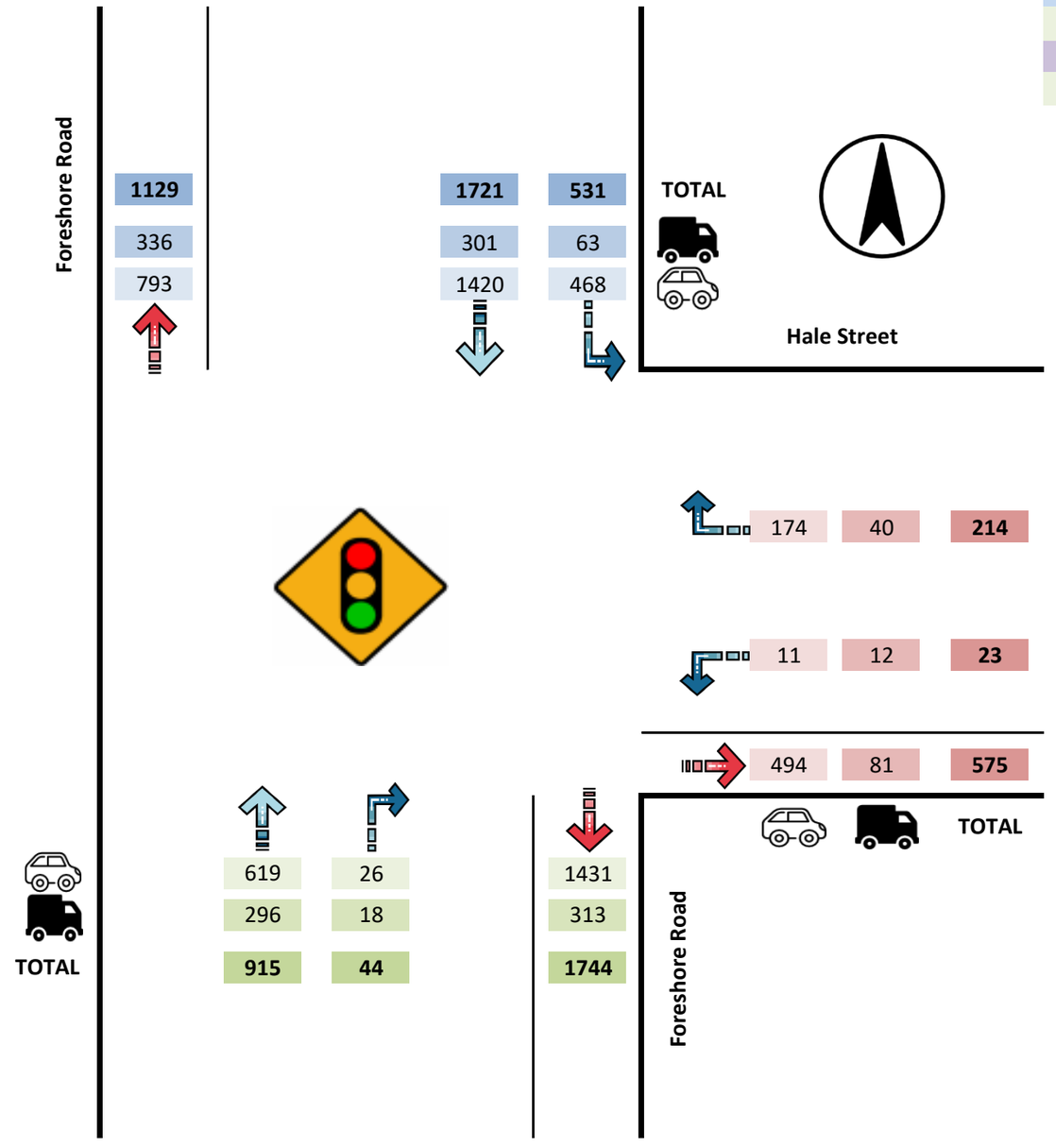
Survey Results

Location	**Foreshore Road**	**Duration**	**7:00 - 9:00**
	Hale Street		**16:30 - 18:30**
	Foreshore Road		**-**
	-	**Day/Date**	**Tuesday, 24 October 2023**
Suburb	**BOTANY**	**Weather**	**Dry**

DATA SELECTION

Select Time: PEAK

TIME RANGE		
PEAK	**-**	**AM**
PEAK		
8:00	**-**	**9:00**



Traffic Information Specialist

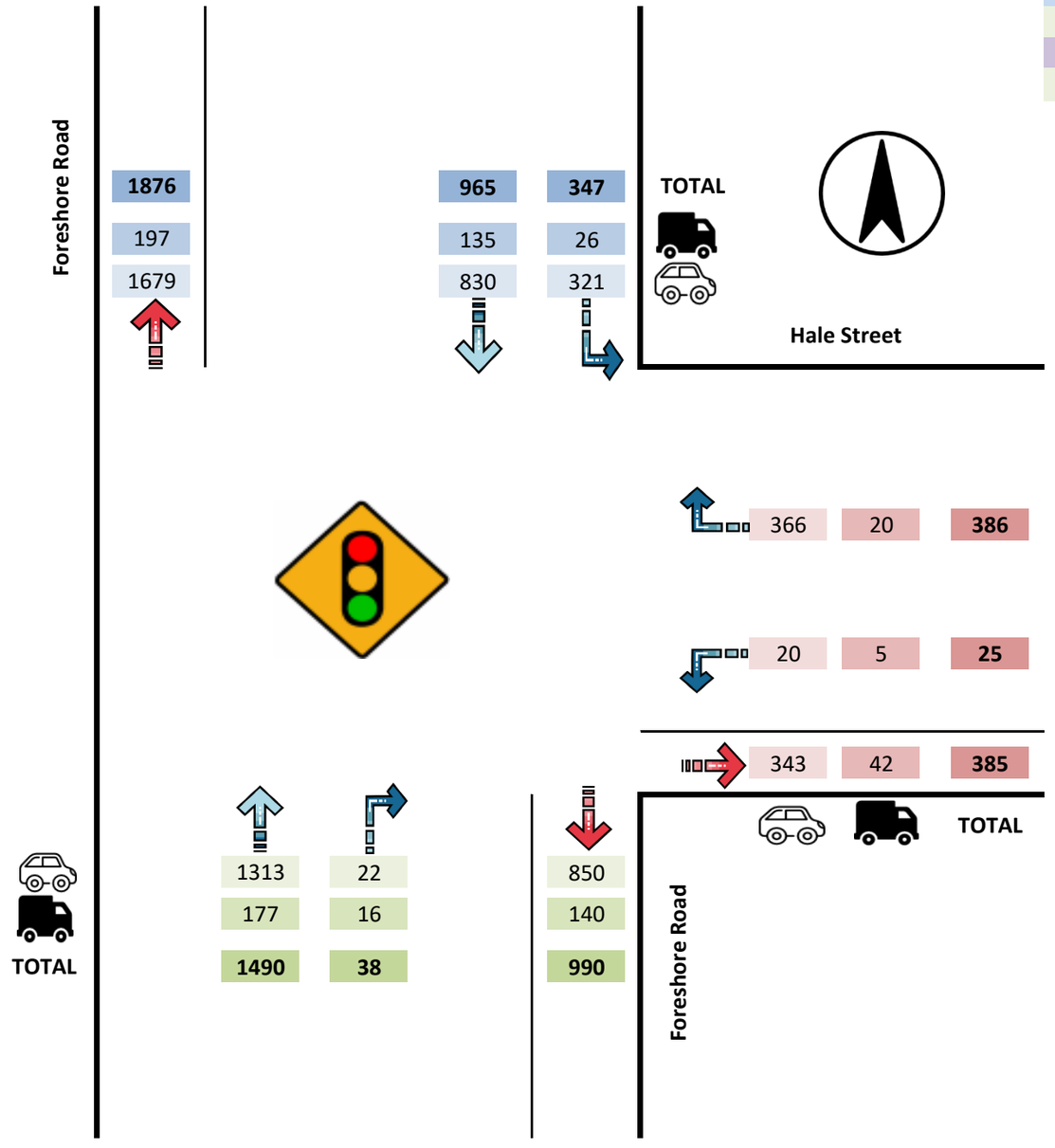
ABN: 42 613 389 923

Email info@tistraffic.com.au

Location	**Foreshore Road**	**Duration**	**7:00 - 9:00**
	Hale Street		**16:30 - 18:30**
	Foreshore Road		**-**
	-	**Day/Date**	**Tuesday, 24 October 2023**
Suburb	**BOTANY**	**Weather**	**Dry**

DATA SELECTION
Select Time: PEAK

TIME RANGE		
PEAK	**-**	**PM**
PEAK		
16:30	**-**	**17:30**



Traffic Information Specialist

ABN: 42 613 389 923

Email info@tistraffic.com.au

Location	**Foreshore Road**	**Duration**	**7:00 - 9:00**
	Hale Street		**16:30 - 18:30**
	Foreshore Road		
	-	**Day/Date**	**Tuesday, 24 October 2023**
Suburb	**BOTANY**	**Weather**	**-**

All Vehicles Time Per Hour	**NORTH** *Foreshore Road*										**EAST** *Hale Street*											
	L			T			R				L			T			R				TOTAL	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
7:00 - 8:00	413	42	**455**	1242	327	**1569**				**2024**	14	11	**25**				208	49	**257**	**282**	2531	701	**3232**
7:15 - 8:15	454	44	**498**	1267	313	**1580**				**2078**	12	15	**27**				198	57	**255**	**282**	2623	717	**3340**
7:30 - 8:30	442	49	**491**	1334	312	**1646**				**2137**	12	16	**28**				195	59	**254**	**282**	2682	726	**3408**
7:45 - 8:45	466	55	**521**	1394	290	**1684**				**2205**	11	16	**27**				178	51	**229**	**256**	2724	714	**3438**
8:00 - 9:00	468	63	**531**	1420	301	**1721**				**2252**	11	12	**23**				174	40	**214**	**237**	2718	730	**3448**
Period End																							
16:30 - 17:30	321	26	**347**	830	135	**965**				**1312**	20	5	**25**				366	20	**386**	**411**	2872	379	**3251**
16:45 - 17:45	301	26	**327**	788	143	**931**				**1258**	16	5	**21**				369	21	**390**	**411**	2773	367	**3140**
17:00 - 18:00	284	22	**306**	777	132	**909**				**1215**	15	2	**17**				360	19	**379**	**396**	2670	326	**2996**
17:15 - 18:15	256	22	**278**	747	133	**880**				**1158**	13	1	**14**				348	17	**365**	**379**	2509	316	**2825**
17:30 - 18:30	222	24	**246**	680	134	**814**				**1060**	14	1	**15**				345	16	**361**	**376**	2315	310	**2625**
Period End																							

All Vehicles Time Per Hour	**SOUTH** *Foreshore Road*										**WEST** -											
	L			T			R				L			T			R				TOTAL	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
7:00 - 8:00				635	257	**892**	19	15	**34**	**926**											2531	701	**3232**
7:15 - 8:15				671	273	**944**	21	15	**36**	**980**											2623	717	**3340**
7:30 - 8:30				671	275	**946**	28	15	**43**	**989**											2682	726	**3408**
7:45 - 8:45				645	288	**933**	30	14	**44**	**977**											2724	714	**3438**
8:00 - 9:00				619	296	**915**	26	18	**44**	**959**											2718	730	**3448**
Period End																							
16:30 - 17:30				1313	177	**1490**	22	16	**38**	**1528**											2872	379	**3251**
16:45 - 17:45				1279	158	**1437**	20	14	**34**	**1471**											2773	367	**3140**
17:00 - 18:00				1220	141	**1361**	14	10	**24**	**1385**											2670	326	**2996**
17:15 - 18:15				1135	134	**1269**	10	9	**19**	**1288**											2509	316	**2825**
17:30 - 18:30				1045	129	**1174**	9	6	**15**	**1189**											2315	310	**2625**
Period End																							

Traffic Information Specialist

ABN: 42 613 389 923

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Location	**Foreshore Road**	**Duration**	**7:00 - 9:00**
	Hale Street		**16:30 - 18:30**
	Foreshore Road		**-**
	-	**Day/Date**	**Tuesday, 24 October 2023**
Suburb	**BOTANY**	**Weather**	**Dry**

All Vehicles Time Per 15 Mins	**NORTH** *Foreshore Road*										**EAST** *Hale Street*											
	L			**T**			**R**				**L**			**T**			**R**				**TOTAL**	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	**TOTAL**	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	**TOTAL**	LIGHT	HEAVY	**TOTAL**
7:00 - 7:15	97	10	**107**	324	88	**412**				**519**	3	0	**3**				52	4	**56**	**59**	617	166	**783**
7:15 - 7:30	101	9	**110**	287	84	**371**				**481**	4	3	**7**				53	11	**64**	**71**	623	176	**799**
7:30 - 7:45	109	13	**122**	296	87	**383**				**505**	2	2	**4**				56	14	**70**	**74**	640	180	**820**
7:45 - 8:00	106	10	**116**	335	68	**403**				**519**	5	6	**11**				47	20	**67**	**78**	651	179	**830**
8:00 - 8:15	138	12	**150**	349	74	**423**				**573**	1	4	**5**				42	12	**54**	**59**	709	182	**891**
8:15 - 8:30	89	14	**103**	354	83	**437**				**540**	4	4	**8**				50	13	**63**	**71**	682	185	**867**
8:30 - 8:45	133	19	**152**	356	65	**421**				**573**	1	2	**3**				39	6	**45**	**48**	682	168	**850**
8:45 - 9:00	108	18	**126**	361	79	**440**				**566**	5	2	**7**				43	9	**52**	**59**	645	195	**840**
Period End	**881**	**105**	**986**	**2662**	**628**	**3290**				**4276**	**25**	**23**	**48**				**382**	**89**	**471**	**519**	**5249**	**1431**	**6680**
16:30 - 16:45	80	7	**87**	258	33	**291**				**378**	7	0	**7**				92	6	**98**	**105**	746	106	**852**
16:45 - 17:00	77	12	**89**	188	44	**232**				**321**	5	3	**8**				90	6	**96**	**104**	687	117	**804**
17:00 - 17:15	81	5	**86**	169	32	**201**				**287**	6	2	**8**				98	4	**102**	**110**	694	88	**782**
17:15 - 17:30	83	2	**85**	215	26	**241**				**326**	2	0	**2**				86	4	**90**	**92**	745	68	**813**
17:30 - 17:45	60	7	**67**	216	41	**257**				**324**	3	0	**3**				95	7	**102**	**105**	647	94	**741**
17:45 - 18:00	60	8	**68**	177	33	**210**				**278**	4	0	**4**				81	4	**85**	**89**	584	76	**660**
18:00 - 18:15	53	5	**58**	139	33	**172**				**230**	4	1	**5**				86	2	**88**	**93**	533	78	**611**
18:15 - 18:30	49	4	**53**	148	27	**175**				**228**	3	0	**3**				83	3	**86**	**89**	551	62	**613**
Period End	**543**	**50**	**593**	**1510**	**269**	**1779**				**2372**	**34**	**6**	**40**				**711**	**36**	**747**	**787**	**5187**	**689**	**5876**

All Vehicles Time Per 15 Mins	**SOUTH** *Foreshore Road*										**WEST** *-*											
	L			**T**			**R**				**L**			**T**			**R**				**TOTAL**	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	**TOTAL**	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	**TOTAL**	LIGHT	HEAVY	**TOTAL**
7:00 - 7:15				137	62	**199**	4	2	**6**	**205**											617	166	**783**
7:15 - 7:30				175	66	**241**	3	3	**6**	**247**											623	176	**799**
7:30 - 7:45				173	60	**233**	4	4	**8**	**241**											640	180	**820**
7:45 - 8:00				150	69	**219**	8	6	**14**	**233**											651	179	**830**
8:00 - 8:15				173	78	**251**	6	2	**8**	**259**											709	182	**891**
8:15 - 8:30				175	68	**243**	10	3	**13**	**256**											682	185	**867**
8:30 - 8:45				147	73	**220**	6	3	**9**	**229**											682	168	**850**
8:45 - 9:00				124	77	**201**	4	10	**14**	**215**											645	195	**840**
Period End				**1254**	**553**	**1807**	**45**	**33**	**78**	**1885**											**5249**	**1431**	**6680**
16:30 - 16:45				306	57	**363**	3	3	**6**	**369**											746	106	**852**
16:45 - 17:00				320	46	**366**	7	6	**13**	**379**											687	117	**804**
17:00 - 17:15				335	41	**376**	5	4	**9**	**385**											694	88	**782**
17:15 - 17:30				352	33	**385**	7	3	**10**	**395**											745	68	**813**
17:30 - 17:45				272	38	**310**	1	1	**2**	**312**											647	94	**741**
17:45 - 18:00				261	29	**290**	1	2	**3**	**293**											584	76	**660**
18:00 - 18:15				250	34	**284**	1	3	**4**	**288**											533	78	**611**
18:15 - 18:30				262	28	**290**	6	0	**6**	**296**											551	62	**613**
Period End				**2358**	**306**	**2664**	**31**	**22**	**53**	**2717**											**5187**	**689**	**5876**

Traffic Information Specialist

ABN: 42 613 389 923

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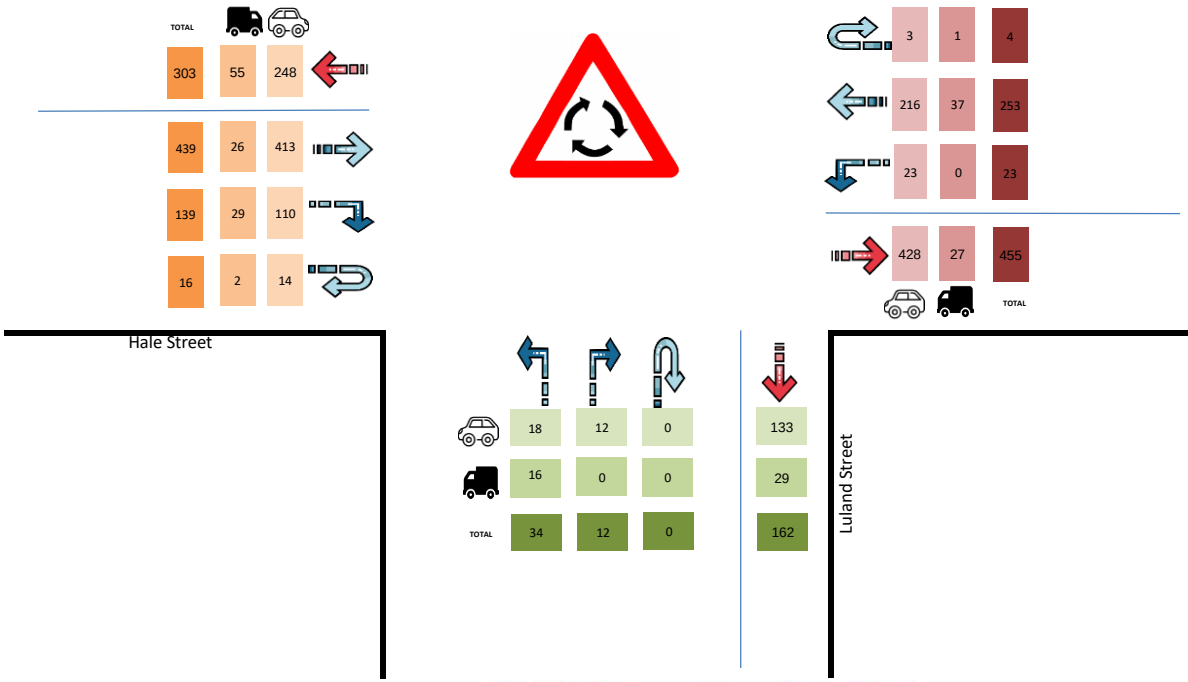
Location	-		**Duration**	**7:00**	-	**9:00**
	Hale Street				-	
	Luland Street			**16:30**	-	**18:30**
	Hale Street		**Date**	**Wednesday, 18 September 2024**		
Suburb	**BOTANY**		**Weather**	**Dry**		

DATA SELECTION

Select Time: PEAK

TIME RANGE		
PEAK	-	**AM**
PEAK		
7:15	-	**8:15**

Hale Street



Traffic Information Specialist

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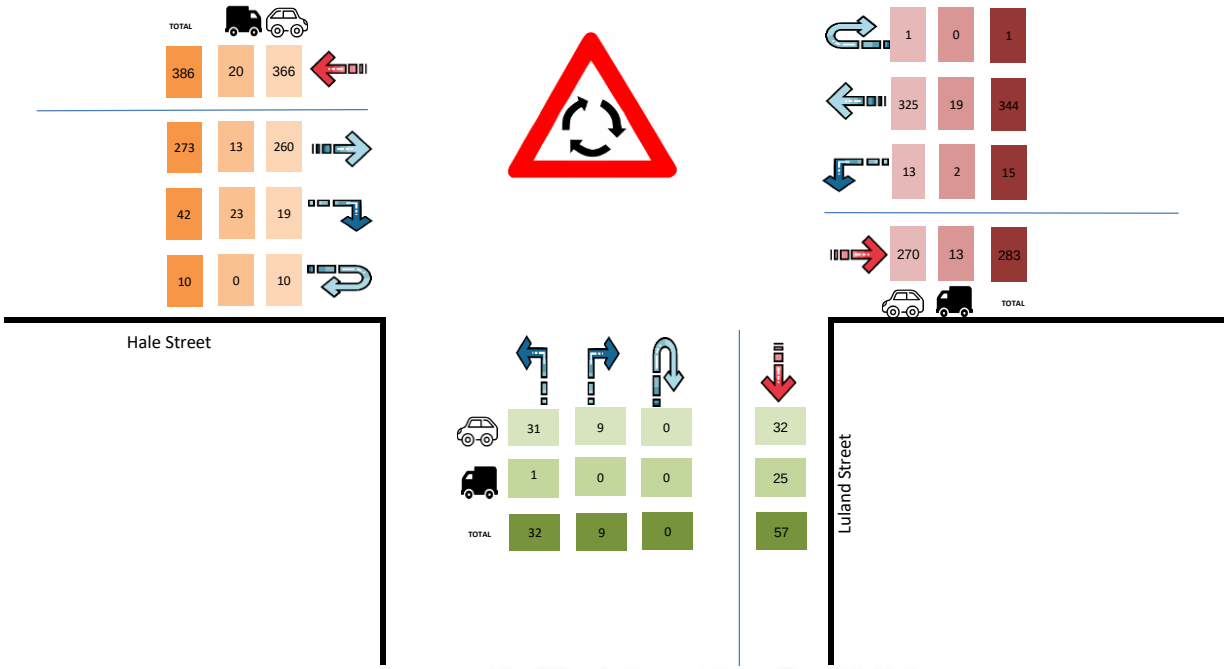
Location	-		**Duration**	**7:00**	-	**9:00**
	Hale Street				-	
	Luland Street			**16:30**	-	**18:30**
	Hale Street		**Date**	**Wednesday, 18 September 2024**		
Suburb	**BOTANY**		**Weather**	**Dry**		

DATA SELECTION

Select Time: PEAK

TIME RANGE		
PEAK	-	**PM**
PEAK		
17:00	-	**18:00**



Traffic Information Specialist

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Location	-	**Duration**	**7:00**	-	**9:00**
	Hale Street			-	
	Luland Street		**16:30**	-	**18:30**
	Hale Street	**Date**	**Wednesday, 18 September 2024**		
Suburb	**BOTANY**	**Weather**	**Dry**		

All Vehicles	**NORTH**													**EAST**														
Time Per 15 Mins	-													***Hale Street***														
	L			**T**			**R**			**U**				**L**			**T**			**R**			**U**				**TOTAL**	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
7:00 - 7:15														1	0	**1**	53	10	**63**				0	2	**2**	**66**	185	32	**217**
7:15 - 7:30														5	0	**5**	50	4	**54**				1	0	**1**	**60**	197	25	**222**
7:30 - 7:45														4	0	**4**	60	11	**71**				1	0	**1**	**76**	205	30	**235**
7:45 - 8:00														6	0	**6**	61	9	**70**				0	1	**1**	**77**	221	23	**244**
8:00 - 8:15														8	0	**8**	45	13	**58**				1	0	**1**	**67**	186	33	**219**
8:15 - 8:30														3	1	**4**	31	10	**41**				1	0	**1**	**46**	144	27	**171**
8:30 - 8:45														5	1	**6**	34	9	**43**				1	0	**1**	**50**	159	30	**189**
8:45 - 9:00														2	3	**5**	43	14	**57**				0	1	**1**	**63**	186	35	**221**
Period End														**34**	**5**	**39**	**377**	**80**	**457**				**5**	**4**	**9**	**505**	**1483**	**235**	**1718**
16:30 - 16:45														3	0	**3**	84	5	**89**				0	0	**0**	**92**	171	18	**189**
16:45 - 17:00														2	0	**2**	66	3	**69**				1	0	**1**	**72**	160	8	**168**
17:00 - 17:15														1	0	**1**	98	7	**105**				0	0	**0**	**106**	185	20	**205**
17:15 - 17:30														3	1	**4**	70	4	**74**				0	0	**0**	**78**	150	12	**162**
17:30 - 17:45														3	0	**3**	90	2	**92**				1	0	**1**	**96**	178	7	**185**
17:45 - 18:00														6	1	**7**	67	6	**73**				0	0	**0**	**80**	155	19	**174**
18:00 - 18:15														0	0	**0**	69	3	**72**				0	0	**0**	**72**	144	10	**154**
18:15 - 18:30														0	0	**0**	61	4	**65**				0	0	**0**	**65**	144	17	**161**
Period End														**18**	**2**	**20**	**605**	**34**	**639**				**2**	**0**	**2**	**661**	**1287**	**111**	**1398**

All Vehicles	**SOUTH**													**WEST**														
Time Per 15 Mins	***Luland Street***													***Hale Street***														
	L			**T**			**R**			**U**				**L**			**T**			**R**			**U**				**TOTAL**	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
7:00 - 7:15	3	2	**5**				3	2	**5**	0	1	**1**	**11**				90	6	**96**	28	8	**36**	7	1	**8**	**140**	185	32	**217**
7:15 - 7:30	4	5	**9**				3	0	**3**	0	0	**0**	**12**				96	4	**100**	36	12	**48**	2	0	**2**	**150**	197	25	**222**
7:30 - 7:45	3	6	**9**				2	0	**2**	0	0	**0**	**11**				108	7	**115**	24	6	**30**	3	0	**3**	**148**	205	30	**235**
7:45 - 8:00	4	3	**7**				3	0	**3**	0	0	**0**	**10**				110	5	**115**	30	5	**35**	7	0	**7**	**157**	221	23	**244**
8:00 - 8:15	7	2	**9**				4	0	**4**	0	0	**0**	**13**				99	10	**109**	20	6	**26**	2	2	**4**	**139**	186	33	**219**
8:15 - 8:30	11	1	**12**				2	0	**2**	1	0	**1**	**15**				81	4	**85**	11	9	**20**	3	2	**5**	**110**	144	27	**171**
8:30 - 8:45	9	2	**11**				2	1	**3**	0	0	**0**	**14**				92	8	**100**	14	9	**23**	2	0	**2**	**125**	159	30	**189**
8:45 - 9:00	10	4	**14**				2	1	**3**	1	0	**1**	**18**				103	6	**109**	19	5	**24**	6	1	**7**	**140**	186	35	**221**
Period End	**51**	**25**	**76**				**21**	**4**	**25**	**2**	**1**	**3**	**104**				**779**	**50**	**829**	**182**	**60**	**242**	**32**	**6**	**38**	**1109**	**1483**	**235**	**1718**
16:30 - 16:45	7	2	**9**				1	0	**1**	0	0	**0**	**10**				65	5	**70**	10	6	**16**	1	0	**1**	**87**	171	18	**189**
16:45 - 17:00	8	0	**8**				2	0	**2**	0	0	**0**	**10**				69	2	**71**	10	3	**13**	2	0	**2**	**86**	160	8	**168**
17:00 - 17:15	11	1	**12**				3	0	**3**	0	0	**0**	**15**				63	7	**70**	7	5	**12**	2	0	**2**	**84**	185	20	**205**
17:15 - 17:30	4	0	**4**				3	0	**3**	0	0	**0**	**7**				62	2	**64**	4	5	**9**	4	0	**4**	**77**	150	12	**162**
17:30 - 17:45	8	0	**8**				1	0	**1**	0	0	**0**	**9**				71	0	**71**	3	5	**8**	1	0	**1**	**80**	178	7	**185**
17:45 - 18:00	8	0	**8**				2	0	**2**	0	0	**0**	**10**				64	4	**68**	5	8	**13**	3	0	**3**	**84**	155	19	**174**
18:00 - 18:15	8	1	**9**				4	0	**4**	0	0	**0**	**13**				60	1	**61**	2	5	**7**	1	0	**1**	**69**	144	10	**154**
18:15 - 18:30	5	3	**8**				1	0	**1**	0	0	**0**	**9**				70	2	**72**	4	8	**12**	3	0	**3**	**87**	144	17	**161**
Period End	**59**	**7**	**66**				**17**	**0**	**17**	**0**	**0**	**0**	**83**				**524**	**23**	**547**	**45**	**45**	**90**	**17**	**0**	**17**	**654**	**1287**	**111**	**1398**

Location	-	**Duration**	7:00	-	9:00
	Hale Street			-	
	Luland Street		16:30	-	18:30
	Hale Street	**Date**	Wednesday, 18 September 2024		
Suburb	BOTANY	**Weather**	Dry		

All Vehicles	NORTH													EAST													
Time Per Hour	-													*Hale Street*													
	L			T			R			U				L			T			R			U				TOTAL	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
7:00 - 8:00														16	0	**16**	224	34	**258**				2	3	**5**	**279**	808	110	**918**
7:15 - 8:15														23	0	**23**	216	37	**253**				3	1	**4**	**280**	809	111	**920**
7:30 - 8:30														21	1	**22**	197	43	**240**				3	1	**4**	**266**	756	113	**869**
7:45 - 8:45														22	2	**24**	171	41	**212**				3	1	**4**	**240**	710	113	**823**
8:00 - 9:00														18	5	**23**	153	46	**199**				3	1	**4**	**226**	675	125	**800**
Period End																													
16:30 - 17:30														9	1	**10**	318	19	**337**				1	0	**1**	**348**	666	58	**724**
16:45 - 17:45														9	1	**10**	324	16	**340**				2	0	**2**	**352**	673	47	**720**
17:00 - 18:00														13	2	**15**	325	19	**344**				1	0	**1**	**360**	668	58	**726**
17:15 - 18:15														12	2	**14**	296	15	**311**				1	0	**1**	**326**	627	48	**675**
17:30 - 18:30														9	1	**10**	287	15	**302**				1	0	**1**	**313**	621	53	**674**
Period End																													

All Vehicles	SOUTH													WEST													
Time Per Hour	*Luland Street*													*Hale Street*													
	L			T			R			U				L			T			R			U				TOTAL	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
7:00 - 8:00	14	16	**30**				11	2	**13**	0	1	**1**	**44**				404	22	**426**	118	31	**149**	19	1	**20**	**595**	808	110	**918**
7:15 - 8:15	18	16	**34**				12	0	**12**	0	0	**0**	**46**				413	26	**439**	110	29	**139**	14	2	**16**	**594**	809	111	**920**
7:30 - 8:30	25	12	**37**				11	0	**11**	1	0	**1**	**49**				398	26	**424**	85	26	**111**	15	4	**19**	**554**	756	113	**869**
7:45 - 8:45	31	8	**39**				11	1	**12**	1	0	**1**	**52**				382	27	**409**	75	29	**104**	14	4	**18**	**531**	710	113	**823**
8:00 - 9:00	37	9	**46**				10	2	**12**	2	0	**2**	**60**				375	28	**403**	64	29	**93**	13	5	**18**	**514**	675	125	**800**
Period End																													
16:30 - 17:30	30	3	**33**				9	0	**9**	0	0	**0**	**42**				259	16	**275**	31	19	**50**	9	0	**9**	**334**	666	58	**724**
16:45 - 17:45	31	1	**32**				9	0	**9**	0	0	**0**	**41**				265	11	**276**	24	18	**42**	9	0	**9**	**327**	673	47	**720**
17:00 - 18:00	31	1	**32**				9	0	**9**	0	0	**0**	**41**				260	13	**273**	19	23	**42**	10	0	**10**	**325**	668	58	**726**
17:15 - 18:15	28	1	**29**				10	0	**10**	0	0	**0**	**39**				257	7	**264**	14	23	**37**	9	0	**9**	**310**	627	48	**675**
17:30 - 18:30	29	4	**33**				8	0	**8**	0	0	**0**	**41**				265	7	**272**	14	26	**40**	8	0	**8**	**320**	621	53	**674**
Period End																													

Attachment 6

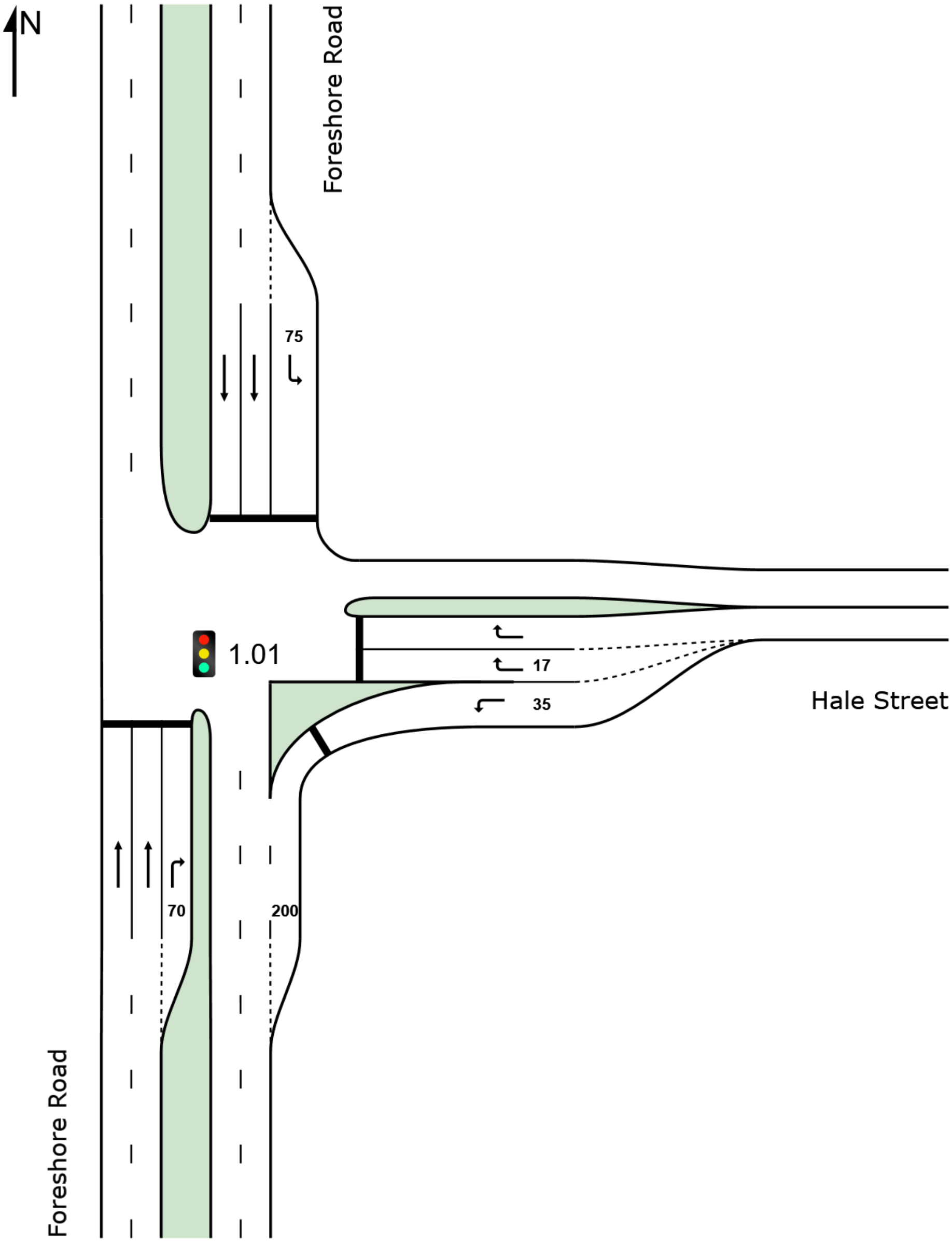
SIDRA Intersection Modelling Results

SITE LAYOUT

Site: 1.01 [1.01 AM EX Hale St x Foreshore Rd (Site Folder: General)]

Intersection: Hale St x Foreshore
Period: AM Peak Hour
Scenario: Exisitng
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 1.01 [1.01 AM EX Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: AM Peak Hour
Scenario: Exisitng
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	963	32.3	963	32.3	0.509	0.4	LOS A	1.0	9.1	0.04	0.04	0.04	78.8
3	R2	All MCs	46	40.9	46	40.9	* 0.355	53.9	LOS D	2.3	21.7	0.91	0.71	0.91	28.6
Approach			1009	32.7	1009	32.7	0.509	2.9	LOS A	2.3	21.7	0.08	0.07	0.08	72.0
East: Hale Street															
4	L2	All MCs	24	52.2	24	52.2	0.052	34.3	LOS C	0.8	8.5	0.68	0.65	0.68	31.4
6	R2	All MCs	225	18.7	225	18.7	* 0.359	49.4	LOS D	5.0	40.7	0.86	0.76	0.86	19.8
Approach			249	21.9	249	21.9	0.359	47.9	LOS D	5.0	40.7	0.85	0.75	0.85	19.2
North: Foreshore Road															
7	L2	All MCs	559	11.9	559	11.9	0.373	6.2	LOS A	0.9	7.1	0.03	0.63	0.03	42.7
8	T1	All MCs	1812	17.5	1812	17.5	* 1.041	52.9	LOS D	70.0	563.2	1.00	1.34	1.45	28.2
Approach			2371	16.2	2371	16.2	1.041	41.9	LOS C	70.0	563.2	0.77	1.17	1.11	29.8
All Vehicles			3629	21.2	3629	21.2	1.041	31.5	LOS C	70.0	563.2	0.59	0.84	0.81	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1.02 [1.02 PM EX Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: PM Peak Hour
Scenario: Exisitng
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	1568	11.9	1568	11.9	* 0.714	0.4	LOS A	2.3	17.6	0.07	0.07	0.07	79.0
3	R2	All MCs	40	42.1	40	42.1	0.172	10.1	LOS A	0.2	1.7	0.11	0.62	0.11	52.5
Approach			1608	12.6	1608	12.6	0.714	0.6	LOS A	2.3	17.6	0.07	0.08	0.07	77.8
East: Hale Street															
4	L2	All MCs	26	20.0	26	20.0	0.043	24.8	LOS B	0.7	5.9	0.66	0.64	0.66	37.4
6	R2	All MCs	406	5.2	406	5.2	* 0.705	54.9	LOS D	8.6	63.2	0.97	0.87	1.06	20.1
Approach			433	6.1	433	6.1	0.705	53.1	LOS D	8.6	63.2	0.95	0.86	1.04	17.8
North: Foreshore Road															
7	L2	All MCs	365	7.5	365	7.5	0.244	6.2	LOS A	0.4	3.1	0.03	0.62	0.03	42.8
8	T1	All MCs	1016	14.0	1016	14.0	0.597	0.5	LOS A	1.1	8.4	0.05	0.05	0.05	78.6
Approach			1381	12.3	1381	12.3	0.597	2.0	LOS A	1.1	8.4	0.05	0.20	0.05	68.7
All Vehicles			3422	11.7	3422	11.7	0.714	7.8	LOS A	8.6	63.2	0.17	0.23	0.18	57.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1.03 [1.03 AM EX + DEV Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: AM Peak Hour
Scenario: Exisitng + Development
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	963	32.3	963	32.3	0.509	0.4	LOS A	1.0	9.1	0.04	0.04	0.04	78.8
3	R2	All MCs	48	39.1	48	39.1	* 0.367	53.9	LOS D	2.4	22.5	0.91	0.71	0.91	28.6
Approach			1012	32.7	1012	32.7	0.509	3.0	LOS A	2.4	22.5	0.08	0.07	0.08	71.7
East: Hale Street															
4	L2	All MCs	24	52.2	24	52.2	0.052	34.3	LOS C	0.8	8.5	0.68	0.65	0.68	31.4
6	R2	All MCs	240	23.2	240	23.2	* 0.451	55.3	LOS D	5.5	50.0	0.89	0.78	0.89	19.4
Approach			264	25.9	264	25.9	0.451	53.3	LOS D	5.5	50.0	0.87	0.76	0.87	17.9
North: Foreshore Road															
7	L2	All MCs	576	13.9	576	13.9	0.396	6.2	LOS A	1.0	8.0	0.04	0.63	0.04	42.5
8	T1	All MCs	1812	17.5	1812	17.5	* 1.041	53.2	LOS D	70.1	564.1	1.00	1.34	1.45	28.1
Approach			2387	16.6	2387	16.6	1.041	41.9	LOS C	70.1	564.1	0.77	1.17	1.11	29.7
All Vehicles			3663	21.7	3663	21.7	1.041	32.0	LOS C	70.1	564.1	0.59	0.84	0.81	34.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1.04 [1.04 PM EX + DEV Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: PM Peak Hour
Scenario: Exisitng + Development
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	1568	11.9	1568	11.9	* 0.740	0.4	LOS A	2.5	19.3	0.08	0.07	0.08	78.9
3	R2	All MCs	40	42.1	40	42.1	0.178	11.4	LOS A	0.3	2.6	0.17	0.63	0.17	51.3
Approach			1608	12.6	1608	12.6	0.740	0.7	LOS A	2.5	19.3	0.08	0.09	0.08	77.6
East: Hale Street															
4	L2	All MCs	28	18.5	28	18.5	0.043	23.4	LOS B	0.8	6.1	0.64	0.64	0.64	38.3
6	R2	All MCs	423	8.2	423	8.2	* 0.730	55.8	LOS D	9.1	71.9	0.96	0.89	1.09	20.2
Approach			452	8.9	452	8.9	0.730	53.8	LOS D	9.1	71.9	0.94	0.87	1.06	17.7
North: Foreshore Road															
7	L2	All MCs	380	10.8	380	10.8	0.267	6.2	LOS A	0.4	3.6	0.03	0.62	0.03	42.6
8	T1	All MCs	1016	14.0	1016	14.0	0.625	1.2	LOS A	2.5	19.3	0.12	0.11	0.12	76.8
Approach			1396	13.1	1396	13.1	0.625	2.6	LOS A	2.5	19.3	0.09	0.25	0.09	67.1
All Vehicles			3456	12.3	3456	12.3	0.740	8.4	LOS A	9.1	71.9	0.20	0.25	0.21	56.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: TRAFFIX PTY LTD | Licence: NETWORK / 1PC | Processed: Tuesday, 15 October 2024 1:07:27 PM
Project: T:\Synergy\Projects\23\23.464\Modelling\23.464m01v03 TRAFFIX C&D Waste Transfer Station Botany.sip9

MOVEMENT SUMMARY

Site: 1.05 [1.05 AM FUT Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: AM Peak Hour
Scenario: Future (10 Year)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site Practical Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	1156	32.3	1156	32.3	0.505	0.4	LOS A	1.6	14.7	0.04	0.04	0.04	79.0
3	R2	All MCs	56	40.9	56	40.9	* 0.557	9.5	LOS A	0.3	2.9	0.07	0.63	0.07	53.2
Approach			1211	32.7	1211	32.7	0.557	0.8	LOS A	1.6	14.7	0.04	0.07	0.04	77.0
East: Hale Street															
4	L2	All MCs	29	52.2	29	52.2	0.101	75.3	LOS F[11]	1.7	17.1	0.82	0.70	0.82	24.4
6	R2	All MCs	270	18.7	270	18.7	* 0.965	148.9	LOS F[11]	12.7	103.4	1.00	1.14	1.53	9.9
Approach			299	21.9	299	21.9	0.965	141.7	LOS F[11]	12.7	103.4	0.98	1.10	1.47	8.8
North: Foreshore Road															
7	L2	All MCs	671	11.9	671	11.9	0.425	6.2	LOS A	1.6	12.6	0.04	0.63	0.04	42.7
8	T1	All MCs	2174	17.5	2174	17.5	* 0.959	9.7	LOS A	33.5	269.3	0.31	0.34	0.36	59.9
Approach			2845	16.2	2845	16.2	0.959	8.9	LOS A	33.5	269.3	0.24	0.40	0.29	56.4
All Vehicles			4355	21.2	4355	21.2	0.965	15.8	LOS B	33.5	269.3	0.24	0.36	0.30	47.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1.06 [1.06 PM FUT Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: PM Peak Hour
Scenario: Future (10 Year)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Site Practical Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	1882	11.9	1882	11.9	* 0.884	3.4	LOS A	7.0	54.3	0.16	0.19	0.22	71.7
3	R2	All MCs	48	42.1	48	42.1	0.202	12.9	LOS A	0.4	4.2	0.29	0.65	0.29	49.9
Approach			1930	12.6	1930	12.6	0.884	3.6	LOS A	7.0	54.3	0.16	0.20	0.22	70.8
East: Hale Street															
4	L2	All MCs	32	20.0	32	20.0	0.048	20.2	LOS B	0.7	5.4	0.64	0.64	0.64	40.1
6	R2	All MCs	488	5.2	488	5.2	* 0.903	60.9	LOS E[11]	10.7	78.1	1.00	1.16	1.56	17.9
Approach			519	6.1	519	6.1	0.903	58.4	LOS E[11]	10.7	78.1	0.98	1.13	1.50	16.7
North: Foreshore Road															
7	L2	All MCs	438	7.5	438	7.5	0.315	6.2	LOS A	0.4	3.2	0.03	0.63	0.03	42.8
8	T1	All MCs	1219	14.0	1219	14.0	0.809	4.2	LOS A	9.1	71.3	0.43	0.41	0.47	69.8
Approach			1657	12.3	1657	12.3	0.809	4.7	LOS A	9.1	71.3	0.33	0.46	0.35	62.9
All Vehicles			4107	11.7	4107	11.7	0.903	11.0	LOS A	10.7	78.1	0.33	0.42	0.43	53.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1.07 [1.07 AM FUT + DEV Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: AM Peak Hour
Scenario: Future + Development
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site Practical Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	1156	32.3	1156	32.3	0.514	0.4	LOS A	1.7	14.9	0.04	0.04	0.04	78.9
3	R2	All MCs	58	39.4	58	39.4	* 0.540	39.0	LOS C	3.1	29.0	0.69	0.79	0.69	33.9
Approach			1213	32.7	1213	32.7	0.540	2.2	LOS A	3.1	29.0	0.07	0.08	0.07	73.4
East: Hale Street															
4	L2	All MCs	29	52.2	29	52.2	0.092	77.6	LOS F[11]	1.6	16.6	0.80	0.69	0.80	25.0
6	R2	All MCs	285	22.5	285	22.5	* 0.975	155.8	LOS F[11]	13.8	123.6	1.00	1.16	1.56	9.6
Approach			314	25.3	314	25.3	0.975	148.6	LOS F[11]	13.8	123.6	0.98	1.12	1.49	8.4
North: Foreshore Road															
7	L2	All MCs	688	13.6	688	13.6	0.444	6.3	LOS A	1.7	13.9	0.04	0.63	0.04	42.6
8	T1	All MCs	2174	17.5	2174	17.5	* 0.995	22.4	LOS B	78.3	630.0	0.58	0.65	0.71	45.1
Approach			2861	16.5	2861	16.5	0.995	18.5	LOS B	78.3	630.0	0.45	0.65	0.55	44.6
All Vehicles			4389	21.6	4389	21.6	0.995	23.3	LOS B	78.3	630.0	0.38	0.52	0.48	40.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1.08 [1.08 PM FUT + DEV Hale St x Foreshore Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Foreshore
Period: PM Peak Hour
Scenario: Future + Development
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Site Practical Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Foreshore Road															
2	T1	All MCs	1882	11.9	1882	11.9	* 0.886	3.4	LOS A	7.8	60.5	0.16	0.19	0.21	71.5
3	R2	All MCs	48	42.1	48	42.1	0.208	11.7	LOS A	0.4	3.4	0.20	0.64	0.20	51.0
Approach			1930	12.6	1930	12.6	0.886	3.6	LOS A	7.8	60.5	0.17	0.20	0.21	70.7
East: Hale Street															
4	L2	All MCs	34	18.8	34	18.8	0.049	23.3	LOS B	0.8	6.4	0.62	0.64	0.62	39.6
6	R2	All MCs	504	7.7	504	7.7	* 0.903	69.2	LOS E[11]	12.5	97.5	1.00	1.13	1.50	16.9
Approach			538	8.4	538	8.4	0.903	66.3	LOS E[11]	12.5	97.5	0.98	1.10	1.45	15.3
North: Foreshore Road															
7	L2	All MCs	453	10.3	453	10.3	0.321	6.2	LOS A	0.5	4.1	0.03	0.62	0.03	42.6
8	T1	All MCs	1219	14.0	1219	14.0	0.774	2.6	LOS A	6.6	52.1	0.28	0.26	0.30	73.4
Approach			1672	13.0	1672	13.0	0.774	3.6	LOS A	6.6	52.1	0.22	0.36	0.23	65.0
All Vehicles			4140	12.2	4140	12.2	0.903	11.8	LOS A	12.5	97.5	0.29	0.38	0.38	51.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

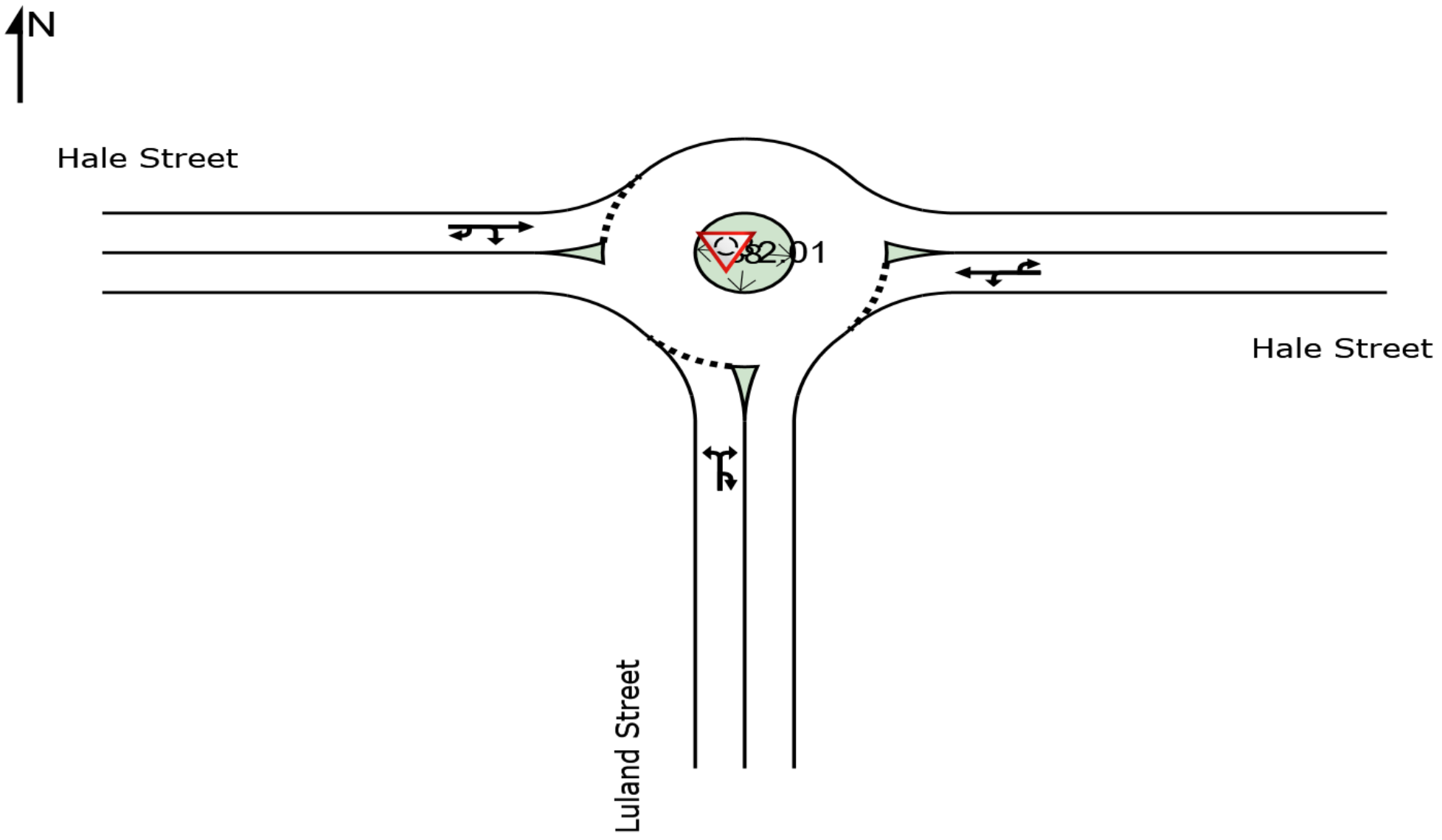
11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)

SITE LAYOUT

Site: 2.01 [2.01 AM EX Hale St x Luland Street (Site Folder: General)]

Intersection: Hale St x Luland Street
Period: AM Peak Hour
Scenario: Exisitng
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 2.01 [2.01 AM EX Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: AM Peak Hour
Scenario: Exisitng
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	36	47.1	36	47.1	0.063	6.8	LOS A	0.3	2.8	0.49	0.62	0.49	43.8
3	R2	All MCs	13	0.0	13	0.0	0.063	8.3	LOS A	0.3	2.8	0.49	0.62	0.49	44.2
3u	U	All MCs	1	0.0	1	0.0	0.063	9.8	LOS A	0.3	2.8	0.49	0.62	0.49	44.2
Approach			49	34.0	49	34.0	0.063	7.3	LOS A	0.3	2.8	0.49	0.62	0.49	43.9
East: Hale Street															
4	L2	All MCs	24	0.0	24	0.0	0.280	5.1	LOS A	1.8	13.9	0.42	0.48	0.42	45.3
5	T1	All MCs	266	14.6	266	14.6	0.280	5.2	LOS A	1.8	13.9	0.42	0.48	0.42	45.5
6u	U	All MCs	4	25.0	4	25.0	0.280	9.9	LOS A	1.8	13.9	0.42	0.48	0.42	44.7
Approach			295	13.6	295	13.6	0.280	5.2	LOS A	1.8	13.9	0.42	0.48	0.42	45.4
West: Hale Street															
11	T1	All MCs	459	5.3	459	5.3	0.417	3.9	LOS A	2.9	22.0	0.12	0.48	0.12	46.0
12	R2	All MCs	146	20.9	146	20.9	0.417	7.1	LOS A	2.9	22.0	0.12	0.48	0.12	45.2
12u	U	All MCs	17	12.5	17	12.5	0.417	8.4	LOS A	2.9	22.0	0.12	0.48	0.12	45.4
Approach			622	9.1	622	9.1	0.417	4.8	LOS A	2.9	22.0	0.12	0.48	0.12	45.8
All Vehicles			966	11.8	966	11.8	0.417	5.0	LOS A	2.9	22.0	0.23	0.48	0.23	45.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2.02 [2.02 PM EX Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: PM Peak Hour
Scenario: Exisitng
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	34	3.1	34	3.1	0.049	6.0	LOS A	0.2	1.7	0.50	0.61	0.50	44.7
3	R2	All MCs	9	0.0	9	0.0	0.049	8.7	LOS A	0.2	1.7	0.50	0.61	0.50	44.6
3u	U	All MCs	1	0.0	1	0.0	0.049	10.2	LOS A	0.2	1.7	0.50	0.61	0.50	44.6
Approach			44	2.4	44	2.4	0.049	6.7	LOS A	0.2	1.7	0.50	0.61	0.50	44.7
East: Hale Street															
4	L2	All MCs	16	13.3	16	13.3	0.290	4.5	LOS A	1.9	13.9	0.24	0.42	0.24	45.6
5	T1	All MCs	362	5.5	362	5.5	0.290	4.2	LOS A	1.9	13.9	0.24	0.42	0.24	46.0
6u	U	All MCs	1	0.0	1	0.0	0.290	8.6	LOS A	1.9	13.9	0.24	0.42	0.24	45.6
Approach			379	5.8	379	5.8	0.290	4.2	LOS A	1.9	13.9	0.24	0.42	0.24	46.0
West: Hale Street															
11	T1	All MCs	287	4.8	287	4.8	0.231	3.8	LOS A	1.3	9.9	0.08	0.45	0.08	46.3
12	R2	All MCs	44	54.8	44	54.8	0.231	7.3	LOS A	1.3	9.9	0.08	0.45	0.08	45.0
12u	U	All MCs	11	0.0	11	0.0	0.231	8.2	LOS A	1.3	9.9	0.08	0.45	0.08	45.9
Approach			342	11.1	342	11.1	0.231	4.4	LOS A	1.3	9.9	0.08	0.45	0.08	46.2
All Vehicles			765	8.0	765	8.0	0.290	4.4	LOS A	1.9	13.9	0.18	0.45	0.18	46.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2.03 [2.03 AM EX + DEV Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: AM Peak Hour
Scenario: Exisitng + Development
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	36	47.1	36	47.1	0.063	6.8	LOS A	0.3	2.8	0.49	0.62	0.49	43.8
3	R2	All MCs	13	0.0	13	0.0	0.063	8.4	LOS A	0.3	2.8	0.49	0.62	0.49	44.2
3u	U	All MCs	1	0.0	1	0.0	0.063	9.8	LOS A	0.3	2.8	0.49	0.62	0.49	44.2
Approach			49	34.0	49	34.0	0.063	7.3	LOS A	0.3	2.8	0.49	0.62	0.49	43.9
East: Hale Street															
4	L2	All MCs	24	0.0	24	0.0	0.283	5.1	LOS A	1.8	14.1	0.42	0.48	0.42	45.3
5	T1	All MCs	271	14.4	271	14.4	0.283	5.2	LOS A	1.8	14.1	0.42	0.48	0.42	45.5
6u	U	All MCs	4	25.0	4	25.0	0.283	9.9	LOS A	1.8	14.1	0.42	0.48	0.42	44.7
Approach			299	13.4	299	13.4	0.283	5.2	LOS A	1.8	14.1	0.42	0.48	0.42	45.4
West: Hale Street															
11	T1	All MCs	460	5.3	460	5.3	0.417	3.9	LOS A	2.9	22.1	0.12	0.48	0.12	46.0
12	R2	All MCs	146	20.9	146	20.9	0.417	7.1	LOS A	2.9	22.1	0.12	0.48	0.12	45.2
12u	U	All MCs	17	12.5	17	12.5	0.417	8.4	LOS A	2.9	22.1	0.12	0.48	0.12	45.4
Approach			623	9.1	623	9.1	0.417	4.8	LOS A	2.9	22.1	0.12	0.48	0.12	45.8
All Vehicles			972	11.7	972	11.7	0.417	5.0	LOS A	2.9	22.1	0.23	0.48	0.23	45.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2.04 [2.04 PM EX + DEV Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: PM Peak Hour
Scenario: Exisitng + Development
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	34	3.1	34	3.1	0.049	6.0	LOS A	0.2	1.7	0.50	0.61	0.50	44.7
3	R2	All MCs	9	0.0	9	0.0	0.049	8.8	LOS A	0.2	1.7	0.50	0.61	0.50	44.6
3u	U	All MCs	1	0.0	1	0.0	0.049	10.2	LOS A	0.2	1.7	0.50	0.61	0.50	44.6
Approach			44	2.4	44	2.4	0.049	6.7	LOS A	0.2	1.7	0.50	0.61	0.50	44.7
East: Hale Street															
4	L2	All MCs	16	13.3	16	13.3	0.293	4.5	LOS A	1.9	14.1	0.25	0.42	0.25	45.6
5	T1	All MCs	363	5.5	363	5.5	0.293	4.2	LOS A	1.9	14.1	0.25	0.42	0.25	46.0
6u	U	All MCs	1	0.0	1	0.0	0.293	8.6	LOS A	1.9	14.1	0.25	0.42	0.25	45.6
Approach			380	5.8	380	5.8	0.293	4.3	LOS A	1.9	14.1	0.25	0.42	0.25	46.0
West: Hale Street															
11	T1	All MCs	287	4.8	287	4.8	0.234	3.8	LOS A	1.3	10.1	0.08	0.46	0.08	46.3
12	R2	All MCs	48	50.0	48	50.0	0.234	7.2	LOS A	1.3	10.1	0.08	0.46	0.08	45.1
12u	U	All MCs	11	0.0	11	0.0	0.234	8.2	LOS A	1.3	10.1	0.08	0.46	0.08	45.9
Approach			346	10.9	346	10.9	0.234	4.4	LOS A	1.3	10.1	0.08	0.46	0.08	46.1
All Vehicles			771	7.9	771	7.9	0.293	4.5	LOS A	1.9	14.1	0.19	0.45	0.19	46.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2.05 [2.05 AM FUT Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: AM Peak Hour
Scenario: Future (10 years)
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	43	47.1	43	47.1	0.081	7.4	LOS A	0.4	3.7	0.54	0.64	0.54	43.5
3	R2	All MCs	15	0.0	15	0.0	0.081	8.7	LOS A	0.4	3.7	0.54	0.64	0.54	44.0
3u	U	All MCs	1	0.0	1	0.0	0.081	10.2	LOS A	0.4	3.7	0.54	0.64	0.54	44.0
Approach			59	34.0	59	34.0	0.081	7.8	LOS A	0.4	3.7	0.54	0.64	0.54	43.7
East: Hale Street															
4	L2	All MCs	29	0.0	29	0.0	0.347	5.4	LOS A	2.4	18.4	0.49	0.50	0.49	45.1
5	T1	All MCs	320	14.6	320	14.6	0.347	5.6	LOS A	2.4	18.4	0.49	0.50	0.49	45.3
6u	U	All MCs	5	25.0	5	25.0	0.347	10.3	LOS A	2.4	18.4	0.49	0.50	0.49	44.5
Approach			354	13.6	354	13.6	0.347	5.6	LOS A	2.4	18.4	0.49	0.50	0.49	45.2
West: Hale Street															
11	T1	All MCs	551	5.3	551	5.3	0.502	3.9	LOS A	4.1	31.1	0.15	0.47	0.15	45.9
12	R2	All MCs	176	20.9	176	20.9	0.502	7.1	LOS A	4.1	31.1	0.15	0.47	0.15	45.2
12u	U	All MCs	20	12.5	20	12.5	0.502	8.5	LOS A	4.1	31.1	0.15	0.47	0.15	45.3
Approach			747	9.1	747	9.1	0.502	4.8	LOS A	4.1	31.1	0.15	0.47	0.15	45.7
All Vehicles			1160	11.8	1160	11.8	0.502	5.2	LOS A	4.1	31.1	0.27	0.49	0.27	45.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2.06 [2.06 PM FUT Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: PM Peak Hour
Scenario: Future (10 years)
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	40	3.1	40	3.1	0.062	6.5	LOS A	0.3	2.3	0.55	0.64	0.55	44.5
3	R2	All MCs	11	0.0	11	0.0	0.062	9.3	LOS A	0.3	2.3	0.55	0.64	0.55	44.3
3u	U	All MCs	1	0.0	1	0.0	0.062	10.7	LOS A	0.3	2.3	0.55	0.64	0.55	44.3
Approach			53	2.4	53	2.4	0.062	7.2	LOS A	0.3	2.3	0.55	0.64	0.55	44.4
East: Hale Street															
4	L2	All MCs	19	13.3	19	13.3	0.352	4.6	LOS A	2.5	18.2	0.29	0.43	0.29	45.5
5	T1	All MCs	435	5.5	435	5.5	0.352	4.3	LOS A	2.5	18.2	0.29	0.43	0.29	45.9
6u	U	All MCs	1	0.0	1	0.0	0.352	8.7	LOS A	2.5	18.2	0.29	0.43	0.29	45.5
Approach			455	5.8	455	5.8	0.352	4.4	LOS A	2.5	18.2	0.29	0.43	0.29	45.9
West: Hale Street															
11	T1	All MCs	345	4.8	345	4.8	0.278	3.8	LOS A	1.7	12.8	0.09	0.45	0.09	46.3
12	R2	All MCs	53	54.8	53	54.8	0.278	7.3	LOS A	1.7	12.8	0.09	0.45	0.09	45.0
12u	U	All MCs	13	0.0	13	0.0	0.278	8.2	LOS A	1.7	12.8	0.09	0.45	0.09	45.8
Approach			411	11.1	411	11.1	0.278	4.4	LOS A	1.7	12.8	0.09	0.45	0.09	46.1
All Vehicles			918	8.0	918	8.0	0.352	4.5	LOS A	2.5	18.2	0.21	0.45	0.21	45.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2.07 [2.07 AM FUT + DEV Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: AM Peak Hour
Scenario: Future + Development
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	43	47.1	43	47.1	0.082	7.4	LOS A	0.4	3.7	0.55	0.64	0.55	43.5
3	R2	All MCs	15	0.0	15	0.0	0.082	8.8	LOS A	0.4	3.7	0.55	0.64	0.55	43.9
3u	U	All MCs	1	0.0	1	0.0	0.082	10.2	LOS A	0.4	3.7	0.55	0.64	0.55	43.9
Approach			59	34.0	59	34.0	0.082	7.8	LOS A	0.4	3.7	0.55	0.64	0.55	43.6
East: Hale Street															
4	L2	All MCs	29	0.0	29	0.0	0.351	5.4	LOS A	2.4	18.7	0.49	0.50	0.49	45.1
5	T1	All MCs	324	14.4	324	14.4	0.351	5.6	LOS A	2.4	18.7	0.49	0.50	0.49	45.3
6u	U	All MCs	5	25.0	5	25.0	0.351	10.3	LOS A	2.4	18.7	0.49	0.50	0.49	44.5
Approach			358	13.4	358	13.4	0.351	5.6	LOS A	2.4	18.7	0.49	0.50	0.49	45.2
West: Hale Street															
11	T1	All MCs	552	5.3	552	5.3	0.503	3.9	LOS A	4.1	31.2	0.15	0.47	0.15	45.9
12	R2	All MCs	176	20.9	176	20.9	0.503	7.1	LOS A	4.1	31.2	0.15	0.47	0.15	45.2
12u	U	All MCs	20	12.5	20	12.5	0.503	8.5	LOS A	4.1	31.2	0.15	0.47	0.15	45.3
Approach			748	9.1	748	9.1	0.503	4.8	LOS A	4.1	31.2	0.15	0.47	0.15	45.7
All Vehicles			1165	11.7	1165	11.7	0.503	5.2	LOS A	4.1	31.2	0.27	0.49	0.27	45.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2.08 [2.08 PM EX + DEV Hale St x Luland Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Luland Street
Period: PM Peak Hour
Scenario: Future + Development
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Luland Street															
1	L2	All MCs	40	3.1	40	3.1	0.062	6.6	LOS A	0.3	2.3	0.56	0.64	0.56	44.5
3	R2	All MCs	11	0.0	11	0.0	0.062	9.3	LOS A	0.3	2.3	0.56	0.64	0.56	44.3
3u	U	All MCs	1	0.0	1	0.0	0.062	10.7	LOS A	0.3	2.3	0.56	0.64	0.56	44.3
Approach			53	2.4	53	2.4	0.062	7.2	LOS A	0.3	2.3	0.56	0.64	0.56	44.4
East: Hale Street															
4	L2	All MCs	19	13.3	19	13.3	0.356	4.7	LOS A	2.5	18.4	0.30	0.43	0.30	45.5
5	T1	All MCs	436	5.5	436	5.5	0.356	4.4	LOS A	2.5	18.4	0.30	0.43	0.30	45.9
6u	U	All MCs	1	0.0	1	0.0	0.356	8.7	LOS A	2.5	18.4	0.30	0.43	0.30	45.4
Approach			456	5.8	456	5.8	0.356	4.4	LOS A	2.5	18.4	0.30	0.43	0.30	45.9
West: Hale Street															
11	T1	All MCs	345	4.8	345	4.8	0.281	3.8	LOS A	1.7	12.9	0.09	0.46	0.09	46.3
12	R2	All MCs	58	50.0	58	50.0	0.281	7.3	LOS A	1.7	12.9	0.09	0.46	0.09	45.0
12u	U	All MCs	13	0.0	13	0.0	0.281	8.2	LOS A	1.7	12.9	0.09	0.46	0.09	45.8
Approach			416	10.9	416	10.9	0.281	4.4	LOS A	1.7	12.9	0.09	0.46	0.09	46.1
All Vehicles			925	7.9	925	7.9	0.356	4.6	LOS A	2.5	18.4	0.22	0.45	0.22	45.9

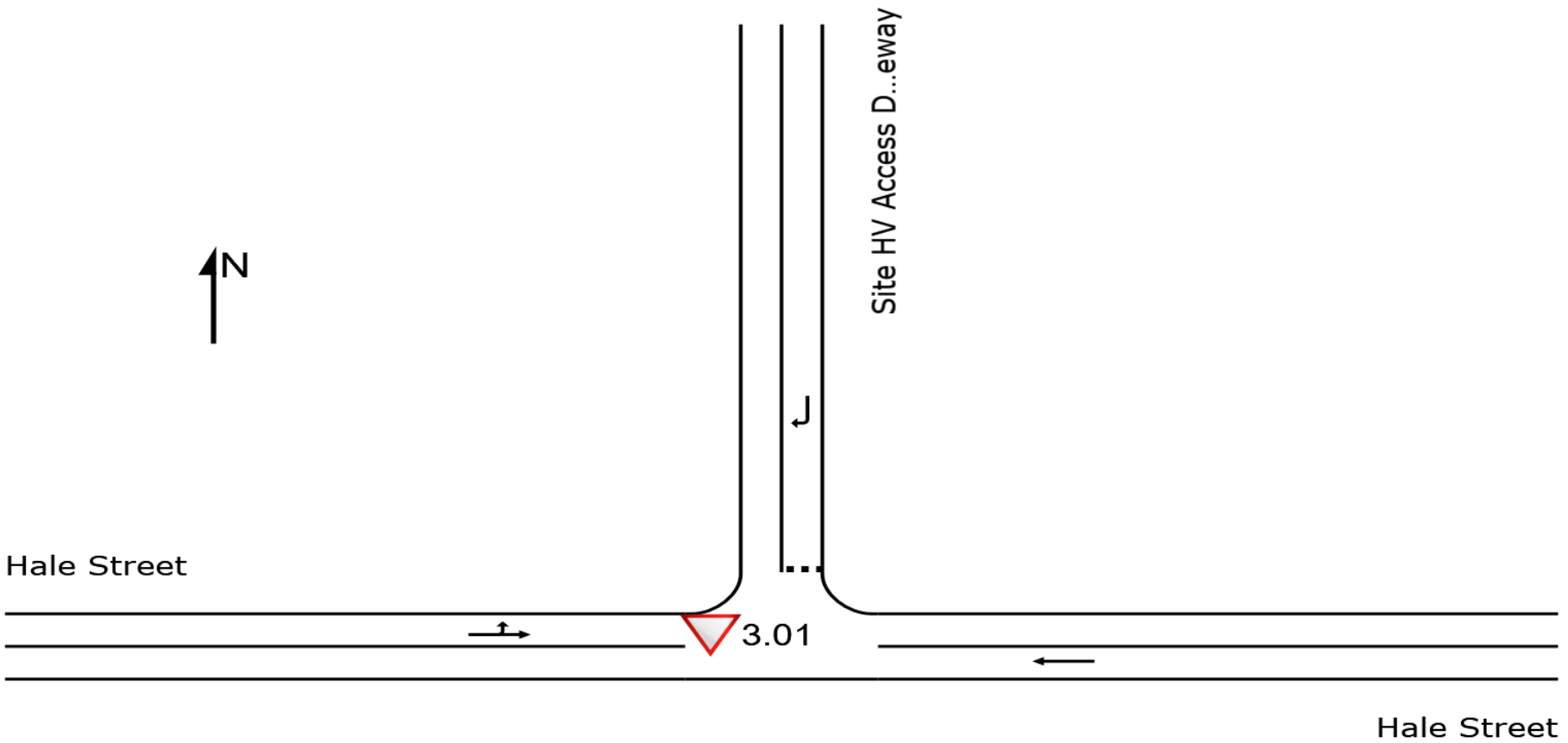
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 3.01 [3.01 AM EX + DEV Hale St x Site HV Access DW (Site Folder: General)]

Intersection: Hale St x Site HV Access DW
Period: AM Peak Hour
Scenario: Existing + Development
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3.01 [3.01 AM EX + DEV Hale St x Site HV Access DW (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Site HV Access DW
Period: AM Peak Hour
Scenario: Existing + Development
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Hale Street															
5	T1	All MCs	254	0.0	254	0.0	0.130	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			254	0.0	254	0.0	0.130	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Site HV Access Driveway															
9	R2	All MCs	14	100.0	14	100.0	0.173	44.5	LOS D	0.5	12.7	0.88	0.92	0.91	20.3
Approach			14	100.0	14	100.0	0.173	44.5	LOS D	0.5	12.7	0.88	0.92	0.91	20.3
West: Hale Street															
10	L2	All MCs	14	100.0	14	100.0	0.330	5.9	LOS A	0.0	0.0	0.00	0.01	0.00	46.1
11	T1	All MCs	606	0.0	606	0.0	0.330	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	49.7
Approach			620	2.2	620	2.2	0.330	0.3	NA	0.0	0.0	0.00	0.01	0.00	49.7
All Vehicles			887	3.1	887	3.1	0.330	0.9	NA	0.5	12.7	0.01	0.02	0.01	48.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: TRAFFIX PTY LTD | Licence: NETWORK / 1PC | Processed: Tuesday, 15 October 2024 1:09:28 PM
Project: T:\Synergy\Projects\23\23.464\Modelling\23.464m01v03 TRAFFIX C&D Waste Transfer Station Botany.sip9

MOVEMENT SUMMARY

Site: 3.02 [3.02 PM EX + DEV Hale St x Site HV Access DW (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Site HV Access DW
Period: PM Peak Hour
Scenario: Existing + Development
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Hale Street															
5	T1	All MCs	434	0.0	434	0.0	0.222	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			434	0.0	434	0.0	0.222	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Site HV Access Driveway															
9	R2	All MCs	14	100.0	14	100.0	0.161	40.7	LOS C	0.5	11.8	0.87	0.90	0.89	20.7
Approach			14	100.0	14	100.0	0.161	40.7	LOS C	0.5	11.8	0.87	0.90	0.89	20.7
West: Hale Street															
10	L2	All MCs	14	100.0	14	100.0	0.230	5.9	LOS A	0.0	0.0	0.00	0.02	0.00	46.1
11	T1	All MCs	411	0.0	411	0.0	0.230	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	49.8
Approach			424	3.2	424	3.2	0.230	0.3	NA	0.0	0.0	0.00	0.02	0.00	49.6
All Vehicles			872	3.1	872	3.1	0.230	0.8	NA	0.5	11.8	0.01	0.02	0.01	48.7

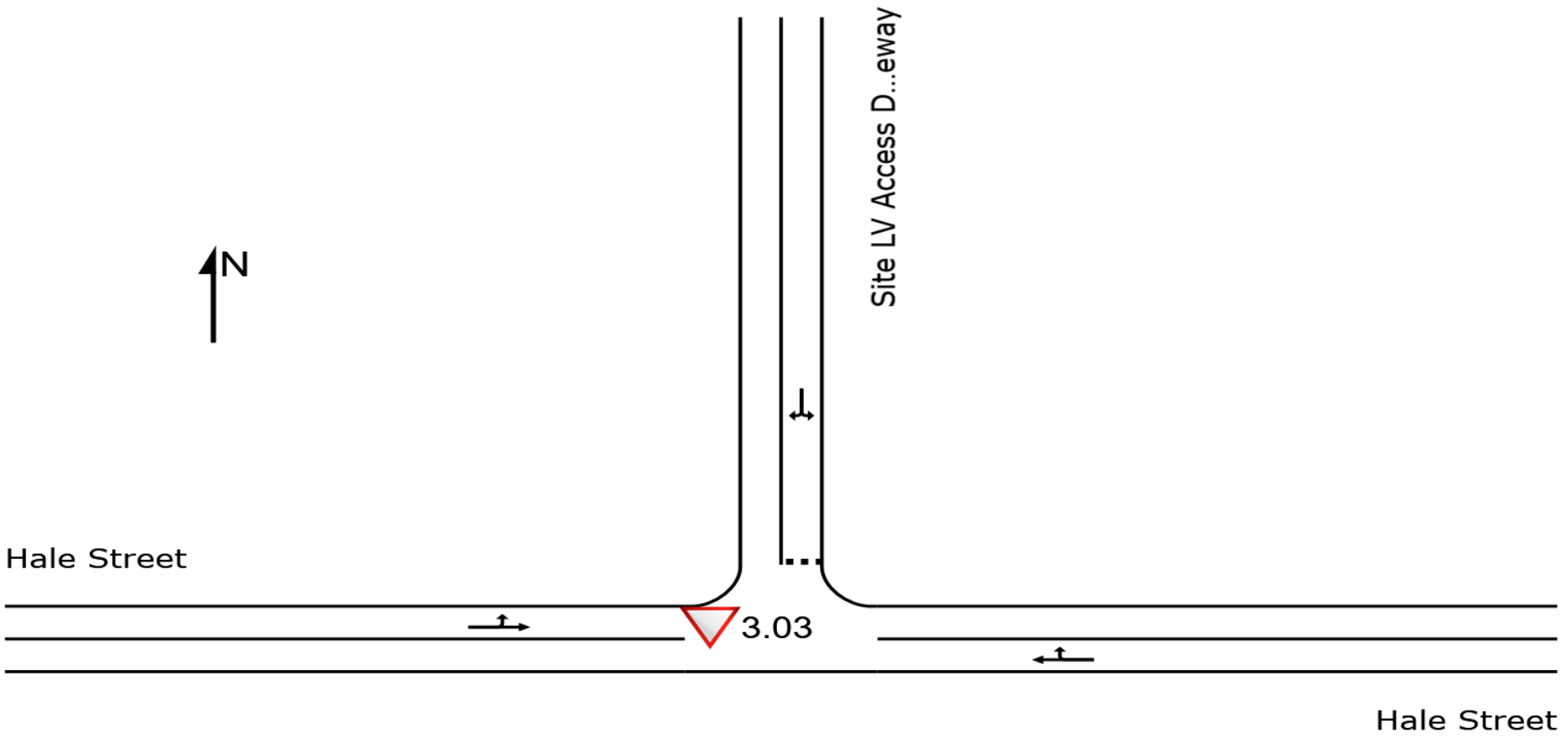
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 3.03 [3.03 AM EX + DEV Hale St x Site LV Access DW (Site Folder: General)]

Intersection: Hale St x Site LV Access DW
Period: AM Peak Hour
Scenario: Existing + Development
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3.03 [3.03 AM EX + DEV Hale St x Site LV Access DW (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Intersection: Hale St x Site LV Access DW
Period: AM Peak Hour
Scenario: Existing + Development
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Hale Street															
5	T1	All MCs	263	5.2	263	5.2	0.150	0.1	LOS A	0.1	0.5	0.03	0.04	0.03	49.9
6	R2	All MCs	5	0.0	5	0.0	0.150	8.1	LOS A	0.1	0.5	0.03	0.04	0.03	52.1
Approach			268	5.1	268	5.1	0.150	0.2	NA	0.1	0.5	0.03	0.04	0.03	50.0
North: Site LV Access Driveway															
7	L2	All MCs	2	0.0	2	0.0	0.004	2.1	LOS A	0.0	0.1	0.53	0.36	0.53	27.4
9	R2	All MCs	1	0.0	1	0.0	0.004	4.2	LOS A	0.0	0.1	0.53	0.36	0.53	27.3
Approach			3	0.0	3	0.0	0.004	2.8	LOS A	0.0	0.1	0.53	0.36	0.53	27.4
West: Hale Street															
10	L2	All MCs	5	0.0	5	0.0	0.331	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	48.6
11	T1	All MCs	619	2.2	619	2.2	0.331	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			624	2.2	624	2.2	0.331	0.2	NA	0.0	0.0	0.00	0.00	0.00	49.8
All Vehicles			896	3.1	896	3.1	0.331	0.2	NA	0.1	0.5	0.01	0.02	0.01	49.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.