Infrastructure NSW

The new Sydney Fish Market

Transport Impact Assessment: Concept and Stage 1 Works and Stage 2 Main Works

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Executive Summary

Introduction

This transport assessment has been prepared to support the planning application (SSD 8924 and 8925) for the new Sydney Fish Market.

Existing conditions and data collection

Data for the existing Sydney Fish Market site has been collected and used to inform the transport assessment. Data collected included:

- 24 hour classified traffic counts at the Fish Market / Bank Street / Miller Street intersection which serves as the primary access point to the existing Sydney Fish Market
- Classified peak hour traffic counts at 12 intersections in the vicinity of the existing and future Sydney Fish Market site
- Pedestrian and cyclist counts at the entry points to the existing Sydney Fish Market
- Occupancy and length of stay of the on-site car park serving the existing Sydney Fish Market site
- Pedestrian and cyclist counts at the Fish Market and Wentworth Park light rail stops

The existing Sydney Fish Market currently accommodates over three million visitors per annum, with significant attendance during peak events such as Christmas and Easter.

There are 417 formal parking bays on the site including 4 accessible spaces and 26 loading/service vehicle spaces. The car park has a high turn-over rate, with up to 30% of visitors parking on site for less than 15 minutes almost 75% staying for less than one hour.

Arrival to the site by foot is considerable – accounting for up to 39% of daily arrivals. Private vehicle however remains the primary mode of access, accounting for between 45%-50% of all journeys to the site.

Proposal

The proposal is to build a new fish market with a contemporary urban design, provide unique experiences for visitors and world-class auction and wholesale facilities. The new facility will be set within an improved public domain including the creation of a waterfront promenade with improved access to Blackwattle Bay and linking to surrounding areas and to public transport.

Key aspects of the development relating to traffic and transport include:

- Basement car parking for 417 vehicles
- Dedicated loading dock and servicing area within the site

- Signalisation of the Bridge Road / Wentworth Park Road intersection to provide a dedicated entry and exit point to the site, including a dedicated pedestrian crossing point across the new car park / loading dock entry
- Enhancements to the Wattle Street / Bridge Road intersection to remove the existing pedestrian island and provide an additional signalised pedestrian crossing on the eastern leg of the intersection
- An enhanced pedestrian experience along Bridge Road, with a significantly widened footpath and boardwalk directly adjacent to the new site
- New dedicated off-road cycling connection along Bridge Road adjacent to the frontage of the site
- 60 bicycle parking spaces for staff (with associated end of trip facilities) within the basement of the building
- Parking for 76 bicycles for visitors within the public domain
- A dedicated vehicle drop off and pick up area outside the site fronting Bridge Road, to be used for buses, coaches and point to point transport vehicles (e.g. taxis and ubers)

Travel plan

The development of the new Sydney Fish Market provides an opportunity to heavily promote sustainable travel modes to staff and visitors of the site and strongly encourage travel behaviour change. A suite of measures has been proposed to reduce the reliance of private vehicles as a means of accessing the new Sydney Fish Market, including:

- No increase in the number of on-site car parking spaces
- Bicycle parking for staff and visitors within the public domain
- End of trip facilities for staff (showers, lockers, tool kits, etc.)
- On-site parking to be charged at market rates for staff and visitors
- Promotion of off-site deliveries to reduce overall travel demand

Site access and circulation

Vehicular access into the site is proposed via a new signalised intersection at Bridge Road / Wentworth Park Road. The intersection will accommodate general traffic movements as well as heavy vehicles accessing the loading dock within the site. The proposal also includes a dedicated vehicle drop-off and pick-up lane on the northern side of Bridge Road, which will be used by coaches, taxis/Ubers and general drop off and pick up.

Travel demand

The redevelopment of the Sydney Fish Market will provide an enhanced offering that change the travel demand profile compared to the that of the existing site. Increases in the overall retail floor space will result in higher overall visitation numbers, however these will be more distributed across the day (particularly in the evening) due to the enhanced food and beverage offering.

It is reasonable to expect that car usage (as a proportion of overall trips) by staff and visitors travelling to the new Sydney Fish Market will decline compared to current levels, due to the following factors:

- On-site parking being maintained at current levels, despite the increase in visitation levels to the site;
- The additional retail offering provided on the site, which lends itself towards more walk up trips from Pyrmont and the Sydney CBD;
- The modified parking arrangements that will need to be in place for retail staff (currently staff are provided parking on site and occupy over half of the available car parking spaces). The initial transport assessment has considered a likely 10% mode shift from staff away from private vehicle, however with the changed on-site car parking for staff it is expected this mode shift will significantly increase.
- Improved public transport to the site, particularly with the advent of a station at the Bays Precinct as part of Sydney Metro West and improved bus services to support Blackwattle Bay;
- Increased levels of bicycle parking to be provided on the site;

Ultimately it is envisaged visitation to the Sydney Fish Market will double over a ten year period compared to that experienced by the current site. Increases to staff numbers are however expected to be more modest over time, and coupled with the expected modal shift, the forecast increase in daily vehicle arrivals to the site is less than 40%. An assessment of likely travel demands to the new Sydney Fish Market has confirmed that the supporting transport network has the ability and capacity to accommodate future travel requirements.

Car parking

The concept proposal includes up to 417 on-site car parking bays. This level of car parking is consistent with the current on-site provision, despite the forecast increase in visitor activity to the site. Analysis indicates that the level of on-site parking will generally be sufficient to accommodate the parking demand on a typical weekday. On a weekend demand will exceed the available on-site capacity by approximately 80 car parking spaces between 11am and 2pm. Consistent with the current operation of the existing Sydney Fish Market, during major events at the Sydney Fish Market (e.g. 36 hour seafood marathon, Easter Friday etc) parking demand will increase further, and therefore a number of strategies have therefore been put forward to manage parking demands during peak periods, including:

- On-site parking for staff and visitors will be charged at market rates in line with those at other nearby commercial car parks. Reducing the number of staff (both Sydney Fish Market and tenant staff) parking on site by approximately 50% would provide sufficient capacity within the on-site car park to accommodate demand on weekdays and weekends.
- Using off-street car parks in close proximity to accommodate overflow parking demand

Public transport, walking and cycling

The new Sydney Fish Market site is served by three light rail stops all within seven minutes walk. Transport for NSW is currently planning for the Sydney Metro West which will include a new station in the Bays Precinct, providing improved public transport accessibility to the proposal.

The new Sydney Fish Market is well served a number of good quality walking and cycling routes. Improvements proposed under the proposal include:

- Upgrade of the Bridge Road / Wattle Street intersection including the removal of the existing pedestrian island
- Additional signalised intersection at Bridge Road / Wentworth Park Road to provide access to the site and facilitate improved accessibility south towards Wentworth Park
- Enhanced pedestrian experience along Bridge Road, with a significantly widened footpath and boardwalk directly adjacent to the new site
- Significant increases in staff and public bicycle parking

Road network assessment

Traffic modelling was undertaken to determine the impacts on the road network (and any associated improvements required) to support the proposal. The analysis indicates that key intersections in the vicinity of the new Sydney Fish Market site will operate at the same level of service compared to existing conditions. Apart from the Wentworth Park Road / Bridge Road intersection (new site entry), no intersection is forecast to experience more than a 5% increase in traffic flows compared to current levels.

Construction traffic and pedestrian management plan

A preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) has been prepared by Arup for the demolition of the existing Sydney Fish Market and construction of the new Sydney Fish Market. Should the project be approved, the Contractor (once appointed) will prepare a more detailed CPTMP prior to the commencement of works on the site. Mitigation measures would be adopted during the construction phase to ensure traffic movements have minimal impact on surrounding land uses and the community in general. To ensure the safety of pedestrians and cyclists, traffic controllers with appropriate accreditation will hold construction vehicles at cross-over points and allow pedestrians to cross these work areas. At this stage it is not envisaged that any footpath closures will be required to facilitate the construction project.

Mitigation measures

A suite of transport measures has been proposed to support the development of the site and mitigate the impacts on the transport network, as detailed in Table 19.

Table 1 Summary of transport measures

Mode	Recommendation	Responsibility
Light Rail	Improved wayfinding from Fish Market, Glebe and Wentworth Park light rail stops to direct customers towards the new Sydney Fish Market	Infrastructure NSW Transport for NSW
Parking	Providing no additional on-site car parking compared to existing levels, despite the increase in site activity	Infrastructure NSW
	On-site parking for staff and visitors will be charged at market rates in line with those at other nearby commercial car parks	Infrastructure NSW Future operator
	Use of off-street car parks in close proximity to Sydney Fish Market to accommodate overflow parking demand during busy periods	Infrastructure NSW Future operator
Drop off / pick up	Managed drop off and pick up area adjacent to Bridge Road to provide for improved access for those arriving by point to point vehicles	Infrastructure NSW Future operator
Pedestrians (including road safety)	Widening and enhancement of the Bridge Road footpath adjacent to the new Sydney Fish Market site	Infrastructure NSW
	New signalised pedestrian crossing at Wentworth Park Road / Bridge Road to support pedestrian crossing movements, including a dedicated pedestrian crossing across the new car park entry point.	Infrastructure NSW Roads and Maritime
	Modification to the Wattle Street / Bridge Road intersection to remove the existing slip lane on the south-west approach of the intersection and provide for safer pedestrian crossings of Bridge Road	Infrastructure NSW Roads and Maritime
Cycling	Provision of visible and secure bicycle parking at the new Sydney Fish Market for staff and visitors	Infrastructure NSW
	Provision of a new off-road bicycle link along Bridge Road adjacent to the frontage of the site to support the proposal and the wider Blackwattle Bay District	City of Sydney Council Transport for NSW
Bus	Work with Transport for NSW to investigate providing improved bus services to support access to the Sydney Fish Market and wider Blackwattle Bay District	Infrastructure NSW Transport for NSW
Metro	Provision of good quality connections between the new Sydney Fish Market and the proposed Sydney Metro West station in the Bays Precinct.	Transport for NSW Infrastructure NSW
Coaches	Management strategy to be implemented to manage the movement of coaches within the site and off-site parking arrangements.	Infrastructure NSW Future operator Western Harbour Alliance
Travel demand	Preparation of a site specific travel demand management plan, including annual monitoring of travel behaviour	Infrastructure NSW Future operator

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Proposed road layout and configuration

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1 Introduction

1.1 Disclaimer

UrbanGrowth NSW Development Corporation (UrbanGrowth NSW) was abolished on 1 July 2019 with all functions transferred to Infrastructure NSW. Any reference to UrbanGrowth NSW throughout the report is interchangeable with Infrastructure NSW.

1.2 Background

Sydney Fish Market is the largest of its kind in the Southern Hemisphere and among the three largest seafood markets in terms of variety in the world. The market sources product both nationally and internationally and trades approximately 14,500 tonnes of seafood annually with up to one hundred sustainable seafood species traded every day and approximately 500 species traded annually. The site attracts over 3 million visits each year.

In November 2016 the NSW Premier announced a new fish market would be built at the head of Blackwattle Bay, adjacent to the existing fish market. In June 2017 the Premier of NSW announced the appointment of Danish architects 3XN to lead the design team that includes Sydney firms BVN and Aspect Studios. They have been working with key stakeholders, including Infrastructure NSW and Sydney Fish Market Pty Ltd (Sydney Fish Market), to develop the design for the new fish market. As announced by the NSW Premier, works are planned to commence in 2019.

1.3 Site and context

The site is located at the head of Blackwattle Bay between the Pyrmont Peninsula and the foreshore of Glebe, situated less than 2km west of Sydney's CBD and is partially within the City of Sydney Local Government Area.

The land to which the development application relates comprises Lots 3 - 5 in DP 1064339 part of lot 107 in DP 1076596 and part Lot 1 in DP835794. Works to connect to the existing waterfront promenade to the west of the site are located on Lot 3 in DP1018801. The development footprint is irregular in shape and has an area of approximately 36,800m^2. The site is partly on land above mean high water mark and partly on water below mean high water mark.

The site has a frontage to Bridge Road to the south and Blackwattle Bay to the north. Pyrmont Bridge Road is an arterial road that links to the Anzac Bridge to the north west of the site. Sydney Secondary College Blackwattle Bay Campus is immediately south west of the site and the existing fish market immediately north east. Located directly opposite the site to the south is Wentworth Park, separated by Bridge Road.

Located approximately 400m walking distance from the site are the Fish Market, Wentworth Park, and Glebe Light Rail stops which are serviced by the Dulwich Hill Line which is a 23 stop, 12.8-kilometre route running from Dulwich Hill to Central station via Pyrmont.

The site contains one heritage item being the heritage stormwater culvert. The site is also near a number of heritage items.

The site's former uses include a concrete batching plant at the Western end and concrete hardstand and wharf area at the Eastern end, which is currently vacant. The site includes wharves and land-based structures. Part of the site is the water of Blackwattle Bay. Works will be undertaken on Bridge Road and its intersections with Wattle Street and Wentworth Park Road.

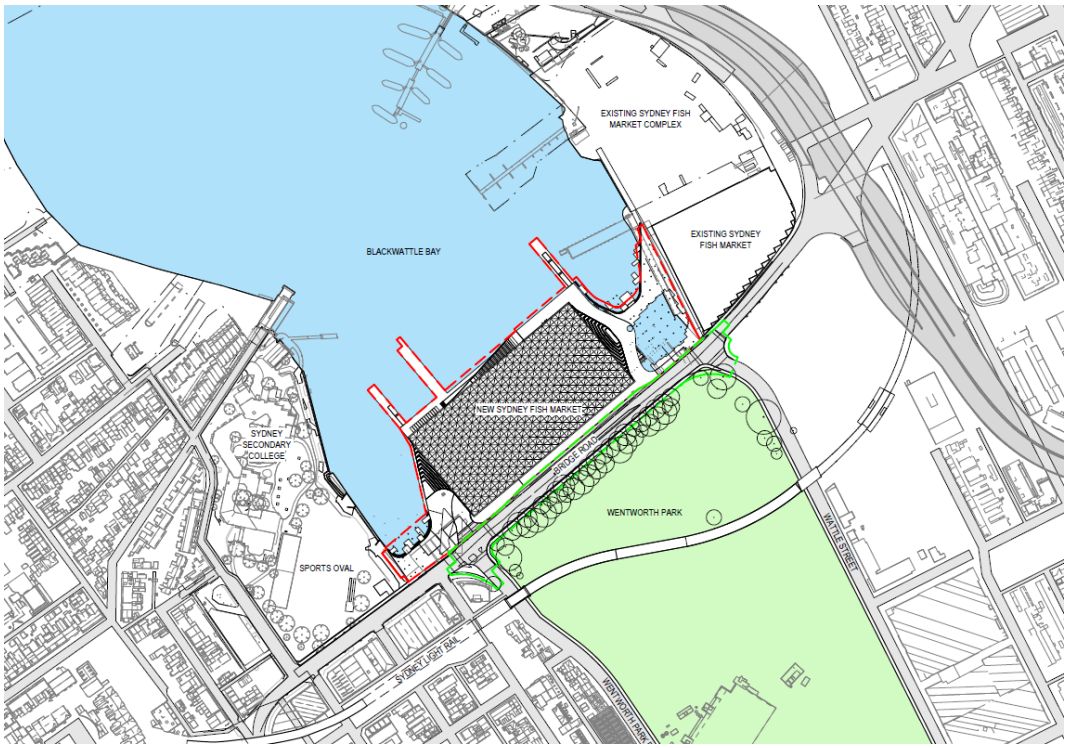


Figure 1 Site location

1.4 Precinct overview

Located just two kilometres from Sydney CBD, Blackwattle Bay comprises the waters of Blackwattle Bay and land along Bank Street, Pyrmont. Blackwattle Bay is one of seven destinations in the wider Bays Precinct. The Sydney Fish Market will be relocated to the head of Blackwattle Bay by 2022 and will be the catalyst for the renewal of Blackwattle Bay

Blackwattle Bay consists of two distinct sites:

- Site 1: The new fish market at the head of Blackwattle Bay
- Site 2: The area bound by the Glebe Island Bridge, Bank Street, Pyrmont Bridge Road and Blackwattle Bay

Figure 2 Blackwattle Bay District

1.5 Approval strategy

Pursuant to the provisions of the *Environmental Planning and Assessment Act 1979* and *State Environmental Planning Policy (State and Regional Development) 2011* ("SEPP SRD") the new fish market development is State Significant Development and the Minister for Planning is the consent authority.

To deliver the new fish market, the following applications will be lodged:

- A concept development application seeking approval for concept proposals for the new fish market. This is to meet the requirements for a master plan contained in clause 40 of SREP26. This concept development application will also set out details of the first stage of the development being the demolition of land and water-based structures on the site including removal of marine piles and any resulting repairs to the existing sea wall;
- A development application for the construction of the new fish market;
- An application to amend the planning controls applying to the site to enable the proposed development to be a permissible use on all of the site. This is to be achieved by an amendment to *Sydney Regional Environmental Plan No 26—City West* ("SREP26").

These applications are lodged concurrently.

1.6 Secretary's environmental assessment requirements

The NSW Department of Planning and Environment (DP&E) issued a list of the Secretary's Environmental Assessment Requirements (SEARs) that inform the Environmental Impact Statement (EIS). Table 1.1 describes the SEARs that are specific to transport, traffic, parking and access; and also provides a cross reference to the relevant sections of this report which address these requirements.

Table 2 SEARs relevant to transport, traffic, parking and access

SEARs	**Section Addressed**
Stage 1 SEARs (SSD 8924 for Concept and Stage 1): #8 Traffic and transport	
Prepare a detailed Transport, Traffic and Accessibility Impact Assessment that provides, but is not limited to the following:	This report
Operation	
Definition of study area (agreed by TfNSW and RMS)	1.3 & 8.3
The adequacy of the existing and future public transport network (including Sydney Metro West and ferry services) to meet the demand of the proposed development, including access and connections to these and proposals for modifications to maintain an acceptable level of access and performance of these networks	7.5, 7.6

SEARs	Section Addressed
The current daily and peak hour traffic generation, point-to-point transport, public transport, walking and cycling movements and existing traffic and transport facilities located within the vicinity of the proposed development	4
The estimated traffic generation by heavy vehicles during operation, including forecast movement of heavy vehicles across a 24-hour period (early morning, AM peak, interpeak, PM peak, night) and details of proposed vehicle types	4.10.4, 7.3.2
The estimated daily and peak hour traffic generation, public transport, walking and cycling trip generation during operation. Trip generation rates are to be agreed by RMS	7.2
Undertake a trip generation survey of the Fish Market, which is used as one of the tools to forecast the future trip generation of the site	4.4, 0, 4.6
Develop a traffic model to determine improvements to the road network required to support the proposal (scope, parameters and methodology to be agreed with RMS and to be carried out in accordance with RMS Traffic Modelling Guidelines 2013)	8 including 8.3
Develop an appropriate framework, including potential inputs from strategic modelling to identify and validate required improvements to support the uplift in demand and target behaviours	7.2, 8.1, 8.3
Detail the transport infrastructure and servicing improvements including identification of both the land (corridor preservation) and capital components to support the proposal, including staging, costings and delivery and funding responsibilities	10
The existing and future performance of key intersections providing access to the site, and any required upgrades (roads/intersections)	8.3
An assessment of predicted impacts on road, pedestrians and cyclists and mitigation measures for any safety issues	8.3, 10
Proposed car parking	7.4
The proposed pedestrian and bicycle routes, including end-of-trip facilities for workers and visitors, as well as measures to maintain road and personal safety in accordance with CPTED principles	7.6
Estimate seasonal peak trip generation, including Christmas, Easter and any other potential events. Outline how these seasonal peaks and potential events will be managed from a transport perspective, including parking management	4.10.5, 7.4.3
Any proposed physical, access, maintenance, operational, urban design and heritage (if applicable) impacts on RMS assets that form part of the proposal must involve consultation with RMS	1.8
Access to and from the site from the road network including intersection locations, design and sight distance (i.e. turning lanes, swept paths, sight distance requirements)	7.1, Appendix A
Proposed access arrangements, including service vehicles, emergency vehicles and loading areas for the development, including management of queuing of service vehicles at peak delivery times.	5, 7.7
Stage 1 Demolition and Early Works	
Details of demolition/construction vehicle routes, truck numbers, peak hour and daily movements, hours of operation, site compound locations, access arrangements and traffic control measures	9.3, 9.4

SEARs	**Section Addressed**
An assessment of demolition/construction impacts on road safety at key intersections and locations for potential pedestrian, vehicle and bicycle conflicts	9.5, 9.11
Temporary cycling and pedestrian access during demolition/construction	9.5
Detailed plans of the proposed site demolition/construction layout, including access to and from the site from the road network, the internal road network, truck marshalling, turning path diagrams depicting vehicles entering, exiting and manoeuvring through the site, staging, driver facility areas and parking provision on-site	9
Preparation of a Construction Pedestrian Traffic Management Plan that includes an assessment of traffic and transport impacts during demolition and early works and how these impacts will be mitigated.	9
SEARs for Stage 2 (SSD 8925)	Section Addressed
Provide detailed plans, including civil engineering plans, of the proposed road network.	Appendix A
Prepare a Travel Plan, including intended actions, monitoring, review and implementation, as well as responsibilities for implementation and detailing all modes of transport available to visitors and employees of the site.	6
Have regard to and demonstrate consistency with the Concept development application (SSD 8924) Transport, Traffic and Accessibility Impact Assessment.	This report
Assessment of cumulative impacts associated with other construction activities in the area	9.11
Access arrangements for workers, emergency services and the provision for safe and efficient access for loading and deliveries, including the existing and proposed on-street parking	9
Description of vehicle access routes used to access key freight locations/routes and the impact on nearby intersections, vehicle type and likely arrival and departure times	9.3, 9.4

1.7 Report structure

This report has been structured into the following sections, which addresses the SSDAs for both the Concept and Stage 1 (SSD 8924) and Stage 2 (SSD 8925) works.

Section 1 provides an introduction to the report

Section 2 outlines the planning context relevant for the proposed development

Section 3 summarises the data sources that have been used to inform this transport assessment.

Section 4 documents the existing conditions around the existing Sydney Fish Market site, including; travel demand characteristics; public and active transport services; and a summary of traffic volumes, patterns and operational performance on the adjacent road network

Section 5 provides a description of the proposed development, including details of the site location and concept proposal

Section 6 provides an overview of the travel demand management measures to be considered for adoption for the new Sydney Fish Market site

Section 7 provides an assessment of the future travel demand and associated impacts generated by the new Sydney Fish Market site, including management measures that have been developed to mitigate the identified impacts

Section 8 includes an assessment of the road network impacts arising from the proposal during the weekday and weekend peak hour periods

Section 9 outlines a high level strategy for managing the construction impacts generated by the proposal

Section 10 provides a summary of the mitigation measures proposed for the development

Section 0 provides a summary of the report

1.8 Consultation

A number of transport strategies have been prepared in collaboration with the Transport Cluster (Transport for NSW and Roads and Maritime Services) and City of Sydney Council to support the development of the Sydney Fish Market proposal. The development of transport impact assessment was informed by consultation with the following parties:

- City of Sydney (transport planners, urban designers, town planners, cycling planners)
- Transport for NSW (bus planners, ferry planners, transport policy officers, transport planners, Future Transport project team)
- Roads and Maritime Services (network development officers and managers, road network planning managers, maritime officers, property officers).

Part of the proposal includes the raising of Bridge Road to provide greater flooding immunity and provide improved connectivity to Wentworth Park. As part of this application Roads and Maritime have been consulted extensively in relation to the proposed changes to Bridge Road.

2 Strategic Context

2.1 Planning Context

2.1.1 Future Transport 2056

The Future Transport Vision for the next 40 years sets six state-wide outcomes for guided investment, policy and reform and service provision. The outcomes include:

- Customer Focus – Every customer experience will be seamless, interactive and personalised by technology and big data
- Successful Places – By having a focus across New South Wales, we support the growth of communities, places and the economy
- Growing the Economy – A transport system that powers our states $1.3 trillion economy and enables economic activity across the state
- Safety and Performance – The transport network will provide every customer with efficient, safe and secure travel across a high performing network
- Accessible Services – Making it possible for everyone to get the most out of life wherever you live
- Sustainability – By building a more efficient network we deliver benefit for our environment, economy and wellbeing

They provide a framework for network planning and investment aimed at harnessing rapid change and innovation to support a modern, innovative transport system that serves the community and economy well into the 21st century.

There are a number of committed initiatives and initiatives outlined to be investigated in the document that are specifically relevant to the new Fish Market site. These include:

- Sydney Metro West
- Extension of Inner West Light Rail to Bays Precinct
- Eastern Suburbs to Inner West rapid bus links: Randwick to Sydney University to The Bays Precinct
- Inner Sydney Regional Bike Network within 10km of the Harbour CBD

2.1.2 NSW Long Term Transport Masterplan 2012

The Long Term Transport Masterplan advises an integrated approach for managing Sydney's transport needs. Some of the long term transport priorities noted in the masterplan include the:

- Modernisation of the metropolitan rail network

- Redesign of Sydney's bus network to provide more frequent services to a wider range of destinations
- Integration of roads, public transport and freight
- Expansion of the capacities on congested road, rail and bus corridors
- Improvement of pedestrian and cycling infrastructure

2.1.3 Eastern City District Plan

The Eastern City District is a national economic district accommodating 37 per cent of Greater Sydney's jobs and generating over 45 per cent of its economic activity. The nationally significant businesses and institutions contained within it are anchored by the Harbour CBD and stretch across the Eastern Economic Corridor from Macquarie Park to the international trade gateways of Sydney Airport and Port Botany.

The Eastern City District Plan guides the growth of the District within the context of Greater Sydney's three cities to further improve its social, economic and environmental assets.

2.1.4 Premiers' priorities

The NSW Premier announced in September 2015 12 Premier's priorities to support the growth of the economy while protecting the most vulnerable in our society. The Premier's priorities are supported by 30 State priorities or 'reforms' that aim to grow the economy, deliver infrastructure, deliver infrastructure, and improve health, education and other services across NSW.

Key policies and actions relevant to study area

- Accelerating major project assessment
- Building infrastructure
- Consistently meet public transport reliability targets.
- Improve the efficiency of the road network during peak times on Sydney's road corridors

2.1.5 Sydney's ferry future

Sydney's Ferry Future (Transport for NSW, 2013) identifies that Sydney's ferry services will play an expanded role in our integrated transport system, enhancing Sydney's attractiveness as a place to live and visit. New services will be introduced to meet customer needs and demand.

Key points to emerge from the strategy that are relevant to the Study Area include:

- The future is about re-designing ferry services to respond to customer demand and forecast growth.

2.1.6 Sydney's light rail future

Sydney's light rail future was released by Transport for NSW in 2012 and identifies the NSW Government's strategy for the delivery of light rail infrastructure in Sydney. Relevant to the new Sydney Fish Market site is the statement that the 5.6 kilometre Inner West Light Rail extension (now completed) will for the first time connect neighbourhoods including Dulwich Hill, Leichhardt and Haberfield to shopping and entertainment districts such as the Sydney Fish Market, Paddy's Markets, Capitol Square and Leichhardt Marketplace.

2.1.7 Sydney City Centre Access Policy

The Sydney City Centre Access Policy describes a fully integrated transport network for Sydney's city centre. It aims to increase the volumes of people using public transport to access the city centre and change the way people move around within it. The Policy addresses Sydney's transport capacity by prioritising street space for public transport, general traffic, pedestrians, cyclists, taxis and service vehicles. It also identifies improved signage and wayfinding as ways to help manage the limited city space and make it easier for people to move around. These are particularly relevant issues for the Study Area, given the limited capacity of the surrounding road network, and need to make the site easily accessible by other modes.

2.1.8 NSW Freight and Ports Plan 2013

The NSW Freight and Ports Plan (2013) identifies key priorities to deliver a more effective freight system throughout NSW. It identifies strategies to maximise the efficiency of freight routes and to ensure reliable access to ports. This is pertinent to the Study Area, as it is a site of major freight movements within an intensive urban area and congested road network.

2.1.9 Transformation Plan: The Bays Precinct, Sydney, 2015

The Bays Precinct Urban Transformation Plan sets out a strategy for the renewal of The Bays Precinct. It recognises eight priority destinations within the Precinct:

- White Bay Power Station
- Blackwattle Bay
- Bays Waterfront Promenade
- Wentworth Park
- Glebe Island
- White Bay
- Rozelle Rail Yards
- Rozelle Bay and Bays Waterways

The objective of The Plan is to deliver a world-class precinct made up of contemporary, dynamic places that will accommodate a wide range of land uses to be enjoyed by both Sydney residents and visitors.

2.1.10 Relevant policies and guidelines

The following documents have been considered in this transport strategy for the redevelopment of the Sydney Fish Market:

- RMS Guide to Traffic Generating Developments

  Used to inform the traffic assessment undertaken for the project.

- EIS Guidelines – Road and Related Facilities

  Used to inform the preparation of the transport strategy, in particular the assessment of transport impacts.

- NSW Planning Guidelines for Walking and Cycling

  This document has been used to inform the development of the walking and cycling measures proposed in this strategy.

- Guide to Traffic Management – Part 12: Traffic Impacts of Developments (AUSTROADS)

  This guide has been referenced for the appropriate methodology to be used for traffic impact assessment of the development.

- NSW Department of Planning Development Near Rail Corridors and Busy Roads – Interim Guideline

  Used to inform the assessment of the site within the wider transport context.

2.2 Planned Transport Infrastructure

2.2.1 Sydney Metro West

Sydney Metro West is an underground metro railway that will link the Parramatta and Sydney CBDs, linking communities along the way that have not been previously serviced by rail and unlocking housing supply and employment growth between the two major CBDs.

New metro rail will become the fastest, easiest and most reliable journey between the Sydney and Parramatta CBDs. The intention is to free up Sydney Trains and inter-city services for customers in the city's outer west in areas like Blacktown, Penrith and the Blue Mountains. In turn, these services will become more reliable, with increased capacity, reduced crowding and faster travel times.

New stations will be built at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays Precinct and the City. The station future station at the Bays Precinct has the potential serve people travelling to and from the new Sydney Fish Market site.

Further, the NSW Government has announced they are investigating the potential for an additional station to be located in Pyrmont. This station would directly benefit people travelling to the new Sydney Fish Market site as well as the wider Bays Market District.

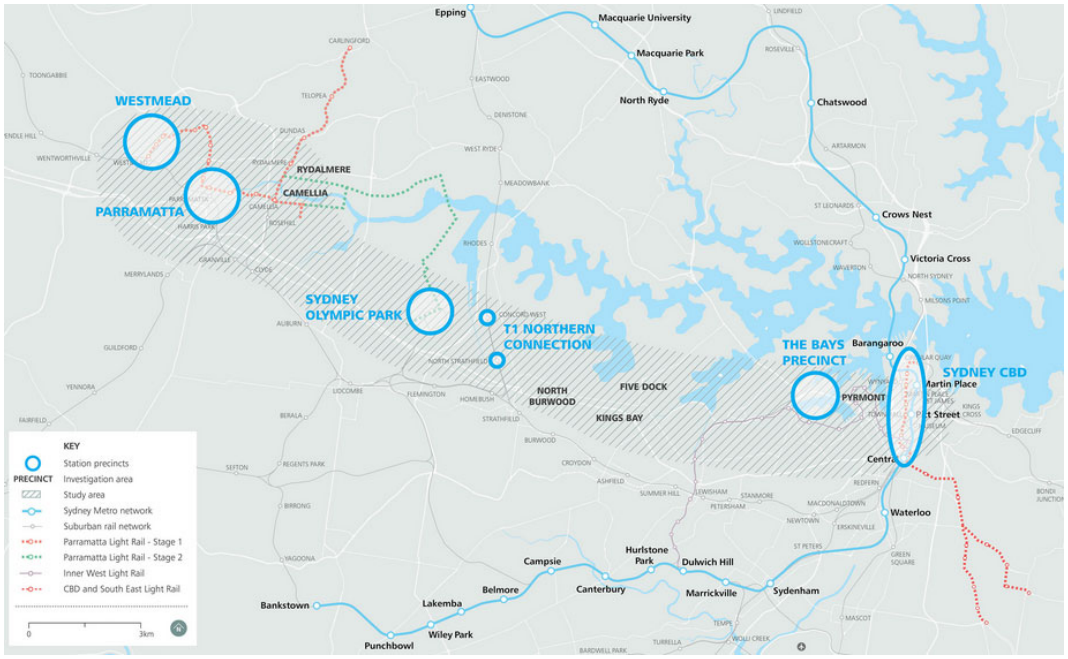


Figure 3 Sydney Metro West project

Source: Sydney Metro

2.2.2 Western Harbour Tunnel and Beaches Link

The Western Harbour Tunnel will connect to WestConnex at the Rozelle Interchange, cross under Sydney Harbour between the Birchgrove and Waverton areas and connect with the Warringah Freeway at North Sydney. As part of the project, the Warringah Freeway Upgrade will make the road safer and more efficient.

Beaches Link is a tunnel which will connect to the Warringah Freeway, cross under Middle Harbour connecting with the Burnt Bridge Creek Deviation at Balgowlah and the Wakehurst Parkway. The Wakehurst Parkway will be upgraded to two lanes each way between Seaforth and Frenchs Forest. The project will also offer new 'east-west' connectivity with links to the Lane Cove Tunnel and M2 Motorway via a Gore Hill Freeway Connection.

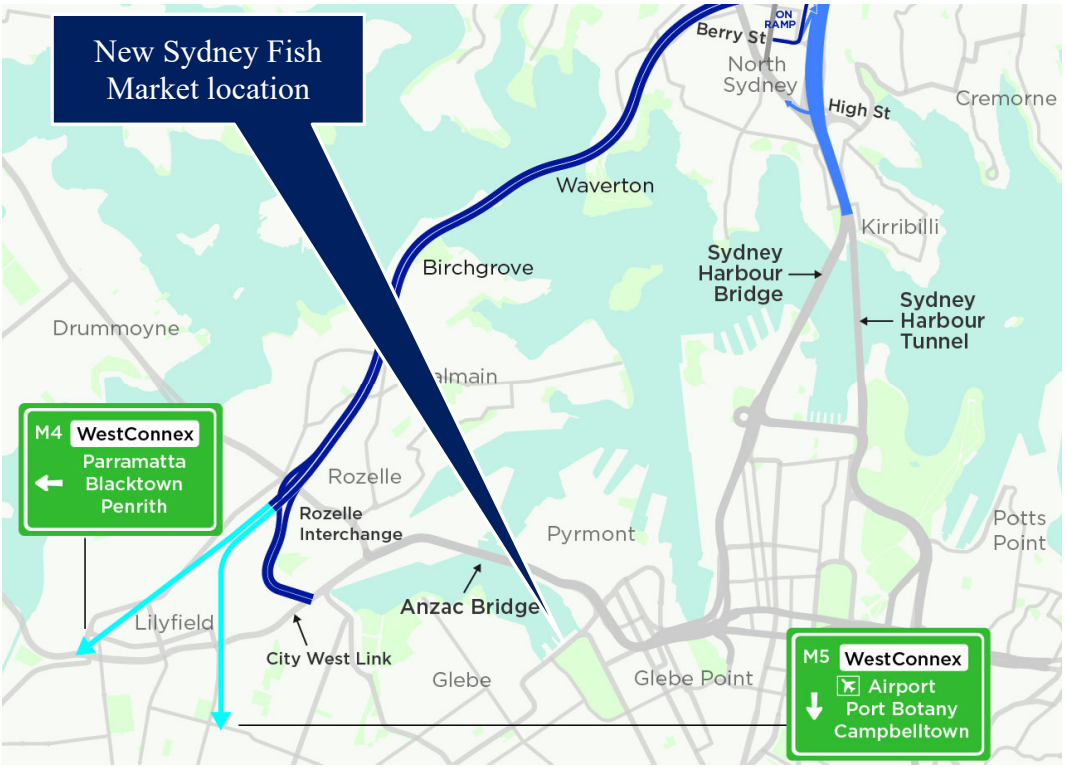


Figure 4 Western Harbour Tunnel and Beaches Link project

Source: RMS

3 Data Collection

Data for the existing Sydney Fish Market site has been collected and used to inform this transport assessment. The sources of data collected and analysed as part of this study is summarised in Table 3.

Table 3 Summary of collected and analysed data

Location	Day / date	Survey Type	Survey period
Fish Market / Bank Street / Miller St intersection	All days between Thursday 19/11/2015 and Wednesday 25/11/2015 inclusive	Classified vehicle turning movements	24 hour period
Fish Market / Miller St / Bank Street intersection	Easter Thursday Easter Saturday Christmas Eve New Years Eve	SCATS data (no vehicle classification)	24 hour period
Fish Market / Miller St intersection plus 15 other intersections	Tuesday 14/3/2017 Saturday 18/3/2017	Classified vehicle turning movements	Tuesday: 7am-9am, 4pm-7pm Saturday: 11am – 2pm
12 intersections in vicinity of the site	***Outside school holidays*** Friday 21/07/17 Saturday 22/07/17	Classified vehicle turning movements	Friday: 6.30am – 9.30am 4pm – 7pm Saturday: 10am – 1pm
Fish Market three pedestrian entrances	***During school holidays*** Friday 07/07/17 Saturday 08/07/17 ***Outside school holidays*** Friday 21/07/17 Saturday 22/07/17	Pedestrian and cycle entry and exit counts	6am – 6pm
Fish Market and Wentworth Park light rail stops	***During school holidays*** Friday 07/07/17 Saturday 08/07/17 ***Outside school holidays*** Friday 21/07/17 Saturday 22/07/17	Pedestrian and cycle count alighting and walking towards Fish Market	6am – 6pm
Fish Market car park	***During school holidays*** Friday 07/07/17 Saturday 08/07/17 ***Outside school holidays*** Friday 21/07/17 Saturday 22/07/17	Duration of stay and occupancy count	6am – 6pm
Fish Market	***During school holidays*** Friday 07/07/17 ***Outside school holidays*** Friday 21/07/17	Interview surveys of people entering site regarding travel behaviour	11am-2pm
Fish Market / Miller St intersection	Friday 28/09/2017	Traffic and interview survey	24 hour period

4 Existing Conditions

4.1 Summary – existing conditions

Below is a summary table of the key findings regarding existing travel behaviour at the Sydney Fish Market. Further details for each issue / mode of transport is provided in the following sections of the report.

Table 4 Summary of key findings

Issue	Key Finding
Site activity	• Peak activity on the site occurs between 12pm and 2pm on both weekdays and weekends, with up over 2,300 people recorded on-site on a Saturday during school holidays
Mode split	• Arrival to the site by foot is considerable – accounting for up to 39% of daily arrivals. Private vehicle however remains the primary mode of access, accounting for between 45%-50% of all journeys to the site.
Trip generation	• Vehicle trip generation for the site is relatively low in the weekday commuter peak hours, although higher during the Saturday peak hour.
Pedestrian entries	• Pedestrian surveys indicated that the Wattle Street entry point is the most utilised access point on weekends, whereas the Miller Street access point is most used on weekdays. • The site consistently experiences peak pedestrian activity between 12pm and 2pm.
Cyclists	• Cyclist entry is taking place mostly at the Wattle Street entrance, despite there being no formal bike parking in this area.
Public transport	• The number of people using light rail as a mode of arrival is not significant. This is particularly the case for the Wentworth Park Light Rail stop, where small number of people were observed to travel to the site.

Issue	Key Finding
Private vehicle	• The number of vehicles accessing the site from Monday to Thursday is similar, with an approximate 15% increase on Fridays. The weekend is the busiest time of the week, with Saturdays attracting vehicle volumes about 30% higher than Fridays • During peak events such as Good Friday, Christmas Eve and New Years Eve, the number of visitors travelling to the existing Sydney Fish Market can be more than 3 to 4 times that compared to a typical weekday.
Intersection volumes	• The intersection of Bridge Road and Wattle Street may represent a key network constraint in terms of future vehicular access to the new Sydney Fish Market site.
Parking	• The car park has a high turn-over rate, with up to 30% of visitors parking on site for less than 15 minutes almost 75% staying for less than one hour. • Parking demand exceeds available capacity by less than 4% between 12pm and 2pm on weekends, and approaches capacity on Fridays, particularly during the school term. • Close to 300 parking spaces, or more than 60% of overall capacity, are occupied by 7am on the site on weekdays. This is likely attributed to staff parking and trade vehicles from buyers attending the auction.
Taxis	• A taxi rank is provided on site however usage is limited and the lack of available taxis at this location often results in people walking out of the site onto Pyrmont Bridge Road or Wattle Street to hail down a passing taxi
Private coaches	• Private coach parking areas are not well defined within the site, with coaches observed to use loading areas to drop off passengers.

4.2 Current operations

The existing Sydney Fish Market has various operations occurring on-site, attracting an array of buyers, distributors, staff and visitors. The business hours of the different operations are shown in Table 5.

Table 5: Existing Sydney Fish Market operational hours

Operation	Business Hours
Wholesale auction	5:30am (Mon – Fri)
Retail	7am – 4pm (Mon – Thu) 7am – 5pm (Fri – Sun) Christmas Day and Easter holiday exceptions
Retail (Fisherman's Wharf Restaurant)	11am – 3pm; 5:30pm – 10:30pm (Mon – Thu) 10am – 3pm; 5:30pm – 10:30pm (Fri – Sun)
Office and administration	7am – 4:30pm (Mon – Fri)
Behind the Scenes Tours	6:40am (Mon – Fri)
Sydney Seafood School	Various

4.3 Current visitation

4.3.1 Visitor characteristics

The latest Tourism Australia data from Tourism Research Australia (TRA) estimated total visitations to the Fish Market to be approximately 3 million visitors per annum, comprising:

- 1.8 million Sydney residents; and
- 1.2 million tourists, including 876,000 international and 303,000 domestic visitors.

Typical characteristics of visitors currently accessing the existing Sydney Fish Market site are summarised in the table below.

Table 6 Typical travel characteristics

Visitor Type	Typical Travel Characteristic
Tourists	• Unconcerned with the day of the week • Typically follow a seasonal pattern • More likely to use modes other than private vehicle • Primary occupants of tourist modes such as coaches
Destination retail users	• Generally a younger demographic • Full range of modes used • Generally travel outside of typical working hours (i.e. outside of 9am-5pm, Monday-Friday)

4.3.2 Visitor profile

Surveys were undertaken at the entrance to the existing Sydney Fish Market site to understand the types of user accessing the car park over a typical weekday. The distribution of staff arrivals by vehicles, as identified by the survey, is shown in Figure 5. This indicates a significant proportion of staff vehicles arriving to the site over the course of a typical day.

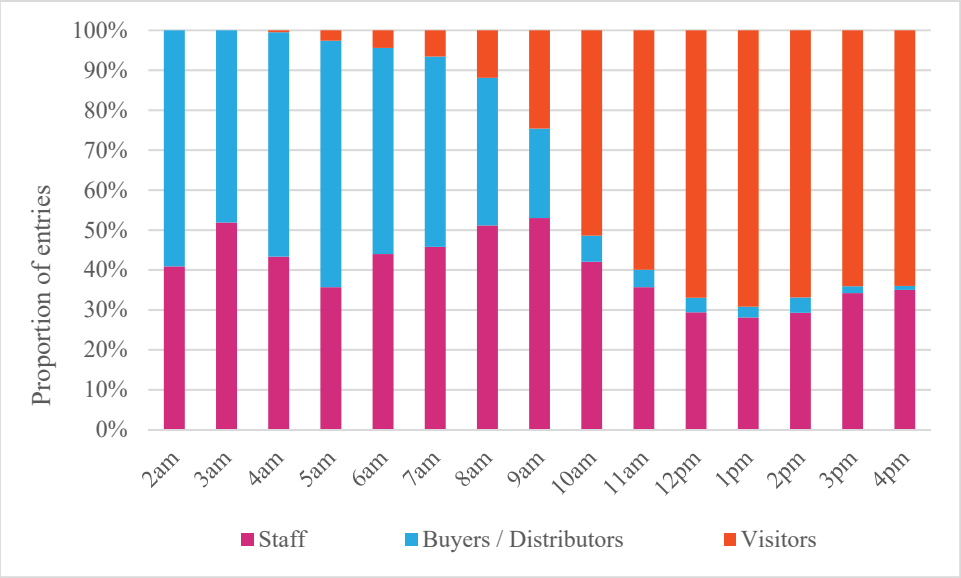


Figure 5 Entry to Sydney Fish Market by user

Based on these surveys, the proportion of vehicles traffic attributable to users of the existing Sydney Fish Market can be estimated. This is shown in Figure 6 below.

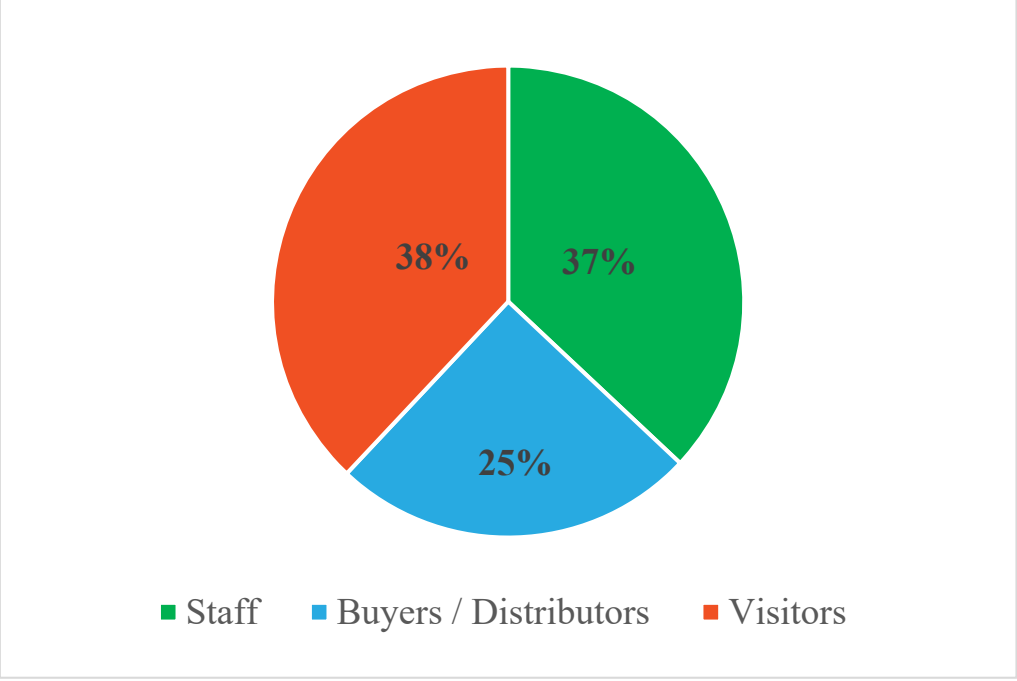


Figure 6 Proportion of daily vehicle activity by user

4.3.3 Daily attendance profile

Figure 7 summarises the total visits recorded to Sydney Fish Market over a weekday and weekend during school holidays and school term. The numbers represent total visits by all modes of transport, including people parking in the on-site car park and those walking into the three pedestrian entry points into the site. Key findings include:

- Weekend visitation during school holidays compared to outside of school holidays is similar
- Weekday visitation during school holidays is approximately 20% higher compared to that recorded during the school term period
- Weekend visitation compared to weekday visitation is approximately 20% more during school holidays, and 30% more during school term

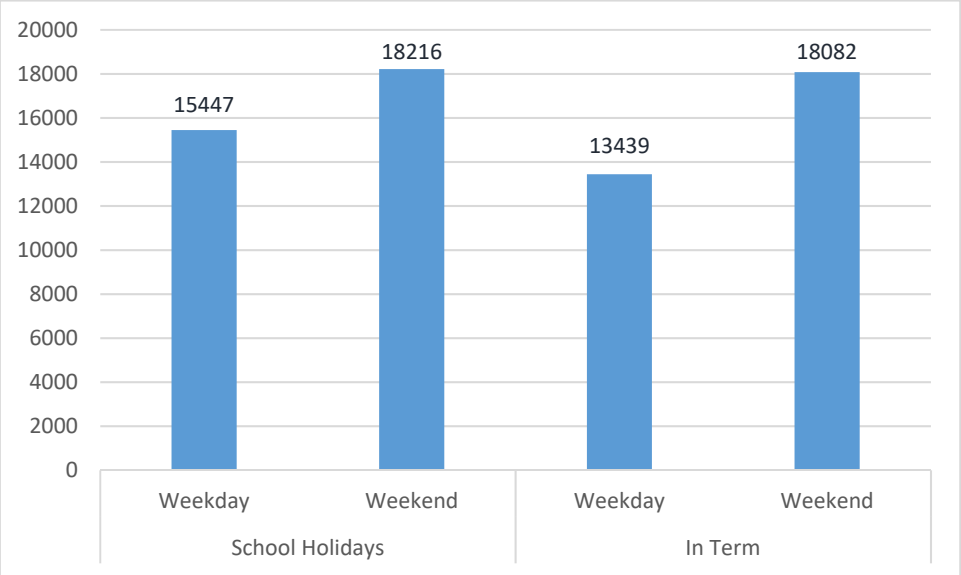


Figure 7 Total daily activity (all modes) – July 2017

The daily profile of activity for visitors travelling to the current Fish Market site is shown in the figures below. This considers both entry/exits by hour of the day, as well as the accumulation of people on site at any one time. The accumulation was determined based on the number of vehicles that were surveyed to arrive prior to this time, with a car occupancy factor taken into consideration.

During the week, as well as on Saturdays, peak entries typically occur around lunchtime from 12:00-13:00 while peak exits occur from 13:00-14:00. The number of people on site at any one time peaks between 12:00-13:00, with up over 2,300 people recorded on-site on a Saturday during school holidays.

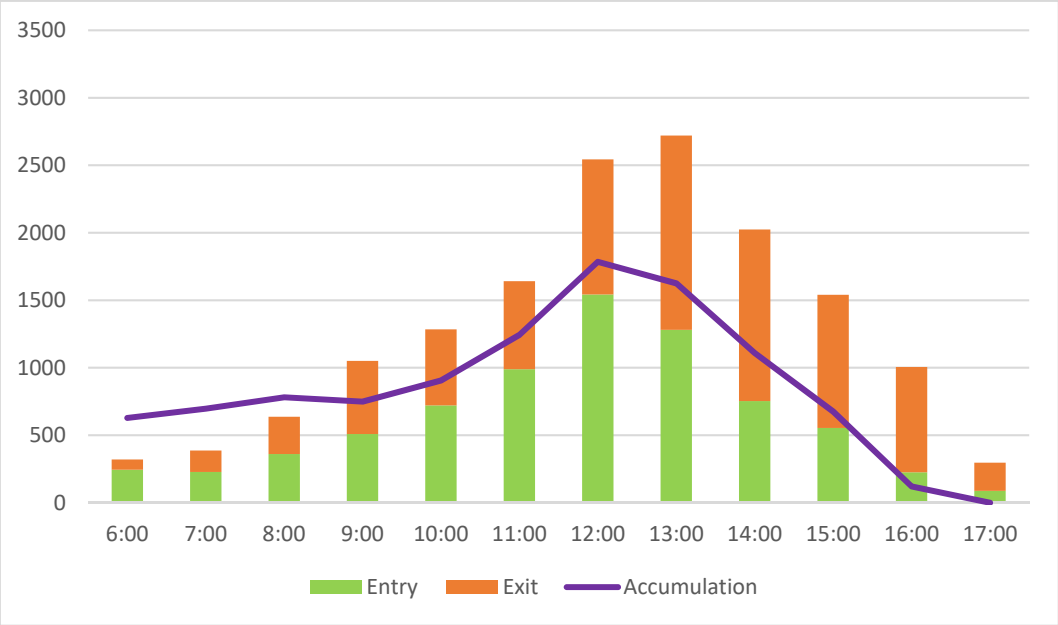


Figure 8 Weekday entry and exit profile – all modes

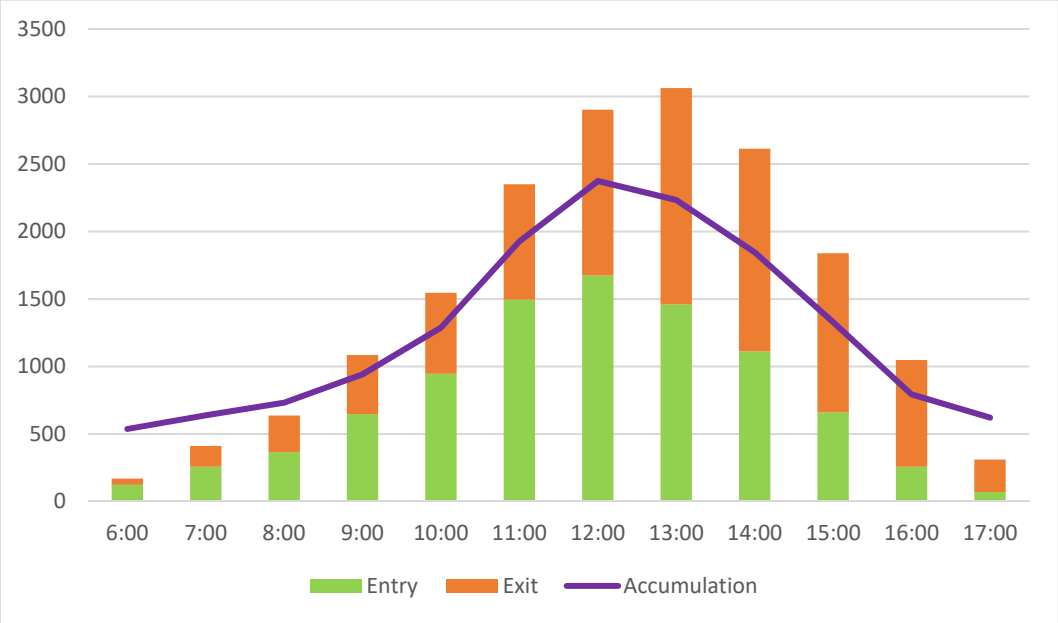


Figure 9 Weekend entry and exit profile – all modes

4.4 Current travel patterns

4.4.1 Visitors

Arup conducted interview surveys during the lunchtime peak in the school term and school holiday periods (July 2017) to inform the mode split of visitors to the current site. Figure 10 indicates the lunchtime mode share. Private vehicle is the primary mode of transport used to access the site (44% mode share). Walking is also a dominant mode of arrival (39% mode share) – largely a result of lunchtime trips from nearby businesses.

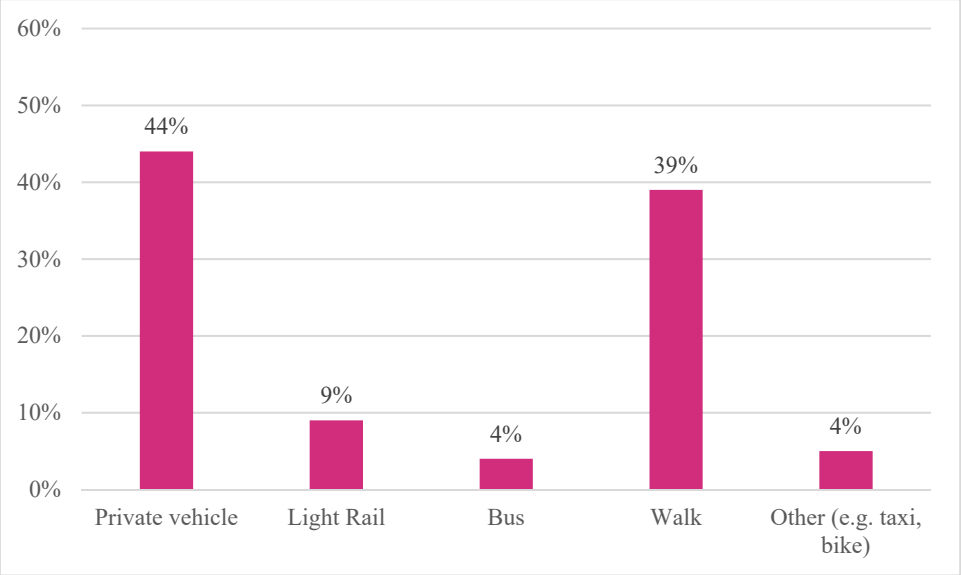


Figure 10 Current transport mode share of Fish Market visitors

4.4.2 Staff

Journey to Work census data has been used to estimate the current travel behaviour of staff. Census data for the travel zone immediately surrounding the Fish Market indicates that approximately 40% of staff travel to the site via non-car modes. Vehicle is the predominant mode of travel, accounting for 59% of all journey to work trips. This is shown in Figure 11 below.

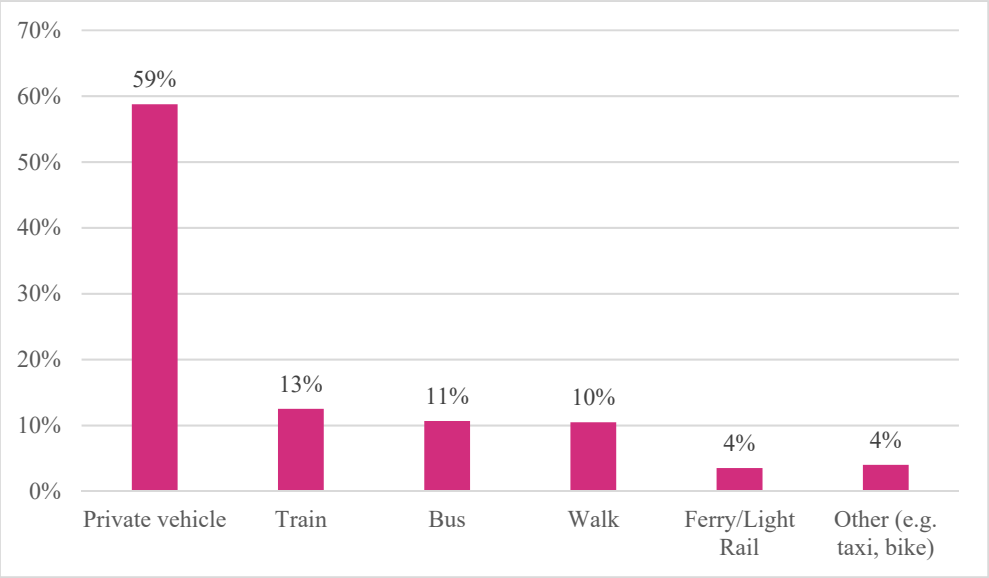


Figure 11 Current transport mode share of Fish Market staff (Census, 2016)

4.5 Mode split

4.5.1 Overall mode split

The modal split for visitors and staff to the Fish Market was determined based on:

- The known entry and exit times of vehicles entering the existing on-site car park
- Observations and historical data of vehicle occupancy
- Counts of pedestrians at the three main site entry points throughout the day, as well as pedestrian counts at the nearby light rail stops; and
- Interview surveys conducted by Arup of visitors entering the existing Sydney Fish Market site

A summary of the modal split is presented in Figure 12 below. A high number of visitors arrive by walking from nearby areas, accounting for over 20% of trips to the site. Private vehicle currently accounts for approximately 50% of all journeys to the site, although car passengers comprise a significant proportion of these trips.

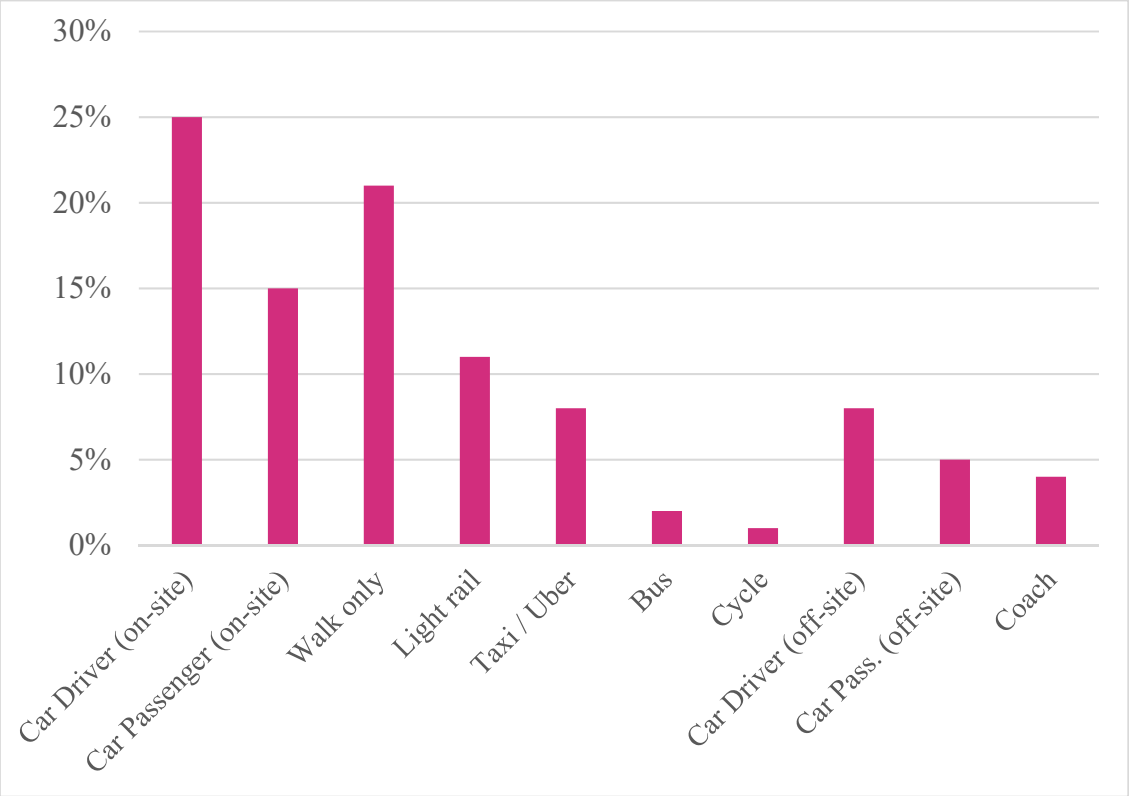


Figure 12 Existing mode split

4.5.2 Mode split profile

The figures below provide an overview of the how the mode split of visitors varies across a typical day. The results indicate that during the peak visitation period between 11am-1pm, a high proportion of people walk to the site. Whilst the total number of people entering the site increases significantly during this period, the car mode share increases only slightly. Private vehicle is the dominate transport mode early in the morning and late in the afternoon.

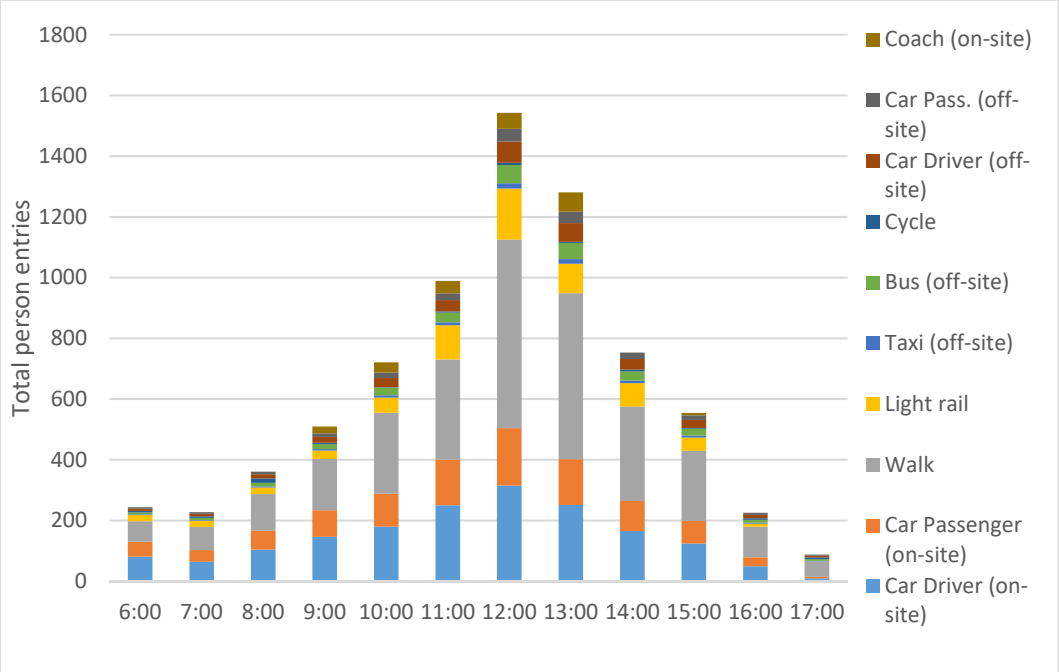


Figure 13 Weekday mode split and activity per hour

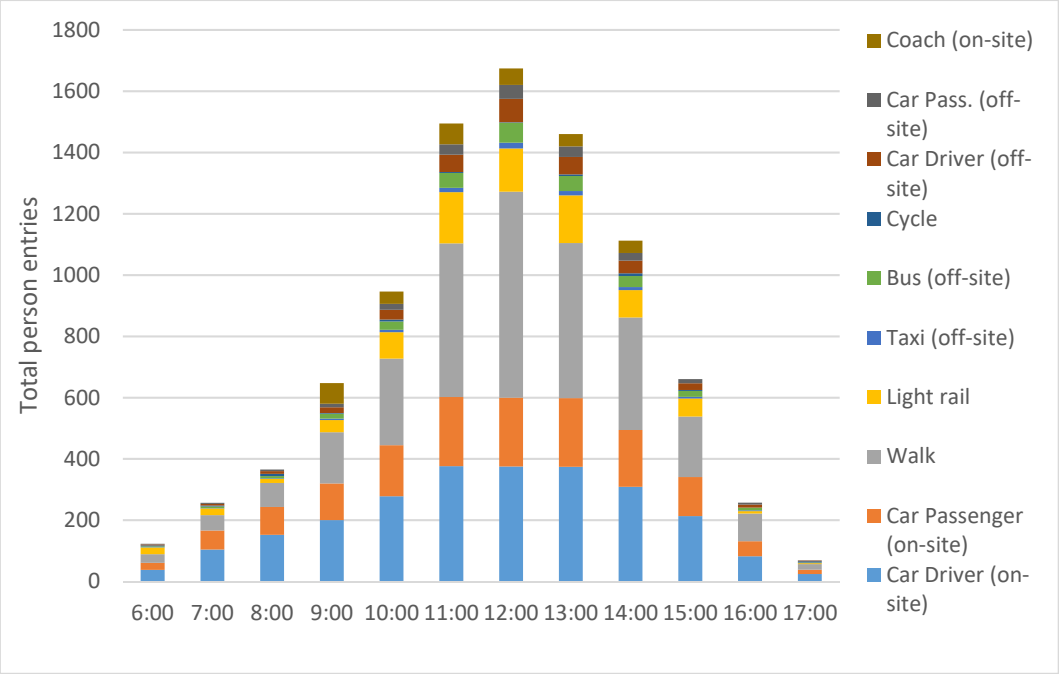


Figure 14 Weekend mode split per hour

4.6 Trip Generation

The origin-destination surveys undertaken by Arup in July 2017 were used as the basis for determining the traffic generated by the existing Fish Market site (entering and exiting the site). The vehicle trip generation rate has been developed on a per car parking space basis. Some key results to emerge from the analysis include:

- The road network and site peak periods do not currently overlap. The vehicle trip rate (per parking space) is between 0.44-0.53 during the AM peak hour and 0.09-0.10 during the PM peak hour, whereas the weekday lunch trip rate is between 1.16-1.28.
- On a Saturday, the site peak is from 12:00-13:00 with a vehicle trip rate of approximately 1.5 vehicles per parking space.

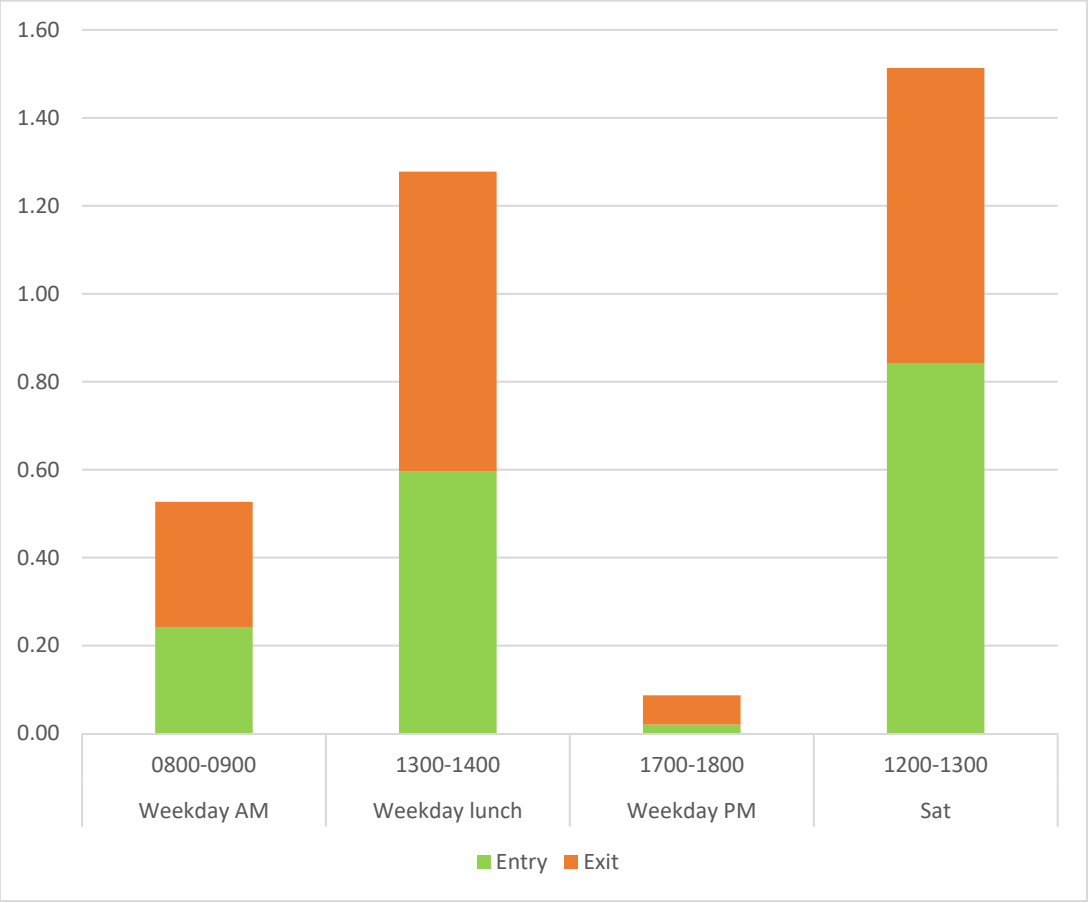


Figure 15 Vehicle trip rate per parking space – school holidays

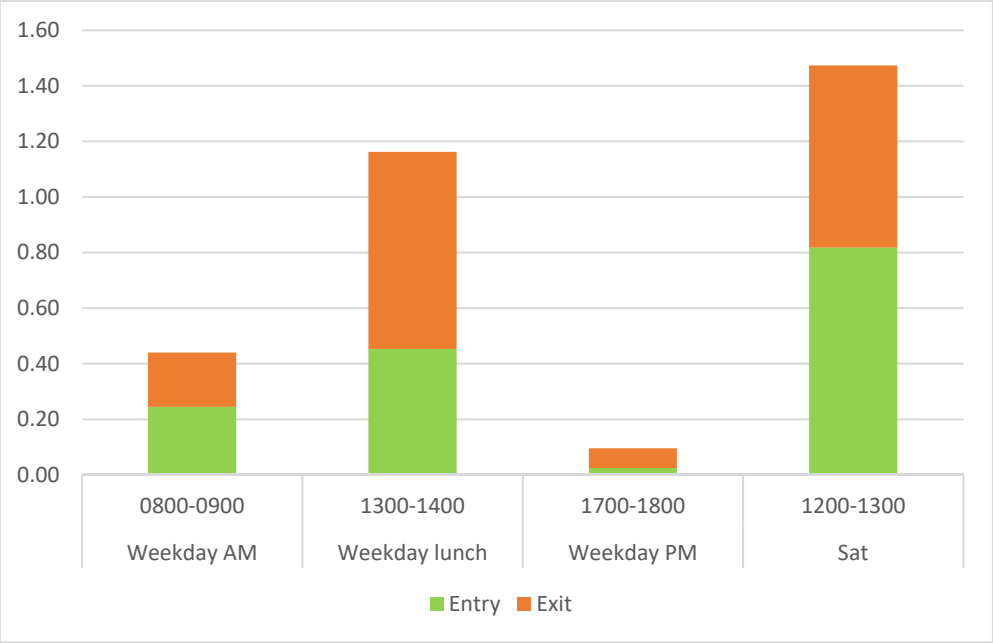


Figure 16 Vehicle trip rate per parking space – non-school holidays

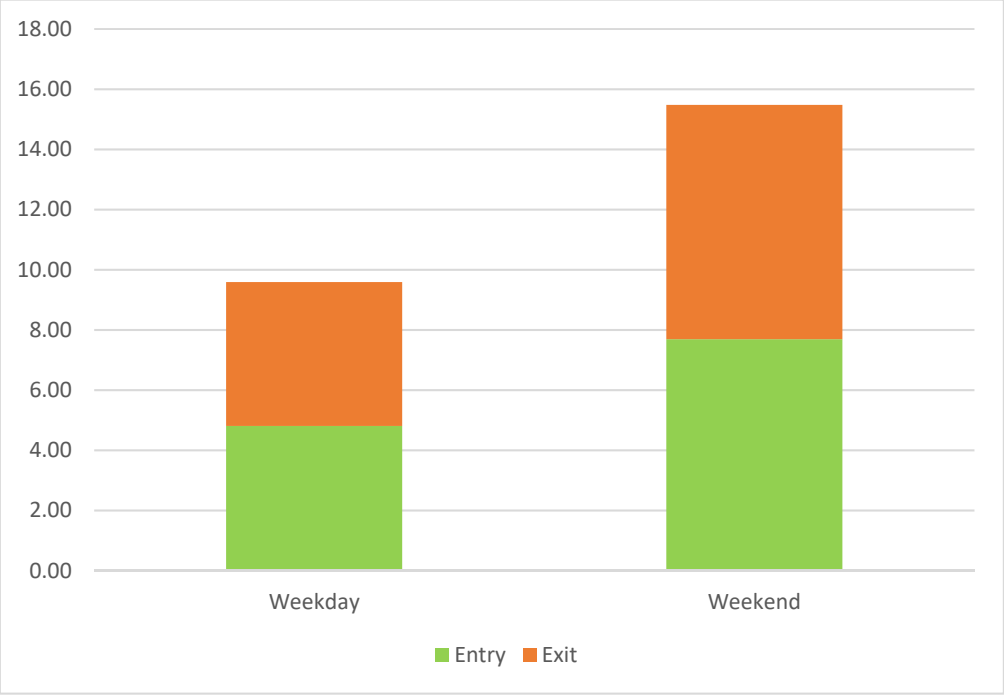


Figure 17 Vehicle trip rate per parking space – whole day

4.7 Connectivity to the site

The key connections to the existing Fish Market site from public transport are shown in Figure 18. The site has a number of key walking routes surrounding the site to external points described in the next section.

Figure 18 Public transport connections to the current Fish Market

4.7.1 Pedestrian access

There are three pedestrian access points to the existing Sydney Fish Market site:

- Miller Street
- Pyrmont Bridge Road
- Wattle Street

Figure 19 Current site pedestrian access points

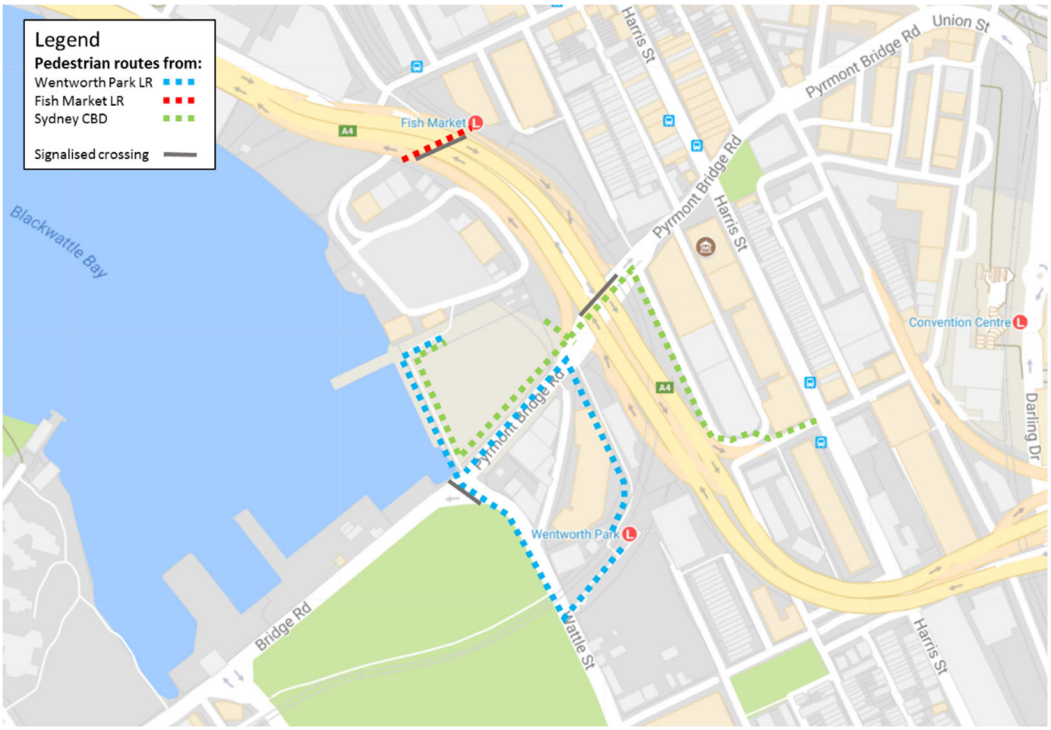


Figure 20 Pedestrian routes for accessing the site.

The light rail has two stops within comfortable walking distance to the existing Sydney Fish Market, those being Wentworth Park and Fish Market.

Arriving from Wentworth Park, pedestrians have the option of accessing the Fish Market through the southern entrance either via Wattle Street or a small access route behind Wattle Crescent. The southern entrance allows pedestrians to walk along the western pier, adjacent to restaurants and eateries.

From the Fish Market light rail stop, pedestrians access the existing Sydney Fish Market by crossing Bank Street and entering through the northeast corner of the site.

Pedestrians arriving from the Sydney CBD will primarily use Pyrmont Bridge Road and cross Bank Street to access the site via the Pyrmont Bridge Road access. They may also use Miller Street and the Miller Street site access.

4.7.2 Total entries / exits

The number of people entering the Fish Market site over a 12 hour period (6am-6pm), broken down by access point, is shown in the figures below. This includes all trips to the site other than those people parking in the on-site car park.

This indicates that the Wattle Street entry point is the most utilised on weekends, whereas the Miller Street access point is most used on weekdays.

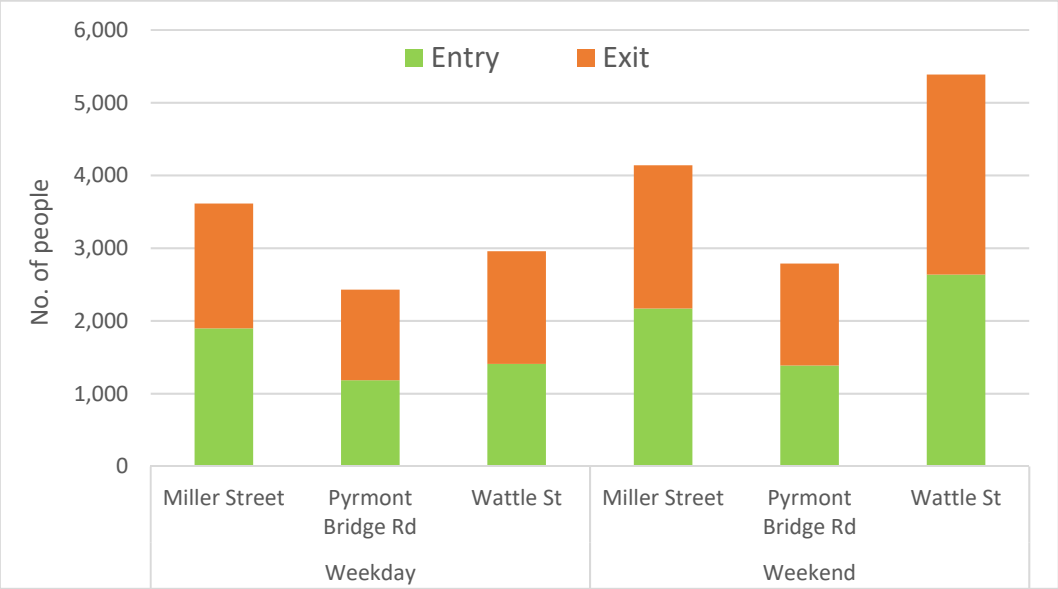


Figure 21 Pedestrian entries and exits by access point – school holidays

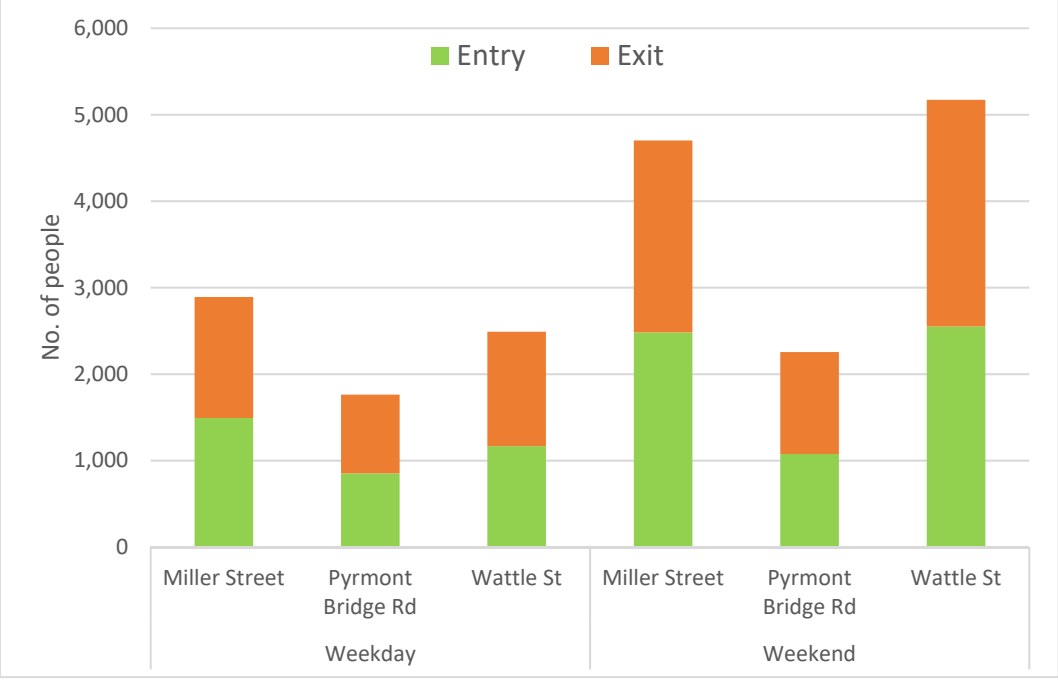


Figure 22 Pedestrian entries and exits by access point – school term

4.7.3 Daily profile of pedestrian entries

The profile of pedestrian activity over a typical weekday and weekend at the Fish Market is presented in the figures below. This illustrates the peak the site experiences in activity between midday and 2pm on weekdays and weekends.

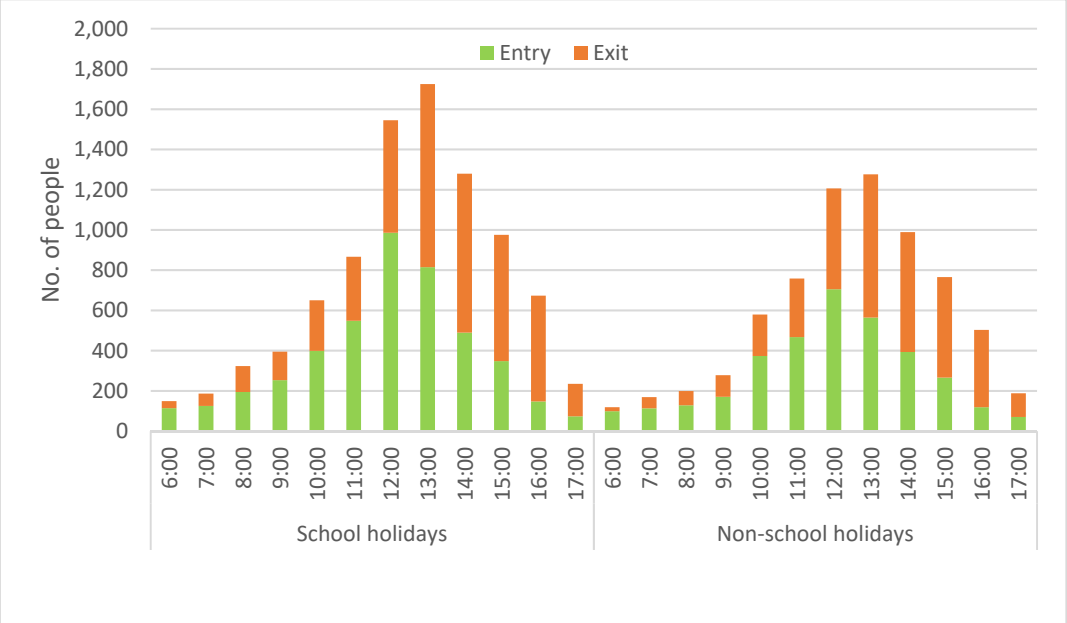


Figure 23 Daily profile of pedestrian entries/exits – weekday

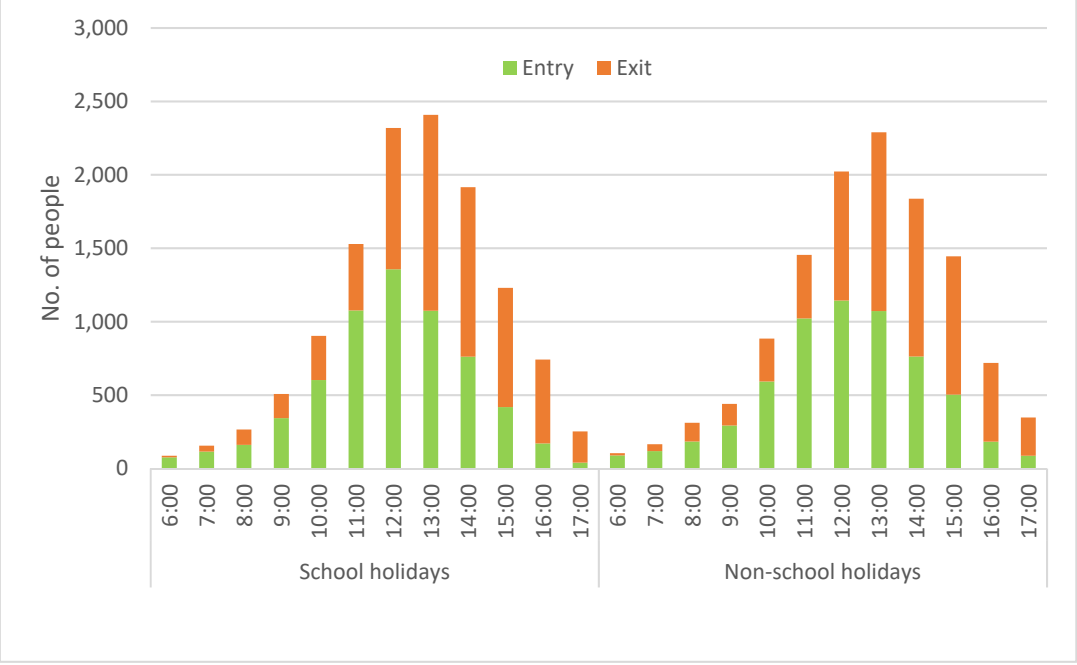


Figure 24 Daily profile of pedestrian entries/exits – weekend

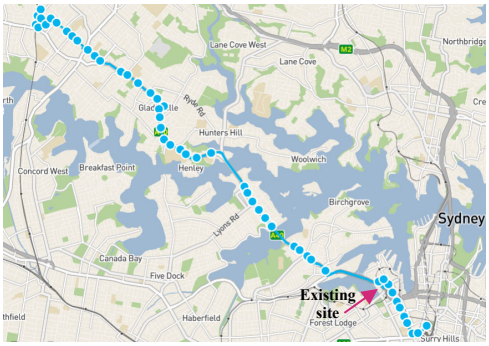
4.8 Public transport

4.8.1 Train

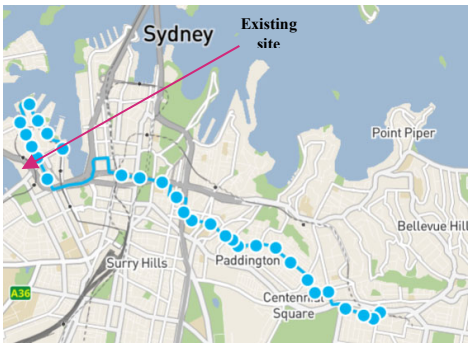
The closest railway stations to the existing and future Sydney Fish Market sites are Town Hall and Wynyard stations, which are both just under a 25 minute walk.

4.8.2 Bus

The existing Fish Market site is within close walking distance of several bus stops along Harris and Miller streets. Bus route 389 stops twice along Harris Street, both within walking distance of the site. This route connects Pyrmont with Bondi Junction, and additionally services Town Hall Station and the suburbs of Woollahra, Paddington and Darlinghurst. Route 501 also stops on the western end of Miller Street, less than 150m walk to the current Fish Market site. This route provides access to the site from Haymarket and West Ryde.



Bus route 501



Bus route 389

4.8.3 Light Rail

The main light rail stop serving the existing Sydney Fish Market site is the Fish Market stop, easily located within five minutes walk. The future site at Blackwattle Bay will be serviced by the Fish Market stop as well as the Wentworth Park and Glebe light rail stops.

The number of people using light rail as a mode of transport to access the site is shown in the figures below. The profile for both a school and non-school holiday day was found to be similar on a weekday and weekend.

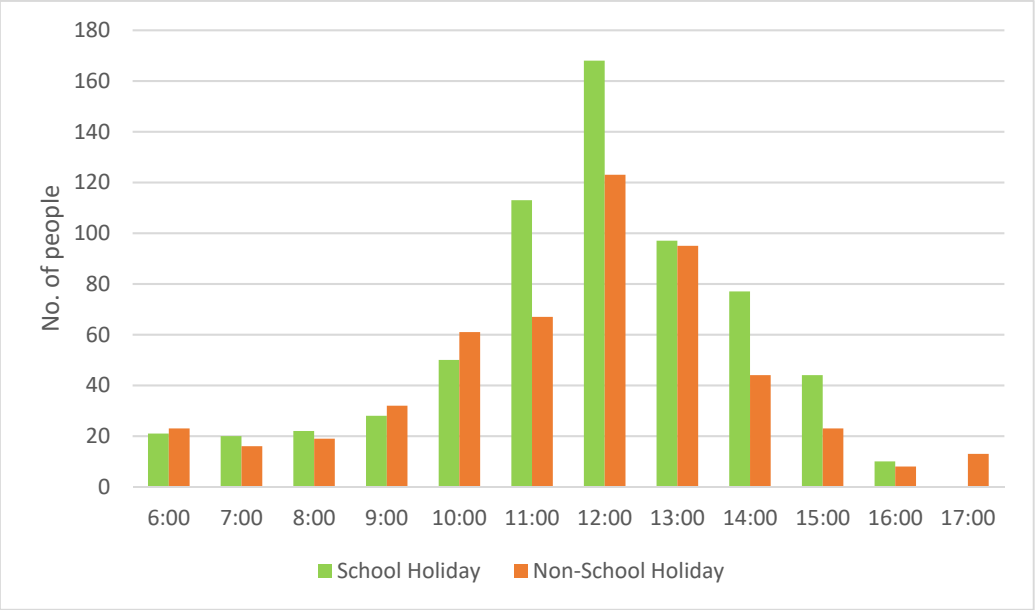


Figure 25 Arrivals by light rail - weekday

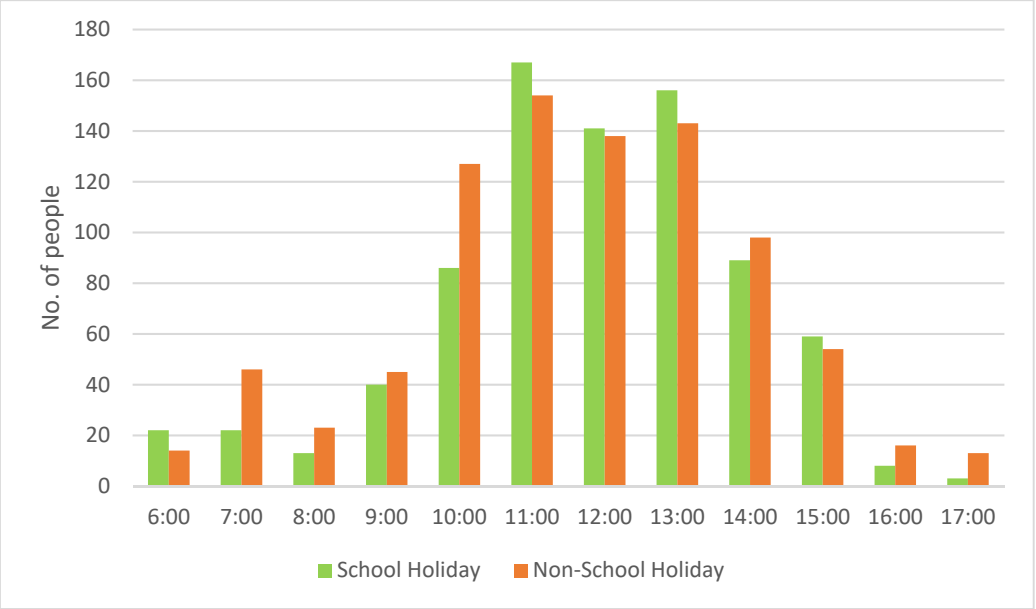


Figure 26 Arrivals by light rail – weekend

Opal data was received from Transport for NSW at a number of bus and light rail stops in the vicinity of the Sydney Fish Market, with locations shown in Figure 27.

Figure 27 Existing bus stop and light rail stop locations servicing the current site

The data covered a two hour period during the morning peak hour for a typical (non-school holiday) day in 2016, with results shown in Figure 28. This indicates that a number of people were recorded alighting at the Fish Market light rail stop during the morning peak hour, a number of which are likely to have accessed the Sydney Fish Market. Generally bus usage was low at the stops nearby to the Fish Market site.

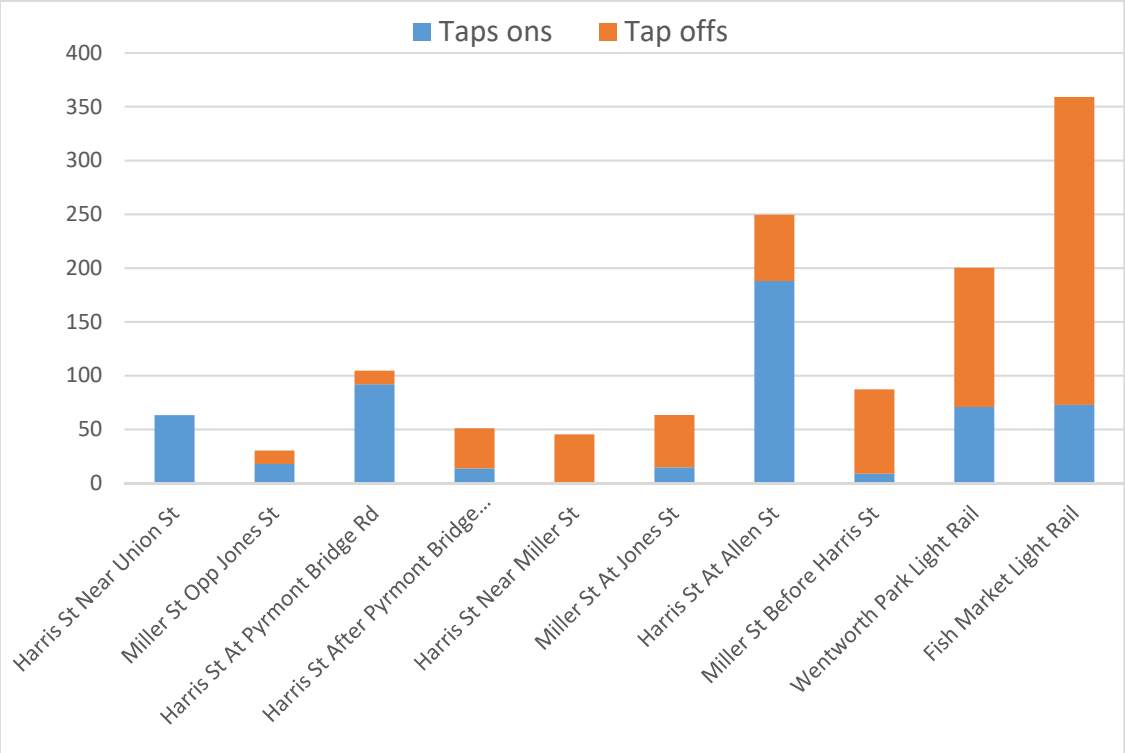


Figure 28 Opal boardings and alightings - 2 hour AM period

4.8.4 Ferry

Pyrmont Bay Ferry Wharf is located approximately a 15 minute walk away from the Fish Market and provides access for some patrons arriving from North Sydney or Circular Quay.

4.9 Taxi

A taxi rank is located at the western end of the site, which could accommodate up to 3 taxis at any one time. Observations noted that taxis would not be waiting for passengers at this rank, rather people would be required to call for a taxi within the retail area of the Fish Market using a phone booth. The lack of available taxis at this location often results in people walking out of the site onto Pyrmont Bridge Road or Wattle Street to hail down a passing taxi which are more readily available at these locations.

A photo of the existing taxi rank on site is shown in Figure 29 below

Figure 29 Taxi stand on western side of car park

4.10 Road network

4.10.1 Surrounding road network

The existing and future Sydney Fish Market sites are surrounded by a significant number of state and local classified roads, provided in Figure 30. The Western Distributor provides direct access to the Blackwattle Bay and provides connectivity to the western suburbs through Victoria Road or City-West Link Road. Other state classified roads in the immediate vicinity of the site include Bridge Road, Wattle Street, Harris Street, The Cross City Tunnel and Park Road. Bridge Road provides access to the western on-ramps to Western Distributor, as well as Wattle Street and Harris Street.

The existing and future Sydney Fish Market sites are situated near a range of local classified roads that provide the crucial links to major motorways. These local classified roads include Glebe Point Road, William Henry Street, Harbour Street, King Street and Hickson Road.

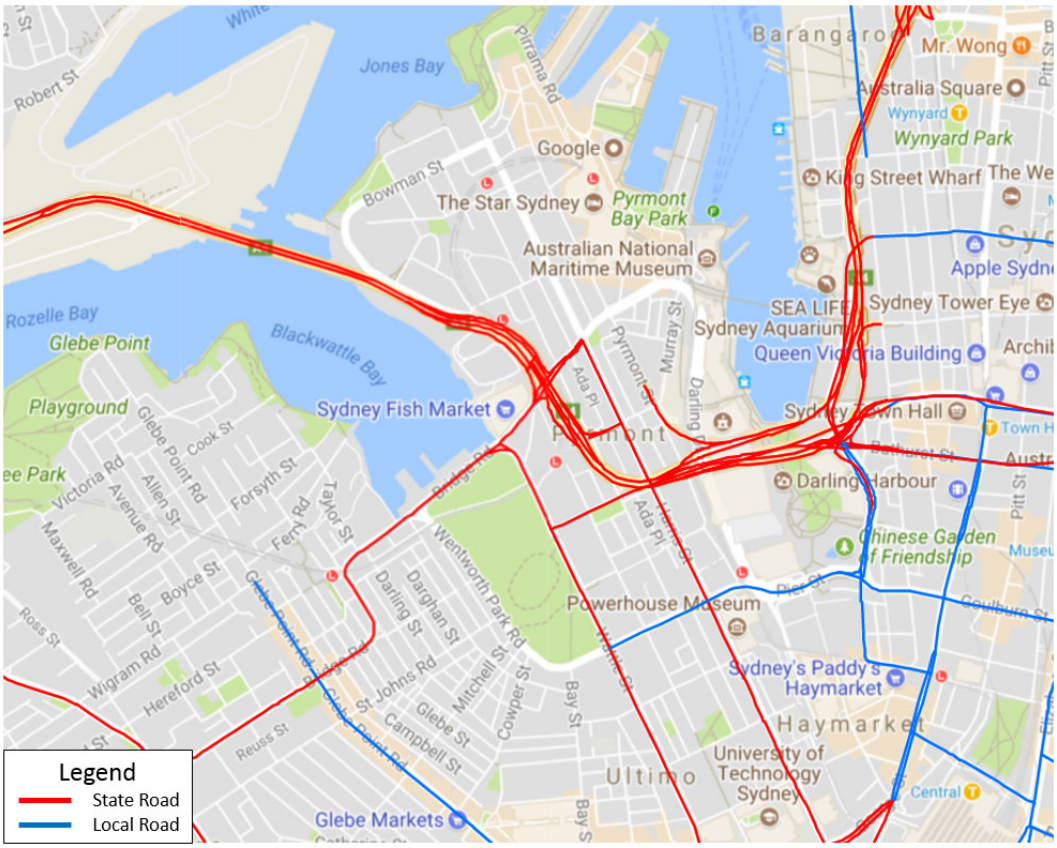


Figure 30 State and local roads surrounding the existing Sydney Fish Market

4.10.2 Intersection traffic volumes

Intersection traffic counts were undertaken at a number of locations around the Blackwattle Bay as shown in Figure 31.

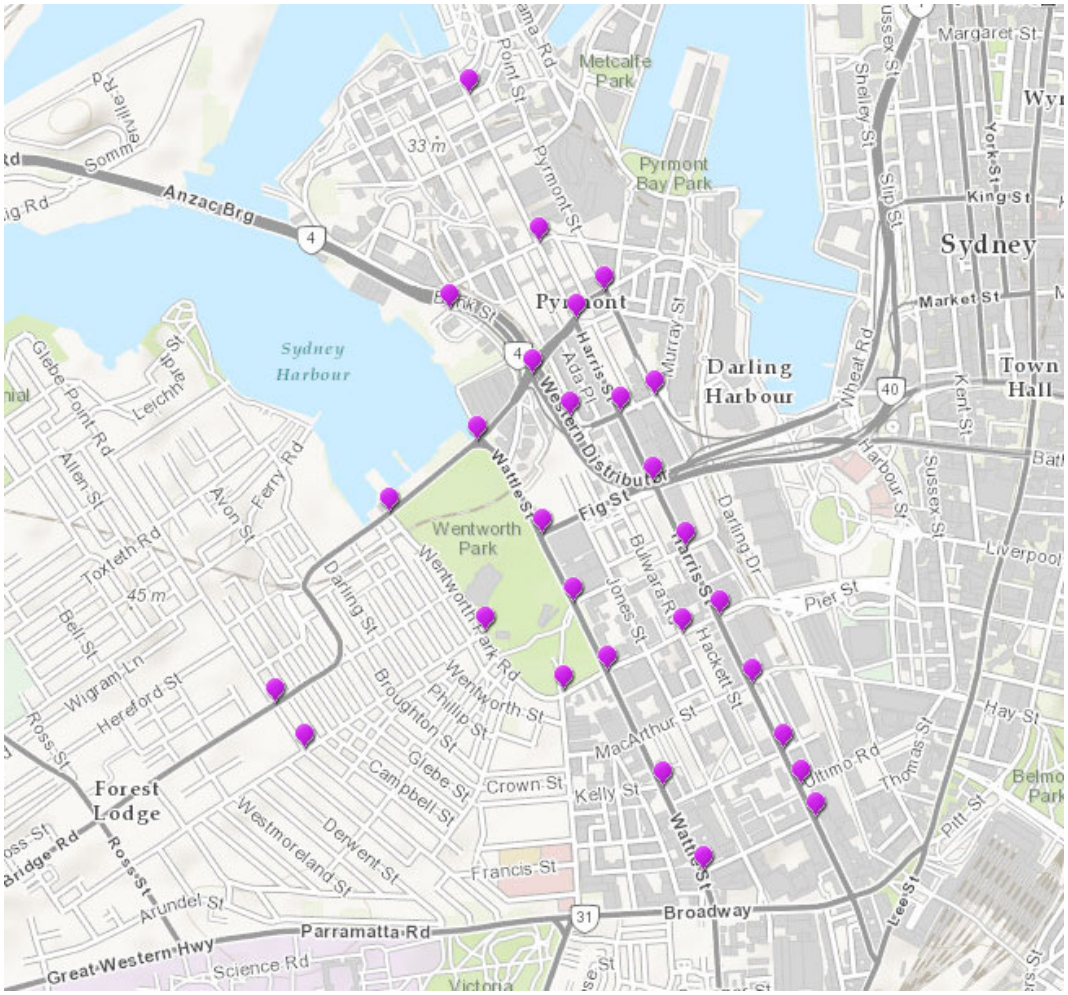


Figure 31 Locations of intersection counts

Based on the traffic counts received, the network AM and PM weekday peak hours and Saturday peak hour were as follows:

- Weekday AM: 8am-9am
- Weekday PM: 5pm-6pm
- Saturday: 12pm-1pm

Total traffic volumes through the intersection during the network AM and PM peak hours are shown in Figure 32 and Figure 33 respectively.

The data shows there are currently significant traffic movements at the following key intersections in the Blackwattle Bay:

- Pyrmont Bridge Road / Bank Street / Western Distributor
- Harris Street / William Henry Street (particularly in the PM peak hour)
- Harris Street / Fig Street
- Wattle Street / William Henry Street
- Bridge Road / Wattle Street

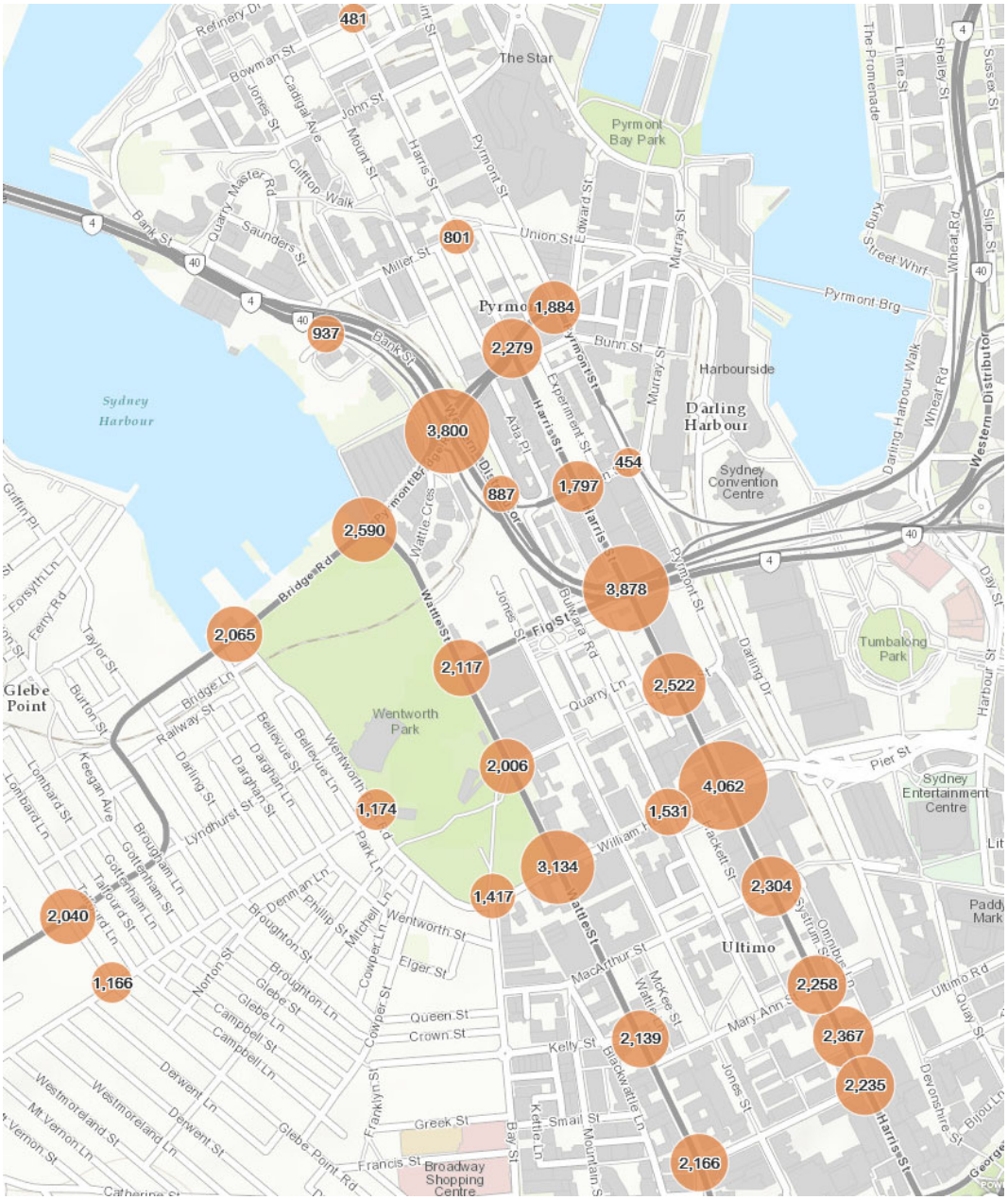


Figure 32 Total traffic movements at key intersections during the network AM peak hour

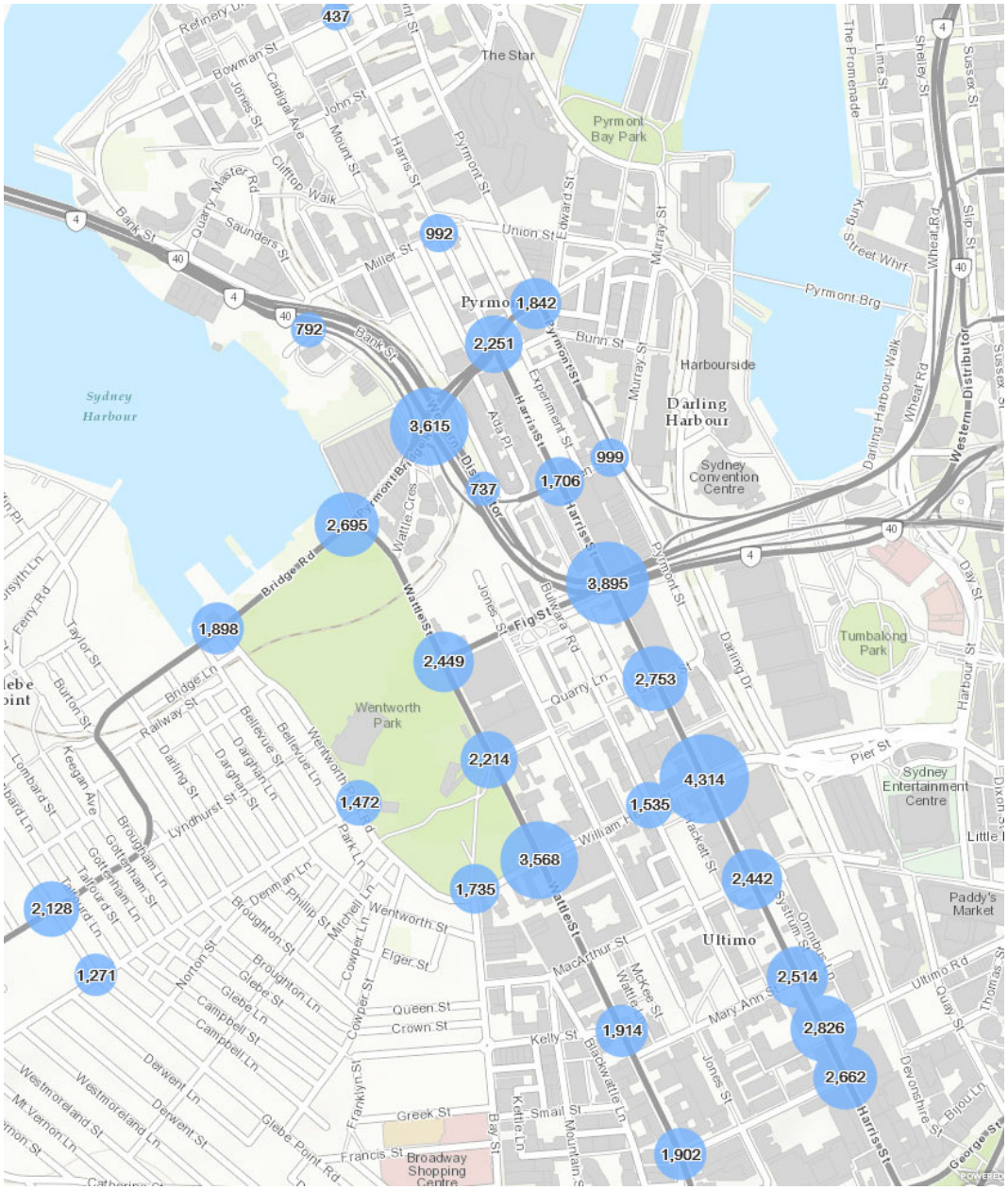


Figure 33 Total traffic movements at key intersections during the network PM peak hour

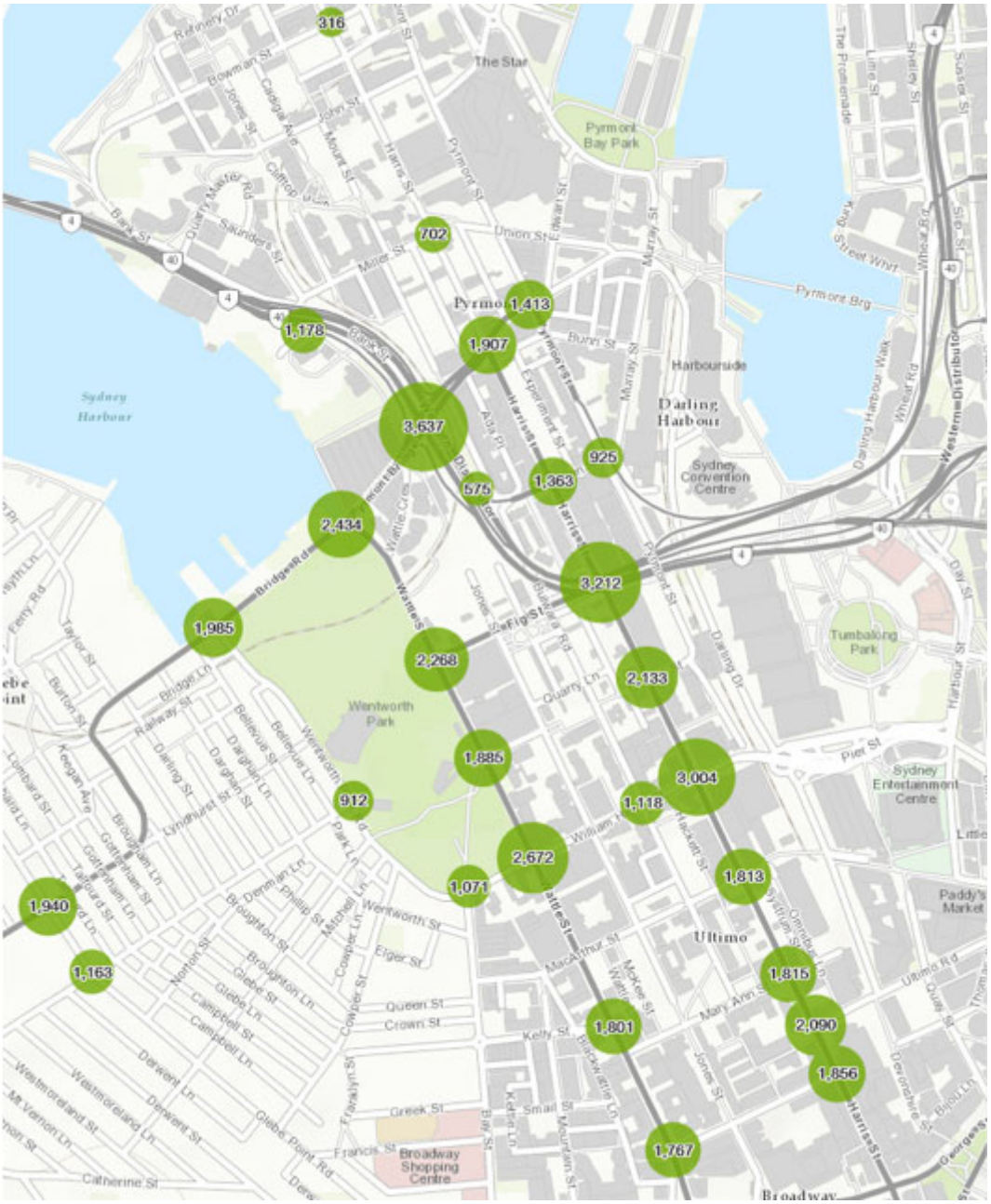


Figure 34 Total traffic movements at key intersections during the network Saturday peak hour

4.10.3 Site traffic movements

The weekly profile of vehicle activity (over a 24 hour period) at the existing Sydney Fish Market vehicle site entry/exit is summarised in Figure 35. This shows that the number of vehicles accessing the site from Monday to Thursday is similar, with an approximate 15% increase on Fridays. Saturdays are the busiest day of the week, with volumes about a third higher than Fridays.

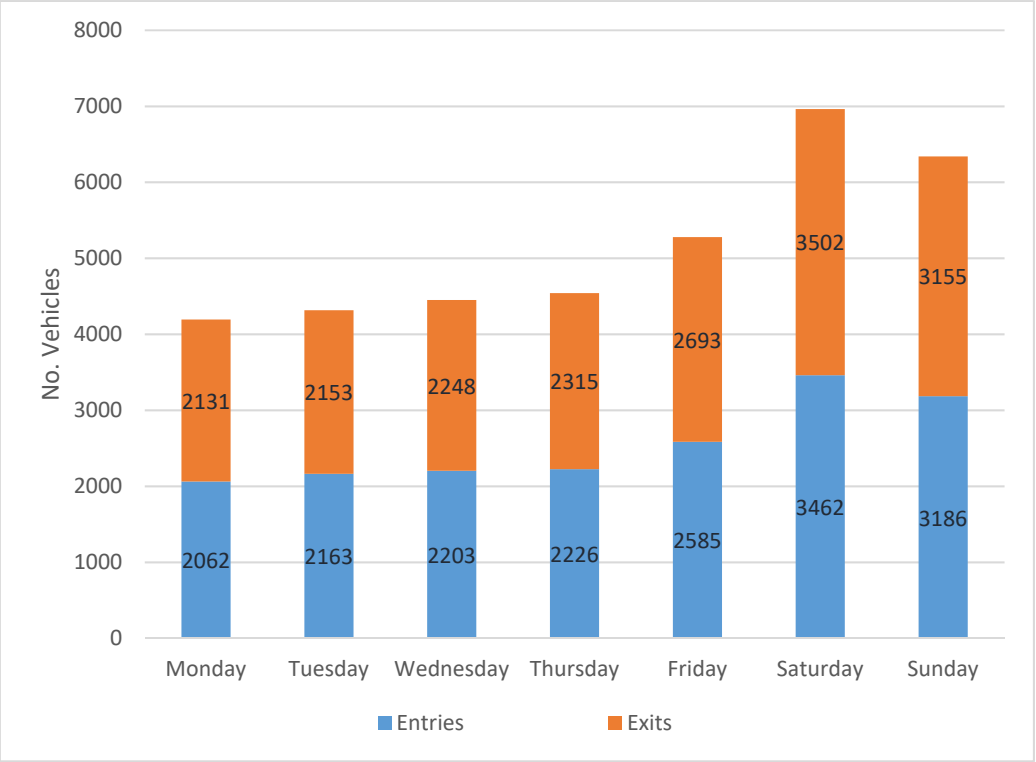


Figure 35 Weekly profile of vehicle activity – 24 hour period (November, 2015)

The daily profile of vehicle activity into and out of the Fish Market is presented in the following figures, based on 24 hour data collected in November 2015. Based on the number of entries and exits per hour, the parking accumulation profile could also be developed. Key findings were:

- Peak activity generally occurs between 10am and 2pm on weekdays and weekends
- Vehicle activity is significantly higher on weekends compared to weekdays

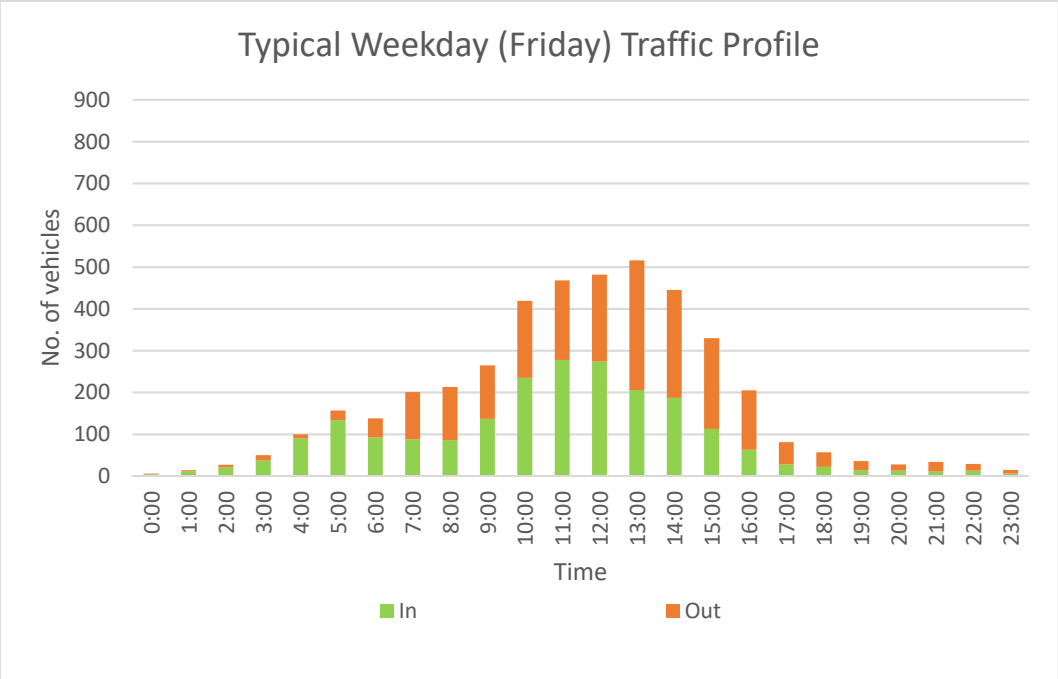


Figure 36 Weekday traffic and parking profile

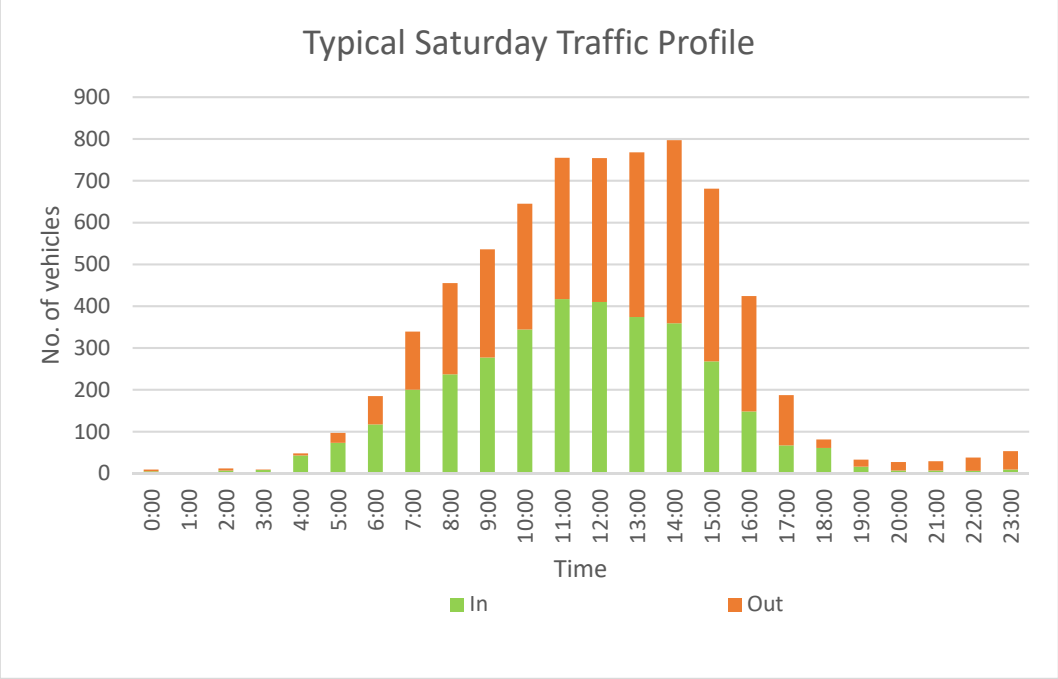


Figure 37 Saturday traffic and parking profile

4.10.4 Heavy vehicles

Heavy vehicles are recognised by NSW RMS as vehicles with a "Gross Vehicle Mass (GVM) or Aggregate Trailer Mass (ATM) of more than 4.5 tonnes"[1]. Vehicles with a smaller mass than this are referred to as light vehicles. As shown in Figure 38 below, heavy vehicles comprise a reasonable proportion of total vehicles entering and exiting the existing Sydney Fish Market site on a daily basis. The majority of heavy vehicle activity is contained between 4am and 4pm. Over the course of a typical weekday, heavy vehicles were found to comprise approximately 13% of total traffic entering and exiting the site. The profile of light and heavy vehicle activity for a typical weekday is shown below.

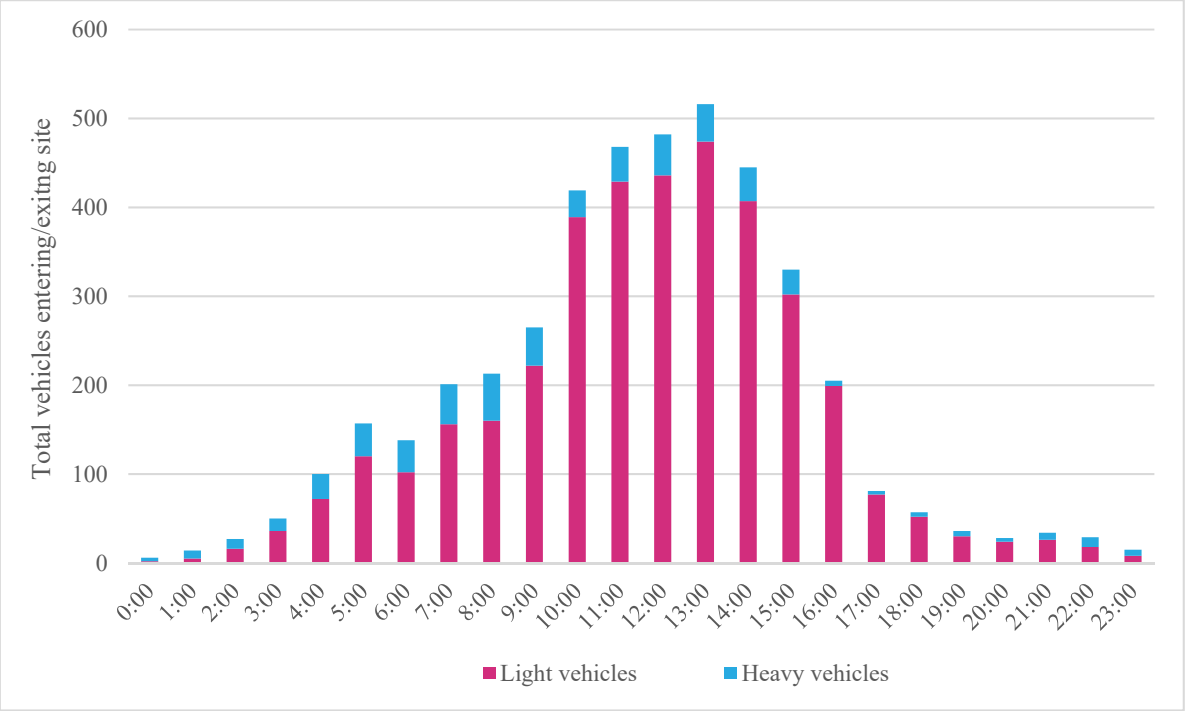


Figure 38 Light and heavy vehicles breakdown

[1] RMS Vehicle standards information, Rev. 6, 2015

4.10.5 Seasonal variation

Arup obtained SCATS detector counts for a number of days in 2016 which are likely to generate higher levels of vehicle activity to the Fish Market. The results of the analysis are shown below, and indicate:

- Christmas Eve, when the 36-hour seafood marathon is held, is almost three times busier than a typical Saturday, with around 8,000 vehicles accessing the Fish Market site. Additional parking is made available at the Sydney Secondary College, Pyrmont Bridge Road during the 36-hour marathon. Vehicles using this car park are not included in the traffic volumes.
- Just under 5,000 vehicles accessed the Fish Market on New Years Eve (around 40% busier than a typical Saturday).
- Traffic volumes accessing the site during Easter are comparable to that of a typical Saturday.

Figure 39 Seasonal site traffic volumes

It should also be noted that Good Friday generates high levels of activity – similar to that generated on Christmas Eve.

4.11 Parking

4.11.1 Parking supply

There are a total of 417 formal parking bays (including 4 accessible spaces and 26 loading/service vehicle spaces) as shown in Figure 40. In addition, there are some areas within the car park currently used informally to provide a small number of additional spaces during busy periods.

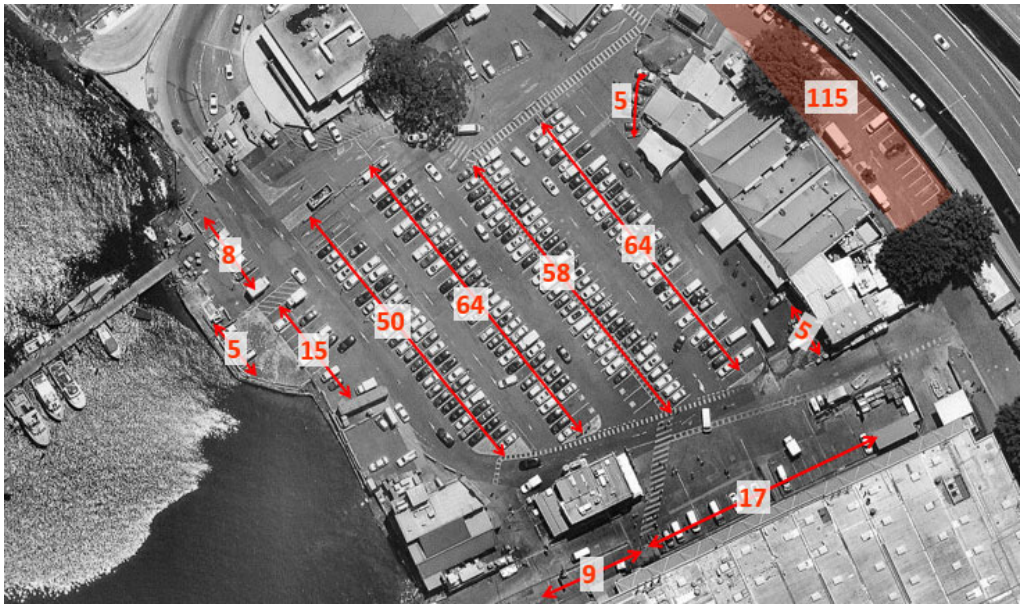


Figure 40 Parking summary

4.11.2 Parking fees

The parking fee structure at the existing Sydney Fish Market is shown in Table 7.

Table 7 Parking fees at existing Sydney Fish Market

Time period	Fee
First 15 Minutes	Free
15 minutes - 1 Hour	$4
1 - 1½ Hours	$10
1½ - 2 Hours	$16
2 - 2½ Hours	$22
2½ - 3 Hours	$28
3 - 3½ Hours	$34
3½ - 4 Hours	$40
4 - 4½ Hours	$46
4½ - 5 Hours	$52
5 - 5½ Hours	$58
>5½ Hours	$64

As the majority of people visiting the existing Sydney Fish Market site stay for less than one hour (see section 4.11.4), parking on site is a relatively cost effective option. It is also understood that discounted parking is provided for some staff at the existing Sydney Fish Market site.

4.11.3 Parking occupancy profile

Origin-destination surveys undertaken in July 2017 of the Fish Market car park entrance provided information relating to vehicle entries and exits between 6am and 6pm. This entry/exit data was then used to determine the occupancy of the on-site car park. This analysis is presented in Figure 41, and indicates:

- Car parking is close to capacity between 12pm and 1pm on weekdays, while on weekends parking demand exceeds capacity between 12pm and 2pm.
- Close to 300 parking spaces, or more than 60% of overall capacity, are occupied by 7am on the site on weekdays. This is likely attributed to tenant parking and trade vehicles from buyers attending the auctions commencing at 5.30am.

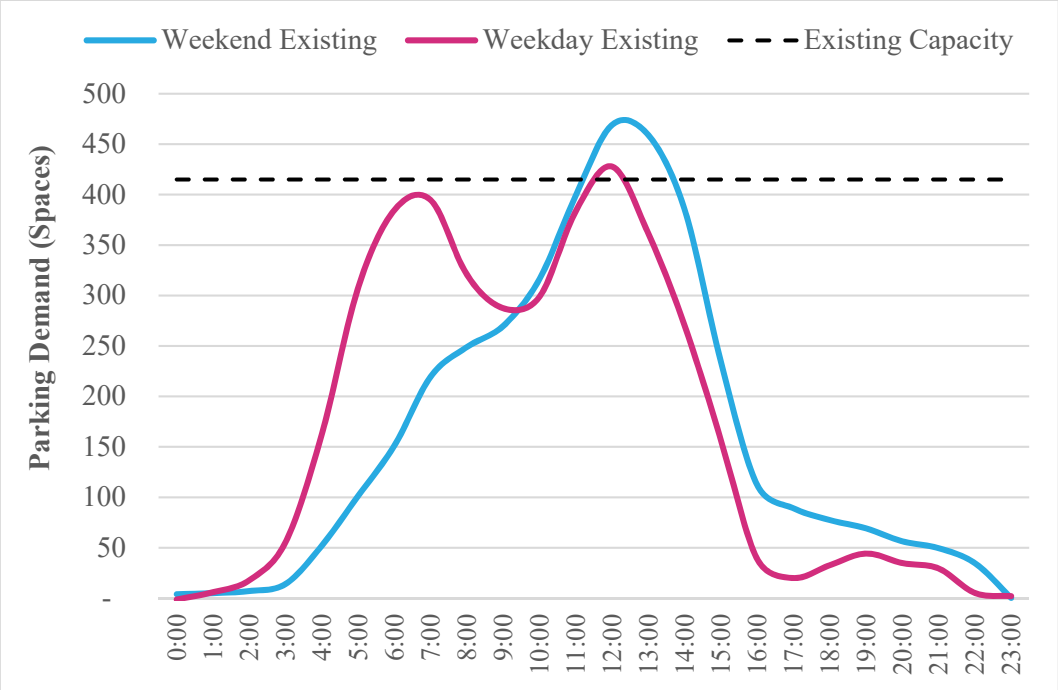


Figure 41 Parking occupancy profile

4.11.4 Parking duration of stay

The origin-destinations surveys (conducted between 6am and 6pm) provided insight as to the typical length of stay of vehicles parking in the on-site Fish Market car park. Key points to emerge from the survey were as follows:

- High turnover of parking indicated by up to 30% of visitors parking on site for less than 15 minutes, and almost 75% staying for less than one hour.
- Similar high turnover of parking on weekends, with 20% of visitors parking on site for less than 15 minutes and approximately 70% staying for less than one hour.
- Approximately 10% of vehicles remained in the car park for a period of more than two hours.

4.12 Cycling

4.12.1 Site access

The site has good accessibility from existing Roads and Maritime Services (RMS) and City of Sydney (CoS) cycleways. These routes are shown in Figure 42 below.

Figure 42 Existing cycleways providing access to the current Fish Market site

4.12.2 Total activity

Cycling activity was found to be generally low throughout the day, accounting for approximately 1% of all trips to the site. The highest volume of cyclists were found to enter via the Pyrmont Bridge Road entrance. Bikes at this location are locked informally to the fence, whereas the formal bike parking at the Wattle Street entry was not observed to have been used as per the photos below. Currently there are only eight formal bicycle parking spaces (four U-Rails) provided at the existing Sydney Fish Market.

Figure 43 Informal bike parking at Pyrmont Bridge Road entrance

Figure 44 Bike racks at Wattle Street entry

The number of cyclists accessing the site on the surveyed days, over both a 12 hour period and hour by hour, are presented in the figures below.

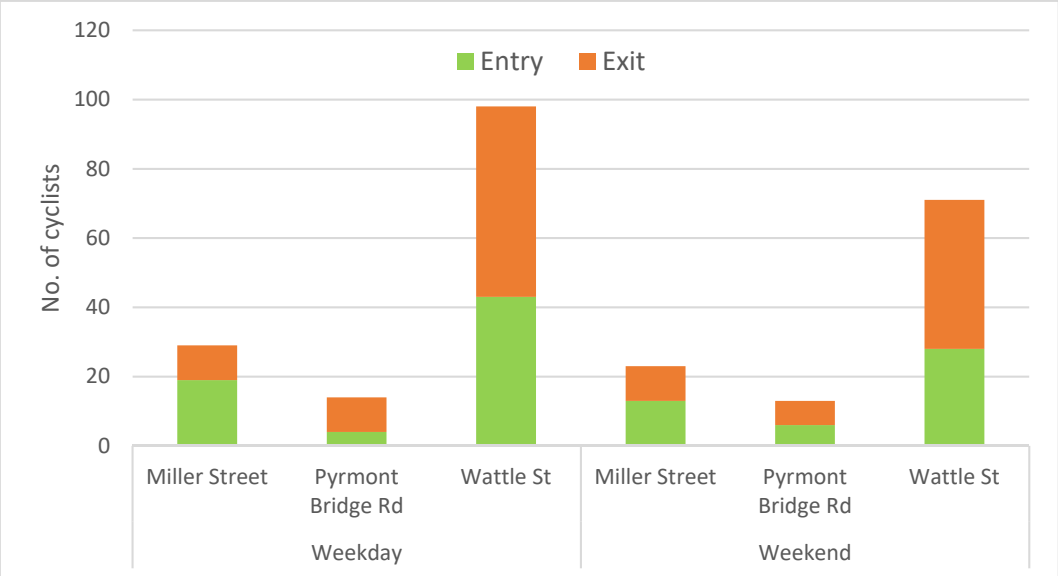


Figure 45 Total cyclists entry and exits, 6am-6pm (school holidays)

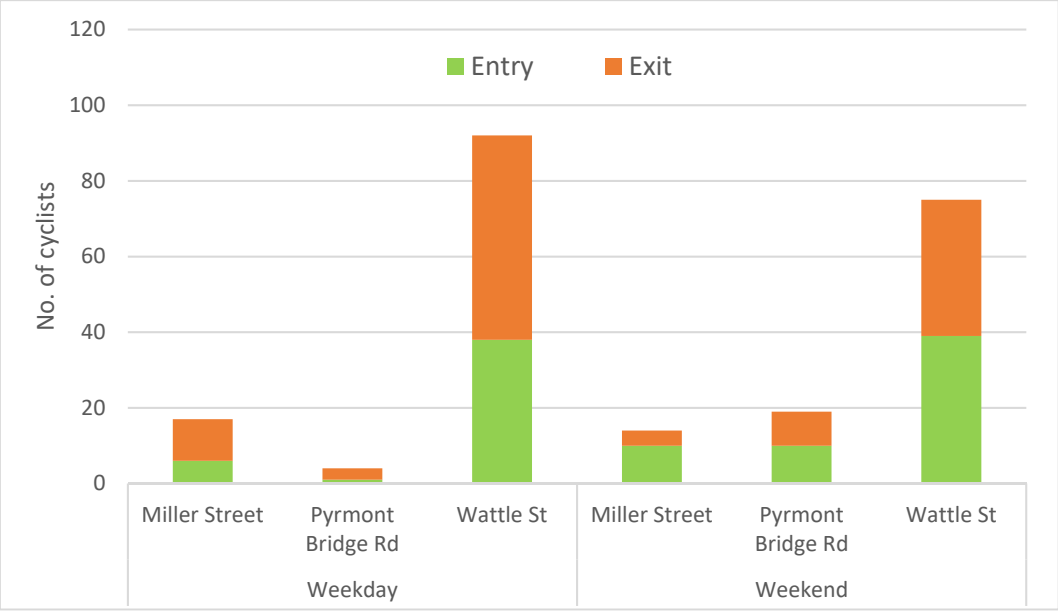


Figure 46 Total cyclists entry and exits, 6am-6pm (school term)

4.12.3 Daily profile of cyclist activity

The daily profile of cyclist activity is presented in the figures below. There was found to be a spike of activity between 8am and 9am on weekdays, which is likely the result of staff travelling to the site for work. Up to 25 cyclists per hour were recorded entering and exiting the site.

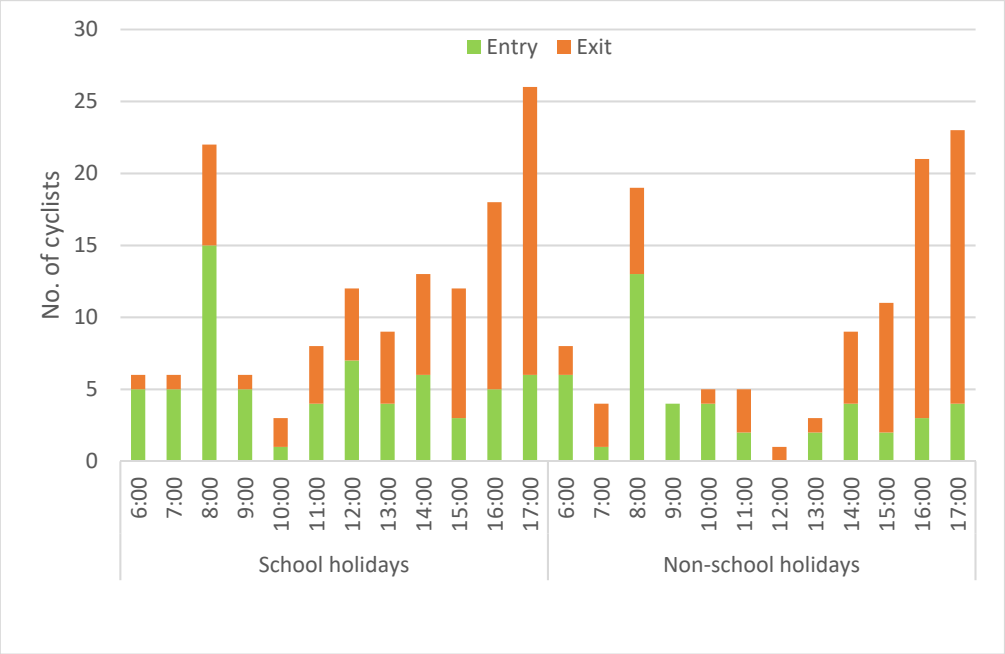


Figure 47 Weekday hourly profile for cyclists

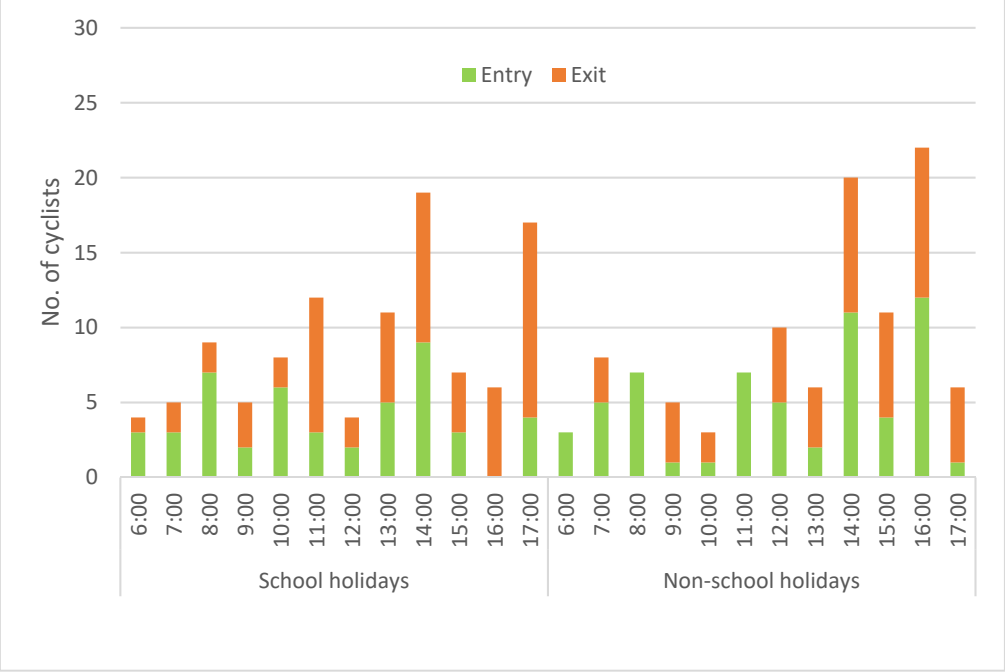


Figure 48 Weekend hourly profile for cyclists

4.13 Coaches

- The peak arrival time for private coaches was observed to be between 11:30am and 12:30pm.
- Typically the majority of coaches observed on site were small to medium sized vehicles of between 20-30 seats. The coaches appeared to be between 80% and 100% occupied. Two large coaches were observed to be parked on site which had capacity for approximately 50 people.
- Coach parking was observed to follow a preferential pattern in favour of the area directly outside of the loading docks. This was followed by parking nose-to-tail in the south-east corner of the car park. There was also some sporadic parking of coaches throughout the main car park area.
- Informal passenger drop-off near the loading docks was noted. It is likely that some of these coaches are parking and waiting in the 2P ticketed stretch of Wentworth Park Road or on Bank Street.

Figure 49 Preferred coach parking in front of the loading docks

Figure 50 Coach parking area in south east corner of car park

Figure 51 Passengers being dropped off without the coach formally parking

5 Proposed Development

5.1 Summary of the development

The proposal is to build a new fish market with a contemporary urban design, provide unique experiences for visitors and world-class auction and wholesale facilities. The new facility will be set within an improved public domain including the creation of a waterfront promenade with improved access to Blackwattle Bay and linking to surrounding areas and to public transport.

The development will expand and improve the functions of the existing in a new setting designed to achieve design excellence, functional performance and environmental sustainability.

The new fish market will include retail and food and beverage premises, wholesale facilities and auction rooms, offices and commercial space, Sydney Seafood Schools, back-of-house facilities and car, truck and coach parking spaces. The new facility is to include a new foreshore promenade and wharves. The new fish market will be purpose built and will be supported by a state of the art back-of-house plant and recycling/waste management facilities.

Key aspects of the development relating to traffic and transport include:

- Basement car parking for 417 vehicles
- Dedicated loading dock and servicing area within the site
- Signalisation of the Bridge Road / Wentworth Park Road intersection to provide a dedicated entry and exit point to the site, including a dedicated pedestrian crossing point across the new car park / loading dock entry
- Enhancements to the Wattle Street / Bridge Road intersection to remove the existing pedestrian island and provide an additional signalised pedestrian crossing on the eastern leg of the intersection
- An enhanced pedestrian experience along Bridge Road, with a significantly widened footpath and boardwalk directly adjacent to the new site
- New dedicated off-road cycling connection along Bridge Road adjacent to the frontage of the site
- 60 bicycle parking spaces for staff (with associated end of trip facilities) within the basement of the building
- Parking for 76 bicycles for visitors within the public domain
- A dedicated vehicle drop off and pick up area outside the site fronting Bridge Road, to be used for buses, coaches and point to point transport vehicles (e.g. taxis and ubers)

5.2 Concept development application

The Concept development application seeks approval for:

- the use of the site for the fish market including waterfront commercial and tourist facilities and ancillary uses and the distribution of uses;
- a gross floor area of up to 30,000m^2 contained within a defined building envelope;
- waterfront structures such as wharves;
- concepts for improvements to the public domain including promenades, access to Blackwattle Bay and landscaping;
- pedestrian cycle and road access and circulation principles;
- principles for infrastructure provision and waste management.
- This concept development application will also set out details of the first stage of the development being the demolition of land and water-based structures on the site including removal of marine piles and any resulting repairs to the existing sea wall, and related services relocations.

5.3 Main Works development application

The Main Works development application seeks approval for:

- the construction of a new fish market including land and water-based structures.
- the use of the site for the fish market including waterfront commercial and tourist facilities and ancillary uses and the distribution of uses;
- a gross floor area of approximately 26,000m^2 as calculated according to the definition of GFA under SREP 26 (approximately 25,600m^2 as calculated according to the definition of GFA under the Standard Instrument).
- public domain works including promenades access to Blackwattle Bay and landscaping;
- pedestrian, cycle and road access and circulation;
- infrastructure provision and waste management;
- associated works as required.

The proposed uses comprise:

Below Ground Level

- Parking for service and delivery, and private vehicles up to approximately 417 vehicles;
- Plant and storage;
- Waste Management facilities; and
- End of journey facilities.

Ground Level - Outside of Building Envelope

- Up to three operational wharves for fishing fleet servicing and product unloading/loading, multi-purpose wharf space, private-operated ferry stop, recreational vehicles and the like;
- Vehicular access driveways; and
- Publicly accessible promenade.

Ground Level - Within Building Envelope

- Wholesale services space including product storage and processing; and
- Auction floor and associated refrigeration and handling space.
- Loading dock including time-limited delivery and service vehicle parking area;
- Waste management facilities;
- Office space including buyers room;
- Staff amenities, plant and storage.

Upper Ground Level (L1)

- Retail premises including fresh food retail, food and drink premises including harbourside dining;
- External/shared dining space;
- Ancillary back of house space and staff amenities; and
- Circulation areas.

Upper Level 2 (Mezzanine)

- Catering space;
- The Sydney Seafood School;
- Tenant and subtenant office space; and
- Plant and storage space.

The proposal footprint is shown in Figure 52

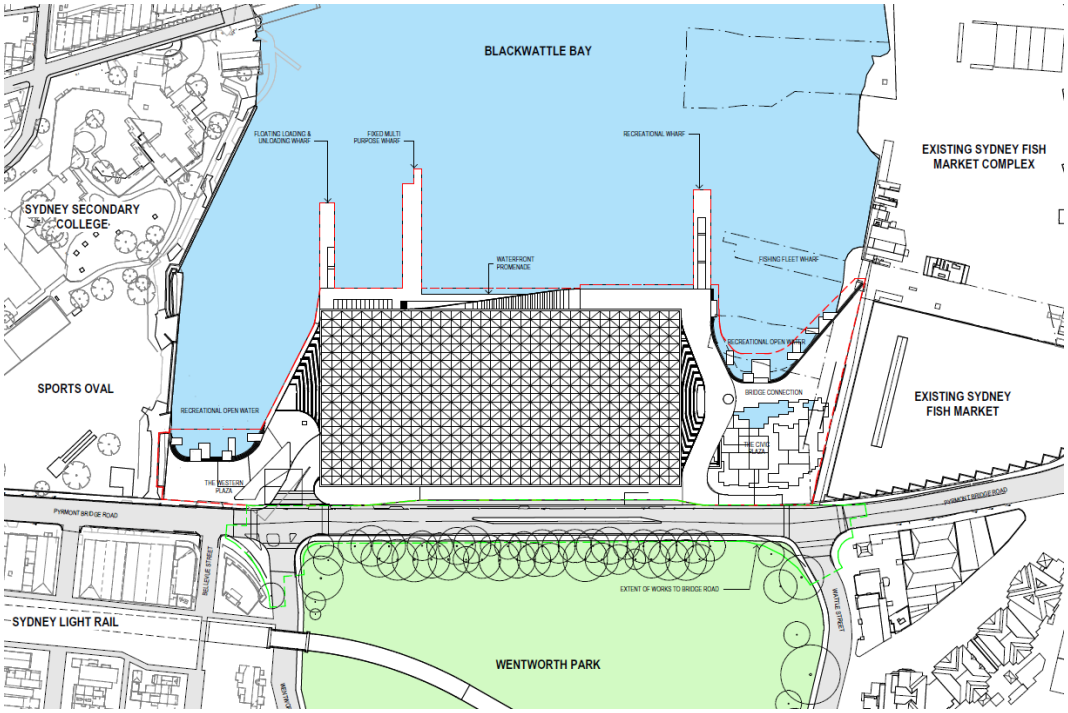


Figure 52 Proposal footprint

6 Travel plan

The development of the new Sydney Fish Market provides an opportunity to heavily promote sustainable travel modes to staff and visitors of the site and strongly encourage travel behaviour change. The new fish market and Blackwattle Bay District have the great benefit of being located very close to the CBD and within walking distance to three Light Rail stops.

This section outlines the intended actions, monitoring, review and implementation, as well as responsibilities for implementation and detailing all modes of transport available to visitors and employees of the site. These strategies will be further refined as the project progresses.

6.1 Objectives

The main objectives of the sustainable travel plan are to reduce the need to travel and to promote sustainable means of transport. This is common for any inner city tourist attraction.

The more specific objectives include:

- High modal share for public transport, cycling and walking journeys
- To ensure adequate facilities are provided at the site to enable users to travel by sustainable transport modes
- To reduce the number of car journeys associated with business travel by staff and visitors
- To facilitate the sustainable and safe travel of employees and visitors
- To raise awareness of sustainable transport amongst users.

6.2 Measures

An overview of the measures proposed are described in the following sections:

Infrastructure measures

- No increase in the number of on-site car parking spaces
- Bicycle parking for staff and visitors within the public domain
- End of trip facilities for staff (showers, lockers, tool kits, etc.)
- Work with the City of Sydney and Transport for NSW to improve way-finding from public transport stops – particularly Wentworth Park, Glebe and Fish Market light rail stops
- Provision of new pedestrian and cyclist facilities on key travel routes
- Provide improved pedestrian connectivity to water, parks, public transport and surrounding key nodes via improvements to pedestrian crossing arrangements at the Bridge Road / Wattle Street and Bridge Road / Wentworth Park Road intersections

Educational and promotional measures

- On-site parking for staff and visitors will be charged at market rates in line with those at other nearby commercial car parks
- A travel pack of information supplied to all employees of the Sydney Fish Market which includes information on the bicycle and walking routes, bus and rail timetables, information on car sharing, etc.
- Establish a 'cycle buddy' program where existing cyclists 'buddy up' with potential new cyclists as a mechanism for encouraging these users to ride to work.
- To reduce the demand for on-site parking and travel to the Sydney Fish Market site, operators could consider greater promotion of off-site deliveries. This is similar to the current operations of Get Fish and Nicholas Seafood, which are online seafood markets. Seafood is purchased at the Sydney Fish Market and then delivered to the door of the customer on the day the order is made. Increased number of home deliveries would reduce the demand for on-site parking, particularly for short trips made by visitors to purchase seafood from a single operator.

6.3 Monitoring and review

The travel plan is a strategy that will evolve over time. Although the objectives of the plan to educate employees and visitors and to facilitate travel by sustainable modes will not change, it may be possible over time to define or redefine specific targets. Target setting should reflect an ambition for continued progress year on year and there should be a mechanism to review targets in light of monitoring surveys.

The monitoring measures could include collecting data on employee travel patterns for journeys to work and also visitor travel patterns via annual interview surveys conducted over weekday and weekends. This would allow the Sydney Fish Market to monitor the travel patterns of their staff and visitors on a yearly basis.

An additional monitoring mechanism would be to review the number of people using public transport in the area through a review of Opal data from Transport for NSW.

Following the implementation to the travel plan, meetings should be held periodically to undertake a review of the measures in place. The objective will be to measure their success and to identify the potential for refinements. The management team will further engage with City of Sydney Council and State Government to assist in designing and operating services which best support the needs to the workers and visitors, and therefore promote high levels of sustainable transport modes.

7 Transport Assessment – New Fish Market

7.1 Site access

Vehicular access into the site is proposed via a new signalised intersection at Bridge Road / Wentworth Park Road. This intersection is currently uncontrolled, however with the increased traffic movements associated with the new fish market site, it is proposed to modify the intersection and install traffic signals. Vehicles will access the intersection from either Bridge Road or Wentworth Park Road. The proposed intersection layout is shown in Figure 53 below. An assessment of the intersection performance during peak periods is provided in Section 8 of this document.

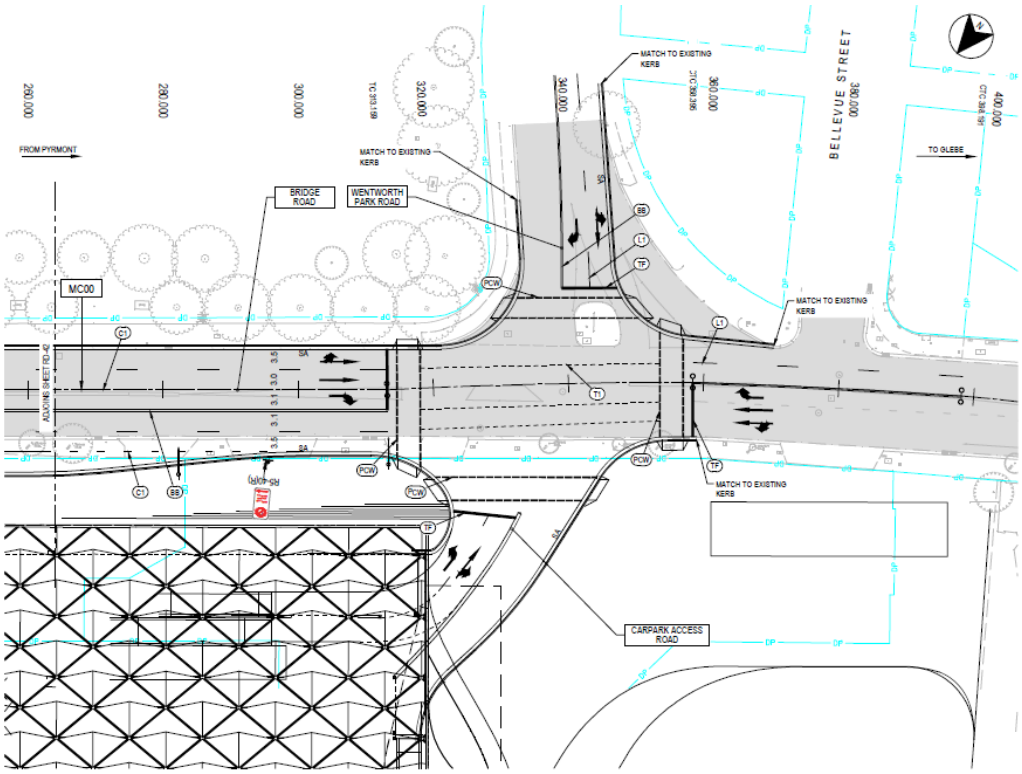


Figure 53 Proposed site access intersection

7.2 Travel demand

7.2.1 Forecast increase in activity by user

The redevelopment of the Sydney Fish Market will provide an enhanced offering that change the travel demand profile compared to the that of the existing site. Specifically there will be an increase in retail floor space of 93% compared to the existing site, which will also involve extended retail operational hours in the form of evening dining. These changes will result in an increase in overall visitation numbers, however these will be more distributed across the day (particularly in the evening) due to the enhanced food and beverage offering.

Staff on-site will increase which is largely associated with the enhanced retail offering to be provided. These additional staff servicing the retail offering will typically arrive either mid morning or early afternoon, compared to the majority of existing staff who arrive prior to 6am. Therefore the ability for the additional to travel to the site by public transport is significantly greater than compared with existing staff.

Given the auction hall and wholesale offering will be similar to that already provided on the current site, the increase in the number of buyers/distributors is expected to be modest.

The expected increase in activity by user is summarised in Figure 54. It should be noted that this forecast is indicative of the ultimate amount of activity expected. These numbers will be realised in a medium to long-term timeframe, and will be spread over longer trading hours.

Figure 54 Forecast increase in activity by user

7.2.2 Forecast activity profile

As shown previously in Section 4.2, the majority of activity to the Sydney Fish Market currently occurs in the early morning and middle of the day. This is reflective of the current core operating hours (7am to 4pm) and the offering provided on the site.

Economic modelling for the new Sydney Fish Market has indicated that across a typical day, while some growth is expected during current operating hours, the majority of new trips to the site are expected to occur in the evenings. This is reflective of the increased offerings at the new site, particularly the expanded retail offering including longer trading hours for evening dining. Detailed activity profiles for both a typical weekday and weekend, based on the economic modelling and retail strategy described above, are shown in Figure 55 (for a weekday) and Figure 56 (for a weekend).

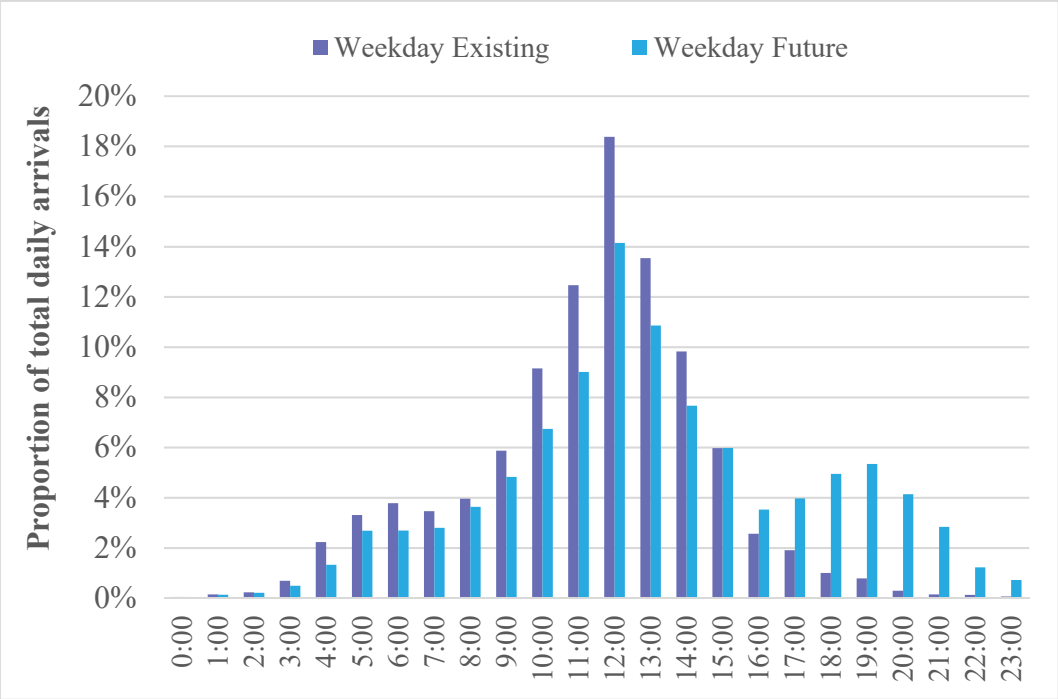


Figure 55 Forecast profile of activity – weekday

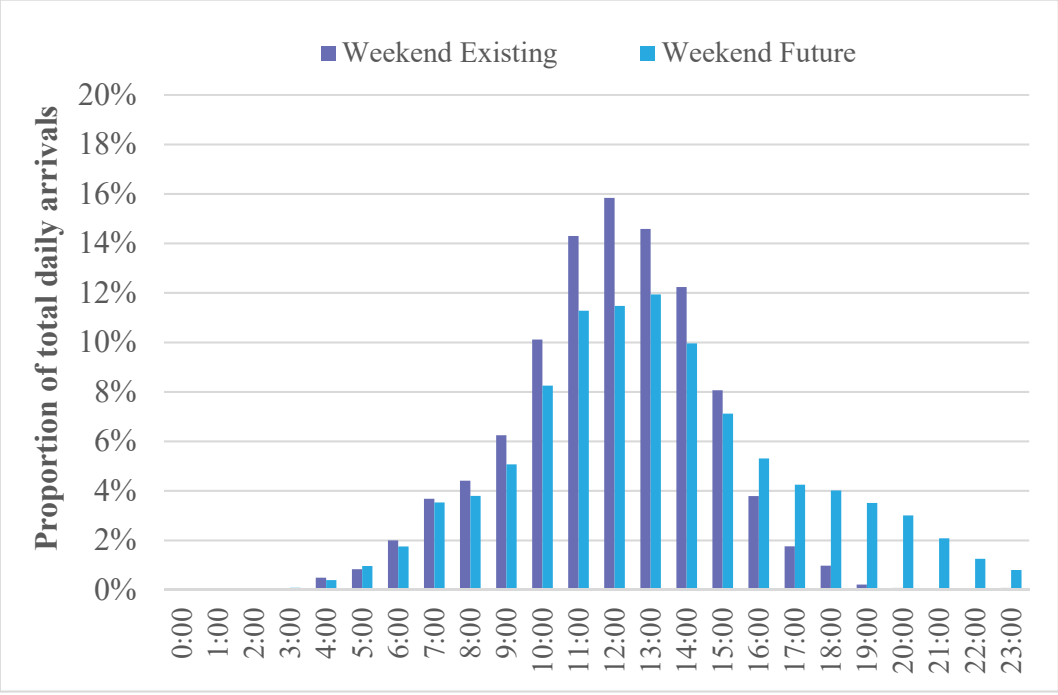


Figure 56 Forecast profile of activity – weekend

7.2.3 Future travel behaviour

The analysis has considered the following mode shift away from private vehicle towards walking, cycling and public transport:

- Staff: 10%
- Buyers / Distributers: 0%
- Visitors: 15%

It is reasonable to expect that car usage (as a proportion of overall trips) by staff and visitors travelling to the new Sydney Fish Market will decline compared to current levels, due to the following factors:

- On-site parking being maintained at current levels, despite the increase in visitation levels to the site;
- The change in retail offering provided on the site, which lends itself towards more walk up trips from Pyrmont and the Sydney CBD;
- The modified parking arrangements that will need to be in place for retail staff (currently staff are provided parking on site and occupy over half of the available car parking spaces). The initial transport assessment has considered a likely 10% mode shift by staff away from private vehicle, however with staff to be charged market rates in the new car park it is expected this mode shift will significantly increase.
- Improved public transport to the site, particularly with the advent of a station at the Bays Precinct as part of Sydney Metro West and improved bus services to support Blackwattle Bay;
- Increased levels of bicycle parking to be provided on the site;

Based on the above factors, this level of modal shift is considered reasonable and somewhat conservative. Growth precincts with limited parking supply in close proximity to the CBD, for example Barangaroo, have exhibited a significantly higher extent of modal shift away from private vehicle for both staff and visitors.

7.2.4 Growth in travel demand

Based on the analysis and assumptions described above, the overall growth in trips (both vehicle and total trips) is summarised in Table 8 below.

Table 8 Forecast growth in travel demand to Sydney Fish Market

User	**% growth (compared to current activity)**	
	Growth in overall trips	Growth in vehicle trips
Staff	40%	26%
Buyers / Distributors	10%	10%
Visitors	100%	70%
Overall	**75%**	**39%**

A detailed breakdown of forecast activity across all hours of the day, for both a typical weekday (Friday) and weekend (Saturday) is shown in Table 9 and Table 10 respectively. This assessment has confirmed that the supporting transport network has the ability and capacity to accommodate future travel requirements.

Table 9 Future hourly activity profile - weekday

Time	**Number of arrivals by hour**					**Mode Share**	
	Car Driver	*Car Pax*	*Walk In*	*Light Rail*	Other*	Car	Non-Car
0:00	5	1	1	0	0	81%	19%
1:00	15	2	1	-	1	90%	10%
2:00	24	2	2	-	1	89%	11%
3:00	57	6	4	-	2	91%	9%
4:00	130	13	25	5	10	78%	22%
5:00	195	97	51	12	18	78%	22%
6:00	144	72	107	21	30	58%	42%
7:00	141	70	116	27	36	54%	46%
8:00	160	80	172	40	53	48%	52%
9:00	200	114	235	52	69	47%	53%
10:00	236	135	398	72	95	40%	60%
11:00	307	175	477	132	161	39%	61%
12:00	410	328	826	203	196	38%	62%
13:00	305	244	637	166	156	36%	64%
14:00	222	178	453	101	110	38%	62%
15:00	178	143	356	73	81	39%	61%
16:00	110	88	200	39	53	40%	60%
17:00	110	121	184	58	78	42%	58%
18:00	138	152	241	67	89	42%	58%
19:00	163	180	275	39	85	46%	54%
20:00	133	146	184	34	78	49%	51%
21:00	90	99	129	24	52	48%	52%
22:00	46	51	54	8	11	57%	43%
23:00	27	30	23	8	11	57%	43%

* Includes bicycle, coach, bus and taxi

Table 10 Future hourly activity profile - weekend

Time	Number of arrivals by hour					Mode Share	
	Car Driver	*Car Pax*	*Walk In*	*Light Rail*	Other*	Car	Non-Car
0:00	4	0	1	0	0	76%	24%
1:00	10	1	2	0	1	76%	24%
2:00	10	1	3	1	1	72%	28%
3:00	12	1	3	1	1	72%	28%
4:00	41	4	25	7	10	52%	48%
5:00	74	23	74	17	23	46%	54%
6:00	118	61	134	31	41	46%	54%
7:00	210	170	257	59	79	49%	51%
8:00	238	168	286	61	82	49%	51%
9:00	299	239	375	86	115	48%	52%
10:00	362	450	624	162	216	45%	55%
11:00	457	582	931	217	292	42%	58%
12:00	413	622	969	220	297	41%	59%
13:00	415	629	1,096	207	276	40%	60%
14:00	378	541	839	185	247	42%	58%
15:00	296	387	574	132	176	44%	56%
16:00	252	300	399	92	123	47%	53%
17:00	251	291	286	51	56	58%	42%
18:00	255	295	216	50	66	62%	38%
19:00	222	257	190	44	58	62%	38%
20:00	203	235	145	33	45	66%	34%
21:00	132	153	113	26	35	62%	38%
22:00	88	102	56	13	17	69%	31%
23:00	62	71	28	7	9	75%	25%

* Includes bicycle, coach, bus and taxi

7.3 Vehicular traffic demands

7.3.1 Total traffic movements

Based on the travel demand forecasts noted previously, the forecast number of traffic movements into and out of the new Sydney Fish Market is shown in Figure 57 for a typical weekday and Figure 58 for a typical weekend.

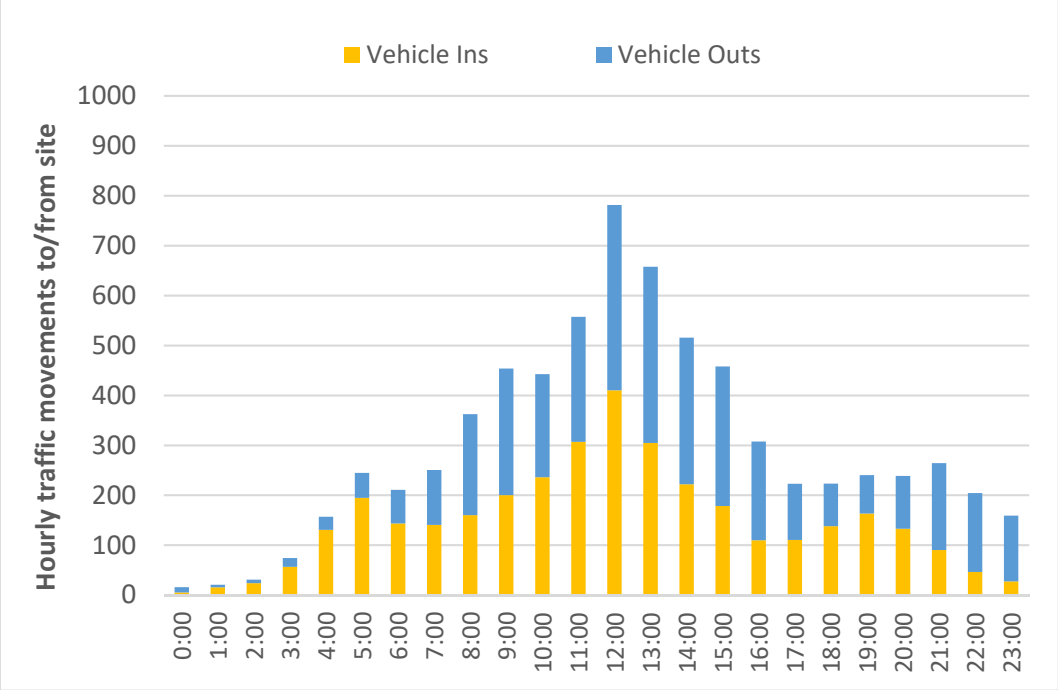


Figure 57 Forecast weekday hourly traffic movements

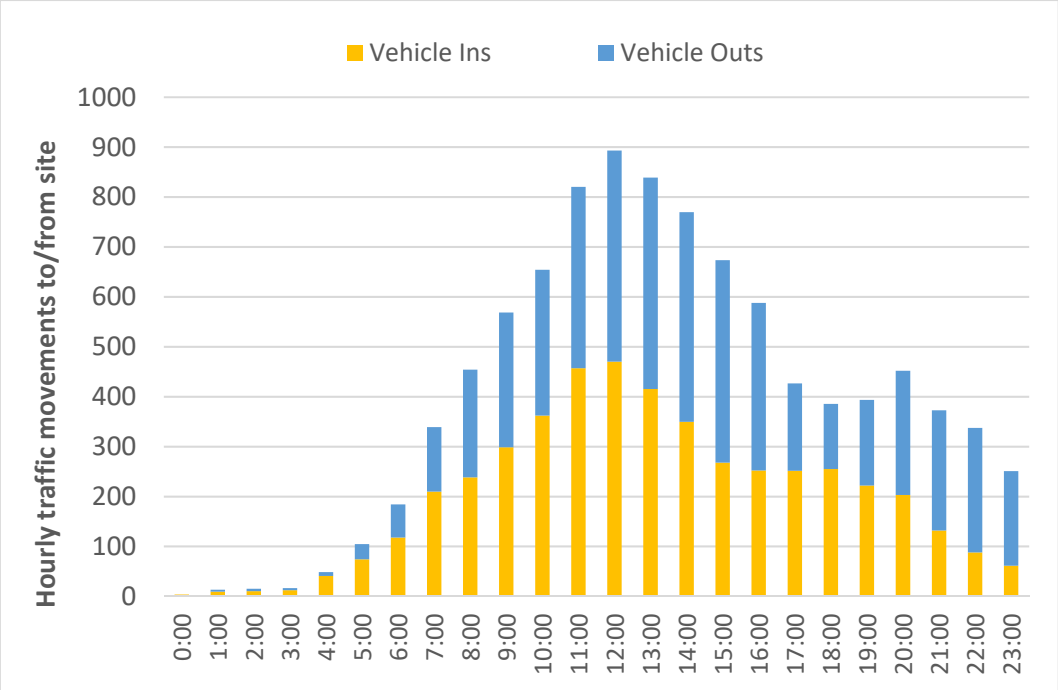


Figure 58 Forecast weekend hourly traffic movements

7.3.2 Heavy vehicles

Based on the existing profile of heavy vehicle activity at the Sydney Fish Market (see section 4.10.4), as well as the future projected traffic demands, the daily profile of heavy vehicle activity has been determined. This is presented in Figure 59 for a typical weekday and Figure 60 for a typical weekend.

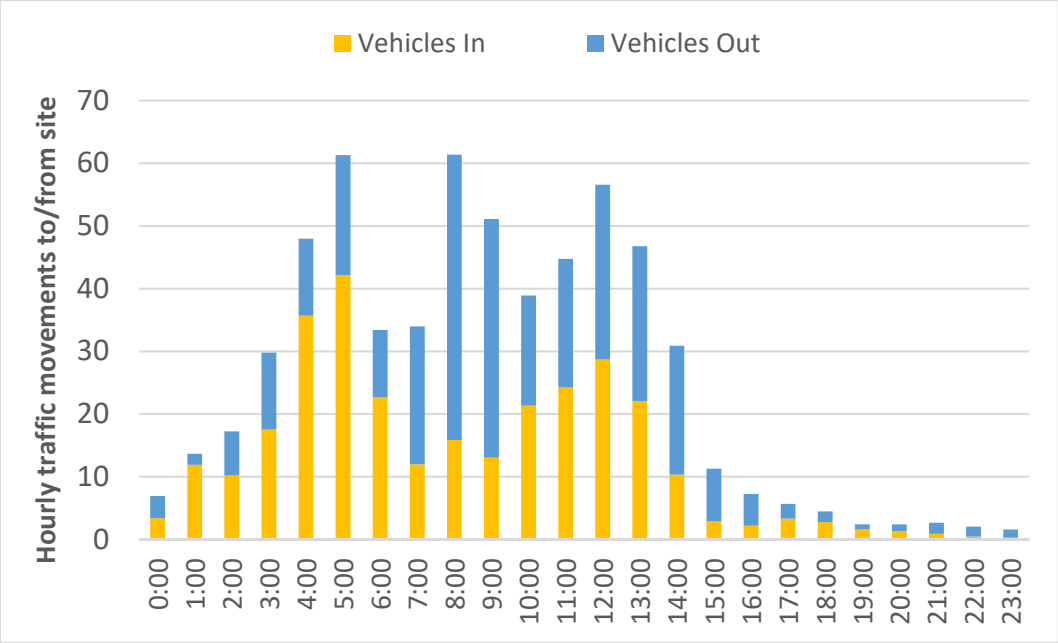


Figure 59 Forecast weekday heavy vehicle movements

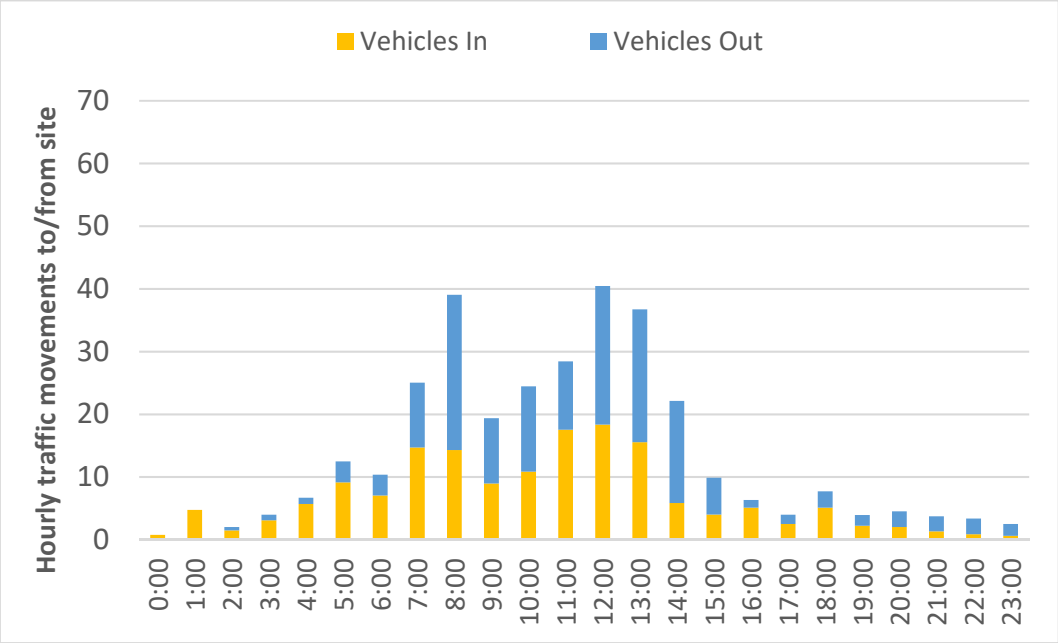


Figure 60 Forecast weekend heavy vehicle movements

The majority of these heavy vehicle movements are related to the morning auction period and are small rigid vehicles (SRVs). SRVs have the ability to enter the general car parking area due to the 3.5m height clearance that is provided, and would not enter the main loading dock area.

To minimise noise impacts to nearby sensitive receivers associated with vehicles accessing the loading dock, no more than four semi-trailers would access the loading dock prior between 11pm and 7am.

The majority of heavy vehicle movements to and from the site are likely to occur via Bridge Road (rather than Wentworth Park Road) due to the access it provides to the adjacent arterial road network – particularly the Western Distributor.

7.4 Car parking

7.4.1 Proposed parking provision

The concept proposal includes up to 417 on-site car parking bays. This level of car parking is consistent with the current on-site provision, despite the forecast increase in visitor and staff activity to the site. This has been proposed to manage the road network impacts arising from the proposal during peak periods, in particular ensuring that the proposal generates a similar volume of traffic as the existing Sydney Fish Market.

The car park includes the following features:

- 4 accessible car parking spaces
- 56 B99 parking spaces
- 176 dedicated retail car parking spaces
- 181 ‘flexible’ retail car parking spaces, which can be used by 137 SRVs during the early morning wholesale and auction period

The car park has been designed in accordance with the requirements set out in Australian Standards for Off-Street Parking AS2890.1, AS280.2 (for servicing) and AS2890.6 (for accessible parking). The provision of 4 accessible parking spaces is in accordance with BCA requirements of 1 space for every 100 standard parking bays.

7.4.2 Parking accumulation

Based on the travel demand calculations as noted in Section 7.2, as well as the existing split of traffic entering and exiting the Sydney Fish Market site, the future on-site car parking accumulation can be determined. This is shown in Figure 61 for a typical weekday and Figure 62 for a typical weekend.

The analysis indicates that the level of on-site parking will generally be sufficient to accommodate the parking demand on a typical weekday. The demand is slightly higher than the available capacity in the middle of the day (~15 bays) however this will result in a small number of vehicles circulating within the car parking area which is common during busy periods.

The weekend parking accumulation profile indicates that the demand will exceed the available on-site capacity by approximately 80 car parking spaces between 11am and 2pm. Consistent with the current operation of the existing Sydney Fish Market, during major events at the Sydney Fish Market (e.g. 36 hour seafood marathon, Easter Friday etc) parking demand will increase further, and therefore a number of strategies have therefore been put forward in this document to manage parking demands during peak periods to reduce the impact of the development. These are identified in Section 7.4.3.

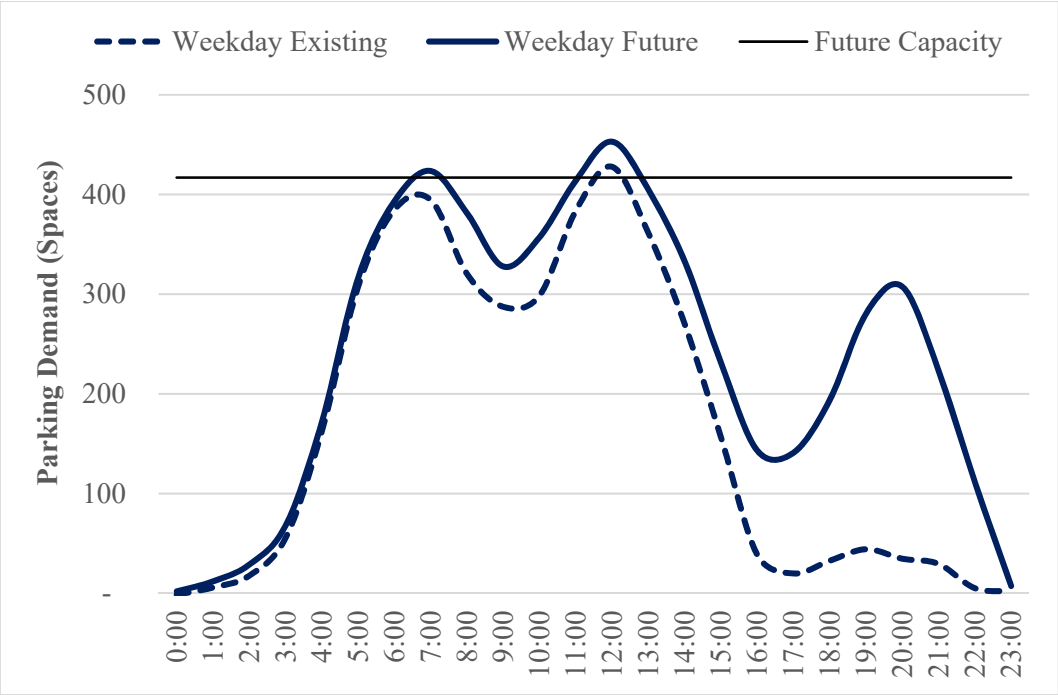


Figure 61 Forecast parking demand - weekday

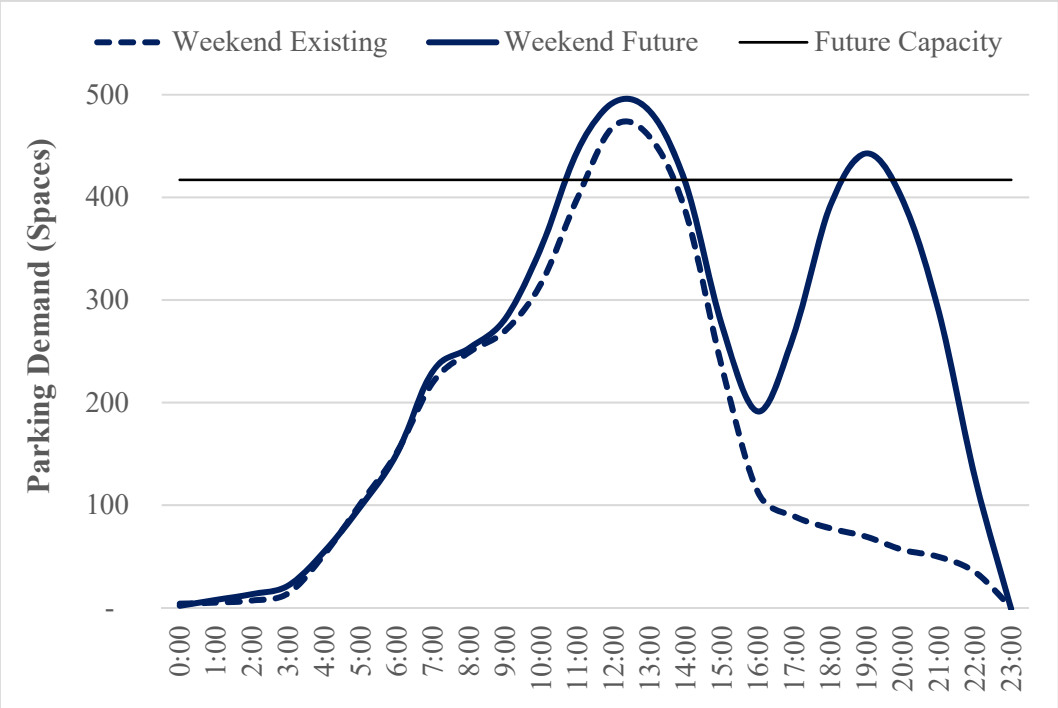


Figure 62 Forecast parking demand - weekend

7.4.3 Mitigation measures

The following mitigation measures should be considered by the Sydney Fish Market to reduce the demand for on-site parking.

Reducing on-site staff parking demand

Currently Sydney Fish Market staff have an arrangement with the operator of the site where parking is provided for permanent Sydney Fish Market staff and tenants. This results in a significant number of car parking bays being taken up by staff throughout the day.

In future it is recommended that parking for staff and visitors be charged at market rates in line with those at other nearby commercial car parks. Reducing the number of staff parking on site by approximately 50% would mitigate the capacity issues during busy periods (particularly on the weekend) identified in this study, as evident in the figure below.

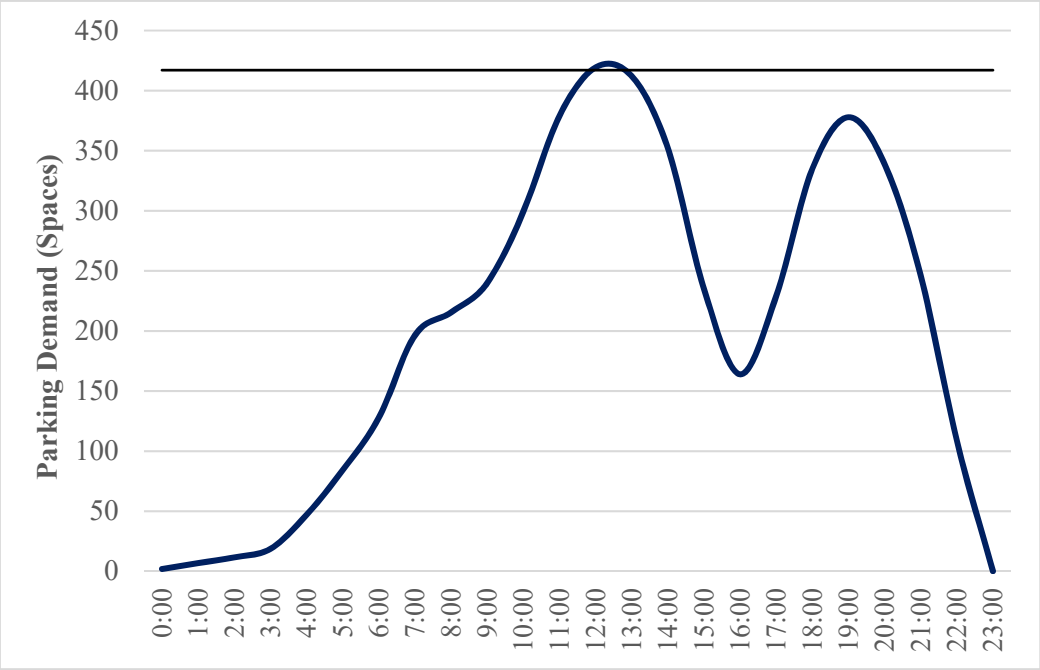


Figure 63 Weekend parking accumulation with 50% reduction in staff parking demand

It should also be noted that the increase in staff levels associated with the new fish market site is largely associated with additional retail staff servicing the enhanced food and beverage offering. These staff members typically commence their shifts in the late morning or early afternoon, which is different to the wholesale and auction staff who need to arrive very early in the morning. The later shift start times provide these staff members with greater opportunities to utilise public transport services to access the site. It is commonplace in large mixed use precincts in close proximity to public transport for these retail workers to park off-site or travel by public transport, walking or cycling. For example the Barangaroo precinct has less than 15 on-site car parking spaces reserved for retail staff.

Off-site parking opportunities

During busy periods, off-street car parks in close proximity to Sydney Fish Market could be utilised to accommodate overflow parking demand. Currently Sydney Secondary College (oval) and the Hymix site is used by Sydney Fish Market during busy days (e.g. Easter, Christmas), providing for upwards of 600 additional car parking spaces.

There are a number of publically available parking facilities in the area which have may spare capacity during these major event days when Sydney Fish Market parking demand is highest. There will be opportunities for shared parking arrangements in nearby locations which is an efficient means of meeting parking requirements. The peak parking demand for Sydney Fish Market does not coincide with these potential areas, and therefore create the opportunity for the shared use of spaces.

A similar approach is taken by The Star at Pyrmont, where parking demand exceeds supply on Friday and Saturday evenings. The additional demand for parking during these peak periods is managed through the external supply of

parking in the Darling Harbour precinct such as the Harbourside car park. Outside of these evening peaks, demand is considerably lower, and thus casino parking is largely contained on site.

Three formal, privately operated off-street car parks listed below may support some of the increased demand during peak days, which could also be utilised by Sydney Fish Market visitors. Collectively these car parks have capacity for approximately 2,300 cars.

- Harbourside Car Park, 100 Murray Street, Pyrmont, 1,400 spaces
- Harris Street Car Park, 320 Harris Street, Darling Harbour, 420 spaces
- Convention Centre, 41 Darling Drive, Darling Harbour, 500 spaces

The Pyrmont Precinct has the following parking opportunities within walking distance of the new Fish Market site.

Table 11: Additional car parking options

Location	Approximate number of spaces	Walking time	Access via
Sydney Secondary College – oval	500	4 minutes (300m)	Bridge Road
Hymix Facility	120	4 minutes (300m)	Bank Street
Harbourside Car Park	1,400	12 minutes (900m)	Murray Street
Harris Street Car Park	420	10 minutes (800m)	Harris Street
Sydney International Convention Centre	500	15 minutes (1200m)	Darling Drive
Total number of potential spaces	**2,670**		

7.4.4 Off-site parking

As previously demonstrated in Section 4.5, currently off site parking (primarily on-street parking) accounts for only a small percentage of travel to the existing Sydney Fish Market site. This is largely due to the constrained parking arrangements in nearby local streets, with the majority of parking spaces subject to resident parking schemes. It is expected that this trend will continue under the proposed development, given the same constraints apply with respect to the constrained on-street parking environment. Further, the peak periods for parking at the Sydney Fish Market (particularly on weekends) coincide with the peak on-street parking periods which acts as a constraint.

With the implementation of additional controls to reduce staff parking within the new Sydney Fish Market, it can be expected that the majority of visitors travelling to the site will be able to find on-site parking at most hours of the day.

It should also be noted that peak parking demand for the Sydney Fish Market (weekends and public holidays) does not coincide with the peak parking demand for the adjacent Sydney Secondary College.

7.5 Public transport

7.5.1 Travel demand

The accessibility of the existing and future site by public transport was described in Section 4.8. Data indicates between 12% and 15% of trips made to the existing Sydney Fish Market site are made by public transport. With the proposal not to increase the number of on-site parking spaces, and provision of improved public transport services, there is the opportunity to increase the public transport mode share to the site – particularly for staff and visitors.

The current and future changes in public transport in the city are likely to enhance access to the site, with the provision of:

- Sydney Light Rail project, with transfer opportunities available at Central Station to board the Inner West light rail line
- Sydney Metro West (new station in The Bays Precinct); and
- Potential improvements to local bus services

Improved wayfinding will need to be provided to enhance the clarity of access to the site from visitors arriving from key bus stops as well as the current Fish Market light rail stop. The Wentworth Park and Glebe light rail stops will also provide good access for staff and visitors travelling to the Sydney Fish Market.

By enhancing key pedestrian corridors to public transport nodes, this would improve pedestrian movement to public transport and may further increase usage. Physical measures can only achieve so much, and the travel demand strategy must include alternative strategies to encourage use of sustainable modes.

The number of additional trips by public transport modes was determined in Section 7.2 Travel Demand. Total people arriving by Light Rail and Bus is shown in Table 12, with 281 weekday peak hour people movements and 335 weekend peak hour people movements in each direction. With 14 services per hour provided during peak periods, these additional trips equate to an extra 15 people per tram which can be accommodated on the current network.

Table 12: Total public transport trips

Mode of Transport	**Additional peak hour trips**	
	Weekday	Weekend
Light Rail	203	220
Bus	78	115
Total	**281**	**335**

The existing public transport services, when looked at in conjunction with the planned and suggested public transport initiatives described above, are more than adequate to service the site. Discussions with Transport for NSW are ongoing to provide improved access to Blackwattle Bay and specifically the new Sydney Fish Market site.

7.5.2 Future metro station in The Bays

Transport for NSW have committed to the Sydney Metro West project, which includes a new metro station in The Bays precinct. No fixed location had been determined for the station which is subject to further investigations and assessments being completed.

With a new metro station in close proximity to the new Sydney Fish Market site, it could be expected that the public transport mode share will increase compared to that assessed in this document.

Further, the NSW Government has announced they are investigating the potential for an additional station to be located in Pyrmont. This station would directly benefit people travelling to the new Sydney Fish Market site as well as the wider Bays Market District.

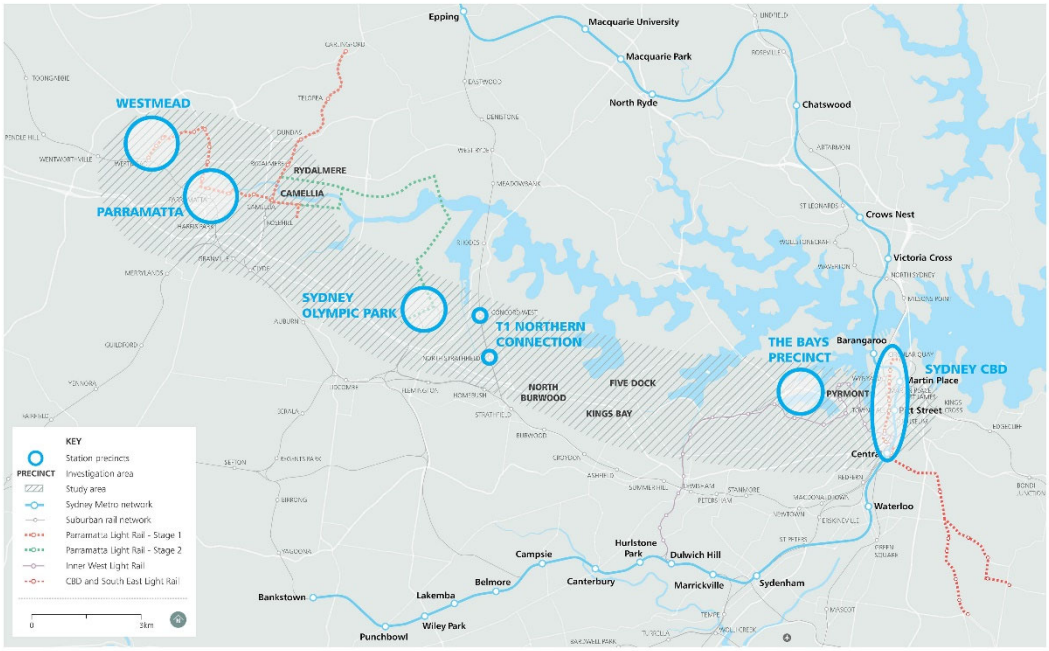


Figure 64 Sydney Metro West study area

Source: Transport for NSW

7.6 Pedestrian and cycle routes

7.6.1 Pedestrian and cycle routes

The primary pedestrian access to the new Sydney Fish Market will be via Bridge Road, which currently provides a 2.5m wide footpath on the northern side of the road. The concept for the new Sydney Fish Market proposes an enhanced pedestrian experience along Bridge Road, with a significantly widened footpath and boardwalk directly adjacent to the new site.

The augmentation of the signalised intersection at Bridge Road and Wattle Street, as well as the removal of the existing pedestrian island, will improve the pedestrian environment around the site. An additional signalised intersection on Bridge Road at Wentworth Park Road is also proposed which will facilitate improved accessibility south towards Wentworth Park.

Pedestrians may access the site via Glebe through walking east along Bridge Road, or via Wentworth Park through walking along Wattle Street and then along Bridge Road.

The walking experience from Fish Market light rail stop to the new Sydney Fish Market site is expected to be improved following the regeneration of the wider Blackwattle Bay District. A future pedestrian link along the foreshore is envisaged which will connect the new fish market with the current Fish Market light rail stop, as well as the broader Pyrmont area. This link does not however form part of this application, and will be detailed separately in planning documents for the wider Blackwattle Bay District.

The inner west light rail line has three stops within easy walking distance to the new Sydney Fish Market site:

- Glebe light rail stop – 350m or 5 minutes walk from proposal
- Wentworth Park light rail stop - 300m or 4 minutes walk from proposal
- Fish Market light rail stop - 550m or 7 minutes walk from proposal

The walking routes from each of these stations to the new Sydney Fish Market are considered acceptable with no upgrades required to facilitate access.

Staff and visitors to the Sydney Fish Market may use the light rail to access key public transport nodes such as Central Station. Additionally, people may walk or catch a light rail to Pyrmont Bay Ferry Wharf to gain access to the Sydney Ferries network.

Bridge Road provides good walking access to key destinations including Glebe, Wentworth Park Light Rail Station and Darling Harbour, as shown in Figure 65.

Figure 65 Key pedestrian travel times

7.6.2 Bicycle routes

The new Sydney Fish Market site has good accessibility from existing Roads and Maritime Services (RMS) and City of Sydney (CoS) cycleways. These routes are shown in Figure 66 below. The proposal includes the provision of a new off-road bicycle link along Bridge Road adjacent to the frontage of the site which will significantly improve connectivity for cyclists in the area.

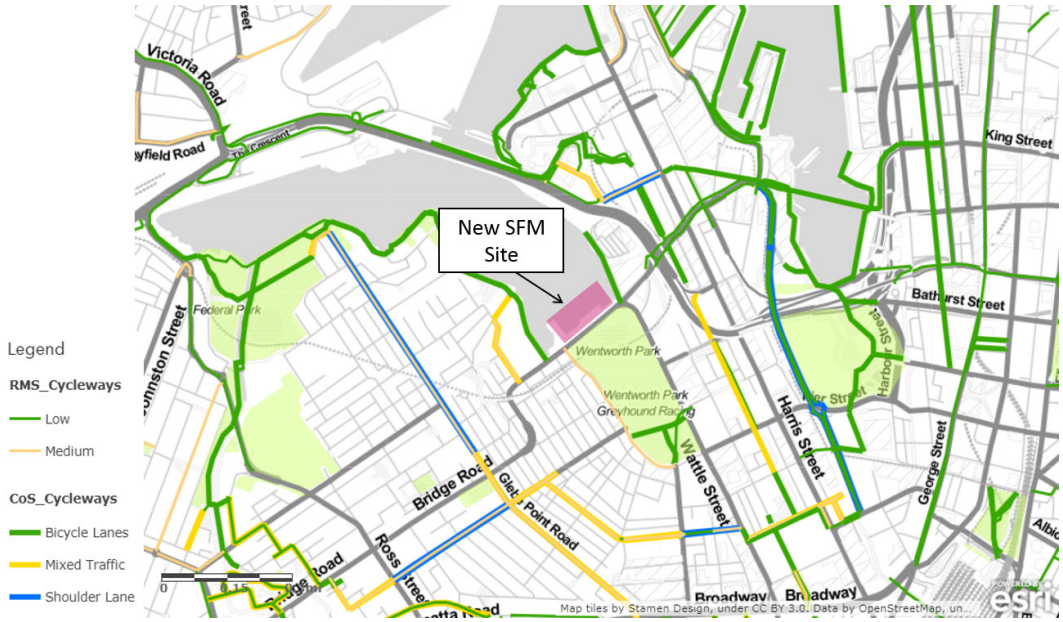


Figure 66 Existing cycleways providing access to the current Fish Market site

Based on distances and general traffic conditions (using data sourced from Google Maps), the time taken for cyclists to access the new Sydney Fish Market site from key locations is as follows:

- Central Station 10 minutes
- Wynyard 10 minutes
- Newtown 10 minutes
- Rozelle 15 minutes
- North Sydney 20 minutes
- Drummoyne 25 minutes
- Ashfield 30 minutes

7.6.3 Bicycle parking

Currently there are only 8 formal bicycle parking spaces provided in the existing Sydney Fish Market site. Aligning with the overall strategy of reducing reliance on private vehicle and managing the impacts on the road network, the future site will provide an enhanced level of bicycle parking for staff and visitors.

The proposed number of bicycle parking spaces has been developed based on the number of cyclists currently using the existing Sydney Fish Market site (described in Section 4.12.2) and the forecast travel demand to the future Sydney Fish Market site (described in Section 7.2.4). Although the Sydney DCP does not directly apply to State Significant Developments, nor does it apply to the future Sydney Fish Market site, this document has also been considered in the determination of suitable bicycle parking numbers.

The proposal seeks to provide approximately 60 bicycle parking spaces for staff (with associated end of trip facilities) within the basement of the building. This provision aligns with the rate outlined in the Sydney DCP of 1 space per 250m^2 GFA for the total retail GFA of approximately 15,168m^2.

Bicycle parking for visitors will be in the form of U-rails which would be easily visible within the public domain of the site. 38 U-rails are proposed to be installed which would provide parking for 76 bicycles – representing a 950% increase compared to current levels.

7.7 Access strategy including servicing

Vehicular movement in and around the precinct has been considered for a range of users including service vehicles, general access, mobility impaired access and parking, shuttle bus/coach and taxi access.

7.7.1 Drop-off/pick-up functions on Bridge Road

The proposal includes a vehicle drop-off and pick-up lane (approximately 130m in length excluding tapers) on the northern side of Bridge Road. This lane will be in addition to the existing two eastbound lanes and is intended to be used by coaches, taxis and ubers.

7.7.2 Loading and servicing

The design includes a loading dock on the ground floor to accommodate large vehicles, including one parking space for a semi trailor. Parking for coaches will also be provided on this level of the car park, once they have dropped off passengers on Bridge Road. A management strategy will be implemented to manage the movement of coaches within the site.

Additional loading facilities are provided on the first basement level for smaller vans during the peak morning (auction period). These spaces will then be made available for use by the general public later in the day.

All vehicle access for loading vehicles is via the new main intersection at Bridge Street / Wentworth Park Road. Vehicle swept path analysis is appended to this document.

7.7.3 Emergency vehicles

Emergency vehicles will enter the Fish Market using the proposed Wentworth Park Road / Bridge Road / Sydney Fish Market Access unless otherwise directed. Another alternative will be to use the new drop off / pick up bay provided on Bridge Road.

7.8 Coaches

As noted in Section 4.13 of this document, coaches currently park within the existing Sydney Fish Market car park. The requirement for coaches to enter and circulate within the car park can result in delays and congestion for general traffic during busy periods. Informal drop off and pick up also occurs on surrounding streets when the main car park is full, which does not provide for easy access to the site for passengers.

The new Sydney Fish Market development presents an opportunity to provide for improved arrangements for coaches, particularly for passenger pick up and drop off. The proposed vehicle drop-off and pick-up lane on the northern side of Bridge Road can be used by coaches at all times of the day. Coaches utilising this area will not conflict with general traffic entering and exiting the main car park as is currently the case for the Sydney Fish Market site.

Once passengers are dropped off, coaches will be required to park and wait off site on nearby streets such as Bank Street, Wattle Street and Wentworth Park Road. The ticketed parking areas on these streets are already commonly used by coaches for the existing Sydney Fish Market site – particularly Bank Street which already provides for dedicated coach parking.

The shared loading dock proposed as part of the new Sydney Fish Market development presents a further opportunity to improve arrangements for coaches. This will involve using some parking spaces within the loading dock (during off-peak times) to provide for parking for coaches waiting to pick up their passengers. This strategy provides for an efficient utilisation of parking within the site and removes the need at certain times for coaches to locate parking on surrounding streets as is currently the case. It is envisaged this would be managed via a pre-booking system to ensure coaches are not preventing service vehicles from accessing the loading dock during busy periods.

Prior to the opening of the new facility, a management strategy is to be implemented to manage the movement of coaches within the site as well as off-site parking. This strategy will be developed in collaboration with the Western Harbour Alliance (led by Sydney Business Chamber, and including SFM, the Star and ICC as members). The Western Harbour Alliance have committed to developing a precinct parking strategy including consideration of the new Sydney Fish Market.

7.9 Special events

The peak period for special events and peak activity at the Sydney Fish Market is in the lead up to Christmas and New Year, particularly the 36 hour seafood marathon that is held during this time. The other intense periods of activity are the Easter long weekend and Chinese New Year. Special arrangements for parking and traffic management are organised at this time and patrons are warned about the likely congestion in the precinct and impacts on access. Some of the measures in place during these special events are described below.

(i) Traffic controllers in the Sydney Fish Market car park

To manage the movement of vehicles within the SFM car park, there are a number of traffic controllers present during the Seafood Marathon period. These controllers direct vehicles to the most appropriate car parking aisle based on whether there is spare capacity or not. Should there not be capacity in a certain aisle, the controller will direct them on to the next aisle. The traffic controllers are in contact with each other via radio communication so that they are aware when a space becomes available within a certain aisle in the car park.

Figure 67 Traffic controllers during major events

(ii) Alternate payment method

During the Seafood Marathon all vehicles pay a flat fee of $5 for parking in the SFM car park, irrespective of how long vehicles stay in the car park. This differs from the tiered approach that is in place throughout the year where payment is based on vehicle length of stay. This $5 flat fee, which is collected as drivers exit the car park, allows the boom-gates to be permanently up and not restrict the flow of vehicles in the car park. Controllers are present at the entry and exit points to direct vehicles into the car park and ensure excessive queueing does not occur.

Figure 68 Alternate payment method in place during special events

(iii) Off-site car parking

During the Seafood Marathon the SFM car park is reserved for visitors only, with staff parking provided in the grounds of the Sydney Secondary College. This area has the ability to accommodate approximately 500 cars at any one time, exceeding the staff parking demand. This also provides the ability for this area to be used by the general public as overflow parking.

In addition to the grounds of the Sydney Secondary College, the SFM also lease the Hymix site on Bank Street which provides for an additional 110 parking spaces. This car park is opened at around 3pm on the first day of the Seafood Marathon after parking in both the Secondary College and the main car park is full.

Figure 69 Overflow parking at Sydney Secondary College

(iv) Police management of SFM intersection

During the Seafood Marathon the SFM employs the NSW Police to be on-site and manage the flow of traffic at the entry/exit point to the SFM. The Police direct vehicles which lane to enter as they leave the site, as well as stopping people from exiting the site when there is a queue build up on Bank Street to ensure vehicles do not block the intersection. In this circumstance the Police have the ability to directly contact the Transport Management Centre to alter the phasing of nearby traffic lights to provide more 'green time' for vehicles accessing / departing the SFM. This in turn allows the queue of vehicles on Bank Street to clear and ensure that drivers do not have long delays exiting the site. The on-site Police also at times allow vehicles to turn left into the site from Bank Street when there is a red light to clear vehicle queues.

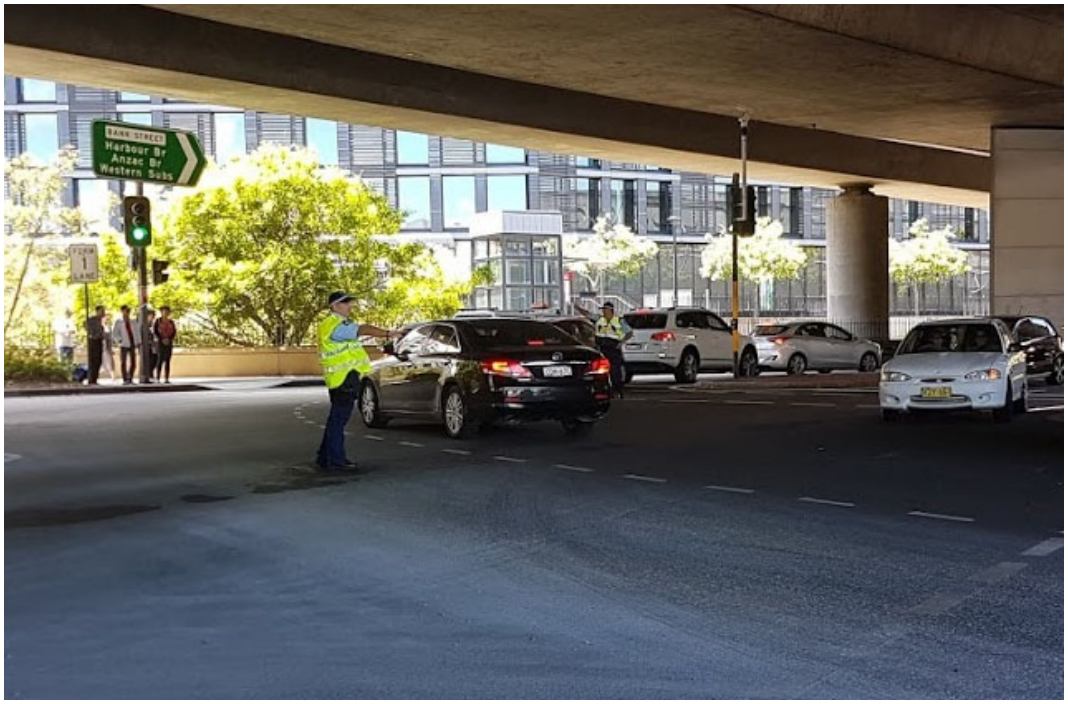


Figure 70 Police management of Sydney Fish Market / Bank Street intersection

8 Road Network Assessment

8.1 Traffic generation

The method for determining the traffic generation for the new Sydney Fish Market was previously described in Section 7.2. Based on this analysis, the forecast traffic volumes expected to enter and exit the Sydney Fish Market site during the network peak hours are shown in Table 13.

Table 13: Forecast peak hour traffic generation

Peak Period	**Into Sydney Fish Market**		**Out of Sydney Fish Market**		**Total Movements**	
	Light	***Heavy***	***Light***	***Heavy***	***In***	***Out***
AM (8am-9am)	104	46	182	20	160	202
PM (5pm-6pm)	99	11	101	11	110	113
Weekend (12pm-1pm)	372	41	329	37	413	366

8.2 Traffic distribution

The traffic associated with the current site and the anticipated traffic generated from the future site has been distributed throughout the network using observed vehicle turning proportions based on the traffic data collection previously described in this study.

The resultant traffic distribution from the new Sydney Fish Market site for the AM, PM and weekend peak hours are illustrated in the figures below.

Figure 71 Forecast traffic distribution – AM peak hour

Figure 72 Forecast traffic distribution – PM peak hour

Figure 73 Forecast traffic distribution – weekend peak hour

8.3 Road network impacts

8.3.1 Methodology

Traffic modelling was undertaken by Arup to determine the impacts on the road network (and any associated improvements required) to support the proposal. This was carried out in accordance with relevant RMS Traffic Modelling Guidelines. The general study area and methodology was discussed and agreed with Roads and Maritime following consultation in 2017 and 2018. The impact of the development was assessed at 9 intersections surrounding the site and providing accessing to the site. The intersections include:

- Bridge Road / Wattle Street
- Bridge Road / Wentworth Park Road
- Pyrmont Bridge Road / Harris Street
- Pyrmont Street / Pyrmont Bridge Road
- Wattle Street / William Henry Street
- Wattle Street / Fig Street
- Wattle Street / Quarry Street
- Wentworth Park Road / Bay Street
- Wentworth Park Road / St Johns Road

The intersections as well as the location of the existing and new fish market site is provided in Figure 74.

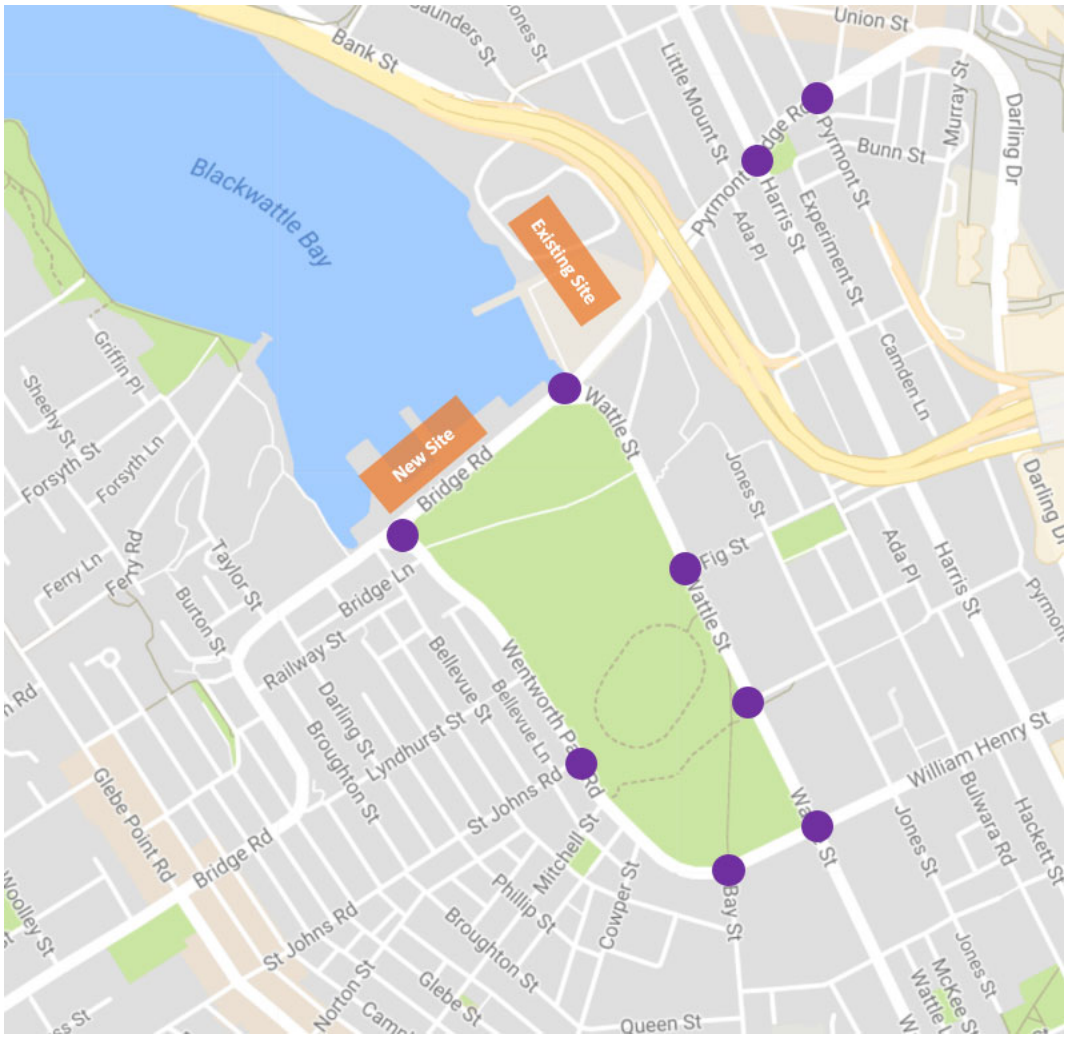


Figure 74 Intersections considered in the traffic impact analysis

Existing traffic counts were taken from a classified vehicle turning movement survey on Friday 20 July 2017 between 6:30am-9:30am and 4:00pm-7:00pm, and Saturday 21 July 2017 between 10:00am-1:00pm.

The process for undertaking the traffic modelling was as follows:

- Identifying background traffic volumes for the analysed intersections based on surveys conducted over a typical Friday and Saturday in July 2017
- Removing existing traffic associated with the current Sydney Fish Market site[2]. These trips were identified in the network based on observed turning proportions and removed from the appropriate intersection counts.
- Adding the forecast traffic from the future Sydney Fish Market site onto the road network in a similar manner to that described in point (2) above.

It should be noted that, as a conservative assumption, existing traffic associated with the existing Hanson operations on the site has been included within the traffic modelling.

The road network impacts arising from the development of the wider area, including the redevelopment of the existing fish market site, will be detailed in a separate study as part of the rezoning application for the Blackwattle Bay district. It should be noted however that the current masterplan for Blackwattle Bay envisages largely residential uses (with low rates of on-site car parking) in close proximity to public transport and employment area. Therefore the volume of traffic generated by future development will be modest and potentially lower than that currently generated by the existing operations.

8.3.2 SIDRA modelling

The intersections have been assessed using RMS approved SIDRA Intersection software version 7. In urban areas, the traffic capacity of the major road network is generally a function of the performance of key intersections. This performance is quantified in terms of Level of Service (LoS) and is based on the average delay per vehicle. LoS ranges from A = very good to F = unsatisfactory.

LoS categories are defined as follows in Table 14.

Table 14: Classification of LoS based on delay.

Level of Service	Control delay per vehicle in seconds
A	Delay < 14
B	15 < Delay < 28
C	29 < Delay < 42
D	43 < Delay < 56
E	57 < Delay < 70
F	Delay > 70

[2] This was done to avoid double-counting staff and visitors who currently access the existing site and will also access the future site

8.3.3 Intersection modelling

The results of the SIDRA intersection assessment are provided in Table 15. The assessment included modelling the AM, PM and Weekend peak period for the current and future traffic generation.

Table 15: Results of the SIDRA intersection assessment.

Intersection	Scenario	DoS	LoS	Delay (sec)
Bridge Road / Wattle Street	AM Existing	0.89	C	38
	AM Future	0.81	C	40
	PM Existing	0.90	C	36
	PM Future	0.78	C	36
	WE Existing	0.88	C	34
	WE Future	0.77	C	37
Bridge Road / Wentworth Park Road	AM Existing	0.96	NA	10
	AM Future	0.84	C	30
	PM Existing	0.98	NA	12
	PM Future	0.70	C	34
	WE Existing	0.97	NA	12
	WE Future	0.77	C	36
Pyrmont Bridge Road / Harris Street	AM Existing	0.82	C	32
	AM Future	0.81	C	32
	PM Existing	0.73	C	30
	PM Future	0.73	C	30
	WE Existing	0.74	C	30
	WE Future	0.74	C	30
Pyrmont Street / Pyrmont Bridge Road	AM Existing	0.91	D	48
	AM Future	0.91	D	48
	PM Existing	0.86	C	42
	PM Future	0.86	C	42
	WE Existing	0.71	C	31
	WE Future	0.71	C	31
Wattle Street / William Henry Street	AM Existing	0.87	C	29
	AM Future	0.88	C	31
	PM Existing	0.90	D	44
	PM Future	0.90	D	44
	WE Existing	0.74	B	23
	WE Future	0.80	B	23
Wattle Street / Fig Street	AM Existing	0.84	NA	8
	AM Future	0.91	NA	11
	PM Existing	0.88	NA	8
	PM Future	0.91	NA	10
	WE Existing	0.82	NA	7
	WE Future	0.94	NA	12

Intersection	Scenario	DoS	LoS	Delay (sec)
Wattle Street / Quarry Street	AM Existing	0.89	C	40
	AM Future	0.89	C	40
	PM Existing	0.85	C	29
	PM Future	0.85	C	29
	WE Existing	0.88	C	33
	WE Future	0.88	C	33
Wentworth Park Road / Bay Street	AM Existing	0.85	C	35
	AM Future	0.88	C	36
	PM Existing	0.93	D	45
	PM Future	0.93	D	45
	WE Existing	0.92	C	32
	WE Future	0.92	C	32
Wentworth Park Road / St Johns Road	AM Existing	0.40	NA	4
	AM Future	0.42	NA	4
	PM Existing	0.44	NA	5
	PM Future	0.44	NA	5
	WE Existing	0.23	NA	3
	WE Future	0.23	NA	3

Note: NA refers to Not Applicable (SIDRA is unable to determine an overall LOS at priority controlled intersections)

8.3.4 Findings

The intersection modelling results described in Table 15 indicate that key intersections in the vicinity of the new Sydney Fish Market site will operate at the same level of service compared to existing conditions. This is reflected in the change in intersection traffic flows following the development of the Sydney Fish Market as shown in the figures below. Apart from the Wentworth Park Road / Bridge Road intersection (new site entry), no intersection is forecast to experience more than a 5% increase in traffic flows compared to current levels.

The primary access point of Bridge Road / Wentworth Park Road (future signalised intersection) is forecast to operate satisfactorily at Level of Service C during all peak periods. The majority of traffic is expected to access the site via Bridge Road, with only a small percentage (between 10% and 15%) to arrive via Wentworth Park Road. This results in relatively small increases in traffic of between Wentworth Park Road during peak hours, between 46 vehicles in the AM peak hour and 70 vehicles in the Saturday peak hour.

The analysis indicates that the proposal results in less than a 0.1% increase in vehicle throughput through the Western Distributor intersections at Harris Street and Pyrmont Bridge Road compared to current conditions. This increase in traffic is considered negligible and would therefore not result in any change in the intersection performance. It should be noted that Roads and Maritime are currently investigating measures to improve the operation of the road network in Blackwattle Bay, with a focus on the access points to the Western Distributor.

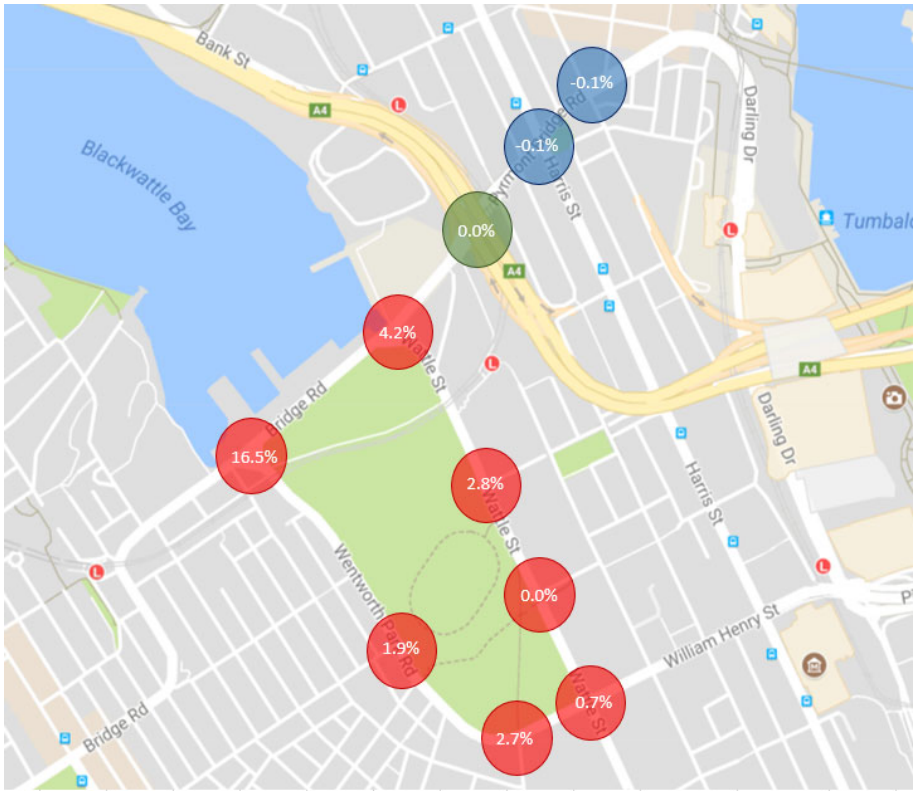


Figure 75 Change in intersection traffic flows – AM peak hour

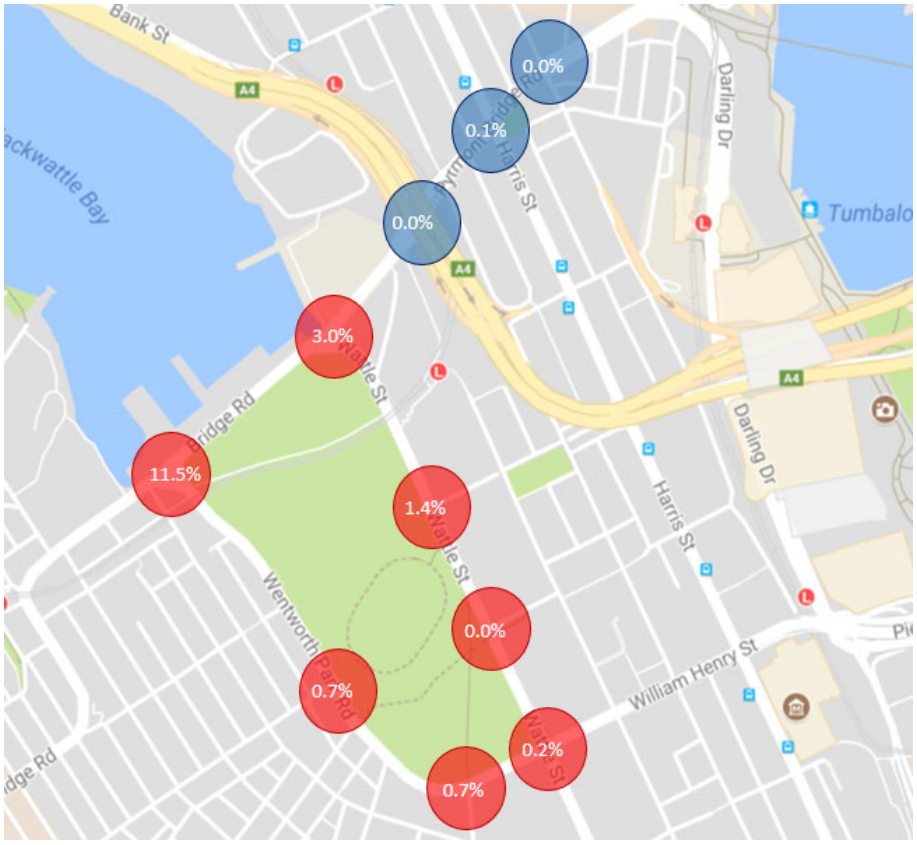


Figure 76 Change in intersection traffic flows – PM peak hour

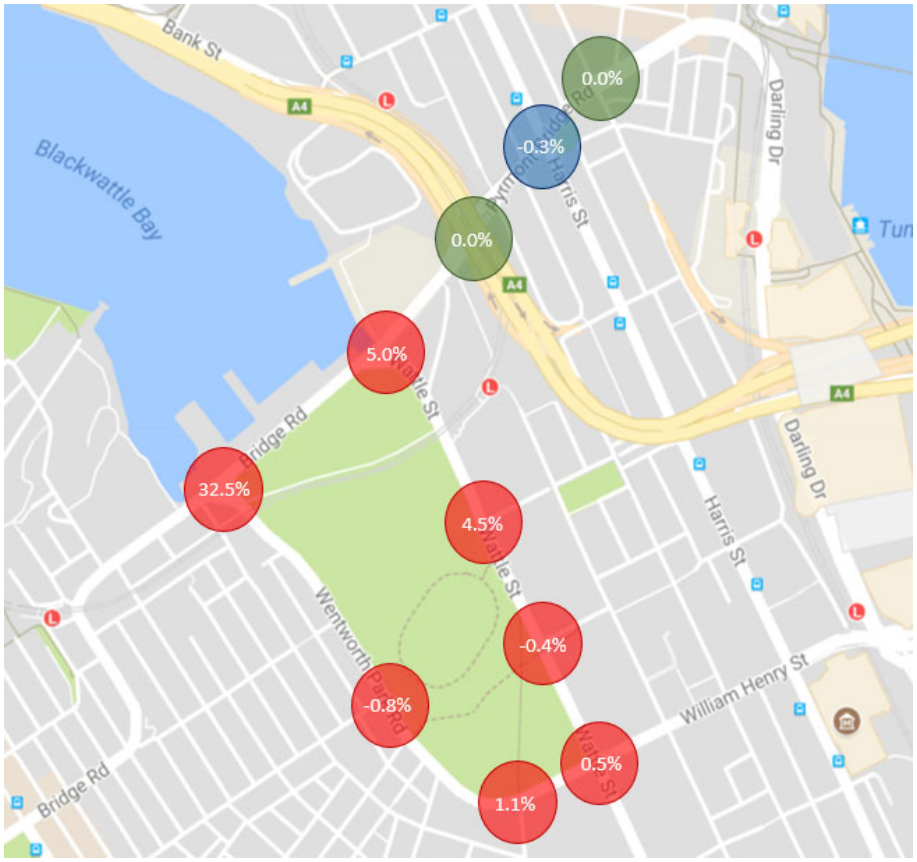


Figure 77 Change in intersection traffic flows – weekend peak hour

9 Construction Pedestrian Traffic Management Plan

9.1 Overview

This section details a preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) for the demolition of the existing Sydney Fish Market and construction of the new Sydney Fish Market. The purpose of the CPTMP is to assess the proposed access and operation of construction traffic associated with the proposed development with respect to safety and capacity. The Contractor (once appointed) will prepare a more detailed CPTMP with Traffic Control Plans prior to the commencement of works, detailing specific methods of safely managing construction and pedestrian traffic within the surrounding area.

This section should be read in conjunction with the Construction Environmental Management Plan (CEMP) prepared by Thelem Consulting for the project.t

9.2 Construction program

The current construction staging is noted below in Table 16. The construction period is envisaged over a 44 month period starting in 2020 through to 2024.

Table 16: Construction program

Stage	Duration (months)
Site mobilisation and establishment	1
Demolition	7
Marine Construction	9
Construction	24
Fit-out	1
Commissioning	6

As the project is in its preliminary stages, the following timeframes are approximate and may vary once a contractor is appointed.

9.3 Construction traffic routes

The main construction access will be via the state road network including the Western Distributor and Cross City Tunnel, and vehicles will likely originate from this network. It is expected that the majority of trips will likely be generated from the west and will access the site via either Victoria Road or the City West Link. Trips from the east and south may access the site via the Cross City Tunnel and Western Distributor, while those arriving from the north will use the Sydney Harbour Bridge and Western Distributor. Wattle Street and Harris Street will provide an alternative route for vehicles arriving from and departing to the south.

The primary access point to the site will be via the intersection of Wentworth Park Road and Bridge Road.

For part of the construction period, trucks will arrive and depart from Glebe Island, with materials barged across to the construction site. Primary access to this construction compound will be via James Craig Road, with similar arrival/departure routes to the construction access via Bridge Road used.

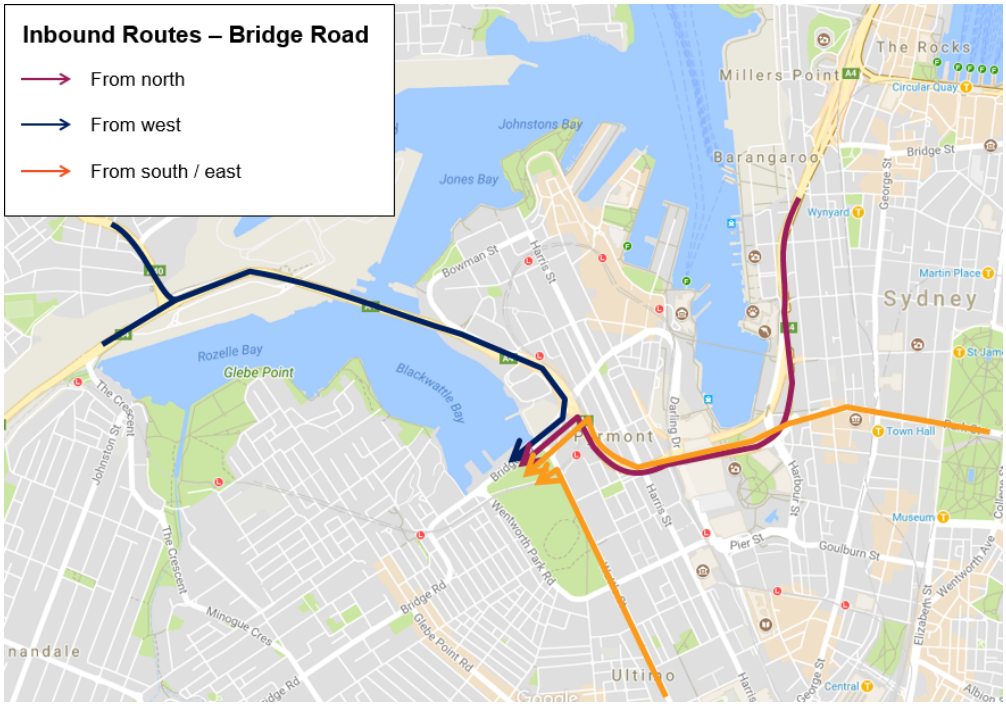


Figure 78 Inbound construction traffic routes – Bridge Road

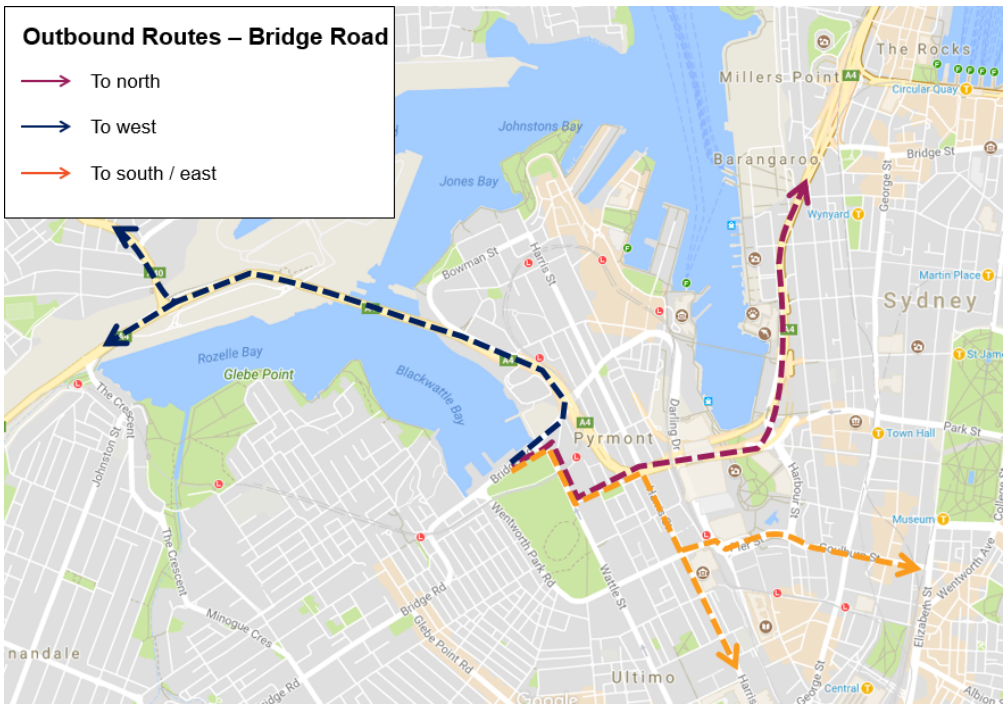


Figure 79 Outbound construction traffic routes – Bridge Road

Figure 80 Inbound construction traffic routes – Glebe Island

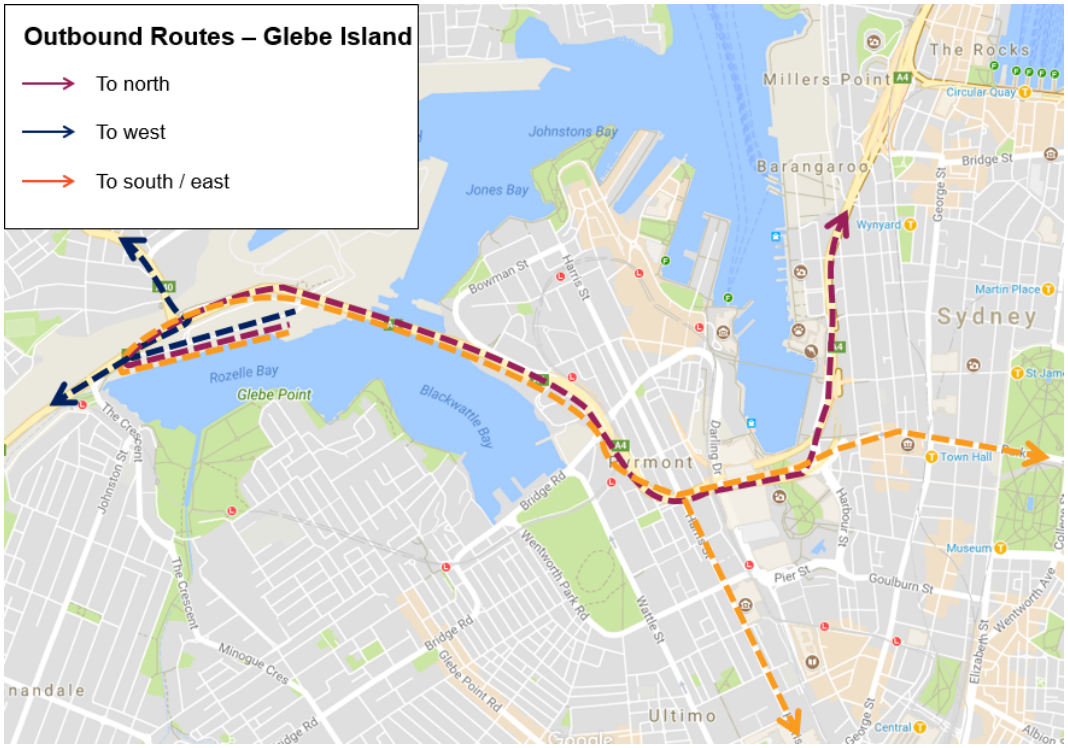


Figure 81 Outbound construction traffic routes – Glebe Island

Vehicles that will access the site during construction will likely mainly comprise of heavy vehicles including Articulated Vehicles (AV) such as precast delivery trucks and Heavy Rigid (HR) such as concrete trucks are expected to access the site. These different types of vehicles may access the site at the same time. Other heavy machinery plants such as cranes will have to be delivered to site in the preliminary stage. All heavy goods such as girders or machinery plants are likely to be delivered outside of peak traffic hours.

9.4 Construction traffic volumes

9.4.1 Light vehicles

Workers will generate some additional traffic to the site. Typically, the demolition and construction is likely to have a workforce of between 100 and 500 personnel. Given the public transport availability to the site and limited (likely to be zero) on-site parking opportunities, the majority of construction workers will be required to take public transport to work. Typically construction workers have a high vehicle occupancy of between 2-3 people per vehicle, particularly for sites with constrained parking environments. Therefore the likely number of light vehicles generated by the project would be in the order of 50 to 100 per day.

Additionally, construction workers generally start earlier and finish earlier than the commuter peak periods, and would likely not coincide with the site's peak periods.

9.4.2 Heavy vehicles

The number of daily construction vehicles accessing the site is forecast to vary from between 16 to 60 daily vehicles. The forecast daily volume of construction vehicles for each stage of the works is outlined in Table 17.

Table 17: Forecast daily construction traffic movements

Stage	Duration (months)*	Daily truck numbers*
Site mobilisation and establishment	1	16
Demolition	7	36
Marine Construction	9	30
Construction	24	50
Fit-out	1	40
Commissioning	6	10

* Indicative only, to be confirmed following appointment of a contractor

As the project is in its preliminary stages, the following forecasts are approximate and may vary once a contractor is appointed.

On average over the life of the construction project, 45 construction vehicles per day are forecast to access the site. A maximum of 50 trucks per day are likely to

access the construction site. This volume of traffic is commensurate with the existing level of traffic (both light and heavy vehicle) that currently access the concrete plants on the site of the future Sydney Fish Market.

Further, the traffic generation of this magnitude is less than the amount of trips generated and assessed for the operational phase of the development and therefore the potential impacts are anticipated to be minimal.

Based on the observed profile of daily construction vehicle activity for a similar construction site in the CBD, the forecast hourly construction traffic volumes for the Sydney Fish Market can be estimated. These are presented in Table 18.

Table 18: Hourly construction vehicle movements

Construction Stage	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900
Site mobilisation and establishment	0	3	1	1	2	2	2	2	1	1	1	0	0
Demolition	1	7	3	3	4	4	4	3	3	3	2	1	0
Marine Construction	0	5	2	3	3	3	3	3	2	2	2	1	0
Construction	1	9	4	4	5	5	5	5	4	4	3	1	1
Fit-out	1	7	3	3	4	4	4	4	3	3	2	1	1
Commissioning	0	2	1	1	1	1	1	1	1	1	1	0	0

9.5 Site access and work zones

At this stage it is envisaged access to the construction site will be via the existing driveways to the site located on Bridge Road.

It is not expected that on-street work zones will need to be established on Bridge Road to facilitate the construction works. Instead a hardstand area north of the existing Bridge Road footpath will be utilised to store construction vehicles. A site hoarding will be established to separate this work zone from the adjacent Bridge Road footpath so not to impact the safety of pedestrians in the area. Traffic controllers will be present at the vehicle crossover points to manage interactions with pedestrians.

These arrangements are shown indicatively in Figure 82. Detailed traffic control plans (TCPs) will be prepared by the appointed contractor prior to the commencement of construction on site.

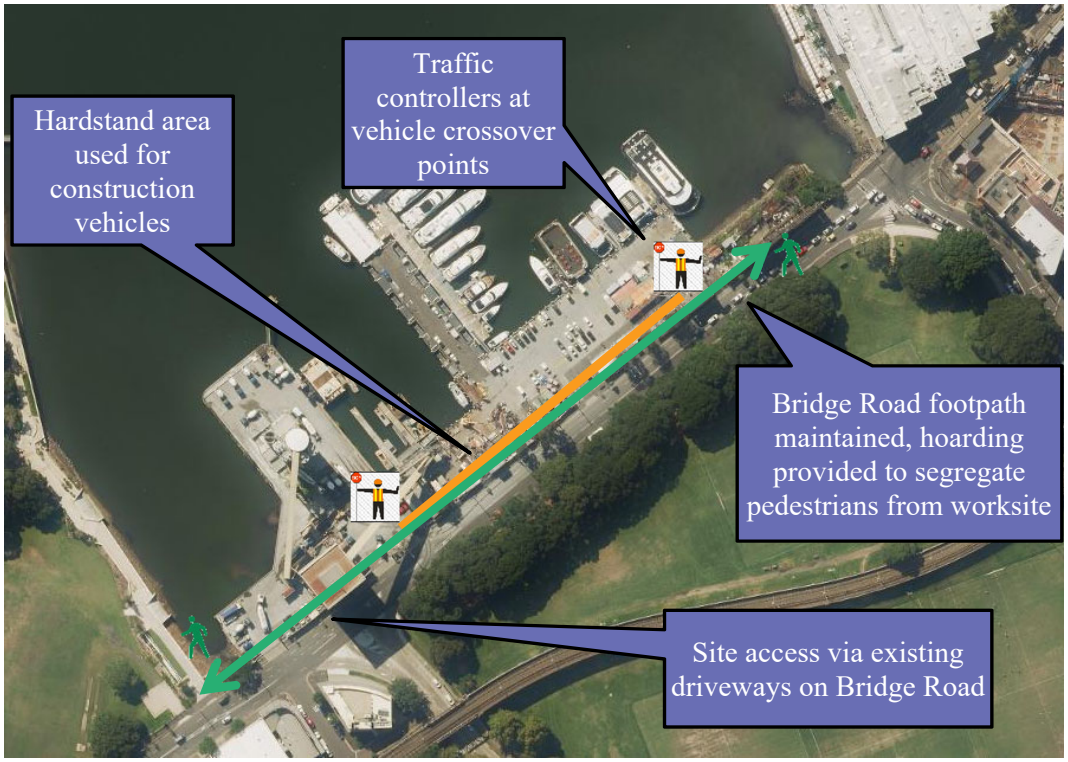


Figure 82 Site access and workzones

9.6 Bridge Road upgrade works

Part of the proposal includes the raising of Bridge Road to provide greater flooding immunity and provide improved connectivity to Wentworth Park. Works will be staged to ensure traffic movements in both directions are maintained at all times. The appointed contractor will work closely with the Sydney Coordination Office to ensure the impacts of these works are suitably managed.

As part of this application Roads and Maritime have been consulted extensively in relation to the proposed changes to Bridge Road.

Construction zones on Bridge Road may be implemented at times during the construction period. The final extent of any construction zone will be subject to the submission of traffic control plans to be prepared by an RMS accredited contractor.

To support the construction works sections of the Bridge Road footpath may be closed for pedestrian access. Measures to mitigate these temporary impacts could include:

- Erection of hoardings to permit pedestrian movement adjacent to the construction zone and separate pedestrians from construction vehicles
- Installation of signage indicating recommended pedestrian routes
- Maintaining access to either the western or eastern footpaths along Bridge Road throughout the construction period; and

- Maintaining safe crossings at the Wattle Street / Bridge Road and Wentworth Park Road / Bridge Road intersection.

9.7 Parking

Minimal (likely to be zero) on-site car parking will be provided for construction staff. Staff will instead be required to arrive to the site by public transport or park in nearby parking stations, which is similar to arrangements for other major development projects in close proximity to the Sydney CBD.

The significant majority of parking spaces in nearby residential streets are subject to resident parking schemes, where parking is not permitted by visitors for periods of more than two hours. Given staff will be on-site for periods of more than two hours, on-street parking in these residential streets will not be possible.

As part of the construction traffic management to be prepared prior to the commencement of works, workers will be directed to park in formal off-street parking areas in the vicinity of the site. Workers will be clearly instructed not to park in private parking areas, including the Sydney Secondary College car park.

9.8 Impacts to pedestrians and cyclists

Some pedestrians and cyclists within the area may be impacted from walking past the site during construction, particularly along Bridge Road. Traffic controllers with appropriate accreditation will hold construction vehicles at cross-over points and allow pedestrians to cross these work areas.

At this stage it is not envisaged that any footpath closures will be required to facilitate the construction project.

Temporary A/B Class hoardings, site fencing and gates will be installed on Bridge Road to the boundaries of the extent of the project site area. Site accommodation will be established subject to the amount of personnel working on site. Temporary hoarding and signage will be adopted in all working areas at all times.

Further detail regarding additional measures for pedestrians and cyclists will be provided in the detailed Construction Pedestrian Traffic Management Plan, to be developed by the appointed contractor prior to the commencement of works on the site.

9.9 Emergency Vehicles

If required, emergency vehicles will be able to access the site via the proposed construction vehicle access points.

9.10 Public transport services affected

It is not expected that public transport services would be affected by the works. The relatively close proximity of public transport servicing the site via light rail and the adjacent bus network will enable construction personnel to easily access the site via public transport, minimising the road traffic impact around the site.

9.11 Cumulative construction traffic

A number of construction activities will be occurring concurrently with the construction program of the new Sydney Fish Market site. The appointed contractor will need to engage in ongoing consultation with Transport for NSW (Sydney Coordination Office) during the construction period to ensure any cumulative impacts with other projects and managed appropriately.

9.12 Detailed construction traffic and pedestrian management plan

The Contractor (once appointed) will prepare a more detailed CPTMP prior to the commencement of works on the site. This plan will contain additional information to that presented in this document such as:

- Site compound locations
- Driver facility areas
- Vehicle turning paths within the site
- Traffic control plans

10 Summary of Mitigation Measures

This section provides an overview of the proposed measures to mitigate the impacts of the proposal during both construction and operation. A suite of transport measures has been proposed to support the development of the site and mitigate the impacts on the transport network.

10.1 During construction

Mitigation measures would be adopted during the construction phase to ensure traffic movements have minimal impact on surrounding land uses and the community in general, and would include the following:

- Truck loads would be covered during transportation off-site for sensitive loads;
- Establishment and enforcement of appropriate on-site vehicle speed limits (20km/h), which would be reviewed depending on weather conditions or safety requirements;
- Neighbouring properties would be notified of construction works and timing;
- Materials would be delivered and spoil removed during standard construction hours;
- Avoid idling trucks alongside sensitive receivers; and
- Deliveries would be planned to ensure a consistent and minimal number of trucks arriving at site at any one time
- No on-site parking to be provided to encourage the use of public transport to the construction site

To manage driver conduct the following measures are to be considered for implementation:

- All deliveries are to be pre booked;
- All deliveries are to check in at the site office;
- Drivers are to give way to pedestrians.

Traffic Controllers will be used to stop traffic on the public street(s) to allow trucks to enter or leave the site. Where possible, vehicles must enter and exit the site in a forward direction. They must wait until a suitable gap in traffic allows them to assist trucks to enter or exit the site. The Roads Act does not give any special treatment to trucks leaving a construction site - the vehicles already on the road have right-of-way. Vehicles entering, exiting and driving around the site will be required to give way to pedestrians.

No bus services would be impacted by construction traffic as the work is confined to off street works.

10.2 During operation

Table 19 Summary of transport measures

Mode	Recommendation	Responsibility
Light Rail	Improved wayfinding from Fish Market, Glebe and Wentworth Park light rail stops to direct customers towards the new Sydney Fish Market	Infrastructure NSW Transport for NSW
Parking	Providing no additional on-site car parking compared to existing levels, despite the increase in site activity	Infrastructure NSW
	On-site parking for staff and visitors will be charged at market rates in line with those at other nearby commercial car parks	Infrastructure NSW Future operator
	Use of off-street car parks in close proximity to Sydney Fish Market to accommodate overflow parking demand during busy periods	Infrastructure NSW Future operator
Drop off / pick up	Managed drop off and pick up area adjacent to Bridge Road to provide for improved access for those arriving by point to point vehicles	Infrastructure NSW Future operator
Pedestrians (including road safety)	Widening and enhancement of the Bridge Road footpath adjacent to the new Sydney Fish Market site	Infrastructure NSW
	New signalised pedestrian crossing at Wentworth Park Road / Bridge Road to support pedestrian crossing movements, including a dedicated pedestrian crossing across the new car park entry point.	Infrastructure NSW Roads and Maritime
	Modification to the Wattle Street / Bridge Road intersection to remove the existing slip lane on the south-west approach of the intersection and provide for safer pedestrian crossings of Bridge Road	Infrastructure NSW Roads and Maritime
Cycling	Provision of visible and secure bicycle parking at the new Sydney Fish Market for staff and visitors	Infrastructure NSW
	Provision of a new off-road bicycle link along Bridge Road adjacent to the frontage of the site to support the proposal and the wider Blackwattle Bay District	City of Sydney Council Transport for NSW
Bus	Work with Transport for NSW to investigate providing improved bus services to support access to the Sydney Fish Market and wider Blackwattle Bay District	Infrastructure NSW Transport for NSW
Metro	Provision of good quality connections between the new Sydney Fish Market and the proposed Sydney Metro West station in the Bays Precinct.	Transport for NSW Infrastructure NSW
Coaches	Management strategy to be implemented to manage the movement of coaches within the site and off-site parking.	Infrastructure NSW Future operator Western Harbour Alliance
Travel demand	Preparation of a site specific travel demand management plan, including annual monitoring of travel behaviour	Infrastructure NSW Future operator

11 Summary

This transport assessment has been prepared to support the planning application (SSD 8924 and 8925) for the new Sydney Fish Market. The new facility will include an expanded food and retail offering, as well as maintaining current facilities for wholesalers and the auction rooms. Ultimately it is envisaged visitation to the Sydney Fish Market will double over a ten year period compared to that experienced by the current site.

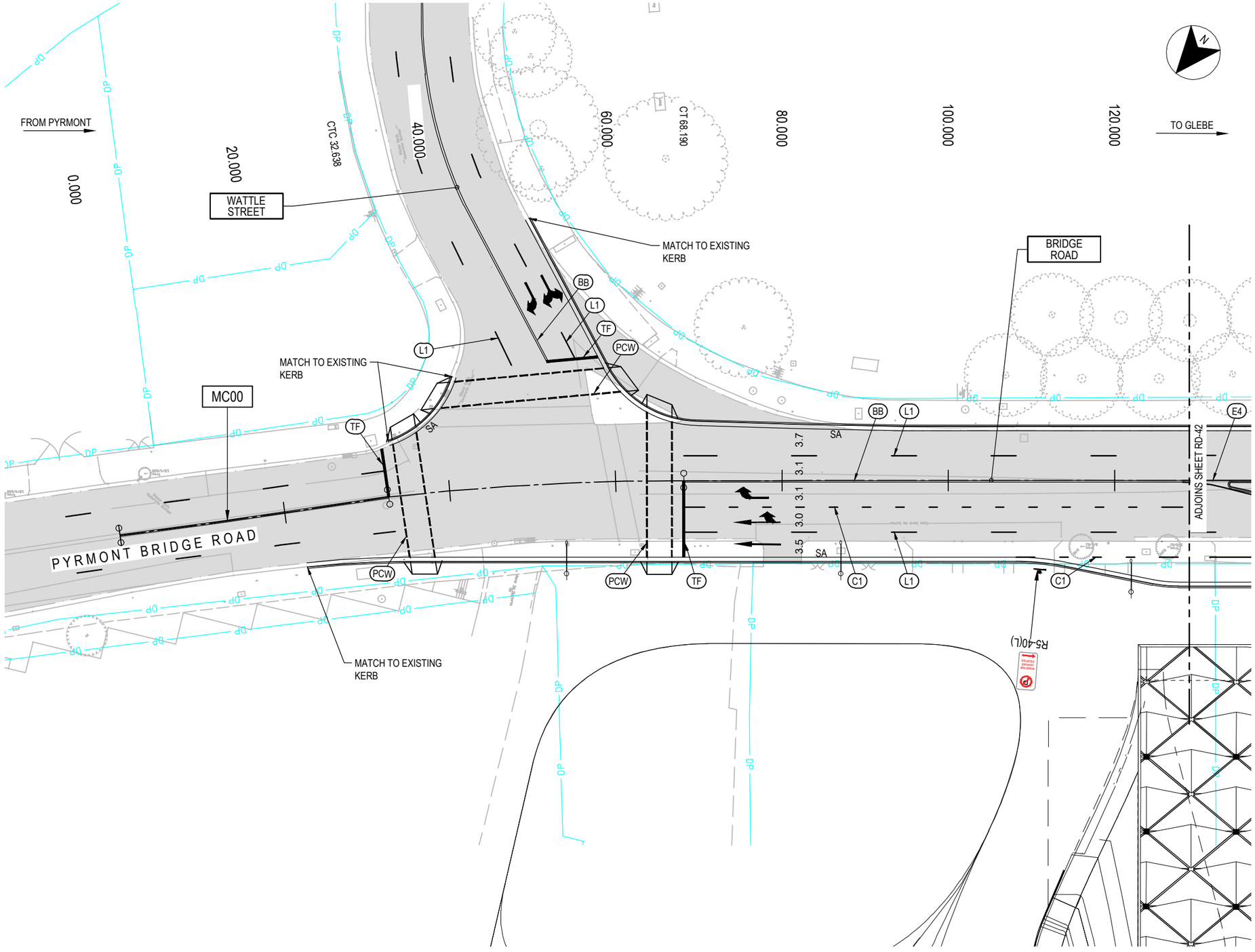
The concept proposal includes up to 417 on-site car parking bays for private vehicles, consistent with the current on-site provision despite the forecast increase in visitor activity to the site. A loading dock will accommodate heavy vehicle activity as well as acting as a layover area for coaches.

The traffic impacts during construction and operation have been assessed and determined to be acceptable on the access road system – with no change to the level of service of key intersections in the vicinity of the site.

The Sydney Fish Market enjoys good levels of public transport accessibility and it is anticipated that the current mode share across a wide range of access modes can be improved through improved legibility and promotion of sustainable travel modes.

Appendix A

Proposed road layout and configuration



GENERAL ARRANGEMENT LEGEND

- EXISTING DP BOUNDARY
- NEW DP BOUNDARY
- EXISTING TREE
- EXISTING WATER COURSE
- EXISTING EDGE OF GARDEN
- EXISTING FENCE
- EXISTING MANPROOF FENCE
- EXISTING GATE
- EXISTING PAVEMENT
- MC00 — MASTER CONTROL LINE LABEL
- SA — KERB TYPE, FOR DETAILS REFER TO RMS STANDARD DRAWING R0300-01
- NEW STREET LIGHT
- PAVEMENT ARROW AR1
- PAVEMENT ARROW AR2
- PAVEMENT ARROW AR3 (L OR R)
- PAVEMENT ARROW AR4 (L OR R)
- PAVEMENT ARROW ARU5
- PAVEMENT ARROW AR9
- EXISTING PAVEMENT ARROW
- C1 — PAVEMENT MARKING INDICATOR

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CLIENT: UrbanGrowth NSW Development Corporation

ULTIMO - CITY OF SYDNEY
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BRIDGE STREET UPGRADE
FROM WATTLE STREET TO WENTWORTH PARK ROAD
ROADWORKS PLAN
SHEET 1 OF 3

A3

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DESIGN	M.JEDNIUK	23.02.18.
DESIGN CHECK	J.TOTH	23.02.18.
DESIGN MNGR	B.SOO	23.02.18.
PROJECT MNGR	G.BABCOCK	23.02.18.

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PREPARED FOR: URBAN GROWTH

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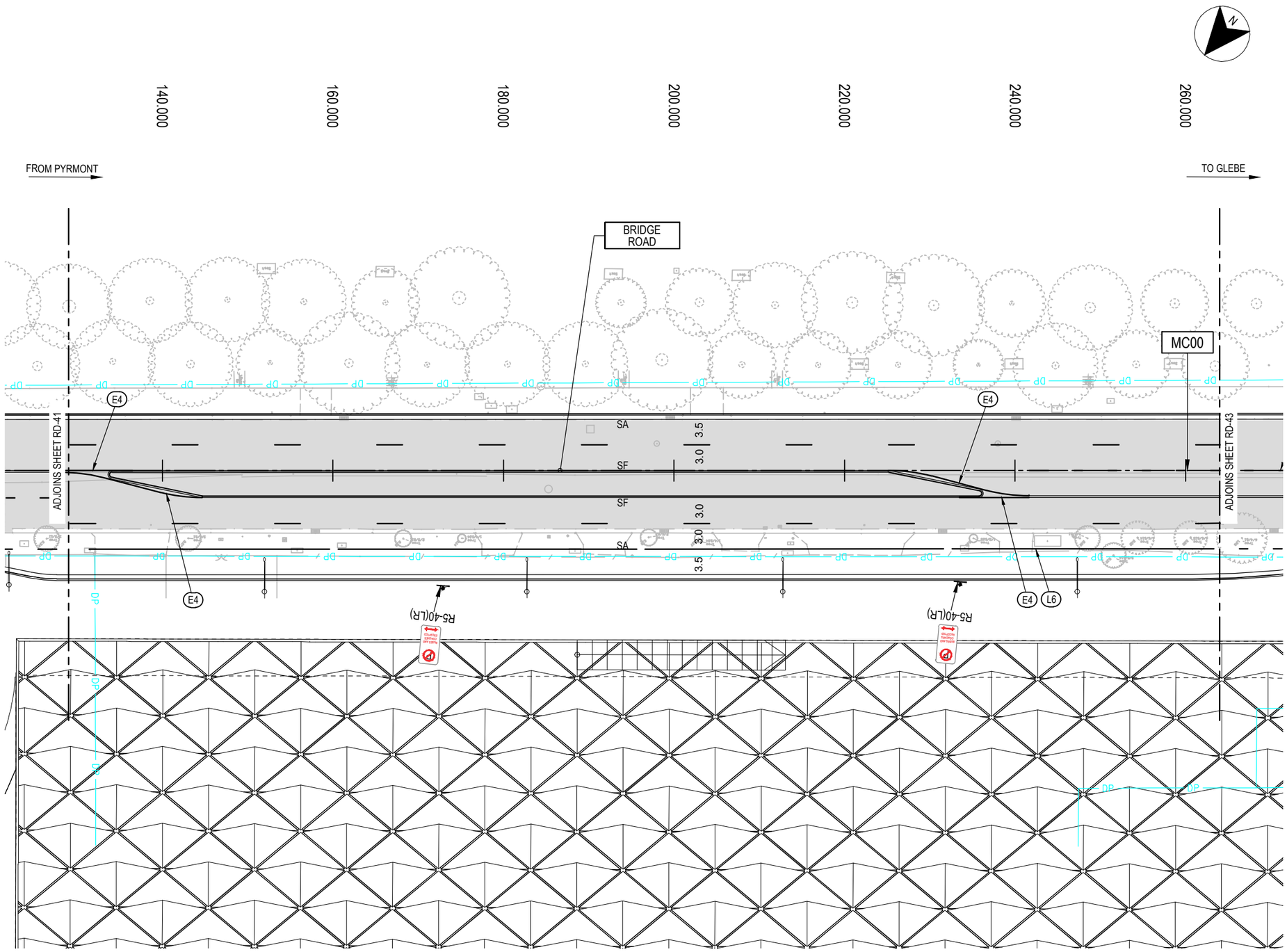

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- EXISTING PAVEMENT ARROW
- C1 — PAVEMENT MARKING INDICATOR

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ULTIMO - CITY OF SYDNEY
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BRIDGE STREET UPGRADE
FROM WATTLE STREET TO WENTWORTH PARK ROAD
ROADWORKS PLAN
SHEET 2 OF 3

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TITLE		
DRAWN	M.HOFFMANN	23.02.18.
DRG CHECK	B.SOO	23.02.18.
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DESIGN CHECK	J.TOTH	23.02.18.
DESIGN MNGR	B.SOO	23.02.18.
PROJECT MNGR	G.BABCOCK	23.02.18.

CO-ORDINATE SYSTEM: MGA ZONE 56
HEIGHT DATUM: AHD
MM DRAWING NUMBER: CI-RD3-B20 RD-42

PREPARED FOR: URBAN GROWTH

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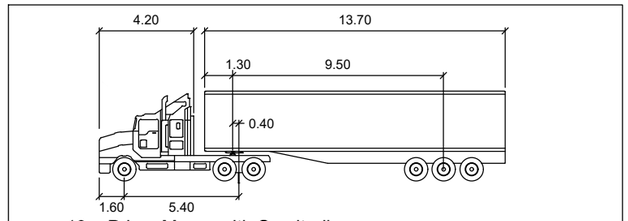
ISSUE: A



19m Prime Mover with Semitrailer

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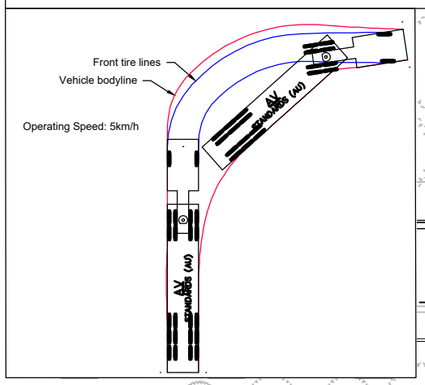
Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



Preliminary - Not for Construction

Rev	Date	Drawn	Description	Ch'k'd	App'd
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PLAN 1:500

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Sydney NSW 2000

Title
SYDNEY FISH MARKET
BRIDGE ROAD
LAYOUT PLAN
TURNPATHS - 19m SEMI TRAILER
WENTWORTH PARK RD INTERSECTION

Designed	M.Jedniuk		Eng check	B.Soo	
Drawn	M. Hoffmann		Coordination	B.Soo	
Dwg check	P.Cavanagh		Approved	G.Babcock	
Scale at A1	Status		Rev	Security	
1:500	PRE		P1	CLA	

Drawing Number
MMD-385951-C-SK-CD-2521

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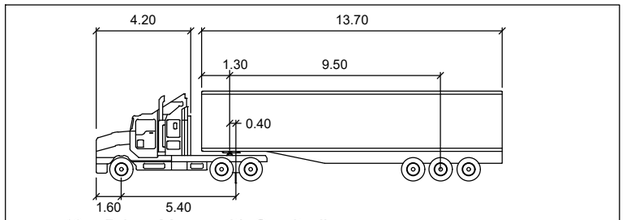
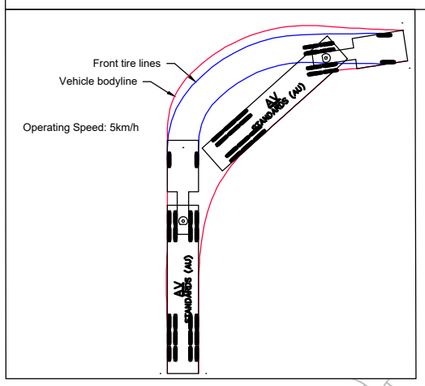


19m Prime Mover with Semitrailer

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



Preliminary - Not for Construction

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	23.02.18		Issued for Information	BS	

0 5 10 15 20
PLAN 1:500

MOTT MACDONALD
Level 10, 383 Kent Street
Sydney, NSW 2000
Australia
PO Box Q1678, QVB Sydney
NSW 1230, Australia
T +61 (0)2 9098 6800
W www.mottmac.com

Client
Urban Growth NSW
Level 12, MLC Centre
19 Martin Place
Sydney NSW 2000

Title
SYDNEY FISH MARKET
BRIDGE ROAD
LAYOUT PLAN
TURNPATHS - 19m SEMI TRAILER
WATTLE STREET INTERSECTION

Designed	M.Jedniuk		Eng check	B.Soo	
Drawn	M. Hoffmann		Coordination	B.Soo	
Dwg check	P.Cavanagh		Approved	G.Babcock	
Scale at A1	Status		Rev	Security	
1:500	PRE		P1	CLA	

Drawing Number
MMD-385951-C-SK-CD-2523

Appendix B

Traffic modelling outputs

INTERSECTION SUMMARY

Site: 1 [AM Existing]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	31.9	km/h		2.2	km/h		30.8	km/h
Travel Distance (Total)	1917.8	veh-km/h		6.0	ped-km/h		2307.3	pers-km/h
Travel Time (Total)	60.1	veh-h/h		2.7	ped-h/h		74.9	pers-h/h
Demand Flows (Total)	2590	veh/h		158	ped/h		3108	pers/h
Percent Heavy Vehicles (Demand)	5.4	%						
Degree of Saturation	0.888			0.137				
Practical Spare Capacity	1.4	%						
Effective Intersection Capacity	2918	veh/h						
Control Delay (Total)	27.46	veh-h/h		1.44	ped-h/h		34.40	pers-h/h
Control Delay (Average)	38.2	sec		32.8	sec		39.8	sec
Control Delay (Worst Lane)	50.7	sec						
Control Delay (Worst Movement)	50.8	sec		34.4	sec		50.8	sec
Geometric Delay (Average)	2.5	sec						
Stop-Line Delay (Average)	35.6	sec						
Idling Time (Average)	29.8	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	23.3	veh						
95% Back of Queue - Distance (Worst Lane)	171.2	m						
Queue Storage Ratio (Worst Lane)	0.52							
Total Effective Stops	2414	veh/h		143	ped/h		3040	pers/h
Effective Stop Rate	0.93	per veh		0.91	per ped		0.98	per pers
Proportion Queued	0.90			0.91			0.94	
Performance Index	195.7			3.5			199.2	
Cost (Total)	2005.04	$/h		68.55	$/h		2073.59	$/h
Fuel Consumption (Total)	252.0	L/h						
Carbon Dioxide (Total)	599.3	kg/h						
Hydrocarbons (Total)	0.056	kg/h						
Carbon Monoxide (Total)	0.624	kg/h						
NOx (Total)	1.326	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,243,200	veh/y		75,840	ped/y		1,491,840	pers/y
Delay	13,182	veh-h/y		692	ped-h/y		16,510	pers-h/y
Effective Stops	1,158,825	veh/y		68,802	ped/y		1,459,393	pers/y
Travel Distance	920,524	veh-km/y		2,872	ped-km/y		1,107,501	pers-km/y
Travel Time	28,857	veh-h/y		1,306	ped-h/y		35,934	pers-h/y
Cost	962,419	$/y		32,902	$/y		995,322	$/y
Fuel Consumption	120,949	L/y						
Carbon Dioxide	287,644	kg/y						
Hydrocarbons	27	kg/y						
Carbon Monoxide	300	kg/y						
NOx	636	kg/y						

INTERSECTION SUMMARY

Site: 1 [AM Future]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	29.3	km/h		2.0	km/h		28.6	km/h
Travel Distance (Total)	1744.5	veh-km/h		3.7	ped-km/h		2097.1	pers-km/h
Travel Time (Total)	59.4	veh-h/h		1.9	ped-h/h		73.2	pers-h/h
Demand Flows (Total)	2699	veh/h		100	ped/h		3239	pers/h
Percent Heavy Vehicles (Demand)	5.3	%						
Degree of Saturation	0.806			0.028				
Practical Spare Capacity	11.7	%						
Effective Intersection Capacity	3350	veh/h						
Control Delay (Total)	29.62	veh-h/h		1.08	ped-h/h		36.63	pers-h/h
Control Delay (Average)	39.5	sec		39.0	sec		40.7	sec
Control Delay (Worst Lane)	55.0	sec						
Control Delay (Worst Movement)	54.7	sec		43.4	sec		54.7	sec
Geometric Delay (Average)	2.6	sec						
Stop-Line Delay (Average)	36.9	sec						
Idling Time (Average)	32.5	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	27.5	veh						
95% Back of Queue - Distance (Worst Lane)	200.5	m						
Queue Storage Ratio (Worst Lane)	0.68							
Total Effective Stops	2201	veh/h		81	ped/h		2722	pers/h
Effective Stop Rate	0.82	per veh		0.81	per ped		0.84	per pers
Proportion Queued	0.86			0.81			0.89	
Performance Index	221.5			2.3			223.8	
Cost (Total)	2012.99	$/h		47.20	$/h		2060.19	$/h
Fuel Consumption (Total)	239.8	L/h						
Carbon Dioxide (Total)	569.9	kg/h						
Hydrocarbons (Total)	0.054	kg/h						
Carbon Monoxide (Total)	0.593	kg/h						
NOx (Total)	1.247	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,295,520	veh/y		48,000	ped/y		1,554,624	pers/y
Delay	14,218	veh-h/y		520	ped-h/y		17,581	pers-h/y
Effective Stops	1,056,428	veh/y		38,681	ped/y		1,306,394	pers/y
Travel Distance	837,350	veh-km/y		1,774	ped-km/y		1,006,593	pers-km/y
Travel Time	28,532	veh-h/y		899	ped-h/y		35,138	pers-h/y
Cost	966,236	$/y		22,657	$/y		988,893	$/y
Fuel Consumption	115,092	L/y						
Carbon Dioxide	273,556	kg/y						
Hydrocarbons	26	kg/y						
Carbon Monoxide	285	kg/y						
NOx	598	kg/y						

LANE SUMMARY

Site: 1 [AM Future]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	373	6.8	463	0.806	100	54.5	LOS D	21.9	162.3	Full	630	0.0	0.0
Lane 2	371	5.8	461	0.806	100	55.0	LOS D	21.8	160.4	Full	630	0.0	0.0
Approach	744	6.3		0.806		54.7	LOS D	21.9	162.3				
East: Pyrmont Bridge Road													
Lane 1	474	6.6	592	0.800	100	43.8	LOS D	26.6	197.0	Full	180	0.0	13.2
Lane 2	492	4.9	614	0.800	100	42.6	LOS D	27.5	200.5	Full	180	0.0	14.8
Approach	966	5.7		0.800		43.2	LOS D	27.5	200.5				
West: Bridge Road													
Lane 1	290	4.1	1218	0.238	100	9.6	LOS A	7.0	50.8	Full	270	0.0	0.0
Lane 2	290	4.1	1218	0.238	100	9.6	LOS A	7.0	50.8	Full	270	0.0	0.0
Lane 3	410	4.1	578	0.709	100	45.5	LOS D	18.3	132.8	Short	80	0.0	NA
Approach	989	4.1		0.709		24.5	LOS B	18.3	132.8				
Intersection	2699	5.3		0.806		39.5	LOS C	27.5	200.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

Site: 1 [AM Existing]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	374	6.8	429	0.873	100	50.7	LOS D	16.9	125.2	Full	450	0.0	0.0
Lane 2	370	5.8	424	0.873	100	47.9	LOS D	16.9	124.3	Full	450	0.0	0.0
Approach	744	6.3		0.873		49.3	LOS D	16.9	125.2				
East: Pyrmont Bridge Road													
Lane 1	488	7.3	550	0.888	100	42.4	LOS C	22.8	169.9	Full	200	0.0	0.0
Lane 2	501	5.6	564	0.888	100	41.1	LOS C	23.3	171.2	Full	200	0.0	0.0
Approach	989	6.5		0.888		41.7	LOS C	23.3	171.2				
West: Bridge Road													
Lane 1	254	3.3	1169	0.217	100	7.4	LOS A	4.4	31.6	Full	500	0.0	0.0
Lane 2	254	3.3	1169	0.217	100	7.4	LOS A	4.4	31.6	Full	500	0.0	0.0
Lane 3	349	3.2	395[1]	0.884	100	49.2	LOS D	16.1	115.7	Short	50	0.0	NA
Approach	857	3.3		0.884		24.4	LOS B	16.1	115.7				
Intersection	2590	5.4		0.888		38.2	LOS C	23.3	171.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 1 [PM Existing]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	32.5	km/h		2.4	km/h		31.8	km/h
Travel Distance (Total)	1948.5	veh-km/h		4.2	ped-km/h		2342.3	pers-km/h
Travel Time (Total)	59.9	veh-h/h		1.7	ped-h/h		73.6	pers-h/h
Demand Flows (Total)	2695	veh/h		112	ped/h		3234	pers/h
Percent Heavy Vehicles (Demand)	1.4	%						
Degree of Saturation	0.897			0.053				
Practical Spare Capacity	0.3	%						
Effective Intersection Capacity	3003	veh/h						
Control Delay (Total)	26.75	veh-h/h		0.83	ped-h/h		32.93	pers-h/h
Control Delay (Average)	35.7	sec		26.6	sec		36.7	sec
Control Delay (Worst Lane)	49.0	sec						
Control Delay (Worst Movement)	49.1	sec		28.4	sec		49.1	sec
Geometric Delay (Average)	2.6	sec						
Stop-Line Delay (Average)	33.1	sec						
Idling Time (Average)	27.0	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	21.0	veh						
95% Back of Queue - Distance (Worst Lane)	148.4	m						
Queue Storage Ratio (Worst Lane)	0.45							
Total Effective Stops	2600	veh/h		98	ped/h		3217	pers/h
Effective Stop Rate	0.96	per veh		0.87	per ped		0.99	per pers
Proportion Queued	0.92			0.87			0.95	
Performance Index	191.5			2.3			193.7	
Cost (Total)	1956.34	$/h		43.27	$/h		1999.61	$/h
Fuel Consumption (Total)	221.9	L/h						
Carbon Dioxide (Total)	523.2	kg/h						
Hydrocarbons (Total)	0.049	kg/h						
Carbon Monoxide (Total)	0.557	kg/h						
NOx (Total)	0.481	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,293,600	veh/y		53,760	ped/y		1,552,320	pers/y
Delay	12,841	veh-h/y		397	ped-h/y		15,807	pers-h/y
Effective Stops	1,247,922	veh/y		46,875	ped/y		1,544,381	pers/y
Travel Distance	935,270	veh-km/y		1,999	ped-km/y		1,124,323	pers-km/y
Travel Time	28,737	veh-h/y		824	ped-h/y		35,308	pers-h/y
Cost	939,041	$/y		20,771	$/y		959,812	$/y
Fuel Consumption	106,493	L/y						
Carbon Dioxide	251,127	kg/y						
Hydrocarbons	23	kg/y						
Carbon Monoxide	267	kg/y						
NOx	231	kg/y						

LANE SUMMARY

Site: 1 [PM Existing]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	474	2.0	528	0.897	100	49.0	LOS D	20.4	145.0	Full	450	0.0	0.0
Lane 2	472	1.2	526	0.897	100	45.3	LOS D	20.3	143.4	Full	450	0.0	0.0
Approach	946	1.6		0.897		47.1	LOS D	20.4	145.0				
East: Pyrmont Bridge Road													
Lane 1	525	1.0	604	0.870	100	34.8	LOS C	20.8	146.5	Full	200	0.0	0.0
Lane 2	530	0.9	609	0.870	100	33.9	LOS C	21.0	148.4	Full	200	0.0	0.0
Approach	1055	0.9		0.870		34.4	LOS C	21.0	148.4				
West: Bridge Road													
Lane 1	231	1.7	1047	0.221	100	8.9	LOS A	4.1	29.0	Full	500	0.0	0.0
Lane 2	231	1.7	1047	0.221	100	8.9	LOS A	4.1	29.0	Full	500	0.0	0.0
Lane 3	232	2.6	261	0.891	100	48.9	LOS D	9.7	69.4	Short	50	0.0	NA
Approach	694	2.0		0.891		22.3	LOS B	9.7	69.4				
Intersection	2695	1.4		0.897		35.7	LOS C	21.0	148.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 1 [PM Future]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	30.8	km/h		2.1	km/h		30.1	km/h
Travel Distance (Total)	1789.9	veh-km/h		3.7	ped-km/h		2151.6	pers-km/h
Travel Time (Total)	58.1	veh-h/h		1.7	ped-h/h		71.5	pers-h/h
Demand Flows (Total)	2775	veh/h		100	ped/h		3330	pers/h
Percent Heavy Vehicles (Demand)	1.7	%						
Degree of Saturation	0.784			0.019				
Practical Spare Capacity	14.8	%						
Effective Intersection Capacity	3539	veh/h						
Control Delay (Total)	27.62	veh-h/h		0.95	ped-h/h		34.10	pers-h/h
Control Delay (Average)	35.8	sec		34.2	sec		36.9	sec
Control Delay (Worst Lane)	45.8	sec						
Control Delay (Worst Movement)	45.5	sec		36.1	sec		45.5	sec
Geometric Delay (Average)	2.6	sec						
Stop-Line Delay (Average)	33.2	sec						
Idling Time (Average)	29.3	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	28.6	veh						
95% Back of Queue - Distance (Worst Lane)	201.5	m						
Queue Storage Ratio (Worst Lane)	0.69							
Total Effective Stops	2217	veh/h		76	ped/h		2736	pers/h
Effective Stop Rate	0.80	per veh		0.76	per ped		0.82	per pers
Proportion Queued	0.88			0.76			0.91	
Performance Index	220.3			2.2			222.5	
Cost (Total)	1946.52	$/h		43.85	$/h		1990.37	$/h
Fuel Consumption (Total)	211.2	L/h						
Carbon Dioxide (Total)	498.2	kg/h						
Hydrocarbons (Total)	0.047	kg/h						
Carbon Monoxide (Total)	0.530	kg/h						
NOx (Total)	0.495	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,332,000	veh/y		48,000	ped/y		1,598,400	pers/y
Delay	13,260	veh-h/y		456	ped-h/y		16,368	pers-h/y
Effective Stops	1,064,035	veh/y		36,276	ped/y		1,313,118	pers/y
Travel Distance	859,172	veh-km/y		1,774	ped-km/y		1,032,780	pers-km/y
Travel Time	27,905	veh-h/y		835	ped-h/y		34,322	pers-h/y
Cost	934,327	$/y		21,049	$/y		955,376	$/y
Fuel Consumption	101,374	L/y						
Carbon Dioxide	239,159	kg/y						
Hydrocarbons	22	kg/y						
Carbon Monoxide	254	kg/y						
NOx	238	kg/y						

LANE SUMMARY

Site: 1 [PM Future]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	471	2.0	609	0.774	100	45.2	LOS D	25.4	180.8	Full	630	0.0	0.0
Lane 2	475	1.2	614	0.774	100	45.8	LOS D	25.7	181.5	Full	630	0.0	0.0
Approach	946	1.6		0.774		45.5	LOS D	25.7	181.5				
East: Pyrmont Bridge Road													
Lane 1	519	1.0	662	0.784	100	40.1	LOS C	28.0	197.3	Full	180	0.0	13.3
Lane 2	532	0.9	678	0.784	100	39.0	LOS C	28.6	201.5	Full	180	0.0	15.2
Approach	1051	1.0		0.784		39.6	LOS C	28.6	201.5				
West: Bridge Road													
Lane 1	257	2.5	1087	0.236	100	13.7	LOS A	7.4	52.6	Full	270	0.0	0.0
Lane 2	257	2.5	1087	0.236	100	13.7	LOS A	7.4	52.6	Full	270	0.0	0.0
Lane 3	265	3.4	405	0.655	100	29.4	LOS C	8.3	59.9	Short	80	0.0	NA
Approach	778	2.8		0.655		19.1	LOS B	8.3	59.9				
Intersection	2775	1.7		0.784		35.8	LOS C	28.6	201.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 1 [Weekend Existing]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	33.4	km/h	2.3	km/h	29.1	km/h
Travel Distance (Total)	1822.8	veh-km/h	24.7	ped-km/h	2212.0	pers-km/h
Travel Time (Total)	54.6	veh-h/h	10.6	ped-h/h	76.1	pers-h/h
Demand Flows (Total)	2487	veh/h	645	ped/h	2984	pers/h
Percent Heavy Vehicles (Demand)	2.7	%				
Degree of Saturation	0.875		0.561			
Practical Spare Capacity	2.9	%				
Effective Intersection Capacity	2842	veh/h				
Control Delay (Total)	23.61	veh-h/h	5.28	ped-h/h	33.61	pers-h/h
Control Delay (Average)	34.2	sec	29.5	sec	40.5	sec
Control Delay (Worst Lane)	46.1	sec				
Control Delay (Worst Movement)	46.1	sec	30.0	sec	46.1	sec
Geometric Delay (Average)	2.8	sec				
Stop-Line Delay (Average)	31.4	sec				
Idling Time (Average)	25.5	sec				
Intersection Level of Service (LOS)	LOS C		LOS C			
95% Back of Queue - Vehicles (Worst Lane)	18.8	veh				
95% Back of Queue - Distance (Worst Lane)	135.1	m				
Queue Storage Ratio (Worst Lane)	0.41					
Total Effective Stops	2339	veh/h	598	ped/h	3405	pers/h
Effective Stop Rate	0.94	per veh	0.93	per ped	1.14	per pers
Proportion Queued	0.93		0.93		1.13	
Performance Index	172.1		13.9		185.9	
Cost (Total)	1787.65	$/h	265.87	$/h	2053.52	$/h
Fuel Consumption (Total)	215.9	L/h				
Carbon Dioxide (Total)	510.9	kg/h				
Hydrocarbons (Total)	0.047	kg/h				
Carbon Monoxide (Total)	0.541	kg/h				
NOx (Total)	0.722	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	1,193,760	veh/y	309,600	ped/y	1,432,512	pers/y
Delay	11,334	veh-h/y	2,534	ped-h/y	16,134	pers-h/y
Effective Stops	1,122,806	veh/y	287,117	ped/y	1,634,484	pers/y
Travel Distance	874,930	veh-km/y	11,843	ped-km/y	1,061,759	pers-km/y
Travel Time	26,225	veh-h/y	5,064	ped-h/y	36,534	pers-h/y
Cost	858,073	$/y	127,617	$/y	985,690	$/y
Fuel Consumption	103,648	L/y				
Carbon Dioxide	245,218	kg/y				
Hydrocarbons	23	kg/y				
Carbon Monoxide	260	kg/y				
NOx	346	kg/y				

LANE SUMMARY

Site: 1 [Weekend Existing]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	434	4.1	500	0.868	100	43.9	LOS D	17.2	124.6	Full	450	0.0	0.0
Lane 2	432	1.9	497	0.868	100	41.6	LOS C	17.3	123.3	Full	450	0.0	0.0
Approach	866	3.0		0.868		42.7	LOS D	17.3	124.6				
East: Pyrmont Bridge Road													
Lane 1	473	3.2	555	0.853	100	34.2	LOS C	18.3	131.4	Full	200	0.0	0.0
Lane 2	489	3.0	574	0.853	100	32.7	LOS C	18.8	135.1	Full	200	0.0	0.0
Approach	962	3.1		0.853		33.5	LOS C	18.8	135.1				
West: Bridge Road													
Lane 1	192	1.6	1076	0.179	100	8.2	LOS A	3.2	22.7	Full	500	0.0	0.0
Lane 2	192	1.6	1076	0.179	100	8.2	LOS A	3.2	22.7	Full	500	0.0	0.0
Lane 3	275	1.8	314	0.875	100	46.1	LOS D	11.2	79.7	Short	50	0.0	NA
Approach	659	1.7		0.875		24.0	LOS B	11.2	79.7				
Intersection	2487	2.7		0.875		34.2	LOS C	18.8	135.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 1 [Weekend Future]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	30.9	km/h		2.0	km/h		30.1	km/h
Travel Distance (Total)	1739.4	veh-km/h		3.7	ped-km/h		2091.0	pers-km/h
Travel Time (Total)	56.4	veh-h/h		1.9	ped-h/h		69.5	pers-h/h
Demand Flows (Total)	2610	veh/h		100	ped/h		3132	pers/h
Percent Heavy Vehicles (Demand)	3.3	%						
Degree of Saturation	0.774			0.021				
Practical Spare Capacity	16.3	%						
Effective Intersection Capacity	3371	veh/h						
Control Delay (Total)	26.64	veh-h/h		1.07	ped-h/h		33.04	pers-h/h
Control Delay (Average)	36.7	sec		38.5	sec		38.0	sec
Control Delay (Worst Lane)	48.1	sec						
Control Delay (Worst Movement)	49.6	sec		38.5	sec		49.6	sec
Geometric Delay (Average)	2.9	sec						
Stop-Line Delay (Average)	33.9	sec						
Idling Time (Average)	29.9	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	24.1	veh						
95% Back of Queue - Distance (Worst Lane)	171.2	m						
Queue Storage Ratio (Worst Lane)	0.55							
Total Effective Stops	2055	veh/h		80	ped/h		2547	pers/h
Effective Stop Rate	0.79	per veh		0.80	per ped		0.81	per pers
Proportion Queued	0.87			0.80			0.90	
Performance Index	205.5			2.3			207.8	
Cost (Total)	1882.51	$/h		46.83	$/h		1929.34	$/h
Fuel Consumption (Total)	215.8	L/h						
Carbon Dioxide (Total)	510.9	kg/h						
Hydrocarbons (Total)	0.048	kg/h						
Carbon Monoxide (Total)	0.539	kg/h						
NOx (Total)	0.796	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,252,800	veh/y		48,000	ped/y		1,503,360	pers/y
Delay	12,788	veh-h/y		513	ped-h/y		15,858	pers-h/y
Effective Stops	986,547	veh/y		38,480	ped/y		1,222,336	pers/y
Travel Distance	834,911	veh-km/y		1,774	ped-km/y		1,003,667	pers-km/y
Travel Time	27,061	veh-h/y		892	ped-h/y		33,365	pers-h/y
Cost	903,603	$/y		22,479	$/y		926,082	$/y
Fuel Consumption	103,582	L/y						
Carbon Dioxide	245,218	kg/y						
Hydrocarbons	23	kg/y						
Carbon Monoxide	259	kg/y						
NOx	382	kg/y						

LANE SUMMARY

Site: 1 [Weekend Future]

Bridge Road / Wattle Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	429	4.1	554	0.774	100	47.7	LOS D	23.6	170.9	Full	630	0.0	0.0
Lane 2	437	1.9	565	0.774	100	48.1	LOS D	24.1	171.2	Full	630	0.0	0.0
Approach	866	3.0		0.774		47.9	LOS D	24.1	171.2				
East: Pyrmont Bridge Road													
Lane 1	398	2.9	524	0.761	100	45.2	LOS D	22.0	157.6	Full	180	0.0	0.0
Lane 2	413	2.8	543	0.761	100	43.8	LOS D	22.7	162.5	Full	180	0.0	0.0
Approach	811	2.8		0.761		44.5	LOS D	22.7	162.5				
West: Bridge Road													
Lane 1	274	4.0	1124	0.244	100	12.3	LOS A	7.5	54.3	Full	270	0.0	0.0
Lane 2	274	4.0	1124	0.244	100	12.3	LOS A	7.5	54.3	Full	270	0.0	0.0
Lane 3	385	4.2	569	0.676	100	30.1	LOS C	13.7	99.3	Short	80	0.0	NA
Approach	933	4.1		0.676		19.6	LOS B	13.7	99.3				
Intersection	2610	3.3		0.774		36.7	LOS C	24.1	171.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 2 [AM Existing]

Wentworth Park Road / Bridge Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	26.8	km/h	26.8	km/h
Travel Distance (Total)	1223.7	veh-km/h	1468.4	pers-km/h
Travel Time (Total)	45.7	veh-h/h	54.8	pers-h/h
Demand Flows (Total)	2065	veh/h	2478	pers/h
Percent Heavy Vehicles (Demand)	4.1	%		
Degree of Saturation	1.721			
Practical Spare Capacity	-53.5	%		
Effective Intersection Capacity	1200	veh/h		
Control Delay (Total)	24.11	veh-h/h	28.93	pers-h/h
Control Delay (Average)	42.0	sec	42.0	sec
Control Delay (Worst Lane)	1452.2	sec		
Control Delay (Worst Movement)	1452.2	sec	1452.2	sec
Geometric Delay (Average)	2.1	sec		
Stop-Line Delay (Average)	39.9	sec		
Idling Time (Average)	39.5	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	33.7	veh		
95% Back of Queue - Distance (Worst Lane)	258.3	m		
Queue Storage Ratio (Worst Lane)	0.21			
Total Effective Stops	682	veh/h	818	pers/h
Effective Stop Rate	0.33	per veh	0.33	per pers
Proportion Queued	0.13		0.13	
Performance Index	78.0		78.0	
Cost (Total)	1325.73	$/h	1325.73	$/h
Fuel Consumption (Total)	137.0	L/h		
Carbon Dioxide (Total)	325.6	kg/h		
Hydrocarbons (Total)	0.035	kg/h		
Carbon Monoxide (Total)	0.380	kg/h		
NOx (Total)	0.557	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	991,200	veh/y	1,189,440	pers/y
Delay	11,574	veh-h/y	13,889	pers-h/y
Effective Stops	327,392	veh/y	392,870	pers/y
Travel Distance	587,356	veh-km/y	704,827	pers-km/y
Travel Time	21,917	veh-h/y	26,300	pers-h/y
Cost	636,351	$/y	636,351	$/y
Fuel Consumption	65,749	L/y		
Carbon Dioxide	156,303	kg/y		
Hydrocarbons	17	kg/y		
Carbon Monoxide	183	kg/y		
NOx	267	kg/y		

LANE SUMMARY

Site: 2 [AM Existing]

Wentworth Park Road / Bridge Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Wentworth Park Road													
Lane 1	120	6.7	1168	0.103	100	6.1	LOS A	0.4	2.9	Short	40	0.0	NA
Lane 2	55	10.9	32	1.721	100	1452.2	LOS F	33.7	258.3	Full	500	0.0	0.0
Approach	175	8.0		1.721		460.6	LOS F	33.7	258.3				
East: Bridge Road													
Lane 1	474	3.6	1831	0.259	100	4.4	LOS A	0.0	0.0	Full	300	0.0	0.0
Lane 2	487	5.9	1877	0.259	100	0.0	LOS A	0.0	0.0	Full	300	0.0	0.0
Approach	961	4.8		0.259		2.2	NA	0.0	0.0				
West: Bridge Road													
Lane 1	348	2.6	1918	0.181	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	348	2.6	1918	0.181	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	233	3.0	438	0.532	100	17.6	LOS B	2.8	20.2	Short	60	0.0	NA
Approach	929	2.7		0.532		4.4	NA	2.8	20.2				
Intersection	2065	4.1		1.721		42.0	NA	33.7	258.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 2 [AM Future]

Wentworth Park Road / Bridge Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	29.4	km/h		1.8	km/h		18.5	km/h
Travel Distance (Total)	1445.1	veh-km/h		70.6	ped-km/h		1804.7	pers-km/h
Travel Time (Total)	49.2	veh-h/h		38.6	ped-h/h		97.6	pers-h/h
Demand Flows (Total)	2405	veh/h		2000	ped/h		2886	pers/h
Percent Heavy Vehicles (Demand)	4.7	%						
Degree of Saturation	0.841			0.833				
Practical Spare Capacity	7.0	%						
Effective Intersection Capacity	2859	veh/h						
Control Delay (Total)	24.31	veh-h/h		23.50	ped-h/h		52.68	pers-h/h
Control Delay (Average)	36.4	sec		42.3	sec		65.7	sec
Control Delay (Worst Lane)	54.8	sec						
Control Delay (Worst Movement)	56.5	sec		55.3	sec		56.5	sec
Geometric Delay (Average)	2.4	sec						
Stop-Line Delay (Average)	34.0	sec						
Idling Time (Average)	29.8	sec						
Intersection Level of Service (LOS)	LOS C			LOS E				
95% Back of Queue - Vehicles (Worst Lane)	29.6	veh						
95% Back of Queue - Distance (Worst Lane)	216.8	m						
Queue Storage Ratio (Worst Lane)	0.51							
Total Effective Stops	1999	veh/h		1677	ped/h		4076	pers/h
Effective Stop Rate	0.83	per veh		0.84	per ped		1.41	per pers
Proportion Queued	0.90			0.84			1.48	
Performance Index	201.8			47.9			249.7	
Cost (Total)	1589.51	$/h		972.47	$/h		2561.99	$/h
Fuel Consumption (Total)	199.1	L/h						
Carbon Dioxide (Total)	472.4	kg/h						
Hydrocarbons (Total)	0.045	kg/h						
Carbon Monoxide (Total)	0.492	kg/h						
NOx (Total)	0.918	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,154,400	veh/y		960,000	ped/y		1,385,280	pers/y
Delay	11,671	veh-h/y		11,282	ped-h/y		25,287	pers-h/y
Effective Stops	959,598	veh/y		804,766	ped/y		1,956,284	pers/y
Travel Distance	693,648	veh-km/y		33,888	ped-km/y		866,266	pers-km/y
Travel Time	23,618	veh-h/y		18,523	ped-h/y		46,865	pers-h/y
Cost	762,967	$/y		466,787	$/y		1,229,754	$/y
Fuel Consumption	95,558	L/y						
Carbon Dioxide	226,744	kg/y						
Hydrocarbons	21	kg/y						
Carbon Monoxide	236	kg/y						
NOx	441	kg/y						

LANE SUMMARY

Site: 2 [AM Future]

Wentworth Park Road / Bridge Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	120	6.7	872	0.138	100	23.2	LOS B	3.8	27.8	Short	60	0.0	NA
Lane 2	79	10.1	407	0.194	100	39.8	LOS C	3.6	27.5	Full	730	0.0	0.0
Approach	199	8.0		0.194		29.8	LOS C	3.8	27.8				
East: Bridge Road													
Lane 1	415	2.6	494	0.841	100	36.8	LOS C	17.5	125.1	Full	260	0.0	0.0
Lane 2	525	5.2	623[1]	0.841	100	42.1	LOS C	29.6	216.8	Full	260	0.0	0.0
Lane 3	104	9.6	387	0.269	100	24.8	LOS B	2.9	21.8	Short	75	0.0	NA
Approach	1044	4.6		0.841		38.3	LOS C	29.6	216.8				
North: Sydney Fish Markets													
Lane 1	131	9.9	463	0.283	100	26.3	LOS B	4.4	33.3	Full	50	0.0	0.0
Lane 2	70	10.0	205	0.342	100	54.8	LOS D	3.8	29.2	Full	50	0.0	0.0
Approach	201	10.0		0.342		36.2	LOS C	4.4	33.3				
West: Bridge Road													
Lane 1	362	3.2	564	0.643	100	39.8	LOS C	18.4	132.6	Full	170	0.0	0.0
Lane 2	366	2.6	569[1]	0.643	100	31.8	LOS C	16.7	119.2	Full	170	0.0	0.0
Lane 3	233	3.0	353	0.660	100	35.8	LOS C	8.2	58.7	Short	60	0.0	NA
Approach	961	2.9		0.660		35.8	LOS C	18.4	132.6				
Intersection	2405	4.7		0.841		36.4	LOS C	29.6	216.8				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 2 [PM Existing]

Wentworth Park Road / Bridge Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	12.6	km/h	12.6	km/h
Travel Distance (Total)	1167.7	veh-km/h	1401.3	pers-km/h
Travel Time (Total)	92.7	veh-h/h	111.2	pers-h/h
Demand Flows (Total)	1898	veh/h	2278	pers/h
Percent Heavy Vehicles (Demand)	1.3	%		
Degree of Saturation	1.883			
Practical Spare Capacity	-57.5	%		
Effective Intersection Capacity	1008	veh/h		
Control Delay (Total)	71.82	veh-h/h	86.19	pers-h/h
Control Delay (Average)	136.2	sec	136.2	sec
Control Delay (Worst Lane)	1645.6	sec		
Control Delay (Worst Movement)	1645.6	sec	1645.6	sec
Geometric Delay (Average)	2.5	sec		
Stop-Line Delay (Average)	133.8	sec		
Idling Time (Average)	128.4	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	96.4	veh		
95% Back of Queue - Distance (Worst Lane)	682.2	m		
Queue Storage Ratio (Worst Lane)	0.55			
Total Effective Stops	1274	veh/h	1529	pers/h
Effective Stop Rate	0.67	per veh	0.67	per pers
Proportion Queued	0.16		0.16	
Performance Index	176.9		176.9	
Cost (Total)	2889.26	$/h	2889.26	$/h
Fuel Consumption (Total)	179.2	L/h		
Carbon Dioxide (Total)	422.2	kg/h		
Hydrocarbons (Total)	0.045	kg/h		
Carbon Monoxide (Total)	0.395	kg/h		
NOx (Total)	0.211	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	911,040	veh/y	1,093,248	pers/y
Delay	34,475	veh-h/y	41,370	pers-h/y
Effective Stops	611,629	veh/y	733,954	pers/y
Travel Distance	560,511	veh-km/y	672,613	pers-km/y
Travel Time	44,488	veh-h/y	53,386	pers-h/y
Cost	1,386,845	$/y	1,386,845	$/y
Fuel Consumption	86,036	L/y		
Carbon Dioxide	202,637	kg/y		
Hydrocarbons	21	kg/y		
Carbon Monoxide	189	kg/y		
NOx	101	kg/y		

LANE SUMMARY

Site: 2 [PM Existing]

Wentworth Park Road / Bridge Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	179	1.1	1174	0.153	100	6.1	LOS A	0.6	4.2	Short	40	0.0	NA
Lane 2	154	1.3	82	1.883	100	1645.6	LOS F	96.4	682.2	Full	500	0.0	15.1
Approach	333	1.2		1.883		764.3	LOS F	96.4	682.2				
East: Bridge Road													
Lane 1	515	0.8	1870	0.276	100	4.2	LOS A	0.0	0.0	Full	300	0.0	0.0
Lane 2	530	2.3	1922	0.276	100	0.0	LOS A	0.0	0.0	Full	300	0.0	0.0
Approach	1045	1.5		0.276		2.1	NA	0.0	0.0				
West: Bridge Road													
Lane 1	199	1.0	1937	0.102	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	199	1.0	1937	0.102	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	123	0.0	407	0.302	100	15.4	LOS B	1.2	8.6	Short	60	0.0	NA
Approach	520	0.8		0.302		3.6	NA	1.2	8.6				
Intersection	1898	1.3		1.883		136.2	NA	96.4	682.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 2 [PM Future]

Wentworth Park Road / Bridge Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	31.6	km/h		2.3	km/h		20.5	km/h
Travel Distance (Total)	1364.9	veh-km/h		70.6	ped-km/h		1708.5	pers-km/h
Travel Time (Total)	43.2	veh-h/h		31.4	ped-h/h		83.2	pers-h/h
Demand Flows (Total)	2117	veh/h		2000	ped/h		2540	pers/h
Percent Heavy Vehicles (Demand)	2.2	%						
Degree of Saturation	0.696			0.313				
Practical Spare Capacity	29.4	%						
Effective Intersection Capacity	3043	veh/h						
Control Delay (Total)	19.84	veh-h/h		16.27	ped-h/h		40.09	pers-h/h
Control Delay (Average)	33.7	sec		29.3	sec		56.8	sec
Control Delay (Worst Lane)	60.6	sec						
Control Delay (Worst Movement)	60.7	sec		46.0	sec		60.7	sec
Geometric Delay (Average)	2.7	sec						
Stop-Line Delay (Average)	31.1	sec						
Idling Time (Average)	27.7	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	24.7	veh						
95% Back of Queue - Distance (Worst Lane)	176.2	m						
Queue Storage Ratio (Worst Lane)	0.42							
Total Effective Stops	1469	veh/h		1345	ped/h		3107	pers/h
Effective Stop Rate	0.69	per veh		0.67	per ped		1.22	per pers
Proportion Queued	0.79			0.67			1.32	
Performance Index	173.4			38.8			212.3	
Cost (Total)	1342.65	$/h		790.26	$/h		2132.91	$/h
Fuel Consumption (Total)	153.2	L/h						
Carbon Dioxide (Total)	361.5	kg/h						
Hydrocarbons (Total)	0.034	kg/h						
Carbon Monoxide (Total)	0.391	kg/h						
NOx (Total)	0.365	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,016,160	veh/y		960,000	ped/y		1,219,392	pers/y
Delay	9,526	veh-h/y		7,812	ped-h/y		19,242	pers-h/y
Effective Stops	705,001	veh/y		645,447	ped/y		1,491,447	pers/y
Travel Distance	655,175	veh-km/y		33,888	ped-km/y		820,098	pers-km/y
Travel Time	20,750	veh-h/y		15,053	ped-h/y		39,953	pers-h/y
Cost	644,472	$/y		379,327	$/y		1,023,799	$/y
Fuel Consumption	73,543	L/y						
Carbon Dioxide	173,516	kg/y						
Hydrocarbons	16	kg/y						
Carbon Monoxide	188	kg/y						
NOx	175	kg/y						

LANE SUMMARY

Site: 2 [PM Future]

Wentworth Park Road / Bridge Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	179	1.1	261	0.686	100	60.6	LOS E	10.4	73.4	Short	60	0.0	NA
Lane 2	165	1.8	237	0.696	100	60.3	LOS E	9.7	68.7	Full	730	0.0	0.0
Approach	344	1.5		0.696		60.5	LOS E	10.4	73.4				
East: Bridge Road													
Lane 1	398	0.3	573	0.694	100	44.1	LOS D	20.4	143.5	Full	260	0.0	0.0
Lane 2	644	2.3	929[1]	0.694	100	18.7	LOS B	24.7	176.2	Full	260	0.0	0.0
Lane 3	82	9.8	291	0.282	100	40.2	LOS C	3.7	28.2	Short	75	0.0	NA
Approach	1124	2.1		0.694		29.2	LOS C	24.7	176.2				
North: Sydney Fish Markets													
Lane 1	84	9.5	246	0.341	100	55.1	LOS D	4.5	34.4	Full	50	0.0	0.0
Lane 2	28	10.7	257	0.109	100	49.6	LOS D	1.4	10.9	Full	50	0.0	0.0
Approach	112	9.8		0.341		53.7	LOS D	4.5	34.4				
West: Bridge Road													
Lane 1	183	2.0	1014	0.181	100	15.8	LOS B	5.4	38.7	Full	170	0.0	0.0
Lane 2	231	1.0	1275	0.181	100	8.3	LOS A	5.1	36.1	Full	170	0.0	0.0
Lane 3	123	0.0	197	0.626	100	56.5	LOS D	7.2	50.1	Short	60	0.0	NA
Approach	537	1.1		0.626		21.9	LOS B	7.2	50.1				
Intersection	2117	2.2		0.696		33.7	LOS C	24.7	176.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 2 [Weekend Existing]

Wentworth Park Road / Bridge Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	8.2	km/h	8.2	km/h
Travel Distance (Total)	1190.6	veh-km/h	1428.8	pers-km/h
Travel Time (Total)	145.5	veh-h/h	174.6	pers-h/h
Demand Flows (Total)	1985	veh/h	2382	pers/h
Percent Heavy Vehicles (Demand)	2.3	%		
Degree of Saturation	2.437			
Practical Spare Capacity	-67.2	%		
Effective Intersection Capacity	815	veh/h		
Control Delay (Total)	123.66	veh-h/h	148.39	pers-h/h
Control Delay (Average)	224.3	sec	224.3	sec
Control Delay (Worst Lane)	2638.4	sec		
Control Delay (Worst Movement)	2638.4	sec	2638.4	sec
Geometric Delay (Average)	2.2	sec		
Stop-Line Delay (Average)	222.1	sec		
Idling Time (Average)	216.9	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	130.3	veh		
95% Back of Queue - Distance (Worst Lane)	930.9	m		
Queue Storage Ratio (Worst Lane)	0.75			
Total Effective Stops	1354	veh/h	1625	pers/h
Effective Stop Rate	0.68	per veh	0.68	per pers
Proportion Queued	0.16		0.16	
Performance Index	257.3		257.3	
Cost (Total)	4616.65	$/h	4616.65	$/h
Fuel Consumption (Total)	251.5	L/h		
Carbon Dioxide (Total)	593.7	kg/h		
Hydrocarbons (Total)	0.069	kg/h		
Carbon Monoxide (Total)	0.540	kg/h		
NOx (Total)	0.469	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	952,800	veh/y	1,143,360	pers/y
Delay	59,357	veh-h/y	71,229	pers-h/y
Effective Stops	650,061	veh/y	780,074	pers/y
Travel Distance	571,504	veh-km/y	685,805	pers-km/y
Travel Time	69,825	veh-h/y	83,790	pers-h/y
Cost	2,215,994	$/y	2,215,994	$/y
Fuel Consumption	120,732	L/y		
Carbon Dioxide	284,987	kg/y		
Hydrocarbons	33	kg/y		
Carbon Monoxide	259	kg/y		
NOx	225	kg/y		

LANE SUMMARY

Site: 2 [Weekend Existing]

Wentworth Park Road / Bridge Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	199	1.5	1148	0.173	100	6.2	LOS A	0.7	4.9	Short	40	0.0	NA
Lane 2	167	2.4	69	2.437	100	2638.4	LOS F	130.3	930.9	Full	500	0.0	28.4
Approach	366	1.9		2.437		1207.3	LOS F	130.3	930.9				
East: Bridge Road													
Lane 1	446	3.9	1837	0.243	100	3.7	LOS A	0.0	0.0	Full	300	0.0	0.0
Lane 2	467	2.3	1922	0.243	100	0.0	LOS A	0.0	0.0	Full	300	0.0	0.0
Approach	913	3.1		0.243		1.8	NA	0.0	0.0				
West: Bridge Road													
Lane 1	290	1.6	1930	0.150	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	290	1.6	1930	0.150	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	127	0.8	489	0.260	100	13.0	LOS A	1.0	7.4	Short	60	0.0	NA
Approach	706	1.4		0.260		2.3	NA	1.0	7.4				
Intersection	1985	2.3		2.437		224.3	NA	130.3	930.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 2 [Weekend Future]

Wentworth Park Road / Bridge Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Intersection Performance - Hourly Values							
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	28.5	km/h	2.0	km/h	19.0	km/h
Travel Distance (Total)	1504.2	veh-km/h	70.6	ped-km/h	1875.6	pers-km/h
Travel Time (Total)	52.9	veh-h/h	35.3	ped-h/h	98.8	pers-h/h
Demand Flows (Total)	2628	veh/h	2000	ped/h	3154	pers/h
Percent Heavy Vehicles (Demand)	4.4	%				
Degree of Saturation	0.768		0.208			
Practical Spare Capacity	17.1	%				
Effective Intersection Capacity	3420	veh/h				
Control Delay (Total)	26.55	veh-h/h	20.26	ped-h/h	52.12	pers-h/h
Control Delay (Average)	36.4	sec	36.5	sec	59.5	sec
Control Delay (Worst Lane)	58.5	sec				
Control Delay (Worst Movement)	60.0	sec	39.2	sec	60.0	sec
Geometric Delay (Average)	2.8	sec				
Stop-Line Delay (Average)	33.6	sec				
Idling Time (Average)	29.4	sec				
Intersection Level of Service (LOS)	LOS C		LOS D			
95% Back of Queue - Vehicles (Worst Lane)	19.2	veh				
95% Back of Queue - Distance (Worst Lane)	136.5	m				
Queue Storage Ratio (Worst Lane)	0.62					
Total Effective Stops	2153	veh/h	1574	ped/h	4158	pers/h
Effective Stop Rate	0.82	per veh	0.79	per ped	1.32	per pers
Proportion Queued	0.89		0.79		1.38	
Performance Index	227.3		44.1		271.4	
Cost (Total)	1758.63	$/h	890.62	$/h	2649.25	$/h
Fuel Consumption (Total)	204.7	L/h				
Carbon Dioxide (Total)	485.4	kg/h				
Hydrocarbons (Total)	0.047	kg/h				
Carbon Monoxide (Total)	0.509	kg/h				
NOx (Total)	0.855	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	1,261,440	veh/y	960,000	ped/y	1,513,728	pers/y
Delay	12,744	veh-h/y	9,723	ped-h/y	25,016	pers-h/y
Effective Stops	1,033,358	veh/y	755,745	ped/y	1,995,774	pers/y
Travel Distance	722,001	veh-km/y	33,888	ped-km/y	900,290	pers-km/y
Travel Time	25,375	veh-h/y	16,964	ped-h/y	47,415	pers-h/y
Cost	844,141	$/y	427,497	$/y	1,271,638	$/y
Fuel Consumption	98,263	L/y				
Carbon Dioxide	232,977	kg/y				
Hydrocarbons	22	kg/y				
Carbon Monoxide	244	kg/y				
NOx	410	kg/y				

LANE SUMMARY

Site: 2 [Weekend Future]

Wentworth Park Road / Bridge Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	199	1.5	490	0.406	100	26.2	LOS B	5.7	40.7	Short	60	0.0	NA
Lane 2	229	4.4	298	0.768	100	58.5	LOS E	13.7	99.2	Full	730	0.0	0.0
Approach	428	3.0		0.768		43.5	LOS D	13.7	99.2				
East: Bridge Road													
Lane 1	290	4.4	458	0.634	100	31.9	LOS C	11.5	83.4	Full	260	0.0	0.0
Lane 2	488	1.9	770	0.634	100	17.8	LOS B	15.6	111.3	Full	260	0.0	0.0
Lane 3	269	10.0	479	0.562	100	47.0	LOS D	12.7	96.6	Short	75	0.0	NA
Approach	1047	4.7		0.634		29.2	LOS C	15.6	111.3				
North: Sydney Fish Markets													
Lane 1	238	10.1	1011	0.235	100	16.7	LOS B	6.6	50.2	Full	50	0.0	5.4
Lane 2	127	9.4	295	0.431	100	49.2	LOS D	6.7	50.6	Full	50	0.0	6.1
Approach	365	9.9		0.431		28.0	LOS B	6.7	50.6				
West: Bridge Road													
Lane 1	280	4.0	381	0.734	100	51.6	LOS D	15.9	115.2	Full	170	0.0	0.0
Lane 2	381	1.6	519[1]	0.734	100	38.3	LOS C	19.2	136.5	Full	170	0.0	0.0
Lane 3	127	0.8	258	0.492	100	56.0	LOS D	7.0	49.5	Short	60	0.0	NA
Approach	788	2.3		0.734		45.9	LOS D	19.2	136.5				
Intersection	2628	4.4		0.768		36.4	LOS C	19.2	136.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 3 [AM Existing]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	21.9	km/h		2.2	km/h		16.1	km/h
Travel Distance (Total)	722.8	veh-km/h		36.9	ped-km/h		904.3	pers-km/h
Travel Time (Total)	32.9	veh-h/h		16.7	ped-h/h		56.2	pers-h/h
Demand Flows (Total)	2278	veh/h		1034	ped/h		2734	pers/h
Percent Heavy Vehicles (Demand)	5.4	%						
Degree of Saturation	0.815			0.344				
Practical Spare Capacity	10.5	%						
Effective Intersection Capacity	2796	veh/h						
Control Delay (Total)	20.43	veh-h/h		8.82	ped-h/h		33.34	pers-h/h
Control Delay (Average)	32.3	sec		30.7	sec		43.9	sec
Control Delay (Worst Lane)	58.5	sec						
Control Delay (Worst Movement)	58.5	sec		44.6	sec		58.5	sec
Geometric Delay (Average)	1.3	sec						
Stop-Line Delay (Average)	31.0	sec						
Idling Time (Average)	26.7	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	31.4	veh						
95% Back of Queue - Distance (Worst Lane)	226.6	m						
Queue Storage Ratio (Worst Lane)	0.93							
Total Effective Stops	1867	veh/h		799	ped/h		3039	pers/h
Effective Stop Rate	0.82	per veh		0.77	per ped		1.11	per pers
Proportion Queued	0.90			0.77			1.20	
Performance Index	173.9			21.2			195.1	
Cost (Total)	1276.57	$/h		421.09	$/h		1697.65	$/h
Fuel Consumption (Total)	145.3	L/h						
Carbon Dioxide (Total)	345.0	kg/h						
Hydrocarbons (Total)	0.035	kg/h						
Carbon Monoxide (Total)	0.346	kg/h						
NOx (Total)	0.808	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,093,440	veh/y		496,320	ped/y		1,312,128	pers/y
Delay	9,808	veh-h/y		4,235	ped-h/y		16,005	pers-h/y
Effective Stops	895,972	veh/y		383,652	ped/y		1,458,818	pers/y
Travel Distance	346,946	veh-km/y		17,718	ped-km/y		434,053	pers-km/y
Travel Time	15,815	veh-h/y		8,021	ped-h/y		26,999	pers-h/y
Cost	612,751	$/y		202,123	$/y		814,874	$/y
Fuel Consumption	69,746	L/y						
Carbon Dioxide	165,622	kg/y						
Hydrocarbons	17	kg/y						
Carbon Monoxide	166	kg/y						
NOx	388	kg/y						

LANE SUMMARY

Site: 3 [AM Existing]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Harris Street													
Lane 1	117	9.4	331	0.354	100	44.4	LOS D	5.1	38.3	Full	235	0.0	0.0
Lane 2	181	7.2	307[1]	0.589	100	40.0	LOS C	8.1	60.2	Full	235	0.0	0.0
Lane 3	41	7.3	106	0.387	100	58.1	LOS E	2.1	15.4	Short	15	0.0	NA
Approach	339	8.0		0.589		43.7	LOS D	8.1	60.2				
East: Pyrmont Bridge Road													
Lane 1	139	7.6	828	0.168	100	18.4	LOS B	4.0	29.8	Full	100	0.0	0.0
Lane 2	142	6.6	841	0.168	100	17.4	LOS B	4.1	30.1	Full	100	0.0	0.0
Lane 3	27	0.0	111	0.242	100	57.0	LOS E	1.3	9.4	Short	27	0.0	NA
Approach	308	6.5		0.242		21.3	LOS B	4.1	30.1				
North: Harris Street													
Lane 1	199	10.6	293[1]	0.679	100	42.6	LOS D	9.2	70.5	Short	15	0.0	NA
Lane 2	47	10.6	104	0.454	100	58.5	LOS E	2.4	18.3	Full	200	0.0	0.0
Approach	246	10.6		0.679		45.6	LOS D	9.2	70.5				
West: Pyrmont Bridge Road													
Lane 1	687	3.6	843	0.815	100	30.5	LOS C	31.0	223.4	Full	150	0.0	41.4
Lane 2	698	3.8	856	0.815	100	28.6	LOS C	31.4	226.6	Full	150	0.0	42.8
Approach	1385	3.7		0.815		29.6	LOS C	31.4	226.6				
Intersection	2278	5.4		0.815		32.3	LOS C	31.4	226.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 3 [AM Future]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	22.0	km/h		2.2	km/h		16.1	km/h
Travel Distance (Total)	719.3	veh-km/h		36.9	ped-km/h		900.1	pers-km/h
Travel Time (Total)	32.7	veh-h/h		16.7	ped-h/h		55.9	pers-h/h
Demand Flows (Total)	2269	veh/h		1034	ped/h		2723	pers/h
Percent Heavy Vehicles (Demand)	5.3	%						
Degree of Saturation	0.813			0.344				
Practical Spare Capacity	10.7	%						
Effective Intersection Capacity	2790	veh/h						
Control Delay (Total)	20.25	veh-h/h		8.82	ped-h/h		33.12	pers-h/h
Control Delay (Average)	32.1	sec		30.7	sec		43.8	sec
Control Delay (Worst Lane)	58.5	sec						
Control Delay (Worst Movement)	58.5	sec		44.6	sec		58.5	sec
Geometric Delay (Average)	1.3	sec						
Stop-Line Delay (Average)	30.9	sec						
Idling Time (Average)	26.6	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	31.2	veh						
95% Back of Queue - Distance (Worst Lane)	225.4	m						
Queue Storage Ratio (Worst Lane)	0.92							
Total Effective Stops	1853	veh/h		799	ped/h		3023	pers/h
Effective Stop Rate	0.82	per veh		0.77	per ped		1.11	per pers
Proportion Queued	0.90			0.77			1.20	
Performance Index	172.3			21.2			193.4	
Cost (Total)	1265.69	$/h		421.09	$/h		1686.78	$/h
Fuel Consumption (Total)	143.7	L/h						
Carbon Dioxide (Total)	341.2	kg/h						
Hydrocarbons (Total)	0.034	kg/h						
Carbon Monoxide (Total)	0.342	kg/h						
NOx (Total)	0.786	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,089,120	veh/y		496,320	ped/y		1,306,944	pers/y
Delay	9,719	veh-h/y		4,235	ped-h/y		15,898	pers-h/y
Effective Stops	889,327	veh/y		383,652	ped/y		1,450,844	pers/y
Travel Distance	345,274	veh-km/y		17,718	ped-km/y		432,046	pers-km/y
Travel Time	15,695	veh-h/y		8,021	ped-h/y		26,855	pers-h/y
Cost	607,530	$/y		202,123	$/y		809,653	$/y
Fuel Consumption	68,993	L/y						
Carbon Dioxide	163,794	kg/y						
Hydrocarbons	17	kg/y						
Carbon Monoxide	164	kg/y						
NOx	377	kg/y						

LANE SUMMARY

Site: 3 [AM Future]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Harris Street													
Lane 1	117	9.4	331	0.354	100	44.4	LOS D	5.1	38.3	Full	235	0.0	0.0
Lane 2	181	7.2	307[1]	0.589	100	40.0	LOS C	8.1	60.2	Full	235	0.0	0.0
Lane 3	41	7.3	106	0.387	100	58.1	LOS E	2.1	15.4	Short	15	0.0	NA
Approach	339	8.0		0.589		43.7	LOS D	8.1	60.2				
East: Pyrmont Bridge Road													
Lane 1	139	7.6	828	0.168	100	18.4	LOS B	4.0	29.8	Full	100	0.0	0.0
Lane 2	142	6.6	841	0.168	100	17.4	LOS B	4.1	30.1	Full	100	0.0	0.0
Lane 3	27	0.0	111	0.242	100	57.0	LOS E	1.3	9.4	Short	27	0.0	NA
Approach	308	6.5		0.242		21.3	LOS B	4.1	30.1				
North: Harris Street													
Lane 1	193	9.8	295[1]	0.655	100	42.0	LOS C	8.8	67.1	Short	15	0.0	NA
Lane 2	46	10.9	103	0.445	100	58.5	LOS E	2.3	17.9	Full	200	0.0	0.0
Approach	239	10.0		0.655		45.2	LOS D	8.8	67.1				
West: Pyrmont Bridge Road													
Lane 1	686	3.5	844	0.813	100	30.4	LOS C	30.8	222.3	Full	150	0.0	41.0
Lane 2	697	3.7	857	0.813	100	28.5	LOS B	31.2	225.4	Full	150	0.0	42.3
Approach	1383	3.6		0.813		29.4	LOS C	31.2	225.4				
Intersection	2269	5.3		0.813		32.1	LOS C	31.2	225.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 3 [PM Existing]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	23.5	km/h	2.3	km/h	17.0	km/h
Travel Distance (Total)	750.3	veh-km/h	38.7	ped-km/h	939.1	pers-km/h
Travel Time (Total)	31.9	veh-h/h	17.1	ped-h/h	55.3	pers-h/h
Demand Flows (Total)	2248	veh/h	1083	ped/h	2698	pers/h
Percent Heavy Vehicles (Demand)	2.8	%				
Degree of Saturation	0.729		0.280			
Practical Spare Capacity	23.4	%				
Effective Intersection Capacity	3083	veh/h				
Control Delay (Total)	18.88	veh-h/h	8.81	ped-h/h	31.46	pers-h/h
Control Delay (Average)	30.2	sec	29.3	sec	42.0	sec
Control Delay (Worst Lane)	47.1	sec				
Control Delay (Worst Movement)	47.1	sec	34.6	sec	47.1	sec
Geometric Delay (Average)	1.5	sec				
Stop-Line Delay (Average)	28.7	sec				
Idling Time (Average)	24.2	sec				
Intersection Level of Service (LOS)	LOS C		LOS C			
95% Back of Queue - Vehicles (Worst Lane)	16.0	veh				
95% Back of Queue - Distance (Worst Lane)	113.3	m				
Queue Storage Ratio (Worst Lane)	0.46					
Total Effective Stops	1815	veh/h	929	ped/h	3107	pers/h
Effective Stop Rate	0.81	per veh	0.86	per ped	1.15	per pers
Proportion Queued	0.92		0.86		1.27	
Performance Index	145.1		22.2		167.3	
Cost (Total)	1198.07	$/h	430.39	$/h	1628.46	$/h
Fuel Consumption (Total)	133.3	L/h				
Carbon Dioxide (Total)	315.1	kg/h				
Hydrocarbons (Total)	0.031	kg/h				
Carbon Monoxide (Total)	0.317	kg/h				
NOx (Total)	0.499	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	1,079,040	veh/y	519,840	ped/y	1,294,848	pers/y
Delay	9,060	veh-h/y	4,227	ped-h/y	15,099	pers-h/y
Effective Stops	871,045	veh/y	445,942	ped/y	1,491,196	pers/y
Travel Distance	360,133	veh-km/y	18,585	ped-km/y	450,744	pers-km/y
Travel Time	15,302	veh-h/y	8,198	ped-h/y	26,560	pers-h/y
Cost	575,073	$/y	206,587	$/y	781,660	$/y
Fuel Consumption	63,970	L/y				
Carbon Dioxide	151,265	kg/y				
Hydrocarbons	15	kg/y				
Carbon Monoxide	152	kg/y				
NOx	239	kg/y				

LANE SUMMARY

Site: 3 [PM Existing]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Harris Street													
Lane 1	161	1.9	435	0.370	100	33.6	LOS C	5.4	38.2	Full	235	0.0	0.0
Lane 2	257	8.6	366[1]	0.702	100	31.2	LOS C	9.4	70.9	Full	235	0.0	0.0
Lane 3	69	2.9	136	0.506	100	47.1	LOS D	2.8	20.1	Short	15	0.0	NA
Approach	487	5.5		0.702		34.3	LOS C	9.4	70.9				
East: Pyrmont Bridge Road													
Lane 1	272	1.6	598	0.455	100	24.9	LOS B	8.6	61.3	Full	100	0.0	0.0
Lane 2	250	1.9	548[1]	0.455	100	23.7	LOS B	7.8	55.4	Full	100	0.0	0.0
Lane 3	45	0.0	139	0.323	100	46.1	LOS D	1.8	12.5	Short	27	0.0	NA
Approach	567	1.6		0.455		26.0	LOS B	8.6	61.3				
North: Harris Street													
Lane 1	270	5.9	387[1]	0.698	100	32.1	LOS C	9.9	73.1	Short	15	0.0	NA
Lane 2	51	3.9	135	0.376	100	46.5	LOS D	2.0	14.8	Full	200	0.0	0.0
Approach	321	5.6		0.698		34.4	LOS C	9.9	73.1				
West: Pyrmont Bridge Road													
Lane 1	432	1.0	592	0.729	100	30.5	LOS C	15.7	111.0	Full	150	0.0	0.0
Lane 2	441	1.0	605	0.729	100	27.9	LOS B	16.0	113.3	Full	150	0.0	0.0
Approach	873	1.0		0.729		29.2	LOS C	16.0	113.3				
Intersection	2248	2.8		0.729		30.2	LOS C	16.0	113.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 3 [PM Future]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	23.5	km/h	2.3	km/h	17.0	km/h
Travel Distance (Total)	749.8	veh-km/h	38.7	ped-km/h	938.5	pers-km/h
Travel Time (Total)	31.9	veh-h/h	17.1	ped-h/h	55.3	pers-h/h
Demand Flows (Total)	2247	veh/h	1083	ped/h	2696	pers/h
Percent Heavy Vehicles (Demand)	2.8	%				
Degree of Saturation	0.729		0.280			
Practical Spare Capacity	23.4	%				
Effective Intersection Capacity	3081	veh/h				
Control Delay (Total)	18.86	veh-h/h	8.81	ped-h/h	31.44	pers-h/h
Control Delay (Average)	30.2	sec	29.3	sec	42.0	sec
Control Delay (Worst Lane)	47.1	sec				
Control Delay (Worst Movement)	47.1	sec	34.6	sec	47.1	sec
Geometric Delay (Average)	1.5	sec				
Stop-Line Delay (Average)	28.7	sec				
Idling Time (Average)	24.2	sec				
Intersection Level of Service (LOS)	LOS C		LOS C			
95% Back of Queue - Vehicles (Worst Lane)	16.0	veh				
95% Back of Queue - Distance (Worst Lane)	113.3	m				
Queue Storage Ratio (Worst Lane)	0.46					
Total Effective Stops	1813	veh/h	929	ped/h	3105	pers/h
Effective Stop Rate	0.81	per veh	0.86	per ped	1.15	per pers
Proportion Queued	0.92		0.86		1.27	
Performance Index	145.0		22.2		167.2	
Cost (Total)	1197.31	$/h	430.39	$/h	1627.70	$/h
Fuel Consumption (Total)	133.2	L/h				
Carbon Dioxide (Total)	315.0	kg/h				
Hydrocarbons (Total)	0.031	kg/h				
Carbon Monoxide (Total)	0.317	kg/h				
NOx (Total)	0.499	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	1,078,560	veh/y	519,840	ped/y	1,294,272	pers/y
Delay	9,054	veh-h/y	4,227	ped-h/y	15,091	pers-h/y
Effective Stops	870,395	veh/y	445,942	ped/y	1,490,416	pers/y
Travel Distance	359,914	veh-km/y	18,585	ped-km/y	450,482	pers-km/y
Travel Time	15,292	veh-h/y	8,198	ped-h/y	26,548	pers-h/y
Cost	574,711	$/y	206,587	$/y	781,298	$/y
Fuel Consumption	63,934	L/y				
Carbon Dioxide	151,181	kg/y				
Hydrocarbons	15	kg/y				
Carbon Monoxide	152	kg/y				
NOx	239	kg/y				

LANE SUMMARY

Site: 3 [PM Future]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Harris Street													
Lane 1	161	1.9	435	0.370	100	33.6	LOS C	5.4	38.2	Full	235	0.0	0.0
Lane 2	257	8.6	366[1]	0.702	100	31.2	LOS C	9.4	70.9	Full	235	0.0	0.0
Lane 3	69	2.9	136	0.506	100	47.1	LOS D	2.8	20.1	Short	15	0.0	NA
Approach	487	5.5		0.702		34.3	LOS C	9.4	70.9				
East: Pyrmont Bridge Road													
Lane 1	272	1.6	598	0.455	100	24.9	LOS B	8.6	61.3	Full	100	0.0	0.0
Lane 2	250	1.9	548[1]	0.455	100	23.7	LOS B	7.8	55.4	Full	100	0.0	0.0
Lane 3	45	0.0	139	0.323	100	46.1	LOS D	1.8	12.5	Short	27	0.0	NA
Approach	567	1.6		0.455		26.0	LOS B	8.6	61.3				
North: Harris Street													
Lane 1	269	5.9	386[1]	0.696	100	32.0	LOS C	9.9	72.7	Short	15	0.0	NA
Lane 2	51	3.9	135	0.376	100	46.5	LOS D	2.0	14.8	Full	200	0.0	0.0
Approach	320	5.6		0.696		34.3	LOS C	9.9	72.7				
West: Pyrmont Bridge Road													
Lane 1	432	1.0	592	0.729	100	30.5	LOS C	15.7	111.0	Full	150	0.0	0.0
Lane 2	441	1.0	605	0.729	100	27.9	LOS B	16.0	113.3	Full	150	0.0	0.0
Approach	873	1.0		0.729		29.2	LOS C	16.0	113.3				
Intersection	2247	2.8		0.729		30.2	LOS C	16.0	113.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 3 [Weekend Existing]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	23.2	km/h		2.3	km/h		17.4	km/h
Travel Distance (Total)	644.5	veh-km/h		29.1	ped-km/h		802.5	pers-km/h
Travel Time (Total)	27.8	veh-h/h		12.8	ped-h/h		46.2	pers-h/h
Demand Flows (Total)	1961	veh/h		820	ped/h		2353	pers/h
Percent Heavy Vehicles (Demand)	3.4	%						
Degree of Saturation	0.742			0.201				
Practical Spare Capacity	21.3	%						
Effective Intersection Capacity	2642	veh/h						
Control Delay (Total)	16.56	veh-h/h		6.60	ped-h/h		26.47	pers-h/h
Control Delay (Average)	30.4	sec		29.0	sec		40.5	sec
Control Delay (Worst Lane)	47.7	sec						
Control Delay (Worst Movement)	47.7	sec		34.5	sec		47.7	sec
Geometric Delay (Average)	1.7	sec						
Stop-Line Delay (Average)	28.7	sec						
Idling Time (Average)	24.3	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	16.5	veh						
95% Back of Queue - Distance (Worst Lane)	116.9	m						
Queue Storage Ratio (Worst Lane)	0.48							
Total Effective Stops	1559	veh/h		699	ped/h		2570	pers/h
Effective Stop Rate	0.80	per veh		0.85	per ped		1.09	per pers
Proportion Queued	0.91			0.85			1.21	
Performance Index	122.1			16.7			138.8	
Cost (Total)	1052.58	$/h		323.00	$/h		1375.57	$/h
Fuel Consumption (Total)	117.4	L/h						
Carbon Dioxide (Total)	277.7	kg/h						
Hydrocarbons (Total)	0.028	kg/h						
Carbon Monoxide (Total)	0.279	kg/h						
NOx (Total)	0.480	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	941,280	veh/y		393,600	ped/y		1,129,536	pers/y
Delay	7,950	veh-h/y		3,167	ped-h/y		12,708	pers-h/y
Effective Stops	748,540	veh/y		335,429	ped/y		1,233,677	pers/y
Travel Distance	309,348	veh-km/y		13,970	ped-km/y		385,187	pers-km/y
Travel Time	13,359	veh-h/y		6,152	ped-h/y		22,184	pers-h/y
Cost	505,236	$/y		155,039	$/y		660,275	$/y
Fuel Consumption	56,330	L/y						
Carbon Dioxide	133,307	kg/y						
Hydrocarbons	13	kg/y						
Carbon Monoxide	134	kg/y						
NOx	230	kg/y						

LANE SUMMARY

Site: 3 [Weekend Existing]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Harris Street													
Lane 1	184	0.0	441	0.417	100	34.0	LOS C	6.2	43.5	Full	235	0.0	0.0
Lane 2	159	8.2	362[1]	0.440	100	28.0	LOS B	5.3	39.6	Full	235	0.0	0.0
Lane 3	78	3.8	136	0.575	100	47.6	LOS D	3.2	23.2	Short	15	0.0	NA
Approach	421	3.8		0.575		34.2	LOS C	6.2	43.5				
East: Pyrmont Bridge Road													
Lane 1	171	4.3	589	0.290	100	23.4	LOS B	5.1	37.0	Full	100	0.0	0.0
Lane 2	171	5.0	590	0.290	100	22.6	LOS B	5.1	37.3	Full	100	0.0	0.0
Lane 3	29	3.4	136	0.213	100	45.6	LOS D	1.1	8.2	Short	27	0.0	NA
Approach	371	4.6		0.290		24.8	LOS B	5.1	37.3				
North: Harris Street													
Lane 1	206	6.8	355[1]	0.580	100	30.1	LOS C	7.1	52.4	Short	15	0.0	NA
Lane 2	78	5.1	134	0.580	100	47.7	LOS D	3.2	23.5	Full	200	0.0	0.0
Approach	284	6.3		0.580		34.9	LOS C	7.1	52.4				
West: Pyrmont Bridge Road													
Lane 1	437	2.1	589	0.742	100	30.7	LOS C	16.1	115.0	Full	150	0.0	0.0
Lane 2	448	1.5	603	0.742	100	28.4	LOS B	16.5	116.9	Full	150	0.0	0.0
Approach	885	1.8		0.742		29.5	LOS C	16.5	116.9				
Intersection	1961	3.4		0.742		30.4	LOS C	16.5	116.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 3 [Weekend Future]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	23.2	km/h		2.3	km/h		17.3	km/h
Travel Distance (Total)	638.3	veh-km/h		29.1	ped-km/h		795.1	pers-km/h
Travel Time (Total)	27.6	veh-h/h		12.8	ped-h/h		45.9	pers-h/h
Demand Flows (Total)	1946	veh/h		820	ped/h		2335	pers/h
Percent Heavy Vehicles (Demand)	3.4	%						
Degree of Saturation	0.742			0.201				
Practical Spare Capacity	21.3	%						
Effective Intersection Capacity	2622	veh/h						
Control Delay (Total)	16.40	veh-h/h		6.60	ped-h/h		26.28	pers-h/h
Control Delay (Average)	30.3	sec		29.0	sec		40.5	sec
Control Delay (Worst Lane)	47.6	sec						
Control Delay (Worst Movement)	47.6	sec		34.5	sec		47.6	sec
Geometric Delay (Average)	1.7	sec						
Stop-Line Delay (Average)	28.6	sec						
Idling Time (Average)	24.2	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	16.5	veh						
95% Back of Queue - Distance (Worst Lane)	116.9	m						
Queue Storage Ratio (Worst Lane)	0.48							
Total Effective Stops	1546	veh/h		699	ped/h		2554	pers/h
Effective Stop Rate	0.79	per veh		0.85	per ped		1.09	per pers
Proportion Queued	0.91			0.85			1.21	
Performance Index	120.5			16.7			137.2	
Cost (Total)	1043.18	$/h		323.00	$/h		1366.17	$/h
Fuel Consumption (Total)	116.4	L/h						
Carbon Dioxide (Total)	275.5	kg/h						
Hydrocarbons (Total)	0.028	kg/h						
Carbon Monoxide (Total)	0.277	kg/h						
NOx (Total)	0.478	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	934,080	veh/y		393,600	ped/y		1,120,896	pers/y
Delay	7,874	veh-h/y		3,167	ped-h/y		12,616	pers-h/y
Effective Stops	742,005	veh/y		335,429	ped/y		1,225,834	pers/y
Travel Distance	306,383	veh-km/y		13,970	ped-km/y		381,629	pers-km/y
Travel Time	13,228	veh-h/y		6,152	ped-h/y		22,026	pers-h/y
Cost	500,724	$/y		155,039	$/y		655,763	$/y
Fuel Consumption	55,882	L/y						
Carbon Dioxide	132,257	kg/y						
Hydrocarbons	13	kg/y						
Carbon Monoxide	133	kg/y						
NOx	230	kg/y						

LANE SUMMARY

Site: 3 [Weekend Future]

Pyrmont Bridge Road / Harris Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Harris Street													
Lane 1	184	0.0	441	0.417	100	34.0	LOS C	6.2	43.5	Full	235	0.0	0.0
Lane 2	159	8.2	362[1]	0.440	100	28.0	LOS B	5.3	39.6	Full	235	0.0	0.0
Lane 3	78	3.8	136	0.575	100	47.6	LOS D	3.2	23.2	Short	15	0.0	NA
Approach	421	3.8		0.575		34.2	LOS C	6.2	43.5				
East: Pyrmont Bridge Road													
Lane 1	171	4.3	589	0.290	100	23.4	LOS B	5.1	37.0	Full	100	0.0	0.0
Lane 2	171	5.0	590	0.290	100	22.6	LOS B	5.1	37.3	Full	100	0.0	0.0
Lane 3	29	3.4	136	0.213	100	45.6	LOS D	1.1	8.2	Short	27	0.0	NA
Approach	371	4.6		0.290		24.8	LOS B	5.1	37.3				
North: Harris Street													
Lane 1	195	7.2	358[1]	0.545	100	29.9	LOS C	6.6	49.4	Short	15	0.0	NA
Lane 2	74	5.4	134	0.552	100	47.5	LOS D	3.0	22.3	Full	200	0.0	0.0
Approach	269	6.7		0.552		34.7	LOS C	6.6	49.4				
West: Pyrmont Bridge Road													
Lane 1	437	2.1	589	0.742	100	30.7	LOS C	16.1	115.0	Full	150	0.0	0.0
Lane 2	448	1.5	603	0.742	100	28.4	LOS B	16.5	116.9	Full	150	0.0	0.0
Approach	885	1.8		0.742		29.5	LOS C	16.5	116.9				
Intersection	1946	3.4		0.742		30.3	LOS C	16.5	116.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 4 [AM Existing]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	1.7	km/h	1.4	km/h	1.7	km/h
Travel Distance (Total)	1914.3	veh-km/h	26.3	ped-km/h	2323.5	pers-km/h
Travel Time (Total)	1106.7	veh-h/h	18.5	ped-h/h	1346.5	pers-h/h
Demand Flows (Total)	1884	veh/h	716	ped/h	2261	pers/h
Percent Heavy Vehicles (Demand)	4.0	%				
Degree of Saturation	2.790		0.708			
Practical Spare Capacity	-67.7	%				
Effective Intersection Capacity	675	veh/h				
Control Delay (Total)	1055.96	veh-h/h	12.86	ped-h/h	1280.00	pers-h/h
Control Delay (Average)	2017.7	sec	64.6	sec	2038.2	sec
Control Delay (Worst Lane)	3274.2	sec				
Control Delay (Worst Movement)	3274.2	sec	70.1	sec	3274.2	sec
Geometric Delay (Average)	2.7	sec				
Stop-Line Delay (Average)	2015.1	sec				
Idling Time (Average)	2012.9	sec				
Intersection Level of Service (LOS)	LOS F		LOS F			
95% Back of Queue - Vehicles (Worst Lane)	301.0	veh				
95% Back of Queue - Distance (Worst Lane)	2164.7	m				
Queue Storage Ratio (Worst Lane)	2.02					
Total Effective Stops	6085	veh/h	666	ped/h	7969	pers/h
Effective Stop Rate	3.23	per veh	0.93	per ped	3.52	per pers
Proportion Queued	0.98		0.93		1.28	
Performance Index	2183.5		22.2		2205.7	
Cost (Total)	36428.09	$/h	465.82	$/h	36893.91	$/h
Fuel Consumption (Total)	1569.6	L/h				
Carbon Dioxide (Total)	3709.2	kg/h				
Hydrocarbons (Total)	0.530	kg/h				
Carbon Monoxide (Total)	3.307	kg/h				
NOx (Total)	3.407	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	904,320	veh/y	343,680	ped/y	1,085,184	pers/y
Delay	506,858	veh-h/y	6,171	ped-h/y	614,401	pers-h/y
Effective Stops	2,920,967	veh/y	319,795	ped/y	3,824,955	pers/y
Travel Distance	918,872	veh-km/y	12,645	ped-km/y	1,115,292	pers-km/y
Travel Time	531,221	veh-h/y	8,873	ped-h/y	646,339	pers-h/y
Cost	17,485,480	$/y	223,594	$/y	17,709,080	$/y
Fuel Consumption	753,427	L/y				
Carbon Dioxide	1,780,437	kg/y				
Hydrocarbons	254	kg/y				
Carbon Monoxide	1,587	kg/y				
NOx	1,635	kg/y				

LANE SUMMARY

Site: 4 [AM Existing]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Pyrmont Bridge Road													
Lane 1	110	6.6	197	0.559	100	71.5	LOS F	7.9	58.2	Full	500	0.0	0.0
Lane 2	112	6.0	200	0.559	100	70.3	LOS E	8.0	58.7	Full	500	0.0	0.0
Lane 3	48	0.0	223	0.215	100	70.6	LOS F	3.2	22.5	Short	45	0.0	NA
Approach	270	5.2		0.559		70.9	LOS F	8.0	58.7				
North: Pyrmont Street													
Lane 1	184	1.3	335[1]	0.549	22[6]	43.3	LOS D	10.3	72.8	Short	35	0.0	NA
Lane 2	170	6.3	68	2.486	100	2708.0	LOS F	92.7	683.5	Full	500	0.0	33.5
Approach	354	3.7		2.486		1324.0	LOS F	92.7	683.5				
West: Pyrmont Bridge Road													
Lane 1	433	4.4	197	2.198	100	2208.0	LOS F	227.1	1650.0	Full	500	0.0	100.0
Lane 2	328	4.2	149[1]	2.198	100	2206.5	LOS F	172.1	1247.9	Full	500	0.0	100.0[8]
Lane 3	499	3.2	179[1]	2.790	100	3274.2	LOS F	301.0	2164.7	Short	35	0.0	NA
Approach	1260	3.9		2.790		2629.8	LOS F	301.0	2164.7				
Intersection	1884	4.0		2.790		2017.7	LOS F	301.0	2164.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

INTERSECTION SUMMARY

Site: 4 [AM Future]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	1.7	km/h	1.4	km/h	1.7	km/h
Travel Distance (Total)	1914.3	veh-km/h	26.3	ped-km/h	2323.5	pers-km/h
Travel Time (Total)	1106.7	veh-h/h	18.5	ped-h/h	1346.5	pers-h/h
Demand Flows (Total)	1884	veh/h	716	ped/h	2261	pers/h
Percent Heavy Vehicles (Demand)	4.0	%				
Degree of Saturation	2.790		0.708			
Practical Spare Capacity	-67.7	%				
Effective Intersection Capacity	675	veh/h				
Control Delay (Total)	1055.96	veh-h/h	12.86	ped-h/h	1280.00	pers-h/h
Control Delay (Average)	2017.7	sec	64.6	sec	2038.2	sec
Control Delay (Worst Lane)	3274.2	sec				
Control Delay (Worst Movement)	3274.2	sec	70.1	sec	3274.2	sec
Geometric Delay (Average)	2.7	sec				
Stop-Line Delay (Average)	2015.1	sec				
Idling Time (Average)	2012.9	sec				
Intersection Level of Service (LOS)	LOS F		LOS F			
95% Back of Queue - Vehicles (Worst Lane)	301.0	veh				
95% Back of Queue - Distance (Worst Lane)	2164.7	m				
Queue Storage Ratio (Worst Lane)	2.02					
Total Effective Stops	6085	veh/h	666	ped/h	7969	pers/h
Effective Stop Rate	3.23	per veh	0.93	per ped	3.52	per pers
Proportion Queued	0.98		0.93		1.28	
Performance Index	2183.5		22.2		2205.7	
Cost (Total)	36428.09	$/h	465.82	$/h	36893.91	$/h
Fuel Consumption (Total)	1569.6	L/h				
Carbon Dioxide (Total)	3709.2	kg/h				
Hydrocarbons (Total)	0.530	kg/h				
Carbon Monoxide (Total)	3.307	kg/h				
NOx (Total)	3.407	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	904,320	veh/y	343,680	ped/y	1,085,184	pers/y
Delay	506,858	veh-h/y	6,171	ped-h/y	614,401	pers-h/y
Effective Stops	2,920,967	veh/y	319,795	ped/y	3,824,955	pers/y
Travel Distance	918,872	veh-km/y	12,645	ped-km/y	1,115,292	pers-km/y
Travel Time	531,221	veh-h/y	8,873	ped-h/y	646,339	pers-h/y
Cost	17,485,480	$/y	223,594	$/y	17,709,080	$/y
Fuel Consumption	753,427	L/y				
Carbon Dioxide	1,780,437	kg/y				
Hydrocarbons	254	kg/y				
Carbon Monoxide	1,587	kg/y				
NOx	1,635	kg/y				

LANE SUMMARY

Site: 4 [AM Future]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Pyrmont Bridge Road													
Lane 1	110	6.6	197	0.559	100	71.5	LOS F	7.9	58.2	Full	500	0.0	0.0
Lane 2	112	6.0	200	0.559	100	70.3	LOS E	8.0	58.7	Full	500	0.0	0.0
Lane 3	48	0.0	223	0.215	100	70.6	LOS F	3.2	22.5	Short	45	0.0	NA
Approach	270	5.2		0.559		70.9	LOS F	8.0	58.7				
North: Pyrmont Street													
Lane 1	184	1.3	335[1]	0.549	22[6]	43.3	LOS D	10.3	72.8	Short	35	0.0	NA
Lane 2	170	6.3	68	2.486	100	2708.0	LOS F	92.7	683.5	Full	500	0.0	33.5
Approach	354	3.7		2.486		1324.0	LOS F	92.7	683.5				
West: Pyrmont Bridge Road													
Lane 1	433	4.4	197	2.198	100	2208.0	LOS F	227.1	1650.0	Full	500	0.0	100.0
Lane 2	328	4.2	149[1]	2.198	100	2206.5	LOS F	172.1	1247.9	Full	500	0.0	100.0[8]
Lane 3	499	3.2	179[1]	2.790	100	3274.2	LOS F	301.0	2164.7	Short	35	0.0	NA
Approach	1260	3.9		2.790		2629.8	LOS F	301.0	2164.7				
Intersection	1884	4.0		2.790		2017.7	LOS F	301.0	2164.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

INTERSECTION SUMMARY

Site: 4 [PM Existing]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	4.7	km/h	1.5	km/h	4.6	km/h
Travel Distance (Total)	1874.1	veh-km/h	28.3	ped-km/h	2277.2	pers-km/h
Travel Time (Total)	396.6	veh-h/h	19.4	ped-h/h	495.4	pers-h/h
Demand Flows (Total)	1842	veh/h	763	ped/h	2210	pers/h
Percent Heavy Vehicles (Demand)	1.4	%				
Degree of Saturation	2.173		0.717			
Practical Spare Capacity	-58.6	%				
Effective Intersection Capacity	848	veh/h				
Control Delay (Total)	351.37	veh-h/h	13.39	ped-h/h	435.04	pers-h/h
Control Delay (Average)	686.7	sec	63.2	sec	708.5	sec
Control Delay (Worst Lane)	2164.1	sec				
Control Delay (Worst Movement)	2164.1	sec	70.1	sec	2164.1	sec
Geometric Delay (Average)	2.2	sec				
Stop-Line Delay (Average)	684.5	sec				
Idling Time (Average)	689.2	sec				
Intersection Level of Service (LOS)	LOS F		LOS F			
95% Back of Queue - Vehicles (Worst Lane)	125.0	veh				
95% Back of Queue - Distance (Worst Lane)	884.2	m				
Queue Storage Ratio (Worst Lane)	0.93					
Total Effective Stops	3729	veh/h	701	ped/h	5176	pers/h
Effective Stop Rate	2.02	per veh	0.92	per ped	2.34	per pers
Proportion Queued	0.99		0.92		1.30	
Performance Index	1037.0		23.3		1060.3	
Cost (Total)	12929.65	$/h	489.89	$/h	13419.55	$/h
Fuel Consumption (Total)	625.3	L/h				
Carbon Dioxide (Total)	1472.8	kg/h				
Hydrocarbons (Total)	0.175	kg/h				
Carbon Monoxide (Total)	1.174	kg/h				
NOx (Total)	0.772	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	884,160	veh/y	366,240	ped/y	1,060,992	pers/y
Delay	168,658	veh-h/y	6,428	ped-h/y	208,817	pers-h/y
Effective Stops	1,789,789	veh/y	336,608	ped/y	2,484,354	pers/y
Travel Distance	899,554	veh-km/y	13,590	ped-km/y	1,093,054	pers-km/y
Travel Time	190,367	veh-h/y	9,331	ped-h/y	237,772	pers-h/y
Cost	6,206,234	$/y	235,149	$/y	6,441,383	$/y
Fuel Consumption	300,148	L/y				
Carbon Dioxide	706,925	kg/y				
Hydrocarbons	84	kg/y				
Carbon Monoxide	564	kg/y				
NOx	371	kg/y				

LANE SUMMARY

Site: 4 [PM Existing]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Pyrmont Bridge Road													
Lane 1	203	1.6	203	0.999	100	134.3	LOS F	21.6	153.6	Full	500	0.0	0.0
Lane 2	193	1.5	193[1]	0.999	100	133.1	LOS F	20.6	145.7	Full	500	0.0	0.0
Lane 3	57	0.0	111	0.512	100	82.9	LOS F	4.3	29.8	Short	45	0.0	NA
Approach	453	1.3		0.999		127.3	LOS F	21.6	153.6				
North: Pyrmont Street													
Lane 1	109	1.9	429[1]	0.254	22[6]	40.0	LOS C	5.7	40.6	Short	35	0.0	NA
Lane 2	495	1.4	431[1]	1.149	100	311.2	LOS F	80.4	569.7	Full	500	0.0	16.8
Approach	604	1.5		1.149		262.3	LOS F	80.4	569.7				
West: Pyrmont Bridge Road													
Lane 1	302	1.6	201	1.504	100	972.3	LOS F	107.0	759.3	Full	500	0.0	43.3
Lane 2	243	1.3	162[1]	1.504	100	970.5	LOS F	86.2	609.8	Full	500	0.0	57.6[8]
Lane 3	240	1.3	110	2.173	100	2164.1	LOS F	125.0	884.2	Short	35	0.0	NA
Approach	785	1.4		2.173		1336.1	LOS F	125.0	884.2				
Intersection	1842	1.4		2.173		686.7	LOS F	125.0	884.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

LANE SUMMARY

Site: 4 [PM Future]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Pyrmont Bridge Road													
Lane 1	203	1.6	203	0.999	100	134.3	LOS F	21.6	153.6	Full	500	0.0	0.0
Lane 2	193	1.5	193[1]	0.999	100	133.1	LOS F	20.6	145.7	Full	500	0.0	0.0
Lane 3	57	0.0	111	0.512	100	82.9	LOS F	4.3	29.8	Short	45	0.0	NA
Approach	453	1.3		0.999		127.3	LOS F	21.6	153.6				
North: Pyrmont Street													
Lane 1	109	1.9	429[1]	0.254	22[6]	40.0	LOS C	5.7	40.6	Short	35	0.0	NA
Lane 2	495	1.4	431[1]	1.149	100	311.2	LOS F	80.4	569.7	Full	500	0.0	16.8
Approach	604	1.5		1.149		262.3	LOS F	80.4	569.7				
West: Pyrmont Bridge Road													
Lane 1	302	1.6	201	1.504	100	972.3	LOS F	107.0	759.3	Full	500	0.0	43.3
Lane 2	243	1.3	162[1]	1.504	100	970.5	LOS F	86.2	609.8	Full	500	0.0	57.6[8]
Lane 3	240	1.3	110	2.173	100	2164.1	LOS F	125.0	884.2	Short	35	0.0	NA
Approach	785	1.4		2.173		1336.1	LOS F	125.0	884.2				
Intersection	1842	1.4		2.173		686.7	LOS F	125.0	884.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

INTERSECTION SUMMARY

Site: 4 [PM Future]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	4.7	km/h	1.5	km/h	4.6	km/h
Travel Distance (Total)	1874.1	veh-km/h	28.3	ped-km/h	2277.2	pers-km/h
Travel Time (Total)	396.6	veh-h/h	19.4	ped-h/h	495.4	pers-h/h
Demand Flows (Total)	1842	veh/h	763	ped/h	2210	pers/h
Percent Heavy Vehicles (Demand)	1.4	%				
Degree of Saturation	2.173		0.717			
Practical Spare Capacity	-58.6	%				
Effective Intersection Capacity	848	veh/h				
Control Delay (Total)	351.37	veh-h/h	13.39	ped-h/h	435.04	pers-h/h
Control Delay (Average)	686.7	sec	63.2	sec	708.5	sec
Control Delay (Worst Lane)	2164.1	sec				
Control Delay (Worst Movement)	2164.1	sec	70.1	sec	2164.1	sec
Geometric Delay (Average)	2.2	sec				
Stop-Line Delay (Average)	684.5	sec				
Idling Time (Average)	689.2	sec				
Intersection Level of Service (LOS)	LOS F		LOS F			
95% Back of Queue - Vehicles (Worst Lane)	125.0	veh				
95% Back of Queue - Distance (Worst Lane)	884.2	m				
Queue Storage Ratio (Worst Lane)	0.93					
Total Effective Stops	3729	veh/h	701	ped/h	5176	pers/h
Effective Stop Rate	2.02	per veh	0.92	per ped	2.34	per pers
Proportion Queued	0.99		0.92		1.30	
Performance Index	1037.0		23.3		1060.3	
Cost (Total)	12929.65	$/h	489.89	$/h	13419.55	$/h
Fuel Consumption (Total)	625.3	L/h				
Carbon Dioxide (Total)	1472.8	kg/h				
Hydrocarbons (Total)	0.175	kg/h				
Carbon Monoxide (Total)	1.174	kg/h				
NOx (Total)	0.772	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	884,160	veh/y	366,240	ped/y	1,060,992	pers/y
Delay	168,658	veh-h/y	6,428	ped-h/y	208,817	pers-h/y
Effective Stops	1,789,789	veh/y	336,608	ped/y	2,484,354	pers/y
Travel Distance	899,554	veh-km/y	13,590	ped-km/y	1,093,054	pers-km/y
Travel Time	190,367	veh-h/y	9,331	ped-h/y	237,772	pers-h/y
Cost	6,206,234	$/y	235,149	$/y	6,441,383	$/y
Fuel Consumption	300,148	L/y				
Carbon Dioxide	706,925	kg/y				
Hydrocarbons	84	kg/y				
Carbon Monoxide	564	kg/y				
NOx	371	kg/y				

INTERSECTION SUMMARY

Site: 4 [Weekend Existing]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	5.1	km/h	1.4	km/h	4.9	km/h
Travel Distance (Total)	1469.9	veh-km/h	26.3	ped-km/h	1790.2	pers-km/h
Travel Time (Total)	289.0	veh-h/h	19.0	ped-h/h	365.8	pers-h/h
Demand Flows (Total)	1446	veh/h	716	ped/h	1735	pers/h
Percent Heavy Vehicles (Demand)	2.6	%				
Degree of Saturation	2.059		0.425			
Practical Spare Capacity	-56.3	%				
Effective Intersection Capacity	702	veh/h				
Control Delay (Total)	258.56	veh-h/h	13.36	ped-h/h	323.63	pers-h/h
Control Delay (Average)	643.7	sec	67.2	sec	671.4	sec
Control Delay (Worst Lane)	1961.0	sec				
Control Delay (Worst Movement)	1961.0	sec	69.7	sec	1961.0	sec
Geometric Delay (Average)	2.4	sec				
Stop-Line Delay (Average)	641.3	sec				
Idling Time (Average)	634.9	sec				
Intersection Level of Service (LOS)	LOS F		LOS F			
95% Back of Queue - Vehicles (Worst Lane)	124.0	veh				
95% Back of Queue - Distance (Worst Lane)	879.7	m				
Queue Storage Ratio (Worst Lane)	0.81					
Total Effective Stops	2762	veh/h	681	ped/h	3995	pers/h
Effective Stop Rate	1.91	per veh	0.95	per ped	2.30	per pers
Proportion Queued	0.83		0.95		1.22	
Performance Index	718.4		22.8		741.2	
Cost (Total)	9422.17	$/h	478.43	$/h	9900.61	$/h
Fuel Consumption (Total)	469.1	L/h				
Carbon Dioxide (Total)	1106.5	kg/h				
Hydrocarbons (Total)	0.133	kg/h				
Carbon Monoxide (Total)	0.916	kg/h				
NOx (Total)	0.813	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	694,080	veh/y	343,680	ped/y	832,896	pers/y
Delay	124,110	veh-h/y	6,411	ped-h/y	155,343	pers-h/y
Effective Stops	1,325,594	veh/y	326,815	ped/y	1,917,528	pers/y
Travel Distance	705,538	veh-km/y	12,645	ped-km/y	859,291	pers-km/y
Travel Time	138,707	veh-h/y	9,113	ped-h/y	175,561	pers-h/y
Cost	4,522,642	$/y	229,649	$/y	4,752,291	$/y
Fuel Consumption	225,174	L/y				
Carbon Dioxide	531,113	kg/y				
Hydrocarbons	64	kg/y				
Carbon Monoxide	440	kg/y				
NOx	390	kg/y				

LANE SUMMARY

Site: 4 [Weekend Existing]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Pyrmont Bridge Road													
Lane 1	128	3.4	201	0.637	100	72.5	LOS F	9.3	66.7	Full	500	0.0	0.0
Lane 2	129	4.4	202	0.637	100	71.2	LOS F	9.3	67.6	Full	500	0.0	0.0
Lane 3	43	0.0	74	0.579	100	87.6	LOS F	3.3	23.3	Short	45	0.0	NA
Approach	300	3.3		0.637		74.1	LOS F	9.3	67.6				
North: Pyrmont Street													
Lane 1	21	14.3	239[1]	0.088	26[5]	62.1	LOS E	1.3	10.1	Short	35	0.0	NA
Lane 2	302	3.0	902	0.335	100	161.3	LOS F	15.0	107.4	Full	500	0.0	0.0
Approach	323	3.7		0.335		154.8	LOS F	15.0	107.4				
West: Pyrmont Bridge Road													
Lane 1	332	1.7	252	1.319	100	647.5	LOS F	93.0	660.6	Full	500	0.0	30.4
Lane 2	243	2.6	184[1]	1.319	100	647.2	LOS F	68.3	488.4	Full	500	0.0	57.1[8]
Lane 3	248	1.6	120[1]	2.059	100	1961.0	LOS F	124.0	879.7	Short	35	0.0	NA
Approach	823	1.9		2.059		1043.2	LOS F	124.0	879.7				
Intersection	1446	2.6		2.059		643.7	LOS F	124.0	879.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
5 Lane under-utilisation found by the program
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

INTERSECTION SUMMARY

Site: 4 [Weekend Future]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	5.1	km/h	1.4	km/h	4.9	km/h
Travel Distance (Total)	1469.9	veh-km/h	26.3	ped-km/h	1790.2	pers-km/h
Travel Time (Total)	289.0	veh-h/h	19.0	ped-h/h	365.8	pers-h/h
Demand Flows (Total)	1446	veh/h	716	ped/h	1735	pers/h
Percent Heavy Vehicles (Demand)	2.6	%				
Degree of Saturation	2.059		0.425			
Practical Spare Capacity	-56.3	%				
Effective Intersection Capacity	702	veh/h				
Control Delay (Total)	258.56	veh-h/h	13.36	ped-h/h	323.63	pers-h/h
Control Delay (Average)	643.7	sec	67.2	sec	671.4	sec
Control Delay (Worst Lane)	1961.0	sec				
Control Delay (Worst Movement)	1961.0	sec	69.7	sec	1961.0	sec
Geometric Delay (Average)	2.4	sec				
Stop-Line Delay (Average)	641.3	sec				
Idling Time (Average)	634.9	sec				
Intersection Level of Service (LOS)	LOS F		LOS F			
95% Back of Queue - Vehicles (Worst Lane)	124.0	veh				
95% Back of Queue - Distance (Worst Lane)	879.7	m				
Queue Storage Ratio (Worst Lane)	0.81					
Total Effective Stops	2762	veh/h	681	ped/h	3995	pers/h
Effective Stop Rate	1.91	per veh	0.95	per ped	2.30	per pers
Proportion Queued	0.83		0.95		1.22	
Performance Index	718.4		22.8		741.2	
Cost (Total)	9422.17	$/h	478.43	$/h	9900.61	$/h
Fuel Consumption (Total)	469.1	L/h				
Carbon Dioxide (Total)	1106.5	kg/h				
Hydrocarbons (Total)	0.133	kg/h				
Carbon Monoxide (Total)	0.916	kg/h				
NOx (Total)	0.813	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	694,080	veh/y	343,680	ped/y	832,896	pers/y
Delay	124,110	veh-h/y	6,411	ped-h/y	155,343	pers-h/y
Effective Stops	1,325,594	veh/y	326,815	ped/y	1,917,528	pers/y
Travel Distance	705,538	veh-km/y	12,645	ped-km/y	859,291	pers-km/y
Travel Time	138,707	veh-h/y	9,113	ped-h/y	175,561	pers-h/y
Cost	4,522,642	$/y	229,649	$/y	4,752,291	$/y
Fuel Consumption	225,174	L/y				
Carbon Dioxide	531,113	kg/y				
Hydrocarbons	64	kg/y				
Carbon Monoxide	440	kg/y				
NOx	390	kg/y				

LANE SUMMARY

Site: 4 [Weekend Future]

Pyrmont Street / Pyrmont Bridge Road
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Pyrmont Bridge Road													
Lane 1	128	3.4	201	0.637	100	72.5	LOS F	9.3	66.7	Full	500	0.0	0.0
Lane 2	129	4.4	202	0.637	100	71.2	LOS F	9.3	67.6	Full	500	0.0	0.0
Lane 3	43	0.0	74	0.579	100	87.6	LOS F	3.3	23.3	Short	45	0.0	NA
Approach	300	3.3		0.637		74.1	LOS F	9.3	67.6				
North: Pyrmont Street													
Lane 1	21	14.3	239[1]	0.088	26[5]	62.1	LOS E	1.3	10.1	Short	35	0.0	NA
Lane 2	302	3.0	902	0.335	100	161.3	LOS F	15.0	107.4	Full	500	0.0	0.0
Approach	323	3.7		0.335		154.8	LOS F	15.0	107.4				
West: Pyrmont Bridge Road													
Lane 1	332	1.7	252	1.319	100	647.5	LOS F	93.0	660.6	Full	500	0.0	30.4
Lane 2	243	2.6	184[1]	1.319	100	647.2	LOS F	68.3	488.4	Full	500	0.0	57.1[8]
Lane 3	248	1.6	120[1]	2.059	100	1961.0	LOS F	124.0	879.7	Short	35	0.0	NA
Approach	823	1.9		2.059		1043.2	LOS F	124.0	879.7				
Intersection	1446	2.6		2.059		643.7	LOS F	124.0	879.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
5 Lane under-utilisation found by the program
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

INTERSECTION SUMMARY

Site: 5 [AM Existing]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	8.9	km/h		1.6	km/h		8.7	km/h
Travel Distance (Total)	1799.2	veh-km/h		10.7	ped-km/h		2169.7	pers-km/h
Travel Time (Total)	202.6	veh-h/h		6.5	ped-h/h		249.6	pers-h/h
Demand Flows (Total)	3134	veh/h		300	ped/h		3761	pers/h
Percent Heavy Vehicles (Demand)	5.1	%						
Degree of Saturation	1.067			0.080				
Practical Spare Capacity	-15.6	%						
Effective Intersection Capacity	2938	veh/h						
Control Delay (Total)	169.50	veh-h/h		4.26	ped-h/h		207.66	pers-h/h
Control Delay (Average)	194.7	sec		51.1	sec		198.8	sec
Control Delay (Worst Lane)	226.8	sec						
Control Delay (Worst Movement)	231.3	sec		61.0	sec		231.3	sec
Geometric Delay (Average)	1.5	sec						
Stop-Line Delay (Average)	193.2	sec						
Idling Time (Average)	185.9	sec						
Intersection Level of Service (LOS)	LOS F			LOS E				
95% Back of Queue - Vehicles (Worst Lane)	104.4	veh						
95% Back of Queue - Distance (Worst Lane)	769.3	m						
Queue Storage Ratio (Worst Lane)	1.69							
Total Effective Stops	4860	veh/h		247	ped/h		6078	pers/h
Effective Stop Rate	1.55	per veh		0.82	per ped		1.62	per pers
Proportion Queued	1.00			0.82			1.06	
Performance Index	636.9			7.9			644.8	
Cost (Total)	6950.33	$/h		164.76	$/h		7115.09	$/h
Fuel Consumption (Total)	486.0	L/h						
Carbon Dioxide (Total)	1153.4	kg/h						
Hydrocarbons (Total)	0.138	kg/h						
Carbon Monoxide (Total)	1.112	kg/h						
NOx (Total)	2.148	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,504,320	veh/y		144,000	ped/y		1,805,184	pers/y
Delay	81,358	veh-h/y		2,045	ped-h/y		99,675	pers-h/y
Effective Stops	2,332,670	veh/y		118,442	ped/y		2,917,646	pers/y
Travel Distance	863,635	veh-km/y		5,115	ped-km/y		1,041,477	pers-km/y
Travel Time	97,238	veh-h/y		3,138	ped-h/y		119,824	pers-h/y
Cost	3,336,160	$/y		79,084	$/y		3,415,244	$/y
Fuel Consumption	233,272	L/y						
Carbon Dioxide	553,629	kg/y						
Hydrocarbons	66	kg/y						
Carbon Monoxide	534	kg/y						
NOx	1,031	kg/y						

LANE SUMMARY

Site: 5 [AM Existing]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	423	8.3	397[1]	1.067	100	226.8	LOS F	66.2	496.3	Short	50	0.0	NA
Lane 2	433	6.1	406[1]	1.067	100	224.9	LOS F	67.5	497.5	Full	300	0.0	51.5
Lane 3	694	6.1	650	1.067	100	212.4	LOS F	104.4	769.3	Full	300	0.0	93.7
Lane 4	491	1.4	466	1.054	100	204.5	LOS F	69.6	493.0	Full	300	0.0	50.7
Approach	2041	5.4		1.067		216.2	LOS F	104.4	769.3				
East: William Henry Street													
Lane 1	153	3.3	318	0.481	100	61.5	LOS E	10.2	73.6	Full	100	0.0	0.0
Lane 2	153	3.3	318	0.481	100	61.5	LOS E	10.2	73.6	Full	100	0.0	33.6[8]
Lane 3	138	5.8	131	1.055	100	208.3	LOS F	18.6	136.8	Short	50	0.0	NA
Approach	444	4.1		1.055		107.1	LOS F	18.6	136.8				
West: William Henry Street													
Lane 1	318	6.4	304	1.043	100	188.9	LOS F	42.2	311.3	Full	115	0.0	99.2
Lane 2	331	3.5	318	1.043	100	185.5	LOS F	43.9	316.3	Full	115	0.0	100.0
Approach	649	4.9		1.043		187.2	LOS F	43.9	316.3				
Intersection	3134	5.1		1.067		194.7	LOS F	104.4	769.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

INTERSECTION SUMMARY

Site: 5 [AM Future]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	8.5	km/h		1.6	km/h		8.3	km/h
Travel Distance (Total)	1803.7	veh-km/h		10.7	ped-km/h		2175.1	pers-km/h
Travel Time (Total)	213.2	veh-h/h		6.5	ped-h/h		262.4	pers-h/h
Demand Flows (Total)	3155	veh/h		300	ped/h		3786	pers/h
Percent Heavy Vehicles (Demand)	5.1	%						
Degree of Saturation	1.077			0.080				
Practical Spare Capacity	-16.4	%						
Effective Intersection Capacity	2931	veh/h						
Control Delay (Total)	179.67	veh-h/h		4.26	ped-h/h		219.87	pers-h/h
Control Delay (Average)	205.0	sec		51.1	sec		209.1	sec
Control Delay (Worst Lane)	237.6	sec						
Control Delay (Worst Movement)	240.8	sec		61.0	sec		240.8	sec
Geometric Delay (Average)	1.5	sec						
Stop-Line Delay (Average)	203.5	sec						
Idling Time (Average)	196.2	sec						
Intersection Level of Service (LOS)	LOS F			LOS E				
95% Back of Queue - Vehicles (Worst Lane)	104.4	veh						
95% Back of Queue - Distance (Worst Lane)	769.3	m						
Queue Storage Ratio (Worst Lane)	1.99							
Total Effective Stops	5010	veh/h		247	ped/h		6259	pers/h
Effective Stop Rate	1.59	per veh		0.82	per ped		1.65	per pers
Proportion Queued	1.00			0.82			1.06	
Performance Index	666.9			7.9			674.8	
Cost (Total)	7308.21	$/h		164.76	$/h		7472.97	$/h
Fuel Consumption (Total)	502.1	L/h						
Carbon Dioxide (Total)	1191.4	kg/h						
Hydrocarbons (Total)	0.144	kg/h						
Carbon Monoxide (Total)	1.146	kg/h						
NOx (Total)	2.196	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,514,400	veh/y		144,000	ped/y		1,817,280	pers/y
Delay	86,243	veh-h/y		2,045	ped-h/y		105,537	pers-h/y
Effective Stops	2,405,035	veh/y		118,442	ped/y		3,004,484	pers/y
Travel Distance	865,777	veh-km/y		5,115	ped-km/y		1,044,047	pers-km/y
Travel Time	102,346	veh-h/y		3,138	ped-h/y		125,954	pers-h/y
Cost	3,507,940	$/y		79,084	$/y		3,587,025	$/y
Fuel Consumption	240,990	L/y						
Carbon Dioxide	571,875	kg/y						
Hydrocarbons	69	kg/y						
Carbon Monoxide	550	kg/y						
NOx	1,054	kg/y						

LANE SUMMARY

Site: 5 [AM Future]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	423	8.3	397[1]	1.067	100	226.8	LOS F	66.2	496.2	Short	50	0.0	NA
Lane 2	433	6.1	406[1]	1.067	100	224.9	LOS F	67.5	497.6	Full	300	0.0	51.5
Lane 3	694	6.1	650	1.067	100	212.4	LOS F	104.4	769.3	Full	300	0.0	93.7
Lane 4	491	1.4	466	1.054	100	204.5	LOS F	69.6	493.0	Full	300	0.0	50.7
Approach	2041	5.4		1.067		216.2	LOS F	104.4	769.3				
East: William Henry Street													
Lane 1	153	3.3	318	0.481	100	61.5	LOS E	10.2	73.6	Full	100	0.0	0.0
Lane 2	153	3.3	318	0.481	100	61.5	LOS E	10.2	73.6	Full	100	0.0	33.6[8]
Lane 3	138	5.8	131	1.055	100	208.3	LOS F	18.6	136.8	Short	50	0.0	NA
Approach	444	4.1		1.055		107.1	LOS F	18.6	136.8				
West: William Henry Street													
Lane 1	328	6.3	305	1.077	100	237.6	LOS F	49.8	367.7	Full	115	0.0	100.0
Lane 2	342	3.6	318	1.077	100	234.4	LOS F	51.8	373.7	Full	115	0.0	100.0
Approach	670	4.9		1.077		236.0	LOS F	51.8	373.7				
Intersection	3155	5.1		1.077		205.0	LOS F	104.4	769.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

INTERSECTION SUMMARY

Site: 5 [PM Existing]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	6.1	km/h		1.6	km/h		6.0	km/h
Travel Distance (Total)	2090.2	veh-km/h		8.7	ped-km/h		2516.9	pers-km/h
Travel Time (Total)	343.6	veh-h/h		5.5	ped-h/h		417.8	pers-h/h
Demand Flows (Total)	3568	veh/h		245	ped/h		4282	pers/h
Percent Heavy Vehicles (Demand)	0.9	%						
Degree of Saturation	1.144			0.096				
Practical Spare Capacity	-21.3	%						
Effective Intersection Capacity	3118	veh/h						
Control Delay (Total)	302.07	veh-h/h		3.63	ped-h/h		366.11	pers-h/h
Control Delay (Average)	304.8	sec		53.4	sec		307.8	sec
Control Delay (Worst Lane)	348.1	sec						
Control Delay (Worst Movement)	351.9	sec		60.2	sec		351.9	sec
Geometric Delay (Average)	1.4	sec						
Stop-Line Delay (Average)	303.4	sec						
Idling Time (Average)	296.0	sec						
Intersection Level of Service (LOS)	LOS F			LOS E				
95% Back of Queue - Vehicles (Worst Lane)	164.9	veh						
95% Back of Queue - Distance (Worst Lane)	1164.3	m						
Queue Storage Ratio (Worst Lane)	3.11							
Total Effective Stops	6922	veh/h		206	ped/h		8512	pers/h
Effective Stop Rate	1.94	per veh		0.84	per ped		1.99	per pers
Proportion Queued	1.00			0.84			1.05	
Performance Index	837.6			6.6			844.2	
Cost (Total)	11501.25	$/h		138.30	$/h		11639.55	$/h
Fuel Consumption (Total)	640.9	L/h						
Carbon Dioxide (Total)	1508.7	kg/h						
Hydrocarbons (Total)	0.171	kg/h						
Carbon Monoxide (Total)	1.195	kg/h						
NOx (Total)	0.783	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,712,640	veh/y		117,600	ped/y		2,055,168	pers/y
Delay	144,992	veh-h/y		1,744	ped-h/y		175,734	pers-h/y
Effective Stops	3,322,477	veh/y		98,820	ped/y		4,085,792	pers/y
Travel Distance	1,003,306	veh-km/y		4,167	ped-km/y		1,208,134	pers-km/y
Travel Time	164,906	veh-h/y		2,634	ped-h/y		200,522	pers-h/y
Cost	5,520,599	$/y		66,383	$/y		5,586,983	$/y
Fuel Consumption	307,651	L/y						
Carbon Dioxide	724,159	kg/y						
Hydrocarbons	82	kg/y						
Carbon Monoxide	573	kg/y						
NOx	376	kg/y						

LANE SUMMARY

Site: 5 [PM Existing]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	514	0.7	450[1]	1.144	100	348.1	LOS F	103.0	725.2	Short	50	0.0	NA
Lane 2	517	1.0	452[1]	1.144	100	346.2	LOS F	103.5	730.9	Full	300	0.0	88.6
Lane 3	842	1.0	736	1.144	100	335.8	LOS F	164.9	1164.3	Full	300	0.0	100.0
Lane 4	294	1.0	258	1.139	100	341.7	LOS F	55.1	389.1	Full	300	0.0	28.7
Approach	2168	0.9		1.144		342.0	LOS F	164.9	1164.3				
East: William Henry Street													
Lane 1	383	0.6	337	1.139	100	334.6	LOS F	72.1	507.2	Full	100	0.0	100.0
Lane 2	295	0.6	259[1]	1.139	100	337.9	LOS F	55.7	392.0	Full	100	0.0	100.0
Lane 3	249	0.4	218[1]	1.141	100	347.5	LOS F	47.2	331.7	Short	50	0.0	NA
Approach	927	0.5		1.141		339.1	LOS F	72.1	507.2				
West: William Henry Street													
Lane 1	229	3.1	318	0.721	100	69.4	LOS E	16.2	116.7	Full	115	0.0	6.3
Lane 2	244	0.0	338	0.721	100	64.5	LOS E	17.2	120.5	Full	115	0.0	9.2
Approach	473	1.5		0.721		66.9	LOS E	17.2	120.5				
Intersection	3568	0.9		1.144		304.8	LOS F	164.9	1164.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 5 [PM Future]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	6.1	km/h		1.6	km/h		6.0	km/h
Travel Distance (Total)	2090.2	veh-km/h		8.7	ped-km/h		2516.9	pers-km/h
Travel Time (Total)	343.6	veh-h/h		5.5	ped-h/h		417.8	pers-h/h
Demand Flows (Total)	3568	veh/h		245	ped/h		4282	pers/h
Percent Heavy Vehicles (Demand)	0.9	%						
Degree of Saturation	1.144			0.096				
Practical Spare Capacity	-21.3	%						
Effective Intersection Capacity	3118	veh/h						
Control Delay (Total)	302.07	veh-h/h		3.63	ped-h/h		366.11	pers-h/h
Control Delay (Average)	304.8	sec		53.4	sec		307.8	sec
Control Delay (Worst Lane)	348.1	sec						
Control Delay (Worst Movement)	351.9	sec		60.2	sec		351.9	sec
Geometric Delay (Average)	1.4	sec						
Stop-Line Delay (Average)	303.4	sec						
Idling Time (Average)	296.0	sec						
Intersection Level of Service (LOS)	LOS F			LOS E				
95% Back of Queue - Vehicles (Worst Lane)	164.9	veh						
95% Back of Queue - Distance (Worst Lane)	1164.3	m						
Queue Storage Ratio (Worst Lane)	3.11							
Total Effective Stops	6922	veh/h		206	ped/h		8512	pers/h
Effective Stop Rate	1.94	per veh		0.84	per ped		1.99	per pers
Proportion Queued	1.00			0.84			1.05	
Performance Index	837.6			6.6			844.2	
Cost (Total)	11501.25	$/h		138.30	$/h		11639.55	$/h
Fuel Consumption (Total)	640.9	L/h						
Carbon Dioxide (Total)	1508.7	kg/h						
Hydrocarbons (Total)	0.171	kg/h						
Carbon Monoxide (Total)	1.195	kg/h						
NOx (Total)	0.783	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,712,640	veh/y		117,600	ped/y		2,055,168	pers/y
Delay	144,992	veh-h/y		1,744	ped-h/y		175,734	pers-h/y
Effective Stops	3,322,477	veh/y		98,820	ped/y		4,085,792	pers/y
Travel Distance	1,003,306	veh-km/y		4,167	ped-km/y		1,208,134	pers-km/y
Travel Time	164,906	veh-h/y		2,634	ped-h/y		200,522	pers-h/y
Cost	5,520,599	$/y		66,383	$/y		5,586,983	$/y
Fuel Consumption	307,651	L/y						
Carbon Dioxide	724,159	kg/y						
Hydrocarbons	82	kg/y						
Carbon Monoxide	573	kg/y						
NOx	376	kg/y						

LANE SUMMARY

Site: 5 [PM Future]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	514	0.7	450[1]	1.144	100	348.1	LOS F	103.0	725.2	Short	50	0.0	NA
Lane 2	517	1.0	452[1]	1.144	100	346.2	LOS F	103.5	730.9	Full	300	0.0	88.6
Lane 3	842	1.0	736	1.144	100	335.8	LOS F	164.9	1164.3	Full	300	0.0	100.0
Lane 4	294	1.0	258	1.139	100	341.7	LOS F	55.1	389.1	Full	300	0.0	28.7
Approach	2168	0.9		1.144		342.0	LOS F	164.9	1164.3				
East: William Henry Street													
Lane 1	383	0.6	337	1.139	100	334.6	LOS F	72.1	507.2	Full	100	0.0	100.0
Lane 2	295	0.6	259[1]	1.139	100	337.9	LOS F	55.7	392.0	Full	100	0.0	100.0
Lane 3	249	0.4	218[1]	1.141	100	347.5	LOS F	47.2	331.7	Short	50	0.0	NA
Approach	927	0.5		1.141		339.1	LOS F	72.1	507.2				
West: William Henry Street													
Lane 1	229	3.1	318	0.721	100	69.4	LOS E	16.2	116.7	Full	115	0.0	6.3
Lane 2	244	0.0	338	0.721	100	64.5	LOS E	17.2	120.5	Full	115	0.0	9.2
Approach	473	1.5		0.721		66.9	LOS E	17.2	120.5				
Intersection	3568	0.9		1.144		304.8	LOS F	164.9	1164.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 5 [Weekend Existing]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	25.3	km/h		1.9	km/h		23.8	km/h
Travel Distance (Total)	1703.0	veh-km/h		10.7	ped-km/h		2054.2	pers-km/h
Travel Time (Total)	67.3	veh-h/h		5.6	ped-h/h		86.3	pers-h/h
Demand Flows (Total)	2706	veh/h		300	ped/h		3247	pers/h
Percent Heavy Vehicles (Demand)	2.5	%						
Degree of Saturation	0.890			0.147				
Practical Spare Capacity	1.1	%						
Effective Intersection Capacity	3041	veh/h						
Control Delay (Total)	38.44	veh-h/h		3.28	ped-h/h		49.41	pers-h/h
Control Delay (Average)	51.1	sec		39.3	sec		54.8	sec
Control Delay (Worst Lane)	67.4	sec						
Control Delay (Worst Movement)	67.4	sec		49.4	sec		67.4	sec
Geometric Delay (Average)	1.4	sec						
Stop-Line Delay (Average)	49.7	sec						
Idling Time (Average)	43.8	sec						
Intersection Level of Service (LOS)	LOS D			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	39.6	veh						
95% Back of Queue - Distance (Worst Lane)	283.3	m						
Queue Storage Ratio (Worst Lane)	0.58							
Total Effective Stops	2585	veh/h		252	ped/h		3354	pers/h
Effective Stop Rate	0.96	per veh		0.84	per ped		1.03	per pers
Proportion Queued	0.95			0.84			1.03	
Performance Index	218.8			7.0			225.7	
Cost (Total)	2137.95	$/h		140.00	$/h		2277.95	$/h
Fuel Consumption (Total)	232.9	L/h						
Carbon Dioxide (Total)	550.7	kg/h						
Hydrocarbons (Total)	0.054	kg/h						
Carbon Monoxide (Total)	0.566	kg/h						
NOx (Total)	0.702	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,298,880	veh/y		144,000	ped/y		1,558,656	pers/y
Delay	18,451	veh-h/y		1,574	ped-h/y		23,715	pers-h/y
Effective Stops	1,241,024	veh/y		120,777	ped/y		1,610,006	pers/y
Travel Distance	817,419	veh-km/y		5,115	ped-km/y		986,017	pers-km/y
Travel Time	32,281	veh-h/y		2,667	ped-h/y		41,404	pers-h/y
Cost	1,026,217	$/y		67,198	$/y		1,093,415	$/y
Fuel Consumption	111,807	L/y						
Carbon Dioxide	264,338	kg/y						
Hydrocarbons	26	kg/y						
Carbon Monoxide	272	kg/y						
NOx	337	kg/y						

LANE SUMMARY

Site: 5 [Weekend Existing]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	451	2.9	507[1]	0.890	100	47.7	LOS D	25.2	180.7	Short	50	0.0	NA
Lane 2	455	2.7	511[1]	0.890	100	46.1	LOS D	25.3	181.2	Full	300	0.0	0.0
Lane 3	667	2.7	749	0.890	100	45.4	LOS D	39.6	283.3	Full	300	0.0	0.0
Lane 4	173	1.7	200	0.864	100	67.4	LOS E	10.5	74.3	Full	300	0.0	0.0
Approach	1746	2.6		0.890		48.3	LOS D	39.6	283.3				
East: William Henry Street													
Lane 1	165	2.4	262	0.628	100	50.0	LOS D	8.6	61.7	Full	100	0.0	0.0
Lane 2	165	2.4	262	0.628	100	50.0	LOS D	8.6	61.7	Full	100	0.0	0.0
Lane 3	225	2.2	266	0.846	100	63.2	LOS E	13.3	94.6	Short	50	0.0	NA
Approach	554	2.3		0.846		55.4	LOS D	13.3	94.6				
West: William Henry Street													
Lane 1	198	2.1	250	0.792	100	60.4	LOS E	11.2	79.9	Full	115	0.0	0.0
Lane 2	208	1.9	263	0.792	100	54.6	LOS D	11.7	83.5	Full	115	0.0	0.0
Approach	406	2.0		0.792		57.4	LOS E	11.7	83.5				
Intersection	2706	2.5		0.890		51.1	LOS D	39.6	283.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 5 [Weekend Future]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	25.2	km/h		1.9	km/h		23.7	km/h
Travel Distance (Total)	1703.4	veh-km/h		10.7	ped-km/h		2054.7	pers-km/h
Travel Time (Total)	67.6	veh-h/h		5.6	ped-h/h		86.7	pers-h/h
Demand Flows (Total)	2720	veh/h		300	ped/h		3264	pers/h
Percent Heavy Vehicles (Demand)	2.6	%						
Degree of Saturation	0.890			0.147				
Practical Spare Capacity	1.1	%						
Effective Intersection Capacity	3056	veh/h						
Control Delay (Total)	38.83	veh-h/h		3.28	ped-h/h		49.88	pers-h/h
Control Delay (Average)	51.4	sec		39.3	sec		55.0	sec
Control Delay (Worst Lane)	67.4	sec						
Control Delay (Worst Movement)	67.4	sec		49.4	sec		67.4	sec
Geometric Delay (Average)	1.4	sec						
Stop-Line Delay (Average)	50.0	sec						
Idling Time (Average)	44.1	sec						
Intersection Level of Service (LOS)	LOS D			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	39.6	veh						
95% Back of Queue - Distance (Worst Lane)	283.3	m						
Queue Storage Ratio (Worst Lane)	0.58							
Total Effective Stops	2611	veh/h		252	ped/h		3385	pers/h
Effective Stop Rate	0.96	per veh		0.84	per ped		1.04	per pers
Proportion Queued	0.95			0.84			1.03	
Performance Index	220.9			7.0			227.8	
Cost (Total)	2154.48	$/h		140.00	$/h		2294.48	$/h
Fuel Consumption (Total)	234.4	L/h						
Carbon Dioxide (Total)	554.3	kg/h						
Hydrocarbons (Total)	0.054	kg/h						
Carbon Monoxide (Total)	0.570	kg/h						
NOx (Total)	0.720	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,305,600	veh/y		144,000	ped/y		1,566,720	pers/y
Delay	18,639	veh-h/y		1,574	ped-h/y		23,941	pers-h/y
Effective Stops	1,253,350	veh/y		120,777	ped/y		1,624,798	pers/y
Travel Distance	817,633	veh-km/y		5,115	ped-km/y		986,274	pers-km/y
Travel Time	32,471	veh-h/y		2,667	ped-h/y		41,632	pers-h/y
Cost	1,034,150	$/y		67,198	$/y		1,101,348	$/y
Fuel Consumption	112,523	L/y						
Carbon Dioxide	266,058	kg/y						
Hydrocarbons	26	kg/y						
Carbon Monoxide	273	kg/y						
NOx	346	kg/y						

LANE SUMMARY

Site: 5 [Weekend Future]

Wattle Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	451	2.9	507[1]	0.890	100	47.7	LOS D	25.2	180.7	Short	50	0.0	NA
Lane 2	455	2.7	511[1]	0.890	100	46.1	LOS D	25.3	181.2	Full	300	0.0	0.0
Lane 3	667	2.7	749	0.890	100	45.4	LOS D	39.6	283.3	Full	300	0.0	0.0
Lane 4	173	1.7	200	0.864	100	67.4	LOS E	10.5	74.3	Full	300	0.0	0.0
Approach	1746	2.6		0.890		48.3	LOS D	39.6	283.3				
East: William Henry Street													
Lane 1	165	2.4	262	0.628	100	50.0	LOS D	8.6	61.7	Full	100	0.0	0.0
Lane 2	165	2.4	262	0.628	100	50.0	LOS D	8.6	61.7	Full	100	0.0	0.0
Lane 3	225	2.2	266	0.846	100	63.2	LOS E	13.3	94.6	Short	50	0.0	NA
Approach	554	2.3		0.846		55.4	LOS D	13.3	94.6				
West: William Henry Street													
Lane 1	206	2.2	250	0.822	100	61.6	LOS E	11.9	84.9	Full	115	0.0	0.0
Lane 2	214	3.0	261	0.822	100	56.3	LOS D	12.3	88.6	Full	115	0.0	0.0
Approach	420	2.6		0.822		58.9	LOS E	12.3	88.6				
Intersection	2720	2.6		0.890		51.4	LOS D	39.6	283.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

INTERSECTION SUMMARY

Site: 6 [AM Existing]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	40.6	km/h	40.6	km/h
Travel Distance (Total)	750.8	veh-km/h	900.9	pers-km/h
Travel Time (Total)	18.5	veh-h/h	22.2	pers-h/h
Demand Flows (Total)	2115	veh/h	2538	pers/h
Percent Heavy Vehicles (Demand)	6.2	%		
Degree of Saturation	0.843			
Practical Spare Capacity	16.3	%		
Effective Intersection Capacity	2509	veh/h		
Control Delay (Total)	4.77	veh-h/h	5.72	pers-h/h
Control Delay (Average)	8.1	sec	8.1	sec
Control Delay (Worst Lane)	15.9	sec		
Control Delay (Worst Movement)	15.9	sec	15.9	sec
Geometric Delay (Average)	3.7	sec		
Stop-Line Delay (Average)	4.4	sec		
Idling Time (Average)	0.1	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	17.0	veh		
95% Back of Queue - Distance (Worst Lane)	125.7	m		
Queue Storage Ratio (Worst Lane)	0.29			
Total Effective Stops	1524	veh/h	1829	pers/h
Effective Stop Rate	0.72	per veh	0.72	per pers
Proportion Queued	0.37		0.37	
Performance Index	39.4		39.4	
Cost (Total)	690.18	$/h	690.18	$/h
Fuel Consumption (Total)	105.0	L/h		
Carbon Dioxide (Total)	249.8	kg/h		
Hydrocarbons (Total)	0.023	kg/h		
Carbon Monoxide (Total)	0.263	kg/h		
NOx (Total)	0.527	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,015,200	veh/y	1,218,240	pers/y
Delay	2,288	veh-h/y	2,745	pers-h/y
Effective Stops	731,414	veh/y	877,697	pers/y
Travel Distance	360,367	veh-km/y	432,440	pers-km/y
Travel Time	8,875	veh-h/y	10,649	pers-h/y
Cost	331,286	$/y	331,286	$/y
Fuel Consumption	50,392	L/y		
Carbon Dioxide	119,902	kg/y		
Hydrocarbons	11	kg/y		
Carbon Monoxide	126	kg/y		
NOx	253	kg/y		

LANE SUMMARY

Site: 6 [AM Existing]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	376	6.4	1872	0.201	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	376	6.4	1872	0.201	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	927	6.6	1100	0.843	100	15.9	LOS B	17.0	125.7	Full	175	0.0	0.0
Approach	1679	6.5		0.843		8.8	NA	17.0	125.7				
North: Wattle Street													
Lane 1	436	5.0	1793	0.243	100	5.6	LOS A	0.0	0.0	Full	250	0.0	0.0
Approach	436	5.0		0.243		5.6	NA	0.0	0.0				
Intersection	2115	6.2		0.843		8.1	NA	17.0	125.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 6 [AM Future]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	37.4	km/h	37.4	km/h
Travel Distance (Total)	772.0	veh-km/h	926.4	pers-km/h
Travel Time (Total)	20.6	veh-h/h	24.8	pers-h/h
Demand Flows (Total)	2173	veh/h	2608	pers/h
Percent Heavy Vehicles (Demand)	6.3	%		
Degree of Saturation	0.910			
Practical Spare Capacity	7.6	%		
Effective Intersection Capacity	2387	veh/h		
Control Delay (Total)	6.51	veh-h/h	7.81	pers-h/h
Control Delay (Average)	10.8	sec	10.8	sec
Control Delay (Worst Lane)	22.3	sec		
Control Delay (Worst Movement)	22.3	sec	22.3	sec
Geometric Delay (Average)	3.7	sec		
Stop-Line Delay (Average)	7.0	sec		
Idling Time (Average)	0.0	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	24.1	veh		
95% Back of Queue - Distance (Worst Lane)	178.4	m		
Queue Storage Ratio (Worst Lane)	0.41			
Total Effective Stops	1973	veh/h	2367	pers/h
Effective Stop Rate	0.91	per veh	0.91	per pers
Proportion Queued	0.39		0.39	
Performance Index	49.7		49.7	
Cost (Total)	785.13	$/h	785.13	$/h
Fuel Consumption (Total)	113.2	L/h		
Carbon Dioxide (Total)	269.4	kg/h		
Hydrocarbons (Total)	0.025	kg/h		
Carbon Monoxide (Total)	0.281	kg/h		
NOx (Total)	0.579	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,043,040	veh/y	1,251,648	pers/y
Delay	3,123	veh-h/y	3,747	pers-h/y
Effective Stops	946,988	veh/y	1,136,386	pers/y
Travel Distance	370,548	veh-km/y	444,658	pers-km/y
Travel Time	9,901	veh-h/y	11,881	pers-h/y
Cost	376,860	$/y	376,860	$/y
Fuel Consumption	54,351	L/y		
Carbon Dioxide	129,303	kg/y		
Hydrocarbons	12	kg/y		
Carbon Monoxide	135	kg/y		
NOx	278	kg/y		

LANE SUMMARY

Site: 6 [AM Future]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	376	6.4	1872	0.201	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	376	6.4	1872	0.201	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	927	6.6	1018	0.910	100	22.3	LOS B	24.1	178.4	Full	175	0.0	5.6
Approach	1679	6.5		0.910		12.3	NA	24.1	178.4				
North: Wattle Street													
Lane 1	494	5.5	1787	0.276	100	5.6	LOS A	0.0	0.0	Full	250	0.0	0.0
Approach	494	5.5		0.276		5.6	NA	0.0	0.0				
Intersection	2173	6.3		0.910		10.8	NA	24.1	178.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 6 [PM Existing]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	41.0	km/h	41.0	km/h
Travel Distance (Total)	870.5	veh-km/h	1044.6	pers-km/h
Travel Time (Total)	21.2	veh-h/h	25.5	pers-h/h
Demand Flows (Total)	2449	veh/h	2939	pers/h
Percent Heavy Vehicles (Demand)	1.3	%		
Degree of Saturation	0.879			
Practical Spare Capacity	11.5	%		
Effective Intersection Capacity	2787	veh/h		
Control Delay (Total)	5.46	veh-h/h	6.55	pers-h/h
Control Delay (Average)	8.0	sec	8.0	sec
Control Delay (Worst Lane)	15.5	sec		
Control Delay (Worst Movement)	15.5	sec	15.5	sec
Geometric Delay (Average)	3.4	sec		
Stop-Line Delay (Average)	4.6	sec		
Idling Time (Average)	0.6	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	25.2	veh		
95% Back of Queue - Distance (Worst Lane)	178.1	m		
Queue Storage Ratio (Worst Lane)	0.41			
Total Effective Stops	1610	veh/h	1932	pers/h
Effective Stop Rate	0.66	per veh	0.66	per pers
Proportion Queued	0.40		0.40	
Performance Index	49.2		49.2	
Cost (Total)	778.00	$/h	778.00	$/h
Fuel Consumption (Total)	104.3	L/h		
Carbon Dioxide (Total)	245.9	kg/h		
Hydrocarbons (Total)	0.023	kg/h		
Carbon Monoxide (Total)	0.265	kg/h		
NOx (Total)	0.192	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,175,520	veh/y	1,410,624	pers/y
Delay	2,620	veh-h/y	3,144	pers-h/y
Effective Stops	772,757	veh/y	927,309	pers/y
Travel Distance	417,825	veh-km/y	501,390	pers-km/y
Travel Time	10,198	veh-h/y	12,237	pers-h/y
Cost	373,442	$/y	373,442	$/y
Fuel Consumption	50,076	L/y		
Carbon Dioxide	118,034	kg/y		
Hydrocarbons	11	kg/y		
Carbon Monoxide	127	kg/y		
NOx	92	kg/y		

LANE SUMMARY

Site: 6 [PM Existing]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	487	1.5	1931	0.252	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	487	1.5	1931	0.252	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	1147	1.0	1305	0.879	100	15.5	LOS B	25.2	178.1	Full	175	0.0	5.5
Approach	2120	1.2		0.879		8.4	NA	25.2	178.1				
North: Wattle Street													
Lane 1	329	2.1	1829	0.180	100	5.6	LOS A	0.0	0.0	Full	250	0.0	0.0
Approach	329	2.1		0.180		5.6	NA	0.0	0.0				
Intersection	2449	1.3		0.879		8.0	NA	25.2	178.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 6 [PM Future]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	39.0	km/h	39.0	km/h
Travel Distance (Total)	882.5	veh-km/h	1059.0	pers-km/h
Travel Time (Total)	22.6	veh-h/h	27.1	pers-h/h
Demand Flows (Total)	2482	veh/h	2978	pers/h
Percent Heavy Vehicles (Demand)	1.5	%		
Degree of Saturation	0.913			
Practical Spare Capacity	7.4	%		
Effective Intersection Capacity	2719	veh/h		
Control Delay (Total)	6.60	veh-h/h	7.92	pers-h/h
Control Delay (Average)	9.6	sec	9.6	sec
Control Delay (Worst Lane)	18.9	sec		
Control Delay (Worst Movement)	18.9	sec	18.9	sec
Geometric Delay (Average)	3.5	sec		
Stop-Line Delay (Average)	6.1	sec		
Idling Time (Average)	0.6	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	30.7	veh		
95% Back of Queue - Distance (Worst Lane)	216.6	m		
Queue Storage Ratio (Worst Lane)	0.50			
Total Effective Stops	1917	veh/h	2301	pers/h
Effective Stop Rate	0.77	per veh	0.77	per pers
Proportion Queued	0.42		0.42	
Performance Index	56.7		56.7	
Cost (Total)	845.89	$/h	845.89	$/h
Fuel Consumption (Total)	109.4	L/h		
Carbon Dioxide (Total)	257.8	kg/h		
Hydrocarbons (Total)	0.024	kg/h		
Carbon Monoxide (Total)	0.273	kg/h		
NOx (Total)	0.211	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,191,360	veh/y	1,429,632	pers/y
Delay	3,167	veh-h/y	3,800	pers-h/y
Effective Stops	920,395	veh/y	1,104,474	pers/y
Travel Distance	423,617	veh-km/y	508,341	pers-km/y
Travel Time	10,853	veh-h/y	13,024	pers-h/y
Cost	406,027	$/y	406,027	$/y
Fuel Consumption	52,496	L/y		
Carbon Dioxide	123,756	kg/y		
Hydrocarbons	12	kg/y		
Carbon Monoxide	131	kg/y		
NOx	101	kg/y		

LANE SUMMARY

Site: 6 [PM Future]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	487	1.5	1931	0.252	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	487	1.5	1931	0.252	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	1147	1.0	1257	0.913	100	18.9	LOS B	30.7	216.6	Full	175	0.0	11.7
Approach	2120	1.2		0.913		10.3	NA	30.7	216.6				
North: Wattle Street													
Lane 1	362	2.8	1821	0.199	100	5.6	LOS A	0.0	0.0	Full	250	0.0	0.0
Approach	362	2.8		0.199		5.6	NA	0.0	0.0				
Intersection	2482	1.5		0.913		9.6	NA	30.7	216.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 6 [Weekend Existing]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	42.6	km/h	42.6	km/h
Travel Distance (Total)	814.4	veh-km/h	977.3	pers-km/h
Travel Time (Total)	19.1	veh-h/h	22.9	pers-h/h
Demand Flows (Total)	2272	veh/h	2726	pers/h
Percent Heavy Vehicles (Demand)	2.4	%		
Degree of Saturation	0.817			
Practical Spare Capacity	19.9	%		
Effective Intersection Capacity	2781	veh/h		
Control Delay (Total)	4.37	veh-h/h	5.24	pers-h/h
Control Delay (Average)	6.9	sec	6.9	sec
Control Delay (Worst Lane)	13.8	sec		
Control Delay (Worst Movement)	13.8	sec	13.8	sec
Geometric Delay (Average)	3.4	sec		
Stop-Line Delay (Average)	3.5	sec		
Idling Time (Average)	0.1	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	15.7	veh		
95% Back of Queue - Distance (Worst Lane)	112.0	m		
Queue Storage Ratio (Worst Lane)	0.26			
Total Effective Stops	1412	veh/h	1694	pers/h
Effective Stop Rate	0.62	per veh	0.62	per pers
Proportion Queued	0.35		0.35	
Performance Index	38.4		38.4	
Cost (Total)	674.71	$/h	674.71	$/h
Fuel Consumption (Total)	97.5	L/h		
Carbon Dioxide (Total)	230.3	kg/h		
Hydrocarbons (Total)	0.021	kg/h		
Carbon Monoxide (Total)	0.251	kg/h		
NOx (Total)	0.248	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,090,560	veh/y	1,308,672	pers/y
Delay	2,095	veh-h/y	2,514	pers-h/y
Effective Stops	677,626	veh/y	813,151	pers/y
Travel Distance	390,901	veh-km/y	469,081	pers-km/y
Travel Time	9,179	veh-h/y	11,015	pers-h/y
Cost	323,859	$/y	323,859	$/y
Fuel Consumption	46,790	L/y		
Carbon Dioxide	110,554	kg/y		
Hydrocarbons	10	kg/y		
Carbon Monoxide	120	kg/y		
NOx	119	kg/y		

LANE SUMMARY

Site: 6 [Weekend Existing]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	448	3.1	1911	0.234	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	448	3.1	1911	0.234	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	973	2.1	1191	0.817	100	13.8	LOS A	15.7	112.0	Full	175	0.0	0.0
Approach	1868	2.6		0.817		7.2	NA	15.7	112.0				
North: Wattle Street													
Lane 1	404	1.7	1834	0.220	100	5.6	LOS A	0.0	0.0	Full	250	0.0	0.0
Approach	404	1.7		0.220		5.6	NA	0.0	0.0				
Intersection	2272	2.4		0.817		6.9	NA	15.7	112.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 6 [Weekend Future]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	36.5	km/h	36.5	km/h
Travel Distance (Total)	852.2	veh-km/h	1022.6	pers-km/h
Travel Time (Total)	23.4	veh-h/h	28.0	pers-h/h
Demand Flows (Total)	2375	veh/h	2850	pers/h
Percent Heavy Vehicles (Demand)	2.8	%		
Degree of Saturation	0.938			
Practical Spare Capacity	4.5	%		
Effective Intersection Capacity	2533	veh/h		
Control Delay (Total)	7.89	veh-h/h	9.47	pers-h/h
Control Delay (Average)	12.0	sec	12.0	sec
Control Delay (Worst Lane)	26.3	sec		
Control Delay (Worst Movement)	26.3	sec	26.3	sec
Geometric Delay (Average)	3.6	sec		
Stop-Line Delay (Average)	8.4	sec		
Idling Time (Average)	0.0	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	30.0	veh		
95% Back of Queue - Distance (Worst Lane)	213.6	m		
Queue Storage Ratio (Worst Lane)	0.49			
Total Effective Stops	2316	veh/h	2780	pers/h
Effective Stop Rate	0.98	per veh	0.98	per pers
Proportion Queued	0.38		0.38	
Performance Index	59.1		59.1	
Cost (Total)	856.75	$/h	856.75	$/h
Fuel Consumption (Total)	112.3	L/h		
Carbon Dioxide (Total)	265.5	kg/h		
Hydrocarbons (Total)	0.025	kg/h		
Carbon Monoxide (Total)	0.279	kg/h		
NOx (Total)	0.319	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,140,000	veh/y	1,368,000	pers/y
Delay	3,788	veh-h/y	4,546	pers-h/y
Effective Stops	1,111,875	veh/y	1,334,250	pers/y
Travel Distance	409,036	veh-km/y	490,844	pers-km/y
Travel Time	11,215	veh-h/y	13,458	pers-h/y
Cost	411,241	$/y	411,241	$/y
Fuel Consumption	53,924	L/y		
Carbon Dioxide	127,457	kg/y		
Hydrocarbons	12	kg/y		
Carbon Monoxide	134	kg/y		
NOx	153	kg/y		

LANE SUMMARY

Site: 6 [Weekend Future]

Wattle Street / Fig Street
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	446	3.1	1911	0.233	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 2	446	3.1	1911	0.233	100	0.0	LOS A	0.0	0.0	Full	175	0.0	0.0
Lane 3	969	2.1	1033	0.938	100	26.3	LOS B	30.0	213.6	Full	175	0.0	11.2
Approach	1861	2.6		0.938		13.7	NA	30.0	213.6				
North: Wattle Street													
Lane 1	514	3.5	1812	0.284	100	5.6	LOS A	0.0	0.0	Full	250	0.0	0.0
Approach	514	3.5		0.284		5.6	NA	0.0	0.0				
Intersection	2375	2.8		0.938		12.0	NA	30.0	213.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 7 [AM Existing]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	29.9	km/h		2.0	km/h		28.5	km/h
Travel Distance (Total)	1164.2	veh-km/h		5.1	ped-km/h		1402.2	pers-km/h
Travel Time (Total)	38.9	veh-h/h		2.5	ped-h/h		49.2	pers-h/h
Demand Flows (Total)	1766	veh/h		150	ped/h		2119	pers/h
Percent Heavy Vehicles (Demand)	6.3	%						
Degree of Saturation	0.893			0.063				
Practical Spare Capacity	0.8	%						
Effective Intersection Capacity	1979	veh/h						
Control Delay (Total)	19.43	veh-h/h		1.42	ped-h/h		24.73	pers-h/h
Control Delay (Average)	39.6	sec		34.0	sec		42.0	sec
Control Delay (Worst Lane)	61.6	sec						
Control Delay (Worst Movement)	61.6	sec		39.3	sec		61.6	sec
Geometric Delay (Average)	0.4	sec						
Stop-Line Delay (Average)	39.2	sec						
Idling Time (Average)	32.8	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	27.7	veh						
95% Back of Queue - Distance (Worst Lane)	204.7	m						
Queue Storage Ratio (Worst Lane)	0.74							
Total Effective Stops	1802	veh/h		130	ped/h		2293	pers/h
Effective Stop Rate	1.02	per veh		0.86	per ped		1.08	per pers
Proportion Queued	0.97			0.86			1.03	
Performance Index	88.5			3.2			91.7	
Cost (Total)	1206.42	$/h		63.30	$/h		1269.72	$/h
Fuel Consumption (Total)	175.5	L/h						
Carbon Dioxide (Total)	419.1	kg/h						
Hydrocarbons (Total)	0.039	kg/h						
Carbon Monoxide (Total)	0.425	kg/h						
NOx (Total)	1.074	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	847,680	veh/y		72,000	ped/y		1,017,216	pers/y
Delay	9,325	veh-h/y		681	ped-h/y		11,870	pers-h/y
Effective Stops	865,156	veh/y		62,263	ped/y		1,100,450	pers/y
Travel Distance	558,814	veh-km/y		2,458	ped-km/y		673,034	pers-km/y
Travel Time	18,683	veh-h/y		1,206	ped-h/y		23,625	pers-h/y
Cost	579,081	$/y		30,384	$/y		609,465	$/y
Fuel Consumption	84,257	L/y						
Carbon Dioxide	201,179	kg/y						
Hydrocarbons	19	kg/y						
Carbon Monoxide	204	kg/y						
NOx	516	kg/y						

LANE SUMMARY

Site: 7 [AM Existing]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	575	6.6	665	0.865	100	38.1	LOS C	27.7	204.7	Full	170	0.0	21.9
Lane 2	575	6.6	665	0.865	100	38.1	LOS C	27.7	204.7	Full	170	0.0	21.9
Lane 3	483	6.6	558[1]	0.865	100	37.8	LOS C	22.4	165.8	Full	170	0.0	2.7
Lane 4	101	1.0	113[1]	0.893	100	61.6	LOS E	5.2	36.5	Short	10	0.0	NA
Approach	1733	6.3		0.893		39.4	LOS C	27.7	204.7				
East: Quarry Street													
Lane 1	27	9.1	116	0.234	100	51.7	LOS D	1.2	9.2	Full	105	0.0	0.0
Lane 2	6	9.1	116	0.050	21[6]	50.3	LOS D	0.2	1.9	Full	105	0.0	0.0
Approach	33	9.1		0.234		51.5	LOS D	1.2	9.2				
Intersection	1766	6.3		0.893		39.6	LOS C	27.7	204.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

INTERSECTION SUMMARY

Site: 7 [AM Future]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	29.9	km/h		2.0	km/h		28.5	km/h
Travel Distance (Total)	1164.2	veh-km/h		5.1	ped-km/h		1402.2	pers-km/h
Travel Time (Total)	38.9	veh-h/h		2.5	ped-h/h		49.2	pers-h/h
Demand Flows (Total)	1766	veh/h		150	ped/h		2119	pers/h
Percent Heavy Vehicles (Demand)	6.3	%						
Degree of Saturation	0.893			0.063				
Practical Spare Capacity	0.8	%						
Effective Intersection Capacity	1979	veh/h						
Control Delay (Total)	19.43	veh-h/h		1.42	ped-h/h		24.73	pers-h/h
Control Delay (Average)	39.6	sec		34.0	sec		42.0	sec
Control Delay (Worst Lane)	61.6	sec						
Control Delay (Worst Movement)	61.6	sec		39.3	sec		61.6	sec
Geometric Delay (Average)	0.4	sec						
Stop-Line Delay (Average)	39.2	sec						
Idling Time (Average)	32.8	sec						
Intersection Level of Service (LOS)	LOS C			LOS D				
95% Back of Queue - Vehicles (Worst Lane)	27.7	veh						
95% Back of Queue - Distance (Worst Lane)	204.7	m						
Queue Storage Ratio (Worst Lane)	0.74							
Total Effective Stops	1802	veh/h		130	ped/h		2293	pers/h
Effective Stop Rate	1.02	per veh		0.86	per ped		1.08	per pers
Proportion Queued	0.97			0.86			1.03	
Performance Index	88.5			3.2			91.7	
Cost (Total)	1206.42	$/h		63.30	$/h		1269.72	$/h
Fuel Consumption (Total)	175.5	L/h						
Carbon Dioxide (Total)	419.1	kg/h						
Hydrocarbons (Total)	0.039	kg/h						
Carbon Monoxide (Total)	0.425	kg/h						
NOx (Total)	1.074	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	847,680	veh/y		72,000	ped/y		1,017,216	pers/y
Delay	9,325	veh-h/y		681	ped-h/y		11,870	pers-h/y
Effective Stops	865,156	veh/y		62,263	ped/y		1,100,450	pers/y
Travel Distance	558,814	veh-km/y		2,458	ped-km/y		673,034	pers-km/y
Travel Time	18,683	veh-h/y		1,206	ped-h/y		23,625	pers-h/y
Cost	579,081	$/y		30,384	$/y		609,465	$/y
Fuel Consumption	84,257	L/y						
Carbon Dioxide	201,179	kg/y						
Hydrocarbons	19	kg/y						
Carbon Monoxide	204	kg/y						
NOx	516	kg/y						

LANE SUMMARY

Site: 7 [AM Future]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	575	6.6	665	0.865	100	38.1	LOS C	27.7	204.7	Full	170	0.0	21.9
Lane 2	575	6.6	665	0.865	100	38.1	LOS C	27.7	204.7	Full	170	0.0	21.9
Lane 3	483	6.6	558[1]	0.865	100	37.8	LOS C	22.4	165.8	Full	170	0.0	2.7
Lane 4	101	1.0	113[1]	0.893	100	61.6	LOS E	5.2	36.5	Short	10	0.0	NA
Approach	1733	6.3		0.893		39.4	LOS C	27.7	204.7				
East: Quarry Street													
Lane 1	27	9.1	116	0.234	100	51.7	LOS D	1.2	9.2	Full	105	0.0	0.0
Lane 2	6	9.1	116	0.050	21[6]	50.3	LOS D	0.2	1.9	Full	105	0.0	0.0
Approach	33	9.1		0.234		51.5	LOS D	1.2	9.2				
Intersection	1766	6.3		0.893		39.6	LOS C	27.7	204.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

INTERSECTION SUMMARY

Site: 7 [PM Existing]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	34.8	km/h		2.2	km/h		33.4	km/h
Travel Distance (Total)	1494.6	veh-km/h		5.1	ped-km/h		1798.7	pers-km/h
Travel Time (Total)	42.9	veh-h/h		2.3	ped-h/h		53.8	pers-h/h
Demand Flows (Total)	2213	veh/h		150	ped/h		2656	pers/h
Percent Heavy Vehicles (Demand)	1.1	%						
Degree of Saturation	0.851			0.056				
Practical Spare Capacity	5.8	%						
Effective Intersection Capacity	2601	veh/h						
Control Delay (Total)	17.95	veh-h/h		1.19	ped-h/h		22.73	pers-h/h
Control Delay (Average)	29.2	sec		28.5	sec		30.8	sec
Control Delay (Worst Lane)	46.1	sec						
Control Delay (Worst Movement)	45.9	sec		34.3	sec		45.9	sec
Geometric Delay (Average)	0.2	sec						
Stop-Line Delay (Average)	29.0	sec						
Idling Time (Average)	23.4	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	29.3	veh						
95% Back of Queue - Distance (Worst Lane)	207.4	m						
Queue Storage Ratio (Worst Lane)	0.75							
Total Effective Stops	2149	veh/h		125	ped/h		2704	pers/h
Effective Stop Rate	0.97	per veh		0.84	per ped		1.02	per pers
Proportion Queued	0.96			0.84			1.00	
Performance Index	91.7			3.0			94.7	
Cost (Total)	1218.72	$/h		57.50	$/h		1276.22	$/h
Fuel Consumption (Total)	170.3	L/h						
Carbon Dioxide (Total)	401.6	kg/h						
Hydrocarbons (Total)	0.037	kg/h						
Carbon Monoxide (Total)	0.433	kg/h						
NOx (Total)	0.327	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,062,240	veh/y		72,000	ped/y		1,274,688	pers/y
Delay	8,617	veh-h/y		570	ped-h/y		10,910	pers-h/y
Effective Stops	1,031,456	veh/y		60,125	ped/y		1,297,872	pers/y
Travel Distance	717,418	veh-km/y		2,458	ped-km/y		863,359	pers-km/y
Travel Time	20,602	veh-h/y		1,095	ped-h/y		25,817	pers-h/y
Cost	584,985	$/y		27,602	$/y		612,587	$/y
Fuel Consumption	81,767	L/y						
Carbon Dioxide	192,778	kg/y						
Hydrocarbons	18	kg/y						
Carbon Monoxide	208	kg/y						
NOx	157	kg/y						

LANE SUMMARY

Site: 7 [PM Existing]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	721	1.1	847	0.851	100	28.6	LOS C	29.3	207.4	Full	170	0.0	23.0
Lane 2	721	1.1	847	0.851	100	28.6	LOS C	29.3	207.4	Full	170	0.0	23.0
Lane 3	687	1.1	807[1]	0.851	100	28.4	LOS B	27.5	194.5	Full	170	0.0	17.2
Lane 4	35	0.0	139	0.251	100	45.7	LOS D	1.4	9.7	Short	10	0.0	NA
Approach	2163	1.1		0.851		28.8	LOS C	29.3	207.4				
East: Quarry Street													
Lane 1	41	0.0	139	0.296	100	46.1	LOS D	1.6	11.5	Full	105	0.0	0.0
Lane 2	9	0.0	139	0.063	21[6]	44.6	LOS D	0.3	2.3	Full	105	0.0	0.0
Approach	50	0.0		0.296		45.9	LOS D	1.6	11.5				
Intersection	2213	1.1		0.851		29.2	LOS C	29.3	207.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

INTERSECTION SUMMARY

Site: 7 [PM Future]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	34.8	km/h		2.2	km/h		33.4	km/h
Travel Distance (Total)	1494.6	veh-km/h		5.1	ped-km/h		1798.7	pers-km/h
Travel Time (Total)	42.9	veh-h/h		2.3	ped-h/h		53.8	pers-h/h
Demand Flows (Total)	2213	veh/h		150	ped/h		2656	pers/h
Percent Heavy Vehicles (Demand)	1.1	%						
Degree of Saturation	0.851			0.056				
Practical Spare Capacity	5.8	%						
Effective Intersection Capacity	2601	veh/h						
Control Delay (Total)	17.95	veh-h/h		1.19	ped-h/h		22.73	pers-h/h
Control Delay (Average)	29.2	sec		28.5	sec		30.8	sec
Control Delay (Worst Lane)	46.1	sec						
Control Delay (Worst Movement)	45.9	sec		34.3	sec		45.9	sec
Geometric Delay (Average)	0.2	sec						
Stop-Line Delay (Average)	29.0	sec						
Idling Time (Average)	23.4	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	29.3	veh						
95% Back of Queue - Distance (Worst Lane)	207.4	m						
Queue Storage Ratio (Worst Lane)	0.75							
Total Effective Stops	2149	veh/h		125	ped/h		2704	pers/h
Effective Stop Rate	0.97	per veh		0.84	per ped		1.02	per pers
Proportion Queued	0.96			0.84			1.00	
Performance Index	91.7			3.0			94.7	
Cost (Total)	1218.72	$/h		57.50	$/h		1276.22	$/h
Fuel Consumption (Total)	170.3	L/h						
Carbon Dioxide (Total)	401.6	kg/h						
Hydrocarbons (Total)	0.037	kg/h						
Carbon Monoxide (Total)	0.433	kg/h						
NOx (Total)	0.327	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	1,062,240	veh/y		72,000	ped/y		1,274,688	pers/y
Delay	8,617	veh-h/y		570	ped-h/y		10,910	pers-h/y
Effective Stops	1,031,456	veh/y		60,125	ped/y		1,297,872	pers/y
Travel Distance	717,418	veh-km/y		2,458	ped-km/y		863,359	pers-km/y
Travel Time	20,602	veh-h/y		1,095	ped-h/y		25,817	pers-h/y
Cost	584,985	$/y		27,602	$/y		612,587	$/y
Fuel Consumption	81,767	L/y						
Carbon Dioxide	192,778	kg/y						
Hydrocarbons	18	kg/y						
Carbon Monoxide	208	kg/y						
NOx	157	kg/y						

LANE SUMMARY

Site: 7 [PM Future]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	721	1.1	847	0.851	100	28.6	LOS C	29.3	207.4	Full	170	0.0	23.0
Lane 2	721	1.1	847	0.851	100	28.6	LOS C	29.3	207.4	Full	170	0.0	23.0
Lane 3	687	1.1	807[1]	0.851	100	28.4	LOS B	27.5	194.5	Full	170	0.0	17.2
Lane 4	35	0.0	139	0.251	100	45.7	LOS D	1.4	9.7	Short	10	0.0	NA
Approach	2163	1.1		0.851		28.8	LOS C	29.3	207.4				
East: Quarry Street													
Lane 1	41	0.0	139	0.296	100	46.1	LOS D	1.6	11.5	Full	105	0.0	0.0
Lane 2	9	0.0	139	0.063	21[6]	44.6	LOS D	0.3	2.3	Full	105	0.0	0.0
Approach	50	0.0		0.296		45.9	LOS D	1.6	11.5				
Intersection	2213	1.1		0.851		29.2	LOS C	29.3	207.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

INTERSECTION SUMMARY

Site: 7 [Weekend Existing]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	32.8	km/h		2.4	km/h		31.5	km/h
Travel Distance (Total)	1298.6	veh-km/h		5.1	ped-km/h		1563.5	pers-km/h
Travel Time (Total)	39.5	veh-h/h		2.2	ped-h/h		49.6	pers-h/h
Demand Flows (Total)	1930	veh/h		150	ped/h		2316	pers/h
Percent Heavy Vehicles (Demand)	2.5	%						
Degree of Saturation	0.879			0.049				
Practical Spare Capacity	2.4	%						
Effective Intersection Capacity	2195	veh/h						
Control Delay (Total)	17.83	veh-h/h		1.07	ped-h/h		22.47	pers-h/h
Control Delay (Average)	33.3	sec		25.8	sec		34.9	sec
Control Delay (Worst Lane)	40.2	sec						
Control Delay (Worst Movement)	40.2	sec		29.3	sec		40.2	sec
Geometric Delay (Average)	0.3	sec						
Stop-Line Delay (Average)	33.0	sec						
Idling Time (Average)	26.1	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	25.2	veh						
95% Back of Queue - Distance (Worst Lane)	180.5	m						
Queue Storage Ratio (Worst Lane)	0.65							
Total Effective Stops	2065	veh/h		128	ped/h		2606	pers/h
Effective Stop Rate	1.07	per veh		0.85	per ped		1.13	per pers
Proportion Queued	0.99			0.85			1.04	
Performance Index	83.6			2.9			86.5	
Cost (Total)	1165.45	$/h		54.61	$/h		1220.06	$/h
Fuel Consumption (Total)	163.4	L/h						
Carbon Dioxide (Total)	386.7	kg/h						
Hydrocarbons (Total)	0.036	kg/h						
Carbon Monoxide (Total)	0.406	kg/h						
NOx (Total)	0.527	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	926,400	veh/y		72,000	ped/y		1,111,680	pers/y
Delay	8,557	veh-h/y		515	ped-h/y		10,784	pers-h/y
Effective Stops	990,985	veh/y		61,500	ped/y		1,250,681	pers/y
Travel Distance	623,344	veh-km/y		2,458	ped-km/y		750,470	pers-km/y
Travel Time	18,977	veh-h/y		1,040	ped-h/y		23,812	pers-h/y
Cost	559,416	$/y		26,212	$/y		585,628	$/y
Fuel Consumption	78,445	L/y						
Carbon Dioxide	185,609	kg/y						
Hydrocarbons	17	kg/y						
Carbon Monoxide	195	kg/y						
NOx	253	kg/y						

LANE SUMMARY

Site: 7 [Weekend Existing]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	627	2.5	713	0.879	100	32.9	LOS C	25.2	180.5	Full	170	0.0	10.4
Lane 2	627	2.5	713	0.879	100	32.9	LOS C	25.2	180.5	Full	170	0.0	10.4
Lane 3	587	2.5	667[1]	0.879	100	32.9	LOS C	23.3	166.4	Full	170	0.0	3.1
Lane 4	42	4.8	154	0.273	100	40.2	LOS C	1.4	10.5	Short	10	0.0	NA
Approach	1882	2.6		0.879		33.1	LOS C	25.2	180.5				
East: Quarry Street													
Lane 1	40	0.0	159	0.249	100	40.2	LOS C	1.4	9.5	Full	105	0.0	0.0
Lane 2	8	0.0	159	0.053	21[6]	39.0	LOS C	0.3	1.9	Full	105	0.0	0.0
Approach	48	0.0		0.249		40.0	LOS C	1.4	9.5				
Intersection	1930	2.5		0.879		33.3	LOS C	25.2	180.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

INTERSECTION SUMMARY

Site: 7 [Weekend Future]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	33.1	km/h		2.4	km/h		31.7	km/h
Travel Distance (Total)	1293.9	veh-km/h		5.1	ped-km/h		1557.7	pers-km/h
Travel Time (Total)	39.1	veh-h/h		2.2	ped-h/h		49.1	pers-h/h
Demand Flows (Total)	1923	veh/h		150	ped/h		2308	pers/h
Percent Heavy Vehicles (Demand)	2.5	%						
Degree of Saturation	0.876			0.049				
Practical Spare Capacity	2.7	%						
Effective Intersection Capacity	2195	veh/h						
Control Delay (Total)	17.52	veh-h/h		1.07	ped-h/h		22.09	pers-h/h
Control Delay (Average)	32.8	sec		25.8	sec		34.5	sec
Control Delay (Worst Lane)	40.2	sec						
Control Delay (Worst Movement)	40.2	sec		29.3	sec		40.2	sec
Geometric Delay (Average)	0.3	sec						
Stop-Line Delay (Average)	32.5	sec						
Idling Time (Average)	25.7	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	24.9	veh						
95% Back of Queue - Distance (Worst Lane)	178.3	m						
Queue Storage Ratio (Worst Lane)	0.64							
Total Effective Stops	2042	veh/h		128	ped/h		2579	pers/h
Effective Stop Rate	1.06	per veh		0.85	per ped		1.12	per pers
Proportion Queued	0.99			0.85			1.04	
Performance Index	82.7			2.9			85.6	
Cost (Total)	1152.49	$/h		54.61	$/h		1207.09	$/h
Fuel Consumption (Total)	162.4	L/h						
Carbon Dioxide (Total)	384.2	kg/h						
Hydrocarbons (Total)	0.036	kg/h						
Carbon Monoxide (Total)	0.404	kg/h						
NOx (Total)	0.525	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	923,040	veh/y		72,000	ped/y		1,107,648	pers/y
Delay	8,409	veh-h/y		515	ped-h/y		10,605	pers-h/y
Effective Stops	980,293	veh/y		61,500	ped/y		1,237,852	pers/y
Travel Distance	621,048	veh-km/y		2,458	ped-km/y		747,716	pers-km/y
Travel Time	18,790	veh-h/y		1,040	ped-h/y		23,588	pers-h/y
Cost	553,193	$/y		26,212	$/y		579,405	$/y
Fuel Consumption	77,942	L/y						
Carbon Dioxide	184,427	kg/y						
Hydrocarbons	17	kg/y						
Carbon Monoxide	194	kg/y						
NOx	252	kg/y						

LANE SUMMARY

Site: 7 [Weekend Future]

Wattle Street / Quarry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wattle Street													
Lane 1	624	2.5	713	0.876	100	32.5	LOS C	24.9	178.3	Full	170	0.0	9.3
Lane 2	624	2.5	713	0.876	100	32.5	LOS C	24.9	178.3	Full	170	0.0	9.3
Lane 3	584	2.5	667[1]	0.876	100	32.4	LOS C	23.0	164.2	Full	170	0.0	1.9
Lane 4	42	4.8	154	0.273	100	40.2	LOS C	1.4	10.5	Short	10	0.0	NA
Approach	1875	2.6		0.876		32.6	LOS C	24.9	178.3				
East: Quarry Street													
Lane 1	40	0.0	159	0.249	100	40.2	LOS C	1.4	9.5	Full	105	0.0	0.0
Lane 2	8	0.0	159	0.053	21[6]	39.0	LOS C	0.3	1.9	Full	105	0.0	0.0
Approach	48	0.0		0.249		40.0	LOS C	1.4	9.5				
Intersection	1923	2.5		0.876		32.8	LOS C	24.9	178.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

INTERSECTION SUMMARY

Site: 8 [AM Existing]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	30.3	km/h		2.3	km/h		28.6	km/h
Travel Distance (Total)	875.7	veh-km/h		5.3	ped-km/h		1056.2	pers-km/h
Travel Time (Total)	28.9	veh-h/h		2.3	ped-h/h		37.0	pers-h/h
Demand Flows (Total)	1417	veh/h		150	ped/h		1700	pers/h
Percent Heavy Vehicles (Demand)	3.3	%						
Degree of Saturation	0.853			0.049				
Practical Spare Capacity	5.5	%						
Effective Intersection Capacity	1661	veh/h						
Control Delay (Total)	13.90	veh-h/h		1.18	ped-h/h		17.86	pers-h/h
Control Delay (Average)	35.3	sec		28.4	sec		37.8	sec
Control Delay (Worst Lane)	44.8	sec						
Control Delay (Worst Movement)	45.1	sec		29.3	sec		45.1	sec
Geometric Delay (Average)	2.8	sec						
Stop-Line Delay (Average)	32.6	sec						
Idling Time (Average)	26.7	sec						
Intersection Level of Service (LOS)	LOS C			LOS C				
95% Back of Queue - Vehicles (Worst Lane)	17.2	veh						
95% Back of Queue - Distance (Worst Lane)	123.1	m						
Queue Storage Ratio (Worst Lane)	0.24							
Total Effective Stops	1307	veh/h		135	ped/h		1703	pers/h
Effective Stop Rate	0.92	per veh		0.90	per ped		1.00	per pers
Proportion Queued	0.96			0.90			1.04	
Performance Index	97.7			3.1			100.8	
Cost (Total)	993.95	$/h		58.36	$/h		1052.31	$/h
Fuel Consumption (Total)	116.0	L/h						
Carbon Dioxide (Total)	274.6	kg/h						
Hydrocarbons (Total)	0.026	kg/h						
Carbon Monoxide (Total)	0.287	kg/h						
NOx (Total)	0.437	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	680,160	veh/y		72,000	ped/y		816,192	pers/y
Delay	6,671	veh-h/y		568	ped-h/y		8,573	pers-h/y
Effective Stops	627,221	veh/y		64,935	ped/y		817,600	pers/y
Travel Distance	420,348	veh-km/y		2,542	ped-km/y		506,959	pers-km/y
Travel Time	13,860	veh-h/y		1,112	ped-h/y		17,744	pers-h/y
Cost	477,096	$/y		28,011	$/y		505,107	$/y
Fuel Consumption	55,675	L/y						
Carbon Dioxide	131,809	kg/y						
Hydrocarbons	12	kg/y						
Carbon Monoxide	138	kg/y						
NOx	210	kg/y						

LANE SUMMARY

Site: 8 [AM Existing]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Bay Street													
Lane 1	165	5.5	204	0.808	100	44.3	LOS D	6.3	46.4	Short	50	0.0	NA
Lane 2	105	3.8	155	0.678	100	43.0	LOS D	3.9	28.0	Full	240	0.0	0.0
Approach	270	4.8		0.808		43.8	LOS D	6.3	46.4				
East: William Henry Street													
Lane 1	213	2.8	499	0.426	100	27.6	LOS B	6.1	44.0	Full	115	0.0	0.0
Lane 2	219	4.6	514	0.426	100	23.2	LOS B	6.3	45.9	Full	115	0.0	0.0
Approach	432	3.7		0.426		25.4	LOS B	6.3	45.9				
West: Wentworth Park Road													
Lane 1	443	2.9	520	0.853	100	34.0	LOS C	17.2	123.1	Full	500	0.0	0.0
Lane 2	272	2.0	319	0.853	100	44.8	LOS D	10.9	77.9	Full	500	0.0	0.0
Approach	715	2.5		0.853		38.1	LOS C	17.2	123.1				
Intersection	1417	3.3		0.853		35.3	LOS C	17.2	123.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 8 [AM Future]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	30.1	km/h	2.3	km/h	28.4	km/h
Travel Distance (Total)	888.9	veh-km/h	5.3	ped-km/h	1071.9	pers-km/h
Travel Time (Total)	29.5	veh-h/h	2.3	ped-h/h	37.7	pers-h/h
Demand Flows (Total)	1438	veh/h	150	ped/h	1726	pers/h
Percent Heavy Vehicles (Demand)	3.3	%				
Degree of Saturation	0.877		0.049			
Practical Spare Capacity	2.6	%				
Effective Intersection Capacity	1639	veh/h				
Control Delay (Total)	14.33	veh-h/h	1.17	ped-h/h	18.37	pers-h/h
Control Delay (Average)	35.9	sec	28.1	sec	38.3	sec
Control Delay (Worst Lane)	47.0	sec				
Control Delay (Worst Movement)	47.0	sec	29.3	sec	47.0	sec
Geometric Delay (Average)	2.7	sec				
Stop-Line Delay (Average)	33.2	sec				
Idling Time (Average)	27.1	sec				
Intersection Level of Service (LOS)	LOS C		LOS C			
95% Back of Queue - Vehicles (Worst Lane)	19.3	veh				
95% Back of Queue - Distance (Worst Lane)	138.3	m				
Queue Storage Ratio (Worst Lane)	0.24					
Total Effective Stops	1352	veh/h	135	ped/h	1757	pers/h
Effective Stop Rate	0.94	per veh	0.90	per ped	1.02	per pers
Proportion Queued	0.96		0.90		1.03	
Performance Index	100.7		3.1		103.8	
Cost (Total)	1019.92	$/h	58.05	$/h	1077.98	$/h
Fuel Consumption (Total)	118.0	L/h				
Carbon Dioxide (Total)	279.4	kg/h				
Hydrocarbons (Total)	0.026	kg/h				
Carbon Monoxide (Total)	0.291	kg/h				
NOx (Total)	0.438	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	690,240	veh/y	72,000	ped/y	828,288	pers/y
Delay	6,878	veh-h/y	563	ped-h/y	8,817	pers-h/y
Effective Stops	649,047	veh/y	64,592	ped/y	843,448	pers/y
Travel Distance	426,654	veh-km/y	2,542	ped-km/y	514,526	pers-km/y
Travel Time	14,171	veh-h/y	1,106	ped-h/y	18,111	pers-h/y
Cost	489,564	$/y	27,865	$/y	517,429	$/y
Fuel Consumption	56,656	L/y				
Carbon Dioxide	134,109	kg/y				
Hydrocarbons	13	kg/y				
Carbon Monoxide	140	kg/y				
NOx	210	kg/y				

LANE SUMMARY

Site: 8 [AM Future]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Bay Street													
Lane 1	165	5.5	204	0.808	100	44.3	LOS D	6.3	46.4	Short	50	0.0	NA
Lane 2	105	3.8	155	0.678	100	43.0	LOS D	3.9	28.0	Full	240	0.0	0.0
Approach	270	4.8		0.808		43.8	LOS D	6.3	46.4				
East: William Henry Street													
Lane 1	213	2.8	526	0.405	100	26.7	LOS B	6.0	43.1	Full	115	0.0	0.0
Lane 2	219	4.6	541	0.405	100	22.2	LOS B	6.2	44.9	Full	115	0.0	0.0
Approach	432	3.7		0.405		24.4	LOS B	6.2	44.9				
West: Wentworth Park Road													
Lane 1	478	2.9	547	0.874	100[5]	35.8	LOS C	19.3	138.3	Full	500	0.0	0.0
Lane 2	258	1.6	294	0.877	100	47.0	LOS D	10.7	75.7	Full	500	0.0	0.0
Approach	736	2.4		0.877		39.7	LOS C	19.3	138.3				
Intersection	1438	3.3		0.877		35.9	LOS C	19.3	138.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program

INTERSECTION SUMMARY

Site: 8 [PM Existing]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	26.8	km/h	2.3	km/h	25.7	km/h
Travel Distance (Total)	1072.8	veh-km/h	5.3	ped-km/h	1292.6	pers-km/h
Travel Time (Total)	40.0	veh-h/h	2.4	ped-h/h	50.3	pers-h/h
Demand Flows (Total)	1735	veh/h	150	ped/h	2082	pers/h
Percent Heavy Vehicles (Demand)	0.4	%				
Degree of Saturation	0.933		0.049			
Practical Spare Capacity	-3.5	%				
Effective Intersection Capacity	1860	veh/h				
Control Delay (Total)	21.68	veh-h/h	1.22	ped-h/h	27.24	pers-h/h
Control Delay (Average)	45.0	sec	29.3	sec	47.1	sec
Control Delay (Worst Lane)	51.9	sec				
Control Delay (Worst Movement)	55.1	sec	29.3	sec	55.1	sec
Geometric Delay (Average)	2.8	sec				
Stop-Line Delay (Average)	42.2	sec				
Idling Time (Average)	34.3	sec				
Intersection Level of Service (LOS)	LOS D		LOS C			
95% Back of Queue - Vehicles (Worst Lane)	18.3	veh				
95% Back of Queue - Distance (Worst Lane)	128.6	m				
Queue Storage Ratio (Worst Lane)	0.69					
Total Effective Stops	1877	veh/h	137	ped/h	2390	pers/h
Effective Stop Rate	1.08	per veh	0.92	per ped	1.15	per pers
Proportion Queued	0.99		0.92		1.06	
Performance Index	133.7		3.1		136.8	
Cost (Total)	1282.01	$/h	59.30	$/h	1341.31	$/h
Fuel Consumption (Total)	134.6	L/h				
Carbon Dioxide (Total)	316.7	kg/h				
Hydrocarbons (Total)	0.031	kg/h				
Carbon Monoxide (Total)	0.329	kg/h				
NOx (Total)	0.158	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	832,800	veh/y	72,000	ped/y	999,360	pers/y
Delay	10,406	veh-h/y	586	ped-h/y	13,073	pers-h/y
Effective Stops	901,069	veh/y	65,966	ped/y	1,147,249	pers/y
Travel Distance	514,938	veh-km/y	2,542	ped-km/y	620,467	pers-km/y
Travel Time	19,187	veh-h/y	1,129	ped-h/y	24,154	pers-h/y
Cost	615,366	$/y	28,462	$/y	643,828	$/y
Fuel Consumption	64,627	L/y				
Carbon Dioxide	152,023	kg/y				
Hydrocarbons	15	kg/y				
Carbon Monoxide	158	kg/y				
NOx	76	kg/y				

LANE SUMMARY

Site: 8 [PM Existing]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Bay Street													
Lane 1	301	0.3	344	0.875	100	45.5	LOS D	12.3	86.1	Short	50	0.0	NA
Lane 2	178	0.6	211	0.842	100	45.7	LOS D	7.0	49.2	Full	240	0.0	0.0
Approach	479	0.4		0.875		45.6	LOS D	12.3	86.1				
East: William Henry Street													
Lane 1	380	0.5	408	0.933	100	51.9	LOS D	18.0	126.3	Full	115	0.0	13.5
Lane 2	389	0.5	417	0.933	100	49.3	LOS D	18.3	128.6	Full	115	0.0	15.1
Approach	769	0.5		0.933		50.6	LOS D	18.3	128.6				
West: Wentworth Park Road													
Lane 1	264	0.4	417	0.633	75[5]	28.1	LOS B	8.5	60.0	Full	500	0.0	0.0
Lane 2	223	0.0	265	0.841	100	44.3	LOS D	8.7	60.9	Full	500	0.0	0.0
Approach	487	0.2		0.841		35.5	LOS C	8.7	60.9				
Intersection	1735	0.4		0.933		45.0	LOS D	18.3	128.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program

INTERSECTION SUMMARY

Site: 8 [PM Future]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	26.8	km/h	2.3	km/h	25.7	km/h
Travel Distance (Total)	1077.8	veh-km/h	5.3	ped-km/h	1298.7	pers-km/h
Travel Time (Total)	40.1	veh-h/h	2.4	ped-h/h	50.5	pers-h/h
Demand Flows (Total)	1743	veh/h	150	ped/h	2092	pers/h
Percent Heavy Vehicles (Demand)	0.5	%				
Degree of Saturation	0.933		0.049			
Practical Spare Capacity	-3.5	%				
Effective Intersection Capacity	1868	veh/h				
Control Delay (Total)	21.77	veh-h/h	1.22	ped-h/h	27.34	pers-h/h
Control Delay (Average)	45.0	sec	29.3	sec	47.1	sec
Control Delay (Worst Lane)	51.9	sec				
Control Delay (Worst Movement)	55.1	sec	29.3	sec	55.1	sec
Geometric Delay (Average)	2.7	sec				
Stop-Line Delay (Average)	42.2	sec				
Idling Time (Average)	34.3	sec				
Intersection Level of Service (LOS)	LOS D		LOS C			
95% Back of Queue - Vehicles (Worst Lane)	18.3	veh				
95% Back of Queue - Distance (Worst Lane)	128.6	m				
Queue Storage Ratio (Worst Lane)	0.69					
Total Effective Stops	1888	veh/h	137	ped/h	2403	pers/h
Effective Stop Rate	1.08	per veh	0.92	per ped	1.15	per pers
Proportion Queued	0.99		0.92		1.06	
Performance Index	134.3		3.1		137.5	
Cost (Total)	1289.52	$/h	59.30	$/h	1348.81	$/h
Fuel Consumption (Total)	135.6	L/h				
Carbon Dioxide (Total)	318.9	kg/h				
Hydrocarbons (Total)	0.031	kg/h				
Carbon Monoxide (Total)	0.331	kg/h				
NOx (Total)	0.166	kg/h				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Demand Flows (Total)	836,640	veh/y	72,000	ped/y	1,003,968	pers/y
Delay	10,449	veh-h/y	586	ped-h/y	13,125	pers-h/y
Effective Stops	906,186	veh/y	65,966	ped/y	1,153,389	pers/y
Travel Distance	517,363	veh-km/y	2,542	ped-km/y	623,377	pers-km/y
Travel Time	19,271	veh-h/y	1,129	ped-h/y	24,254	pers-h/y
Cost	618,969	$/y	28,462	$/y	647,431	$/y
Fuel Consumption	65,076	L/y				
Carbon Dioxide	153,091	kg/y				
Hydrocarbons	15	kg/y				
Carbon Monoxide	159	kg/y				
NOx	79	kg/y				

LANE SUMMARY

Site: 8 [PM Future]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Bay Street													
Lane 1	301	0.3	344	0.875	100	45.5	LOS D	12.3	86.1	Short	50	0.0	NA
Lane 2	178	0.6	211	0.842	100	45.7	LOS D	7.0	49.2	Full	240	0.0	0.0
Approach	479	0.4		0.875		45.6	LOS D	12.3	86.1				
East: William Henry Street													
Lane 1	380	0.5	408	0.933	100	51.9	LOS D	18.0	126.3	Full	115	0.0	13.5
Lane 2	389	0.5	417	0.933	100	49.3	LOS D	18.3	128.6	Full	115	0.0	15.1
Approach	769	0.5		0.933		50.6	LOS D	18.3	128.6				
West: Wentworth Park Road													
Lane 1	272	0.7	416	0.654	78[5]	28.5	LOS B	8.9	62.8	Full	500	0.0	0.0
Lane 2	223	0.0	265	0.841	100	44.3	LOS D	8.7	60.9	Full	500	0.0	0.0
Approach	495	0.4		0.841		35.6	LOS C	8.9	62.8				
Intersection	1743	0.5		0.933		45.0	LOS D	18.3	128.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program

INTERSECTION SUMMARY

Site: 8 [Weekend Existing]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	30.6	km/h		2.7	km/h		28.6	km/h
Travel Distance (Total)	625.9	veh-km/h		5.3	ped-km/h		756.4	pers-km/h
Travel Time (Total)	20.4	veh-h/h		1.9	ped-h/h		26.5	pers-h/h
Demand Flows (Total)	1071	veh/h		150	ped/h		1285	pers/h
Percent Heavy Vehicles (Demand)	1.6	%						
Degree of Saturation	0.915			0.035				
Practical Spare Capacity	-1.7	%						
Effective Intersection Capacity	1170	veh/h						
Control Delay (Total)	9.61	veh-h/h		0.81	ped-h/h		12.34	pers-h/h
Control Delay (Average)	32.3	sec		19.4	sec		34.6	sec
Control Delay (Worst Lane)	41.6	sec						
Control Delay (Worst Movement)	41.6	sec		19.4	sec		41.6	sec
Geometric Delay (Average)	3.9	sec						
Stop-Line Delay (Average)	28.4	sec						
Idling Time (Average)	21.4	sec						
Intersection Level of Service (LOS)	LOS C			LOS B				
95% Back of Queue - Vehicles (Worst Lane)	7.8	veh						
95% Back of Queue - Distance (Worst Lane)	54.7	m						
Queue Storage Ratio (Worst Lane)	0.16							
Total Effective Stops	1033	veh/h		132	ped/h		1372	pers/h
Effective Stop Rate	0.96	per veh		0.88	per ped		1.07	per pers
Proportion Queued	1.00			0.88			1.10	
Performance Index	57.8			2.7			60.5	
Cost (Total)	676.43	$/h		48.88	$/h		725.31	$/h
Fuel Consumption (Total)	79.5	L/h						
Carbon Dioxide (Total)	187.3	kg/h						
Hydrocarbons (Total)	0.018	kg/h						
Carbon Monoxide (Total)	0.197	kg/h						
NOx (Total)	0.186	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	514,080	veh/y		72,000	ped/y		616,896	pers/y
Delay	4,612	veh-h/y		388	ped-h/y		5,923	pers-h/y
Effective Stops	495,959	veh/y		63,492	ped/y		658,643	pers/y
Travel Distance	300,447	veh-km/y		2,542	ped-km/y		363,078	pers-km/y
Travel Time	9,807	veh-h/y		931	ped-h/y		12,700	pers-h/y
Cost	324,687	$/y		23,463	$/y		348,150	$/y
Fuel Consumption	38,137	L/y						
Carbon Dioxide	89,912	kg/y						
Hydrocarbons	9	kg/y						
Carbon Monoxide	95	kg/y						
NOx	89	kg/y						

LANE SUMMARY

Site: 8 [Weekend Existing]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Bay Street													
Lane 1	238	0.0	260	0.915	100	41.6	LOS C	7.8	54.7	Short	50	0.0	NA
Lane 2	213	0.5	259	0.822	100	33.9	LOS C	6.0	42.5	Full	240	0.0	0.0
Approach	451	0.2		0.915		38.0	LOS C	7.8	54.7				
East: William Henry Street													
Lane 1	162	1.2	221	0.733	100	32.2	LOS C	4.4	30.9	Full	115	0.0	0.0
Lane 2	157	0.6	233	0.674	92[5]	25.6	LOS B	4.1	28.9	Full	115	0.0	0.0
Approach	319	0.9		0.733		28.9	LOS C	4.4	30.9				
West: Wentworth Park Road													
Lane 1	149	4.5	227	0.656	100	25.4	LOS B	3.9	28.2	Full	500	0.0	0.0
Lane 2	152	4.2	231	0.656	100	29.4	LOS C	3.9	28.0	Full	500	0.0	0.0
Approach	301	4.3		0.656		27.4	LOS B	3.9	28.2				
Intersection	1071	1.6		0.915		32.3	LOS C	7.8	54.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program

INTERSECTION SUMMARY

Site: 8 [Weekend Future]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Travel Speed (Average)	30.6	km/h		2.7	km/h		28.5	km/h
Travel Distance (Total)	629.6	veh-km/h		5.3	ped-km/h		760.8	pers-km/h
Travel Time (Total)	20.6	veh-h/h		1.9	ped-h/h		26.7	pers-h/h
Demand Flows (Total)	1079	veh/h		150	ped/h		1295	pers/h
Percent Heavy Vehicles (Demand)	2.3	%						
Degree of Saturation	0.915			0.035				
Practical Spare Capacity	-1.7	%						
Effective Intersection Capacity	1179	veh/h						
Control Delay (Total)	9.71	veh-h/h		0.81	ped-h/h		12.46	pers-h/h
Control Delay (Average)	32.4	sec		19.4	sec		34.7	sec
Control Delay (Worst Lane)	41.6	sec						
Control Delay (Worst Movement)	41.6	sec		19.4	sec		41.6	sec
Geometric Delay (Average)	3.8	sec						
Stop-Line Delay (Average)	28.6	sec						
Idling Time (Average)	21.4	sec						
Intersection Level of Service (LOS)	LOS C			LOS B				
95% Back of Queue - Vehicles (Worst Lane)	7.8	veh						
95% Back of Queue - Distance (Worst Lane)	54.7	m						
Queue Storage Ratio (Worst Lane)	0.16							
Total Effective Stops	1052	veh/h		132	ped/h		1394	pers/h
Effective Stop Rate	0.97	per veh		0.88	per ped		1.08	per pers
Proportion Queued	1.00			0.88			1.10	
Performance Index	58.5			2.7			61.2	
Cost (Total)	688.35	$/h		48.88	$/h		737.23	$/h
Fuel Consumption (Total)	82.3	L/h						
Carbon Dioxide (Total)	194.4	kg/h						
Hydrocarbons (Total)	0.018	kg/h						
Carbon Monoxide (Total)	0.204	kg/h						
NOx (Total)	0.245	kg/h						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values								
Performance Measure	**Vehicles**			**Pedestrians**			**Persons**	
Demand Flows (Total)	517,920	veh/y		72,000	ped/y		621,504	pers/y
Delay	4,663	veh-h/y		388	ped-h/y		5,983	pers-h/y
Effective Stops	504,880	veh/y		63,492	ped/y		669,348	pers/y
Travel Distance	302,217	veh-km/y		2,542	ped-km/y		365,202	pers-km/y
Travel Time	9,885	veh-h/y		931	ped-h/y		12,793	pers-h/y
Cost	330,407	$/y		23,463	$/y		353,870	$/y
Fuel Consumption	39,522	L/y						
Carbon Dioxide	93,307	kg/y						
Hydrocarbons	9	kg/y						
Carbon Monoxide	98	kg/y						
NOx	118	kg/y						

LANE SUMMARY

Site: 8 [Weekend Future]

Wentworth Park Road / Bay Street / William Henry Street
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Bay Street													
Lane 1	238	0.0	260	0.915	100	41.6	LOS C	7.8	54.7	Short	50	0.0	NA
Lane 2	213	0.5	259	0.822	100	33.9	LOS C	6.0	42.5	Full	240	0.0	0.0
Approach	451	0.2		0.915		38.0	LOS C	7.8	54.7				
East: William Henry Street													
Lane 1	162	1.2	221	0.733	100	32.2	LOS C	4.4	30.9	Full	115	0.0	0.0
Lane 2	157	0.6	233	0.674	92[5]	25.6	LOS B	4.1	28.9	Full	115	0.0	0.0
Approach	319	0.9		0.733		28.9	LOS C	4.4	30.9				
West: Wentworth Park Road													
Lane 1	160	8.5	222	0.721	100	26.4	LOS B	4.3	32.1	Full	500	0.0	0.0
Lane 2	149	4.9	207	0.721	100	29.6	LOS C	3.8	28.0	Full	500	0.0	0.0
Approach	309	6.8		0.721		27.9	LOS B	4.3	32.1				
Intersection	1079	2.3		0.915		32.4	LOS C	7.8	54.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program

INTERSECTION SUMMARY

Site: 9 [AM Existing]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	55.6	km/h	55.6	km/h
Travel Distance (Total)	1187.1	veh-km/h	1424.5	pers-km/h
Travel Time (Total)	21.3	veh-h/h	25.6	pers-h/h
Demand Flows (Total)	1174	veh/h	1409	pers/h
Percent Heavy Vehicles (Demand)	3.7	%		
Degree of Saturation	0.402			
Practical Spare Capacity	99.1	%		
Effective Intersection Capacity	2922	veh/h		
Control Delay (Total)	1.24	veh-h/h	1.48	pers-h/h
Control Delay (Average)	3.8	sec	3.8	sec
Control Delay (Worst Lane)	12.9	sec		
Control Delay (Worst Movement)	13.4	sec	13.4	sec
Geometric Delay (Average)	2.2	sec		
Stop-Line Delay (Average)	1.6	sec		
Idling Time (Average)	0.7	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	1.7	veh		
95% Back of Queue - Distance (Worst Lane)	12.3	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	346	veh/h	415	pers/h
Effective Stop Rate	0.29	per veh	0.29	per pers
Proportion Queued	0.19		0.19	
Performance Index	26.9		26.9	
Cost (Total)	532.10	$/h	532.10	$/h
Fuel Consumption (Total)	94.8	L/h		
Carbon Dioxide (Total)	225.2	kg/h		
Hydrocarbons (Total)	0.018	kg/h		
Carbon Monoxide (Total)	0.260	kg/h		
NOx (Total)	0.340	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	563,520	veh/y	676,224	pers/y
Delay	593	veh-h/y	712	pers-h/y
Effective Stops	165,906	veh/y	199,087	pers/y
Travel Distance	569,803	veh-km/y	683,764	pers-km/y
Travel Time	10,242	veh-h/y	12,291	pers-h/y
Cost	255,410	$/y	255,410	$/y
Fuel Consumption	45,521	L/y		
Carbon Dioxide	108,105	kg/y		
Hydrocarbons	8	kg/y		
Carbon Monoxide	125	kg/y		
NOx	163	kg/y		

LANE SUMMARY

Site: 9 [AM Existing]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	353	5.1	1833	0.193	100	3.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	353	5.1		0.193		3.2	NA	0.0	0.0				
North: Wentworth Park Road													
Lane 1	617	2.9	1802	0.342	100	1.1	LOS A	0.8	5.6	Full	500	0.0	0.0
Approach	617	2.9		0.342		1.1	NA	0.8	5.6				
West: St Johns Road													
Lane 1	204	3.4	508	0.402	100	12.9	LOS A	1.7	12.3	Full	500	0.0	0.0
Approach	204	3.4		0.402		12.9	LOS A	1.7	12.3				
Intersection	1174	3.7		0.402		3.8	NA	1.7	12.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 9 [AM Future]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	55.6	km/h	55.6	km/h
Travel Distance (Total)	1209.3	veh-km/h	1451.2	pers-km/h
Travel Time (Total)	21.7	veh-h/h	26.1	pers-h/h
Demand Flows (Total)	1196	veh/h	1435	pers/h
Percent Heavy Vehicles (Demand)	3.6	%		
Degree of Saturation	0.415			
Practical Spare Capacity	92.5	%		
Effective Intersection Capacity	2878	veh/h		
Control Delay (Total)	1.27	veh-h/h	1.52	pers-h/h
Control Delay (Average)	3.8	sec	3.8	sec
Control Delay (Worst Lane)	13.3	sec		
Control Delay (Worst Movement)	13.9	sec	13.9	sec
Geometric Delay (Average)	2.2	sec		
Stop-Line Delay (Average)	1.6	sec		
Idling Time (Average)	0.7	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	1.8	veh		
95% Back of Queue - Distance (Worst Lane)	12.8	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	348	veh/h	418	pers/h
Effective Stop Rate	0.29	per veh	0.29	per pers
Proportion Queued	0.19		0.19	
Performance Index	27.5		27.5	
Cost (Total)	541.24	$/h	541.24	$/h
Fuel Consumption (Total)	96.2	L/h		
Carbon Dioxide (Total)	228.5	kg/h		
Hydrocarbons (Total)	0.018	kg/h		
Carbon Monoxide (Total)	0.264	kg/h		
NOx (Total)	0.341	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	574,080	veh/y	688,896	pers/y
Delay	609	veh-h/y	731	pers-h/y
Effective Stops	167,227	veh/y	200,672	pers/y
Travel Distance	580,469	veh-km/y	696,562	pers-km/y
Travel Time	10,435	veh-h/y	12,522	pers-h/y
Cost	259,797	$/y	259,797	$/y
Fuel Consumption	46,188	L/y		
Carbon Dioxide	109,673	kg/y		
Hydrocarbons	9	kg/y		
Carbon Monoxide	127	kg/y		
NOx	164	kg/y		

LANE SUMMARY

Site: 9 [AM Future]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	353	5.1	1833	0.193	100	3.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	353	5.1		0.193		3.2	NA	0.0	0.0				
North: Wentworth Park Road													
Lane 1	639	2.8	1805	0.354	100	1.1	LOS A	0.8	5.9	Full	500	0.0	0.0
Approach	639	2.8		0.354		1.1	NA	0.8	5.9				
West: St Johns Road													
Lane 1	204	3.4	491	0.415	100	13.3	LOS A	1.8	12.8	Full	500	0.0	0.0
Approach	204	3.4		0.415		13.3	LOS A	1.8	12.8				
Intersection	1196	3.6		0.415		3.8	NA	1.8	12.8				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 9 [PM Existing]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	54.5	km/h	54.5	km/h
Travel Distance (Total)	1489.9	veh-km/h	1787.9	pers-km/h
Travel Time (Total)	27.3	veh-h/h	32.8	pers-h/h
Demand Flows (Total)	1472	veh/h	1766	pers/h
Percent Heavy Vehicles (Demand)	0.6	%		
Degree of Saturation	0.438			
Practical Spare Capacity	123.8	%		
Effective Intersection Capacity	3361	veh/h		
Control Delay (Total)	2.08	veh-h/h	2.50	pers-h/h
Control Delay (Average)	5.1	sec	5.1	sec
Control Delay (Worst Lane)	13.8	sec		
Control Delay (Worst Movement)	15.1	sec	15.1	sec
Geometric Delay (Average)	2.9	sec		
Stop-Line Delay (Average)	2.2	sec		
Idling Time (Average)	1.1	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	2.3	veh		
95% Back of Queue - Distance (Worst Lane)	16.2	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	523	veh/h	628	pers/h
Effective Stop Rate	0.36	per veh	0.36	per pers
Proportion Queued	0.23		0.23	
Performance Index	33.8		33.8	
Cost (Total)	694.04	$/h	694.04	$/h
Fuel Consumption (Total)	111.6	L/h		
Carbon Dioxide (Total)	262.7	kg/h		
Hydrocarbons (Total)	0.021	kg/h		
Carbon Monoxide (Total)	0.317	kg/h		
NOx (Total)	0.137	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	706,560	veh/y	847,872	pers/y
Delay	998	veh-h/y	1,198	pers-h/y
Effective Stops	251,055	veh/y	301,266	pers/y
Travel Distance	715,153	veh-km/y	858,183	pers-km/y
Travel Time	13,122	veh-h/y	15,747	pers-h/y
Cost	333,138	$/y	333,138	$/y
Fuel Consumption	53,549	L/y		
Carbon Dioxide	126,083	kg/y		
Hydrocarbons	10	kg/y		
Carbon Monoxide	152	kg/y		
NOx	66	kg/y		

LANE SUMMARY

Site: 9 [PM Existing]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	825	0.6	1884	0.438	100	3.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	825	0.6		0.438		3.5	NA	0.0	0.0				
North: Wentworth Park Road													
Lane 1	494	0.0	1394	0.354	100	5.0	LOS A	2.3	16.2	Full	500	0.0	0.0
Approach	494	0.0		0.354		5.0	NA	2.3	16.2				
West: St Johns Road													
Lane 1	153	2.6	444	0.344	100	13.8	LOS A	1.3	9.6	Full	500	0.0	0.0
Approach	153	2.6		0.344		13.8	LOS A	1.3	9.6				
Intersection	1472	0.6		0.438		5.1	NA	2.3	16.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 9 [PM Future]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	54.5	km/h	54.5	km/h
Travel Distance (Total)	1500.0	veh-km/h	1800.0	pers-km/h
Travel Time (Total)	27.5	veh-h/h	33.0	pers-h/h
Demand Flows (Total)	1482	veh/h	1778	pers/h
Percent Heavy Vehicles (Demand)	0.7	%		
Degree of Saturation	0.438			
Practical Spare Capacity	123.8	%		
Effective Intersection Capacity	3384	veh/h		
Control Delay (Total)	2.10	veh-h/h	2.52	pers-h/h
Control Delay (Average)	5.1	sec	5.1	sec
Control Delay (Worst Lane)	13.9	sec		
Control Delay (Worst Movement)	15.3	sec	15.3	sec
Geometric Delay (Average)	2.9	sec		
Stop-Line Delay (Average)	2.3	sec		
Idling Time (Average)	1.1	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	2.4	veh		
95% Back of Queue - Distance (Worst Lane)	16.6	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	525	veh/h	630	pers/h
Effective Stop Rate	0.35	per veh	0.35	per pers
Proportion Queued	0.23		0.23	
Performance Index	35.1		35.1	
Cost (Total)	699.40	$/h	699.40	$/h
Fuel Consumption (Total)	112.6	L/h		
Carbon Dioxide (Total)	265.2	kg/h		
Hydrocarbons (Total)	0.022	kg/h		
Carbon Monoxide (Total)	0.320	kg/h		
NOx (Total)	0.145	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	711,360	veh/y	853,632	pers/y
Delay	1,009	veh-h/y	1,211	pers-h/y
Effective Stops	251,805	veh/y	302,166	pers/y
Travel Distance	720,001	veh-km/y	864,001	pers-km/y
Travel Time	13,214	veh-h/y	15,857	pers-h/y
Cost	335,711	$/y	335,711	$/y
Fuel Consumption	54,052	L/y		
Carbon Dioxide	127,291	kg/y		
Hydrocarbons	10	kg/y		
Carbon Monoxide	153	kg/y		
NOx	70	kg/y		

LANE SUMMARY

Site: 9 [PM Future]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	825	0.6	1884	0.438	100	3.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	825	0.6		0.438		3.5	NA	0.0	0.0				
North: Wentworth Park Road													
Lane 1	504	0.2	1397	0.361	100	5.0	LOS A	2.4	16.6	Full	500	0.0	0.0
Approach	504	0.2		0.361		5.0	NA	2.4	16.6				
West: St Johns Road													
Lane 1	153	2.6	439	0.349	100	13.9	LOS A	1.4	9.7	Full	500	0.0	0.0
Approach	153	2.6		0.349		13.9	LOS A	1.4	9.7				
Intersection	1482	0.7		0.438		5.1	NA	2.4	16.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 9 [Weekend Existing]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	55.9	km/h	55.9	km/h
Travel Distance (Total)	922.7	veh-km/h	1107.2	pers-km/h
Travel Time (Total)	16.5	veh-h/h	19.8	pers-h/h
Demand Flows (Total)	912	veh/h	1094	pers/h
Percent Heavy Vehicles (Demand)	2.6	%		
Degree of Saturation	0.229			
Practical Spare Capacity	328.7	%		
Effective Intersection Capacity	3990	veh/h		
Control Delay (Total)	0.86	veh-h/h	1.03	pers-h/h
Control Delay (Average)	3.4	sec	3.4	sec
Control Delay (Worst Lane)	7.7	sec		
Control Delay (Worst Movement)	9.2	sec	9.2	sec
Geometric Delay (Average)	2.5	sec		
Stop-Line Delay (Average)	0.8	sec		
Idling Time (Average)	0.1	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	1.0	veh		
95% Back of Queue - Distance (Worst Lane)	7.1	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	270	veh/h	324	pers/h
Effective Stop Rate	0.30	per veh	0.30	per pers
Proportion Queued	0.19		0.19	
Performance Index	19.9		19.9	
Cost (Total)	414.79	$/h	414.79	$/h
Fuel Consumption (Total)	72.4	L/h		
Carbon Dioxide (Total)	171.5	kg/h		
Hydrocarbons (Total)	0.014	kg/h		
Carbon Monoxide (Total)	0.201	kg/h		
NOx (Total)	0.206	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	437,760	veh/y	525,312	pers/y
Delay	410	veh-h/y	493	pers-h/y
Effective Stops	129,444	veh/y	155,333	pers/y
Travel Distance	442,879	veh-km/y	531,454	pers-km/y
Travel Time	7,917	veh-h/y	9,500	pers-h/y
Cost	199,098	$/y	199,098	$/y
Fuel Consumption	34,758	L/y		
Carbon Dioxide	82,318	kg/y		
Hydrocarbons	7	kg/y		
Carbon Monoxide	96	kg/y		
NOx	99	kg/y		

LANE SUMMARY

Site: 9 [Weekend Existing]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	433	1.2	1894	0.229	100	2.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	433	1.2		0.229		2.5	NA	0.0	0.0				
North: Wentworth Park Road													
Lane 1	354	4.5	1573	0.225	100	3.0	LOS A	1.0	7.1	Full	500	0.0	0.0
Approach	354	4.5		0.225		3.0	NA	1.0	7.1				
West: St Johns Road													
Lane 1	125	2.4	888	0.141	100	7.7	LOS A	0.5	3.7	Full	500	0.0	0.0
Approach	125	2.4		0.141		7.7	LOS A	0.5	3.7				
Intersection	912	2.6		0.229		3.4	NA	1.0	7.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

INTERSECTION SUMMARY

Site: 9 [Weekend Future]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	56.0	km/h	56.0	km/h
Travel Distance (Total)	915.6	veh-km/h	1098.7	pers-km/h
Travel Time (Total)	16.3	veh-h/h	19.6	pers-h/h
Demand Flows (Total)	905	veh/h	1086	pers/h
Percent Heavy Vehicles (Demand)	2.9	%		
Degree of Saturation	0.229			
Practical Spare Capacity	328.7	%		
Effective Intersection Capacity	3959	veh/h		
Control Delay (Total)	0.83	veh-h/h	1.00	pers-h/h
Control Delay (Average)	3.3	sec	3.3	sec
Control Delay (Worst Lane)	7.7	sec		
Control Delay (Worst Movement)	9.2	sec	9.2	sec
Geometric Delay (Average)	2.5	sec		
Stop-Line Delay (Average)	0.8	sec		
Idling Time (Average)	0.1	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	0.9	veh		
95% Back of Queue - Distance (Worst Lane)	6.6	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	263	veh/h	316	pers/h
Effective Stop Rate	0.29	per veh	0.29	per pers
Proportion Queued	0.18		0.18	
Performance Index	19.6		19.6	
Cost (Total)	410.61	$/h	410.61	$/h
Fuel Consumption (Total)	72.2	L/h		
Carbon Dioxide (Total)	171.1	kg/h		
Hydrocarbons (Total)	0.013	kg/h		
Carbon Monoxide (Total)	0.200	kg/h		
NOx (Total)	0.216	kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	434,400	veh/y	521,280	pers/y
Delay	399	veh-h/y	479	pers-h/y
Effective Stops	126,257	veh/y	151,508	pers/y
Travel Distance	439,483	veh-km/y	527,380	pers-km/y
Travel Time	7,846	veh-h/y	9,415	pers-h/y
Cost	197,095	$/y	197,095	$/y
Fuel Consumption	34,661	L/y		
Carbon Dioxide	82,145	kg/y		
Hydrocarbons	6	kg/y		
Carbon Monoxide	96	kg/y		
NOx	104	kg/y		

LANE SUMMARY

Site: 9 [Weekend Future]

Wentworth Park Road / St Johns Road
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Wentworth Park Road													
Lane 1	433	1.2	1894	0.229	100	2.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	433	1.2		0.229		2.5	NA	0.0	0.0				
North: Wentworth Park Road													
Lane 1	347	5.2	1585	0.219	100	2.8	LOS A	0.9	6.6	Full	500	0.0	0.0
Approach	347	5.2		0.219		2.8	NA	0.9	6.6				
West: St Johns Road													
Lane 1	125	2.4	892	0.140	100	7.7	LOS A	0.5	3.6	Full	500	0.0	0.0
Approach	125	2.4		0.140		7.7	LOS A	0.5	3.6				
Intersection	905	2.9		0.229		3.3	NA	0.9	6.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.