BarkerRyanStewart



Traffic Report Submission in response to Sydney CBD and South East Light Rail EIS

455 George Street,
Sydney

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1 Executive Summary

Barker Ryan Stewart were engaged by Ipoh Pty. Ltd., owners of the Queen Victoria Building (QVB) to prepare a Traffic Report Submission in response to the public exhibition of the Sydney CBD and South East Light Rail (CSELR) Environmental Impact Statement (EIS).

The EIS and the existing traffic conditions in the vicinity of the QVB were assessed to determine the potential impacts of the construction and operation of the CSELR on the operation and accessibility for customers, staff, building services and delivery drivers to the QVB. From this assessment the following issues and concerns are raised:

1. QVB car park access
2. QVB car park exit
3. Construction traffic control and management
4. QVB Light Rail stop
5. Existing Public Transport
6. Pedestrian and cycling access
7. Service and delivery vehicles

1. QVB car park access

Once George Street is closed vehicles that currently use George Street as a travel route to the QVB car park would have to use alternate routes potentially via either Castlereagh Street or Elizabeth Street. This would direct more vehicles into the already at capacity Market Street (east of George Street).

Also it is proposed to give priority for the traffic signal phasing to the light rail system and pedestrians at the intersection of Market Street and George Street. This would exasperate the traffic congestion at the intersection and cause inconvenience for users of the QVB car park that currently use George Street and Market Street (west bound) as their travel route.

2. QVB car park exit

There is a problem with the functionality of the signalised intersection of York Street and Druitt Street. The existing traffic signal phasing at the intersection in combination with the bus movements heading south out of York Street creates a situation where paths of vehicles exiting the QVB car park and loading dock area are blocked by buses causing congestion.

The main concern is that the proposed closure of George Street and the associated impact on the road network, in particular more vehicles being diverted down Druitt Street, may exasperate the existing problem at the intersection of York Street and Druitt Street.

3. Construction traffic control and management

The EIS does not provide any detailed information with respect to the likely impacts the proposed CSELR project will have on the QVB during the construction phase and how these impacts will be monitored and controlled.

4. QVB Light Rail stop

The proposed light rail stop is to be located within George Street adjacent to the QVB. Preference would be to have the light rail stop to be located at the southern end of the QVB to provide the opportunity to create an attractive pedestrian precinct with links to the bus interchange, train station and the QVB.

5. Existing public transport

The proposal will prohibit Taxi's from dropping passengers off in the George Street pedestrian zone. Where will the Taxi stands be relocated and what impact would they have on the customers to the QVB?

6. Pedestrian and cycling access

Any changes to the pedestrian precincts and pedestrian links in the vicinity of the QVB are to incorporate and enhance the existing pedestrian access to the QVB as an integral component to any considerations.

Currently cyclists are able to ride up to the QVB and alight adjacent to the QVB in George Street. Is there any consideration to construct a protected cycle route that would still enable cyclists to access the QVB?

7. Service and delivery vehicles

With the closure of George Street there are concerns with any potential impacts on the current delivery vehicles to the QVB, particularly the larger delivery vehicles.

No information was provided with respect to the impact of waste collection services with the closure of George Street? Will the closure of George Street and the associated changes to the road network impact on the QVB's current waste collection arrangement?

2 Introduction

2.1 General

This Traffic Report Submission highlights a number of traffic, parking and access issues and concerns about the impact of the construction and operation of the CSELR on the operation of the QVB. Reference is made to the executive summary for an outline of the specific issues and concerns raised.

2.2 Queen Victoria Building

The QVB, is one of Sydney's most iconic buildings and is a thriving upmarket retail shopping centre.

It is in the heart of the Sydney CBD covering an entire block bounded by George Street, Market Street, York Street and Druitt Street.

Its prominent location has made it readily accessible by customers travelling by private vehicles, buses, trains, taxi's, bicycle and by foot for over 100 years.

2.3 Proposed Sydney CBD and South East Light Rail (CSELR)

The (CSELR) aims to improve traffic congestion in the CBD and eastern suburbs, whilst improving travel times for commuters living in and around the Sydney CBD.

The use of George Street for light rail and a pedestrian zone will place restrictions on traffic movements, require a relocation of bus services, reduced on street parking, loading/unloading bays and taxi zones. It will also result in increased pedestrian and light rail movements.

The EIS and the existing traffic conditions in the vicinity of the QVB were assessed to determine the potential impacts of the construction and operation of the CSELR on the operation and accessibility for customers, staff, building services and delivery drivers to the QVB. From this assessment the following issues and concerns are raised:

1. QVB car park access
2. QVB car park exit
3. Construction traffic control and management
4. QVB Light Rail stop
5. Existing Public Transport
6. Pedestrian and cycling access
7. Service and delivery vehicles

3 Existing Traffic Conditions

3.1 QVB Location

The QVB is in the heart of the Sydney CBD covering an entire block bounded by George Street, Market Street, York Street and Druitt Street.

Town Hall train station is located to the immediate south of the QVB and the properties to the North, South, East and West are a mix of Hotel, Commercial and Retail buildings.

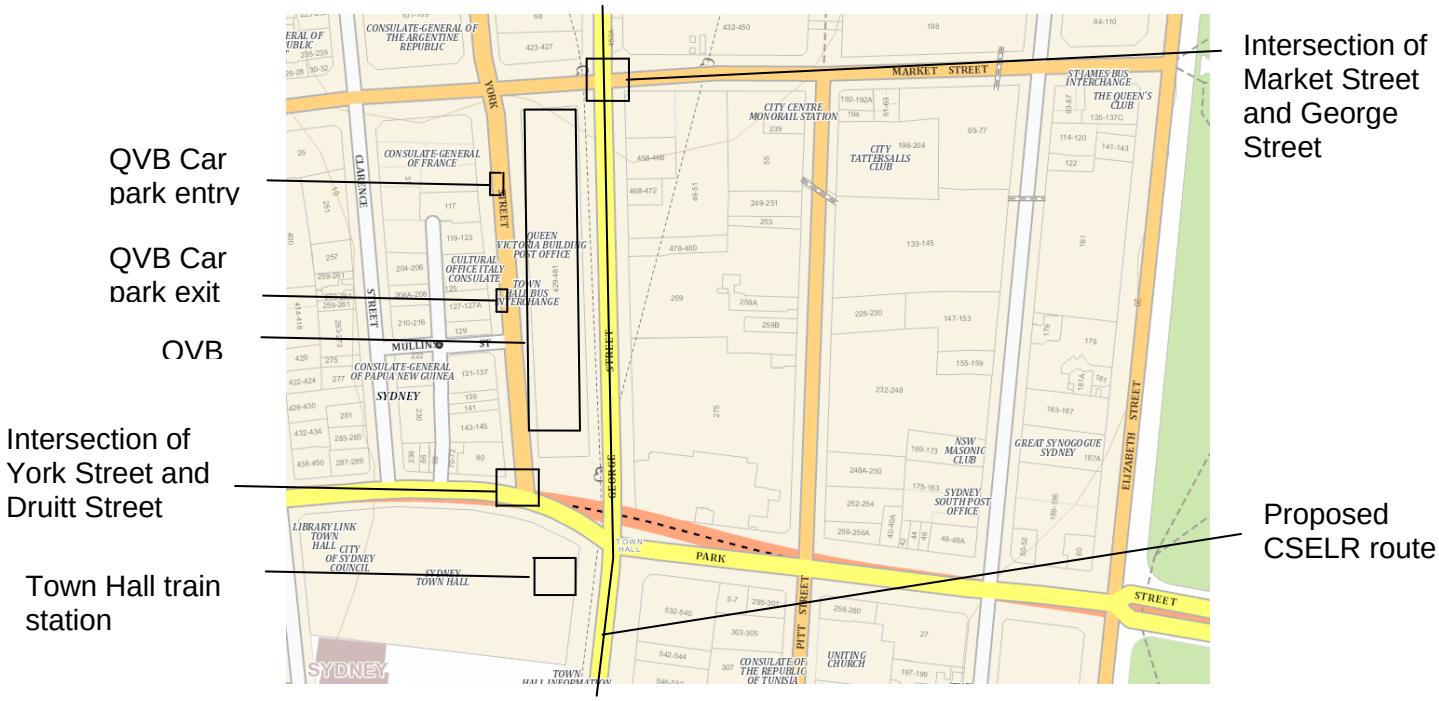

Figure 3.1: Site Location (NSW Land & Property Information SIX Maps 2013)

3.2 QVB Car parking and vehicle access

3.2.1 Car parking spaces (669)

The QVB car park has 669 car spaces incorporating 200 reserved spaces, 100 'early bird' spaces (accessible before 9am and used until 5pm) and 369 casual public spaces. Note that each casual public parking space turns over approximately twice a day.

As part of the traffic counts undertaken by ROAR Data (Thursday 28 November 2013) the 'Vacant Parking Space' board readings were undertaken during both the morning and afternoon peaks (See Appendix B).

From these readings in the morning between 7.30am to 9.30am the number of vacant parking spaces dropped gradually from 390 spaces down to 223 spaces. In the evening between 4pm and 5pm there was a gradual increase from 137 vacant spaces up to 205 vacant spaces, then from 5pm

to 6pm the vacant spaces dropped steadily down to 124 spaces. This decrease in vacant spaces is attributable to Thursday shopping.

3.2.2 Existing QVB car park entry and exit

The QVB car park is accessed via a single entry ramp from the right hand lane in York Street. The exit from the QVB car park is via a single exit ramp that directs vehicles into the right hand lane in York Street heading south bound.

Vehicles parking in the QVB and service vehicles share the same entry and exit points. From the entry ramp off York Street there are 3 vehicle entry/exit points to the QVB. The first left entry point provides vehicle access to the car park down a spiral ramp. The second access point provides entry and exit point to the loading dock area. The third access point beyond the loading dock provides the exit from the QVB car park.

3.3 Existing road network

The site is bounded by George Street, Market Street, York Street and Druitt Street. The following signalised intersections are located at each corner of the QVB block:

- George Street and Market Street
- York Street and Market Street
- York Street and Druitt Street
- Druitt Street and George Street

George Street is a major two way street with two (2) north bound and two (2) south bound lanes and cycle access. The left hand lane for both the north and south bound traffic are dedicated bus lanes. Currently a large portion of drivers of vehicles that enter the QVB car park drive via George Street (north and south bound) then turn into Market Street west bound and then left into the York Street QVB car park entrance. This is discussed in more detail in Section 3.5.

Market Street is a one way west bound street with three (3) lanes adjacent to the QVB building. There are two straight through lanes and one left turn lane which is utilised by vehicles turning into the entrance of the QVB car park and loading dock area and by public buses.

York Street is a one way south bound street with three (3) lanes. Adjacent to the QVB the right hand lane provides the only entry/exit point for vehicles to the QVB car park. The middle lane and left lane to the north of the QVB car park entry are dedicated bus lanes. To the south of the QVB car park exit the right and middle lanes are for general use and the left lane is dedicated to buses only.

Druitt Street is a two way street with two (2) east bound dedicated bus lanes and two (2) west bound general use lanes.

3.4 Public Transport, Pedestrians and Cyclists.

The QVB is well connected to public transport, with the following bus, taxi and rail connections located adjacent to the site:

- George Street adjacent to the QVB has a number of bus stops catering for a number of bus services.
- York Street adjacent to the QVB is also a major bus stop catering for a number of bus services.
- Taxi stands are available in both George Street and York Street.
- Town Hall train station is located to the immediate south of the site with a main underground pedestrian link from the station to the QVB's lower ground floor.
- A pedestrian access is to the QVB at street level is available from both Market Street and Druitt Street.

3.5 Traffic Counts

Traffic counts were taken on three (3) separate days to determine the existing traffic flows and volume distributions during morning and evening peak periods to determine the potential impacts associated with the George Street closure and other changes to the road network proposed as part of the CSLER.

Traffic counts and distribution summary

From the results of the three (3) traffic counts can be summarised as:

- The QVB car park of 669 spaces operates throughout the day at approximately 80% capacity.
- When taking in to account the casual public parking turns over 2 times per day the total number of vehicles entering the QVB car park on an average mid-week day is estimated to be 830 vehicles.
- 46% of the total number of vehicles that enter the QVB car park travel west along Market Street.
- 48% of the vehicles traveling west along Market Street also use George Street as a travel route.
- 22% (182) of the total number of vehicles (830) entering the QVB car park on an average mid-week day use George Street as a travel route.

ROAR Data traffic counts (28/11/13) – Number of vehicles entering the QVB car park

ROAR data were engaged to undertake independent traffic counts at the intersection of York Street and Market Street between 7.30am to 9.30am and 4pm to 6pm on Thursday 28 November 2013 to determine the number of vehicles entering the QVB car park and from what direction they travelled at this intersection. Full details of the counts can be viewed at Appendix B.

From the results of the morning traffic count a total of 271 vehicles entered the QVB car park between 7.30am and 9.30am, 124 (46%) heading west from Market Street, 134 (49%) heading south down York Street and 13 (5%) heading east from Market Street.

From the results of the evening traffic count a total of 286 vehicles entered the QVB car park between 4pm and 6pm, 133 (46%) heading west from Market Street, 144 (50%) heading south down York Street and 9 (4%) heading east from Market Street.

Barker Ryan Stewart traffic counts (29/11/2013) – % of vehicles using George Street to gain access to QVB car park

On Friday morning 29 November 2013 Barker Ryan Stewart undertook a traffic count at the intersection of Market Street and George Street between 8.30am to 9.00am to determine the percentage of vehicles used George Street as a route to gain access to the QVB car park.

During the 30 min period a total of 42 vehicles entered the QVB car park from Market Street west bound with the following distribution of travel routes:

- 22 (52%) from Market Street east of George Street
- 14 (33%) turned left from George Street (North bound) into Market Street
- 6 (15%) turned right from George Street (South bound) into Market Street.

ROAR Data traffic counts (2/12/2013) - % of vehicles using George Street to gain access to the QVB car park

ROAR data were engaged to undertake additional traffic counts, this time at the intersection of George Street and Market Street between 7.30am to 9.30am and 4pm to 6pm on Monday 2 December 2013 to determine the number of vehicles entering the QVB car park traveling from George Street then turning into Market Street. Full details of the counts can be viewed at Appendix B.

During the two (2) hour morning peak period a total of 188 vehicles entered the QVB car park from Market Street west bound with the following distribution of travel routes:

- 100 (53%) from Market Street east of George Street
- 64 (34%) turned left from George Street (North bound) into Market Street
- 24 (13%) turned right from George Street (South bound) into Market Street.

During the two (2) hour evening peak period a total of 157 vehicles entered the QVB car park from Market Street west bound with the following distribution of travel routes:

- 79 (50%) from Market Street east of George Street
- 44 (28%) turned left from George Street (North bound) into Market Street
- 34 (22%) turned right from George Street (South bound) into Market Street.

3.6 Existing traffic problems

Based on our site inspection and the traffic counts undertaken it was identified that there are some major existing traffic congestion issues that currently impact on the QVB's operation. One of the main concerns of Ipoh Pty. Ltd. is that the proposed closure of George Street and the associated impact on the road network may exasperate theses existing problems.

Market Street and George Street Intersection

Right hand turning movements into Market Street from George Street (south bound) had the least effective traffic signal phasing as pedestrian movements and through traffic from George Street continually blocked this turn. Only approximately up to 5 car movements per phase were able to successfully turn.

Similarly left hand turns from George Street (north bound) into Market Street were heavily blocked by pedestrians crossing Market Street, particularly when buses made this turn. Market Street also operates at Capacity during peak periods with traffic backed up from George Street along Market Street to the east.

Approximately 182 vehicles mid-week (22% of the total number of vehicles that enter the QVB car park) use George Street as a travel route. This is a significant number of vehicles that that represent a substantial revenue stream for the QVB that will be adversely impacted by the closure of George Street).

York Street and Druitt Street intersection

There is a problem with the functionality of the signalised intersection of **York Street and Druitt Street**. The existing traffic signal phasing at the intersection in combination with the bus movements heading south out of York Street creates a situation where paths of vehicles exiting the QVB car park and loading dock area are blocked by buses causing congestion. In particular buses appear to block the right hand turning movement from York Street by straddling the middle and right hand turn lanes (see Figure 2.1 photo taken from QVB car park exit in York Street).

During peak mid-week evening periods it is not unusual for there to be a waiting time of up to 30 minutes to exit the QVB car park. Minor accidents occur regularly between private vehicles and buses on York Street at this location. Also due to this frustrating wait to exit the QVB drivers illegally travel west down Mullins Street (which is one-way east bound street).

Clarence Street and Druitt Street Intersection

The traffic signal phasing problem extends to the intersection of **Clarence Street and Druitt Street**, where existing bus routes heading north down George Street and turning left into Druitt Street conflict with buses heading south out of York Street and turning right into Druitt Street. Also the location of the bus stops in Druitt Street add to the congestion in the area.

Figure 3.2: Market Street and George Street (looking south down George Street)

Figure 3.3: York Street and Druitt Street intersection (looking south down York Street) showing bus straddling middle and right turn lanes.

4 CSELR Impacts - Issues & Concerns

The EIS and the existing traffic conditions in the vicinity of the QVB were assessed to determine the potential impacts of the construction and operation of the CSELR on the operation and accessibility for customers, staff, building services and delivery drivers to the QVB. From this assessment the following issues and concerns are raised:

1. QVB car park access
2. QVB car park exit
3. Construction traffic control and management
4. QVB Light Rail stop
5. Existing Public Transport
6. Pedestrian and cycling access
7. Service and delivery vehicles

1. QVB car park access

The impact of the closure of George Street and the associated changes to the road network on the travel route and access to the QVB car park in York Street has not been considered by the EIS.

Approximately 182 vehicles mid-week (22% of the total number of vehicles that enter the QVB car park) use George Street as a travel route. This is a significant number of vehicles that that represents a substantial revenue stream for the QVB that will be adversely impacted by the closure of George Street.

Once George Street is closed these vehicles would have to use alternate routes potentially via either Castlereagh Street or Elizabeth Street. This would direct more vehicles into the already at capacity Market Street (east of George Street).

Also it is proposed to give priority at the traffic signal phasing to the light rail system and pedestrians at the intersection of Market Street and George Street. This would further exasperate the traffic congestion at the intersection and cause inconvenience for users for the QVB car park that currently use George Street and Market Street (west bound) as their travel route.

2. QVB car park exit

The impact of the closure of George Street and the associated changes to the road network on the travel route and egress from the QVB car park in York Street has not been considered by the EIS.

There is a problem with the functionality of the signalised intersection of York Street and Druitt Street. The existing traffic signal phasing at the intersection in combination with the bus movements heading south out of York Street creates a situation where paths of vehicles exiting the QVB car park and loading dock area are blocked by buses which causes congestion.

During peak mid-week evening periods it is not unusual for there to be a waiting period of up to 30 minutes to exit the QVB car park. Minor accidents occur regularly between private vehicles and buses on York Street at this location. Also due to this frustrating wait to exit the QVB drivers illegally travel west down Mullins Street.

The main concern is that the proposed closure of George Street and the associated impact on the road network, in particular more vehicles being diverted down Druitt Street, may exasperate the existing problems at the intersection of York Street and Druitt Street.

Another concern is what the traffic signal phasing at the intersection of Druitt Street and George Street will be allocated given the heavy pedestrian movements at this intersection requiring two pedestrian movements to cross diagonally and for buses and general vehicles using Druitt Street.

3. Construction traffic control and management

The EIS does not provide any detailed information with respect to the likely impacts the proposed CSELR project will have on the QVB during the construction phase and how these impacts will be monitored and controlled. Ipoh Pty. Ltd**.** have concerns with any impact to its operations and its vehicle, pedestrian and public transport access for customers, staff, building services and delivery drivers to/from the QVB. Of particular concern is where/how vehicles will be rerouted around George Street and how this will impact drivers of vehicles entering and exiting the QVB car park in York Street.

4. QVB Light Rail stop

The proposed light rail stop is to be located within George Street adjacent to the QVB. Preference would be to have the light rail stop to be located at the southern end of the QVB for the following reasons:

- More opportunity to make this area into an attractive pedestrian precinct.
- Provides more convenient and desirable entrance to the southern ground level main entry point to the QVB
- There is more space for pedestrians to wait/queue for the light rail.
- Provides a link to Town Hall train station
- More central to the proposed Park Street bus interchange
- Better suited to utilise existing pedestrian links, including underground.

5. Existing public transport

The proposal will prohibit Taxi's from dropping passengers off in the George Street pedestrian zone. Although the EIS states that night time traffic drop off zones may be permitted. Where will the Taxi stands be relocated to? More detail should be provided to determine the impact any new Taxi stand location would have on the customers to the QVB.

6. Pedestrian and cycling access

Any changes to the pedestrian precincts and pedestrian links in the vicinity of the QVB are to incorporate and enhance the existing pedestrian access to the QVB as an integral component to any considerations.

Cycle paths are to be rerouted away from George Street. Currently cyclists are able to ride up to the QVB and alight adjacent to the QVB in George Street. Is there any consideration to the construction of a protected cycle route that would enable cyclists to access the QVB?

7. Service and delivery vehicles

The EIS states that small to medium delivery trucks will be permitted to continue to allow access to local properties fronting George Street. It also states that large delivery trucks may be permitted in limited hours. There would be concerns raised by Ipoh Pty. Ltd. if this impacts on the current delivery vehicles to the QVB.

No information was provided with respect to the impact of waste collection services with the closure of George Street? Will the closure of George Street and the associated changes to the road network impact on the QVB's current waste collection arrangement?

5 Summary and conclusion

The following table summarise Ipoh Pty. Ltd.'s issues and concerns of the potential vehicle and pedestrian impacts during both the construction and the operation of the CSELR on the QVB's existing operations.

Item	Issues and concerns	Recommendations/ desired outcomes
1. QVB car park access	- Impacts on the closure of George Street to the travel routes and access to the QVB car park. Vehicles currently using George Street will be re-routed further east into an already at capacity section of Market Street.	There is a need to ensure that the current users of the QVB car park will not be adversely affected by re-routing or having less favourable traffic signal phasing at the intersection of Market Street and George Street.
2. QVB car park exit	- Impacts on exit from the QVB parking station. The existing York Street and Druitt Street intersection already causes extensive delays and there is concern that these may be exacerbated.	The current problems associated with the functionality of the intersection of York Street and Druitt Street are to be addressed and not exacerbated by the closure of George Street and the redirection of vehicles down Druitt Street.
3. Construction traffic control and management	- No information has been provided with respect to the proposed traffic control and management during the CSELR construction period.	Traffic Control and Management during the construction of the CSELR is to take into consideration that the pedestrian and vehicle access to the QVB and the QVB car park are not to be adversely impacted.
4. QVB light rail stop	- Light rail stop is to be located adjacent to the QVB in George Street.	Preference would be to have the light rail stop at the southern end of the QVB to provide the opportunity to create an attractive pedestrian precinct and links to the bus interchange, train station and the QVB.
5. Existing public transport	- Bus routes and stops will be relocated away from George Street. - Taxi's will not be able to drop passengers off in the George Street pedestrian zone	Preference would be that any relocation of bus and taxi stands would still be adjacent to and with easy access to the QVB.
6. Pedestrian and cycling access	- Pedestrians access to the QVB. - Cycle paths have been rerouted away from George Street	Any changes to the pedestrian precincts and pedestrian links are to incorporate the existing pedestrian access to the QVB as an integral component. A protected cycle route is to be provided to ensure that cyclists can access the QVB
7. Service and delivery vehicles	- Concerns are raised if there are any impacts on the current delivery vehicles to the QVB. - No information was provided with respect to the impact of waste collection services	The current delivery and waste collection services to the QVB are not to be adversely impacted.

Figure 5.1: Summary of Ipoh Pty. Ltd.'s issues and concerns of the potential impact of the CSELR on the QVB

6 References

Sydney CBD and South East Light Rail Environmental Impact Statement – Parsons Brinckerhoff

Spatial Information Exchange (SIX) Maps – NSW Government Land and Property Information http://maps.six.nsw.gov.au (last updated)

Appendix A
EIS Summary

Sydney CBD and South East Light Rail EIS

Overview of CSELR project

The use of George Street for light rail and a pedestrian zone will place restrictions on traffic movements, require a relocation of bus services, reduced on street parking, loading/unloading bays and taxi zones.

As outlined in the EIS, *'part of the CSELR Transport NSW proposes to develop the following:*

- *A 12km of light rail track from Circular Quay & Kingsford, via Central & Moore Park;*
- *A frequent, reliable and high capacity system;*
- *Pedestrianisation of George Street;*
- *20 light rail stops;*
- *Long platforms to accommodate 45m vehicles;*
- *An integrated system, that connects to existing light rail, and meets other transport services;*
- *Ancillary structures including substations, bridges and tunnels to accommodate the system; and*
- *Public domain improvements.'*

Figure 1.1 below shows the proposed light rail route and the location of key CSELR interchange facilities, including a light rail stop at the QVB.

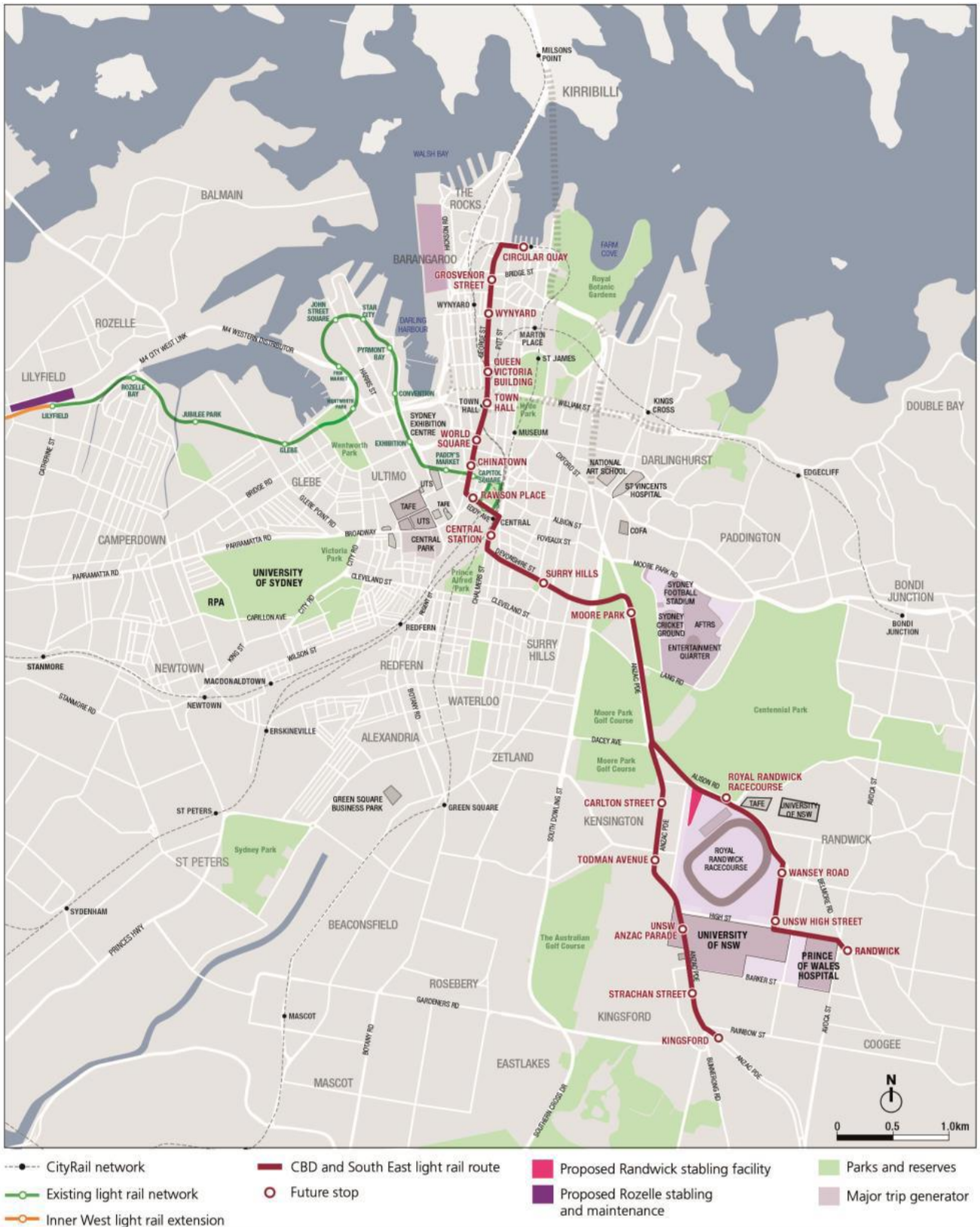

Figure A0.1: The light rail route and key interchange facilities *(Extract from EIS)*

QVB Precinct Access Plan

As outlined in the EIS the, *'key actions to resolve the multimodal access issues at the Queen Victoria Building stop precinct are;*

- *Implement pedestrian priority improvements to reduce pedestrian wait times at key intersections such as;*
  - *Market Street and Clarence Street*
  - *Market Street and York Street*
  - *Market Street and George Street*
  - *Market Street and Pitt Street Mall*
  - *Market Street and Castlereagh Street*
  - *Market Street and Elizabeth Street*
- *Close George Street to vehicular traffic to improve pedestrian access to and from the light rail stop.*
- *Through the City Centre Access Strategy (CCAS) pedestrian infrastructure upgrades will be considered, on links with high pedestrian volumes, such as Market Street between George Street and Elizabeth Street.*
- *Convenience afforded by Queen Victoria Building connection for customers interchanging between bus and light rail.*
- *Introduce integrated customer information and way finding for interchange and connections between light rail and all other modes to make the quickest route more legible.*
- *Coordination of bus and light rail timetables to be investigated, particularly during off peak periods when the frequency of light rail services will be reduced.'*

Table 7-6: Queen Victoria Building Precinct Access Plan

Stop Name
Queen Victoria Building
Land Uses
– Retail / food & beverage – Commercial – Residential – Tourist accommodation
Major Trip Generators
– Retail / food & beverage (Pitt Street Mall, David Jones, Myer, Apple, Topshop, Queen Victoria Building). – Commercial (400 George Street, 420 George Street, 85 Castlereagh Street, Stockland Tower, St Martin's Tower, 44 Market Street). – Tourist accommodation (Hilton, Swissotel, QT Sydney, Sheraton on the Park). – Residential buildings to the east and west of George Street. – Sydney Tower.
Multi-Modal Stop Access
Patronage
– 691 boardings and 1,708 alightings forecast for 2021. – 811 boardings and 2,171 alightings forecast for 2036.
Heavy Rail
– Queen Victoria Building is not forecast as a major interchange for passengers from heavy to light rail. – 250m north of Town Hall Station. – 500m west of St James Station.
Light Rail
– 250m north of proposed Town Hall stop on CSELR line. – 550m south of proposed Wynyard stop on CSELR line.
Bus
– Estimated AM peak hour interchange patronage from bus to light rail is 459 (66%) in 2021. – 200m east of proposed bus stops on York Street (southbound only). – 250m south-west of proposed bus stop on Market Street (westbound only). – 300m east of existing bus stops on Clarence Street (northbound only). – 400m south-west of proposed bus stops on Castlereagh Street (southbound only). – 500m west of proposed bus stops on Elizabeth Street.
Pedestrian
– Estimated AM peak hour walk up patronage of 232 (34%) in 2021.
Bicycle
– Off-road cycle paths: ▪ Kent Street. ▪ King Street (between Clarence Street and Sussex Street). – On-road routes: ▪ Two way; Park Street (east-west). ▪ One way; Pitt Street (northbound), Castlereagh Street (southbound), York Street (southbound), Clarence Street (northbound), Sussex Street (southbound, south of King Street), King Street between Clarence Street and Macquarie Street (eastbound).

Figure A0.2: QVB Precinct Access Plan *(Extract from EIS)*

The QVB light rail stop will be located in the pedestrianised zone on George Street adjacent to the QVB. The platform will be 3.2m wide and 45m long and a bus interchange facility will be located within walking distance of the light rail stop. The figure below shows an indicative section of the QVB stop and George Street pedestrian zone.

Figure A0.3: QVB light rail stop *(Extract from EIS)*

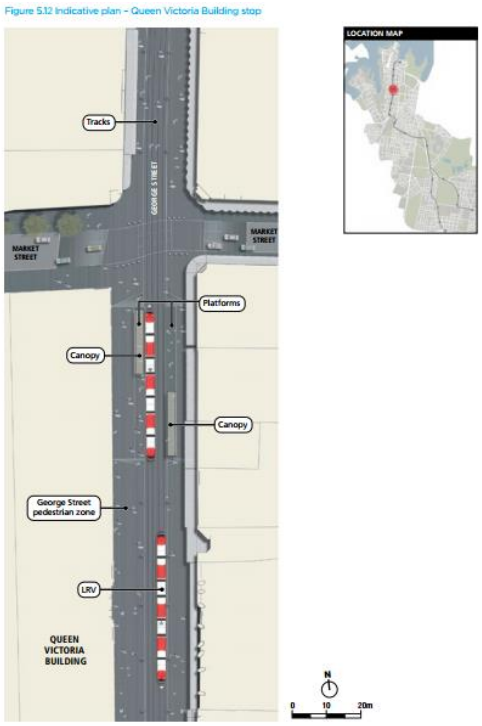

Figure A0.4: QVB Light Rail Stop *(Extract from EIS)*

Bus Strategy

The EIS states that, *'the revised bus network is integral to the development of the CSELR,… key bus route paths in the Sydney City centre'.*

The major changes to the bus strategy in close proximity to the QVB is that no buses are to travel along George Street between Rawson Place and Hunter Street to be consistent with the planning for the CSELR project and George Street pedestrian zone.

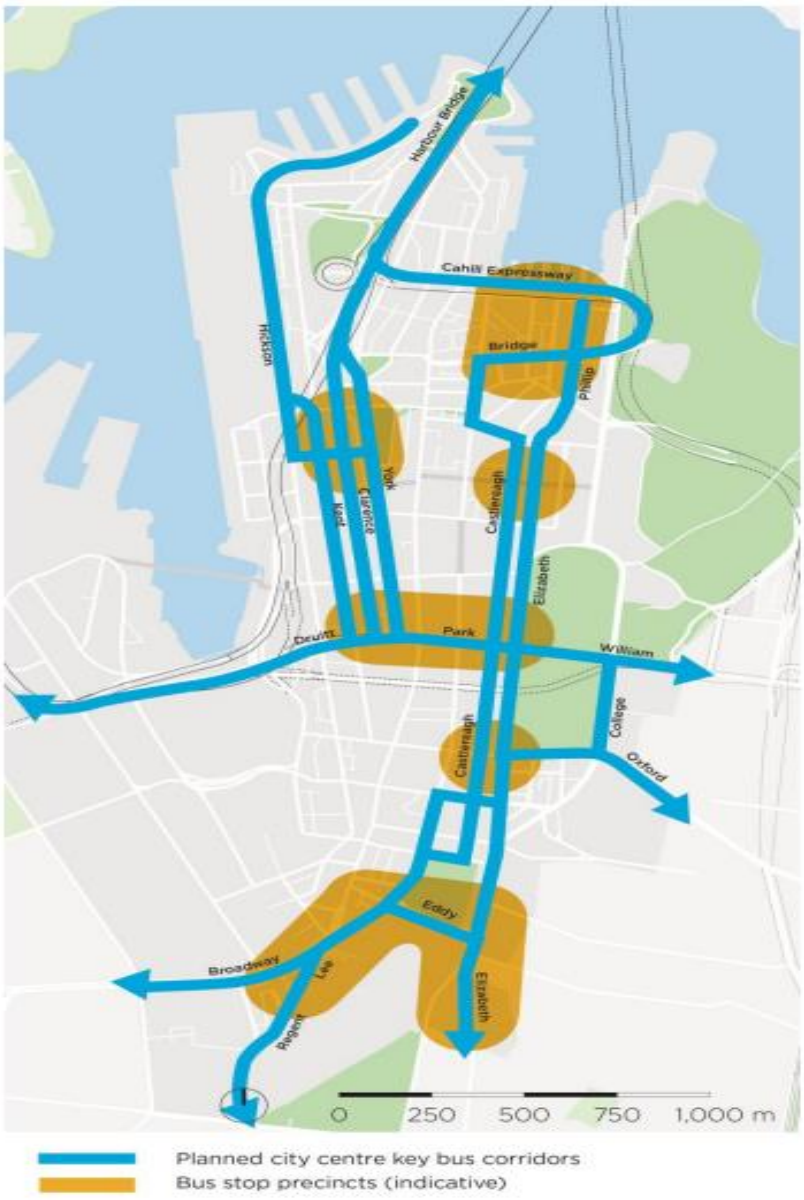

Figure A0.5: Bus corridors and bus stop precincts *(Extract from EIS)*

Road Network Strategy

In terms of the overall road network, traffic and access impacts the EIS states, *'that the road network strategy development principles are:*

- *Consolidation of right turn movements across the alignment which would only be permitted at signalised intersections. This provides light rail reliability benefits as well as traffic capacity and safety improvements by minimising uncontrolled conflicting vehicle movements;*
- *However some exceptions would apply on George Street for local property access.*
- *Balancing the future needs of the various transport modes within the limited cross sectional road space available;*
- *Providing signal controlled pedestrian crossing access to stops. This ensures less mobile passengers or those with a disability are given audible and visual invitations to cross traffic under full signal protection;*
- *Providing high quality interchange functionality with sufficient capacity for future operations;*
- *Minimising traffic capacity reduction;*
- *Providing sufficient capacity on footways and crossing points to accommodate the growth in pedestrian traffic (particularly around light rail stops);*
- *Providing bus lanes where bus volumes are such that bus priority measures are warranted;*
- *Retaining all current property accesses on the corridor, although time or movement restrictions may be applied in specific locations.'*

In terms of the potential impact of the George Street road closure the EIS states that, *'George Street will be pedestrianized between Hunter and Bathurst Street. Vehicles can use the pedestrian zone, travelling at 10km/hr, to access driveways and loading areas. At signalised intersections and stop lines, queuing and turning movements will be controlled.*
Signposting and traffic restrictions would be determined by the relevant road authority and could be flexible depending on policy. Vehicles could be discouraged from travelling further than one block by signposting. Vehicle restrictions will ensure only local access, service and emergency vehicles are permitted.'

The CSELR proposal will be integrated within the existing street network. A number of significant design and operational changes will be required to the road network. Alterations will be made to east-west traffic movements, however detailed design has not been provided at this stage. Further, no changes have been specified for surrounding streets parallel to George Street.

Appendix B
ROAR Data Traffic Counts

York St & Market St

To

Glenn Barker

at ***BarkerRyanStewart***

your results for

SYDNEY CBD QVB Car Park

supplied by

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Denotes to QVB Car Park

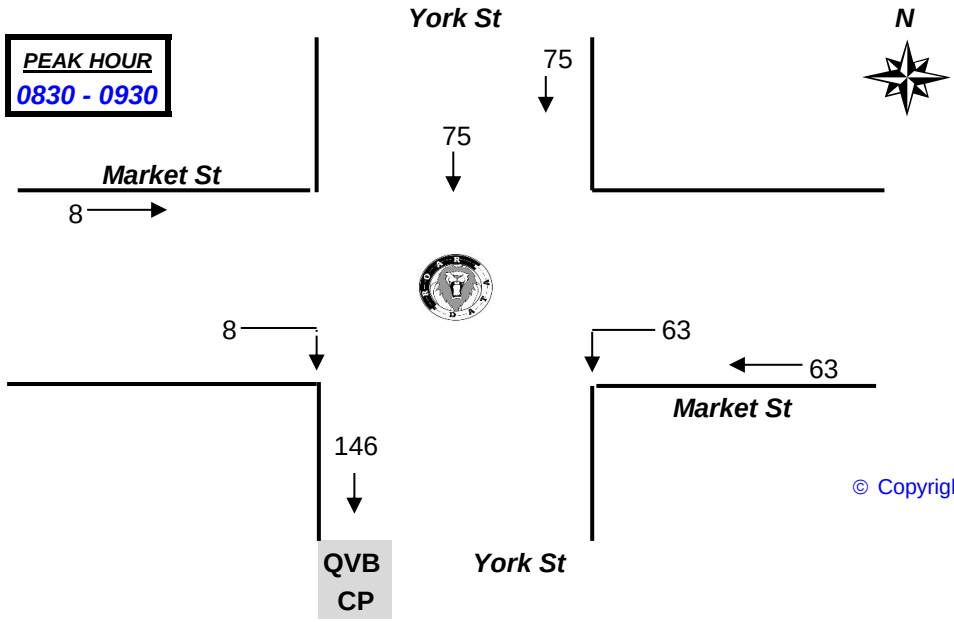
Client : BarkerRyanStewart
Job No/Name : 4921 SYDNEY CBD QVB Car Park
Day/Date : Thursday 28th November 2013

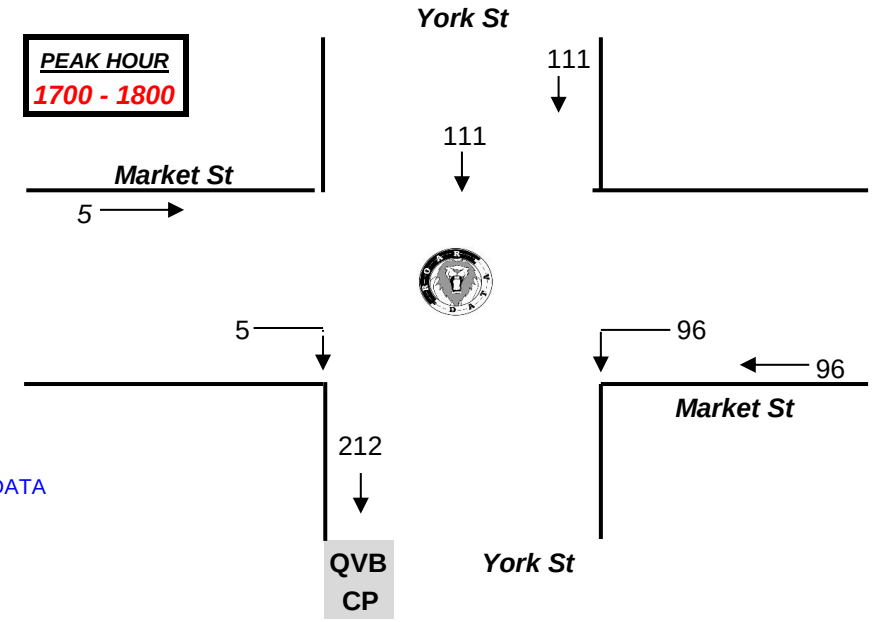
All Vehicles	NORTH York St			WEST Market St			SOUTH York St			EAST Market St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0730 - 0745		14				2				18			34
0745 - 0800		14				1				13			28
0800 - 0815		15				2				11			28
0815 - 0830		16				0				19			35
0830 - 0845		15				1				13			29
0845 - 0900		25				3				19			47
0900 - 0915		17				2				14			33
0915 - 0930		18				2				17			37
Period End		134				13				124			271

All Vehicles	NORTH York St			WEST Market St			SOUTH York St			EAST Market St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615		7				2				10			19
1615 - 1630		9				2				7			18
1630 - 1645		9				0				9			18
1645 - 1700		8				0				11			19
1700 - 1715		31				2				26			59
1715 - 1730		23				1				17			41
1730 - 1745		27				2				27			56
1745 - 1800		30				0				26			56
Period End		144				9				133			286

	NORTH York St			WEST Market St			SOUTH York St			EAST Market St			
Peak Time		T				R				L			TOT
0730 - 0830		59				5				61			125
0745 - 0845		60				4				56			120
0800 - 0900		71				6				62			139
0815 - 0915		73				6				65			144
0830 - 0930		75				8				63			146
PEAK HOUR		75				8				63			146

	NORTH York St			WEST Market St			SOUTH York St			EAST Market St			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700		33				4				37			74
1615 - 1715		57				4				53			114
1630 - 1730		71				3				63			137
1645 - 1745		89				5				81			175
1700 - 1800		111				5				96			212
PEAK HOUR		111				5				96			212





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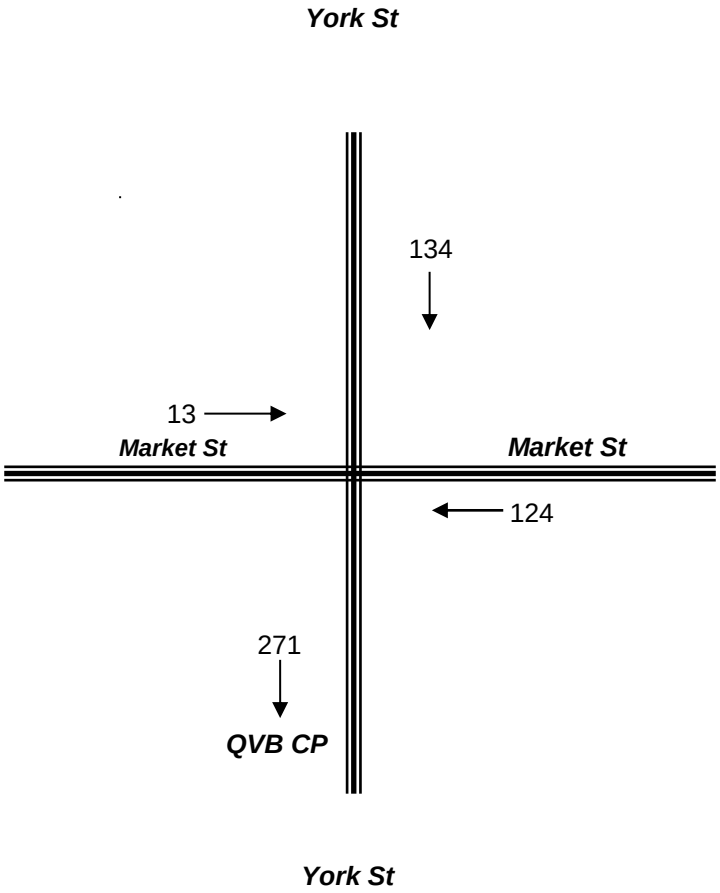
Client : BarkerRyanStewart
Job No/Name : 4921 SYDNEY CBD QVB Car Park
Day/Date : Thursday 28th November 2013

TOTAL VOLUMES FOR COUNT PERIODS

AM



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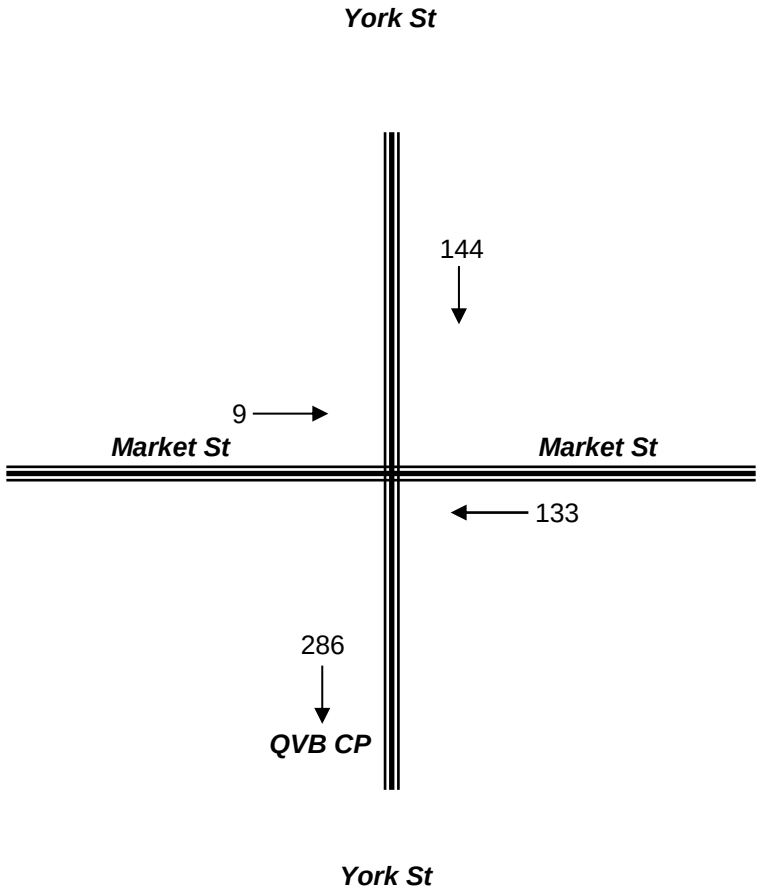

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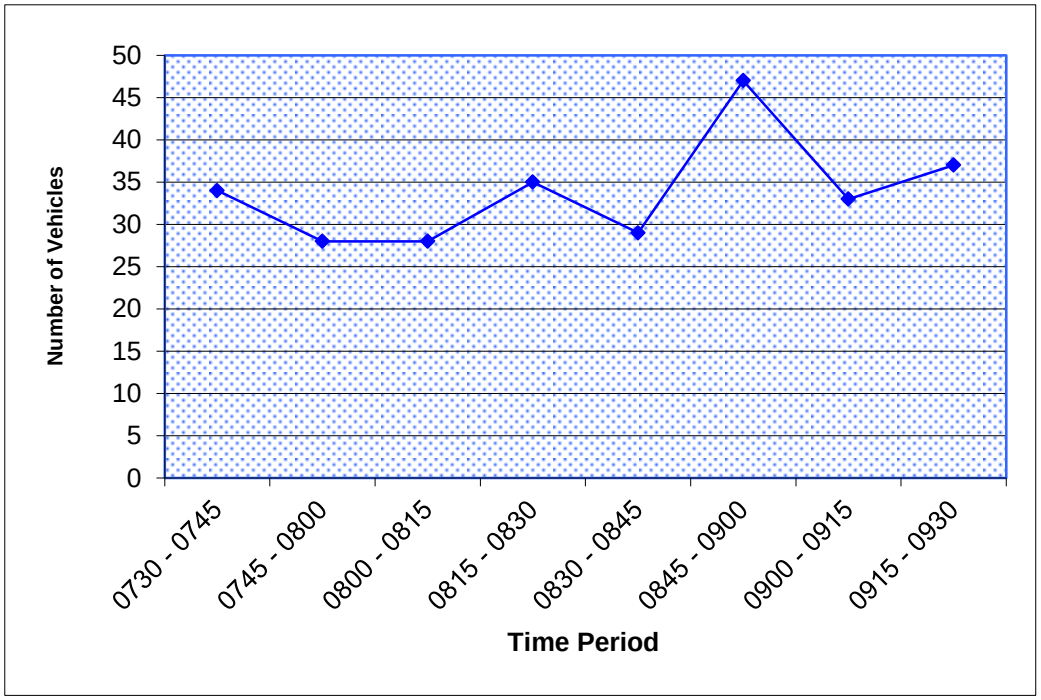
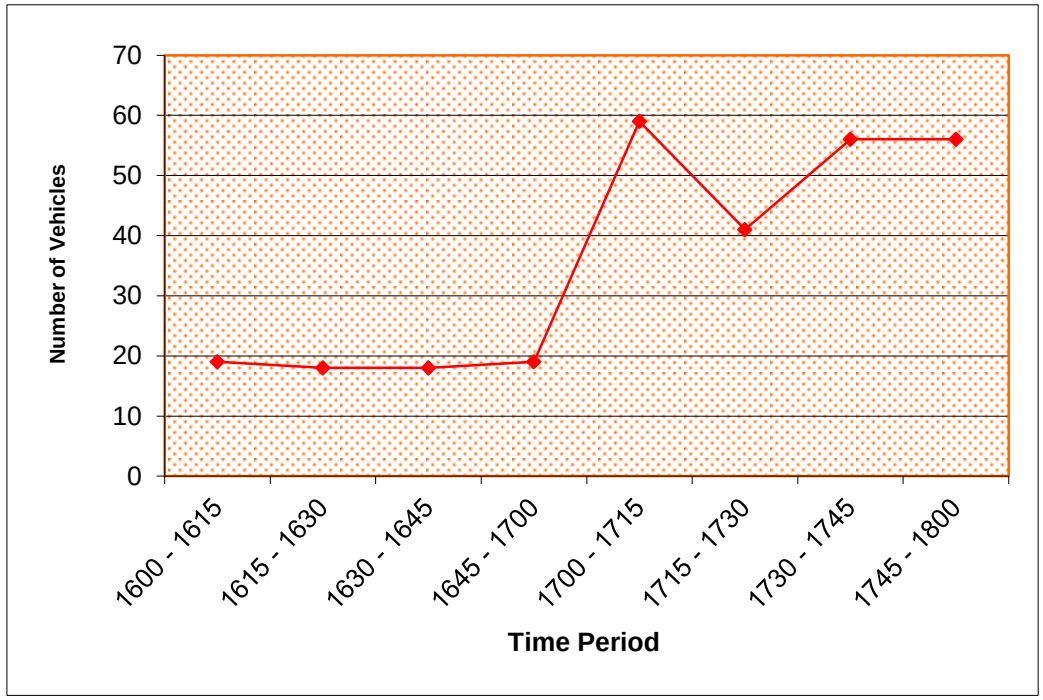
Client : BarkerRyanStewart
Job No/Name : 4921 SYDNEY CBD QVB Car Park
Day/Date : Thursday 28th November 2013

AM ***PM***

York St & Market St





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Space Board Readings

Client : BarkerRyanStewart
Job No/Name : 4921 SYDNEY CBD QVB Car Park
Day/Date : Thursday 28th November 2013

AM

Times	No
0730	**390**
0740	**384**
0750	**365**
0800	**351**
0810	**341**
0820	**335**
0830	**317**
0840	**306**
0850	**298**
0900	**277**
0910	**257**
0920	**245**
0930	**223**

PM

Times	No
1600	**137**
1610	**151**
1620	**158**
1630	**163**
1640	**172**
1650	**187**
1700	**205**
1710	**185**
1720	**167**
1730	**159**
1740	**148**
1750	**137**
1800	**124**

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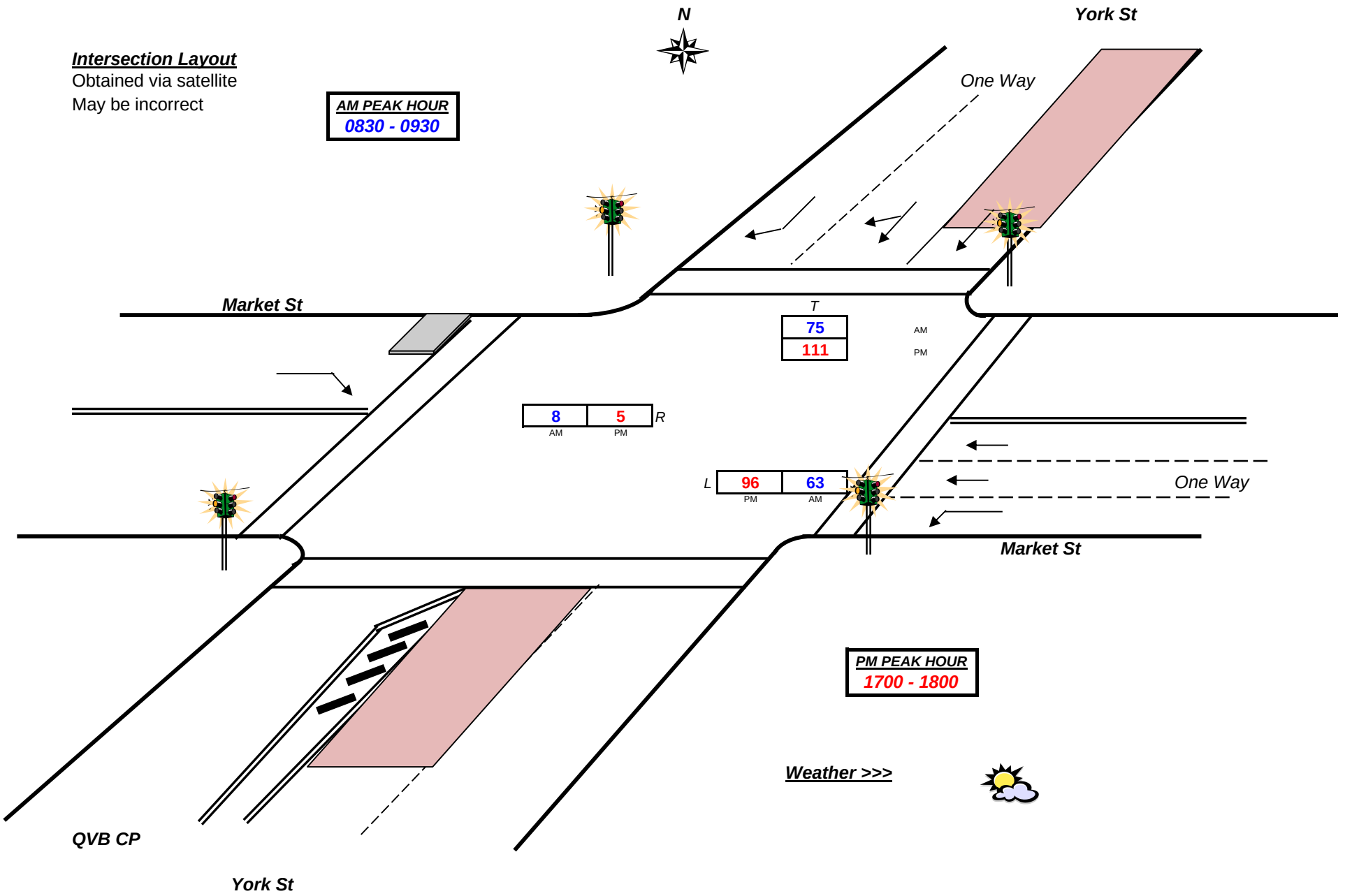
Client : BarkerRyanStewart
Job No/Name : 4921 SYDNEY CBD QVB Car Park
Day/Date : Thursday 28th November 2013

Intersection Layout
Obtained via satellite
May be incorrect



AM PEAK HOUR
0830 - 0930

PM PEAK HOUR
1700 - 1800

Weather >>>

George St & Market St

To

Glen Barker

at ***BarkerRyanStewart***

your results for

SYDNEY CBD George St QBV Vehicles

supplied by

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R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : BarkerRyanStewart
Job No/Name : 4930 SYCNEY CBD Geoarge St QBV Vehicles
Day/Date : Monday 2nd December 2013

Others

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0730 - 0745		90	20				9	62		18	115	4	**318**
0745 - 0800		76	27				12	68		22	133	10	**348**
0800 - 0815		61	42				22	77		35	156	5	**398**
0815 - 0830		78	32				18	89		20	159	3	**399**
0830 - 0845		83	40				11	70		29	142	5	**380**
0845 - 0900		69	36				12	68		18	125	2	**330**
0900 - 0915		89	47				17	73		26	145	12	**409**
0915 - 0930		97	60				11	80		24	111	18	**401**
Period End	**0**	**643**	**304**	**0**	**0**	**0**	**112**	**587**	**0**	**192**	**1086**	**59**	**2983**

To QBV

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0730 - 0745			3				4				9		**16**
0745 - 0800			7				9				4		**20**
0800 - 0815			2				6				7		**15**
0815 - 0830			5				11				17		**33**
0830 - 0845			2				7				23		**32**
0845 - 0900			2				8				16		**26**
0900 - 0915			1				10				17		**28**
0915 - 0930			2				9				7		**18**
Period End	**0**	**0**	**24**	**0**	**0**	**0**	**64**	**0**	**0**	**0**	**100**	**0**	**188**

Others

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0730 - 0830	0	305	121	0	0	0	61	296	0	95	563	22	**1463**
0745 - 0845	0	298	141	0	0	0	63	304	0	106	590	23	**1525**
0800 - 0900	0	291	150	0	0	0	63	304	0	102	582	15	**1507**
0815 - 0915	0	319	155	0	0	0	58	300	0	93	571	22	**1518**
0830 - 0930	0	338	183	0	0	0	51	291	0	97	523	37	**1520**
PEAK HOUR	**0**	**298**	**141**	**0**	**0**	**0**	**63**	**304**	**0**	**106**	**590**	**23**	**1525**

To QBV

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0730 - 0830	0	0	17	0	0	0	30	0	0	0	37	0	**84**
0745 - 0845	0	0	16	0	0	0	33	0	0	0	51	0	**100**
0800 - 0900	0	0	11	0	0	0	32	0	0	0	63	0	**106**
0815 - 0915	0	0	10	0	0	0	36	0	0	0	73	0	**119**
0830 - 0930	0	0	7	0	0	0	34	0	0	0	63	0	**104**
PEAK HOUR	**0**	**0**	**16**	**0**	**0**	**0**	**33**	**0**	**0**	**0**	**51**	**0**	**100**

Combined

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0730 - 0745	0	90	23	0	0	0	13	62	0	18	124	4	**334**
0745 - 0800	0	76	34	0	0	0	21	68	0	22	137	10	**368**
0800 - 0815	0	61	44	0	0	0	28	77	0	35	163	5	**413**
0815 - 0830	0	78	37	0	0	0	29	89	0	20	176	3	**432**
0830 - 0845	0	83	42	0	0	0	18	70	0	29	165	5	**412**
0845 - 0900	0	69	38	0	0	0	20	68	0	18	141	2	**356**
0900 - 0915	0	89	48	0	0	0	27	73	0	26	162	12	**437**
0915 - 0930	0	97	62	0	0	0	20	80	0	24	118	18	**419**
Period End	**0**	**643**	**328**	**0**	**0**	**0**	**176**	**587**	**0**	**192**	**1186**	**59**	**3171**

Peds

	NORTH	WEST	SOUTH	EAST	
	George St	*Market St*	*George St*	*Market St*	
Time Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
0730 - 0745					**0**
0745 - 0800					**0**
0800 - 0815	*Not*	*Not*	*Not*	*Not*	**0**
0815 - 0830	*Required*	*Required*	*Required*	*Required*	**0**
0830 - 0845					**0**
0845 - 0900					**0**
0900 - 0915					**0**
0915 - 0930					**0**
Period End	**0**	**0**	**0**	**0**	**0**

Combined

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0730 - 0830	0	305	138	0	0	0	91	296	0	95	600	22	**1547**
0745 - 0845	0	298	157	0	0	0	96	304	0	106	641	23	**1625**
0800 - 0900	0	291	161	0	0	0	95	304	0	102	645	15	**1613**
0815 - 0915	0	319	165	0	0	0	94	300	0	93	644	22	**1637**
0830 - 0930	0	338	190	0	0	0	85	291	0	97	586	37	**1624**
PEAK HOUR	**0**	**298**	**157**	**0**	**0**	**0**	**96**	**304**	**0**	**106**	**641**	**23**	**1625**

Peds

	NORTH	WEST	SOUTH	EAST	
	George St	*Market St*	*George St*	*Market St*	
Peak Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
0730 - 0830	0	0	0	0	**0**
0745 - 0845	0	0	0	0	**0**
0800 - 0900	0	0	0	0	**0**
0815 - 0915	0	0	0	0	**0**
0830 - 0930	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**

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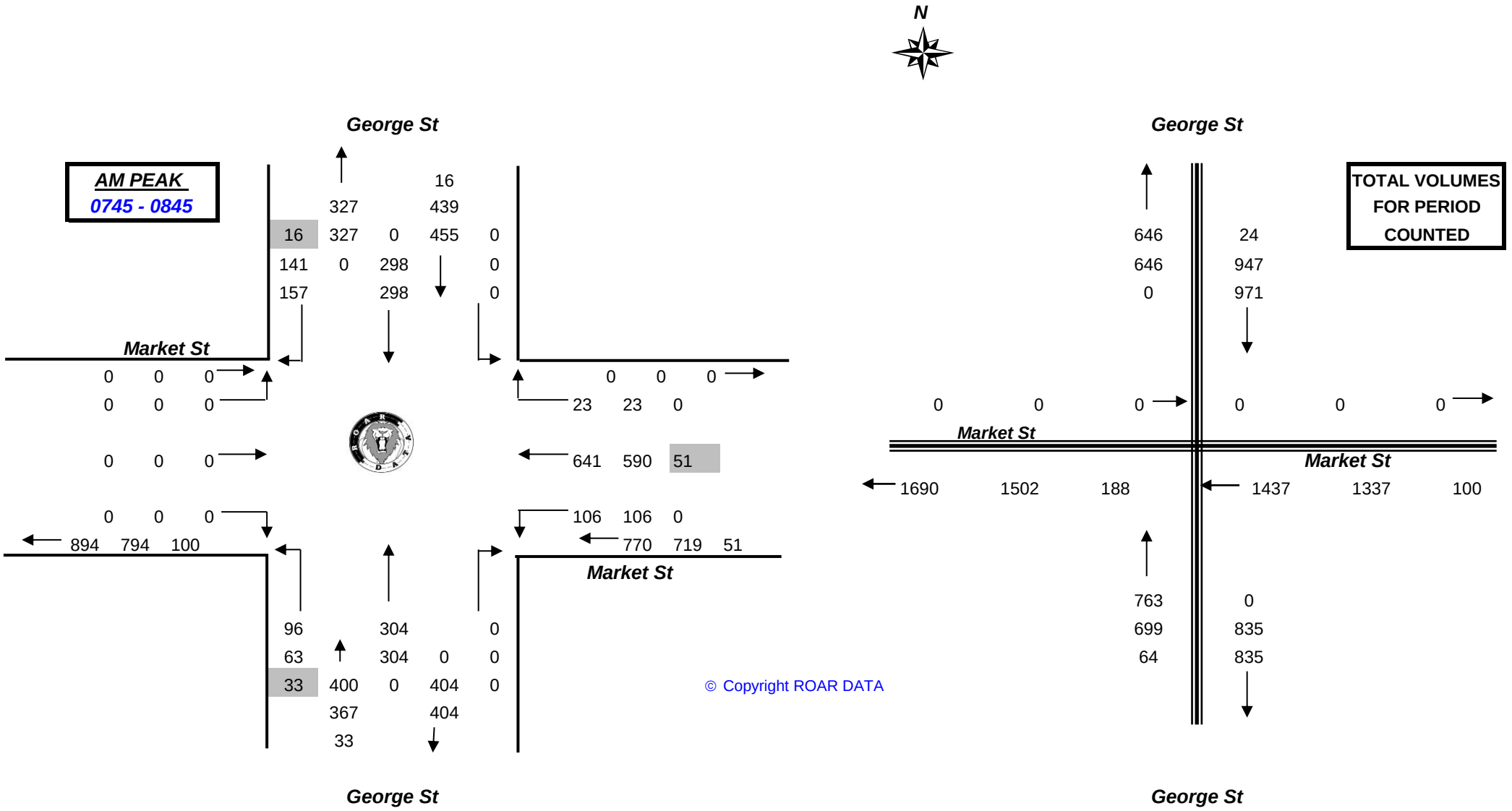
Day/Date : Monday 2nd December 2013



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Client : BarkerRyanStewart
Job No/Name : 4930 SYCNEY CBD Geoarge St QBV Vehicles
Day/Date : Monday 2nd December 2013

Others

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615		68	41				14	68		19	201	19	**430**
1615 - 1630		87	63				21	70		21	199	25	**486**
1630 - 1645		82	62				14	52		27	184	26	**447**
1645 - 1700		70	71				19	44		23	164	32	**423**
1700 - 1715		61	54				15	38		29	190	25	**412**
1715 - 1730		78	26				16	40		13	140	13	**326**
1730 - 1745		71	32				14	40		9	170	10	**346**
1745 - 1800		35	37				16	45		6	135	6	**280**
Period End	**0**	**552**	**386**	**0**	**0**	**0**	**129**	**397**	**0**	**147**	**1383**	**156**	**3150**

To QBV

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615			3				2				8		**13**
1615 - 1630			4				5				8		**17**
1630 - 1645			5				4				3		**12**
1645 - 1700			3				3				9		**15**
1700 - 1715			7				4				14		**25**
1715 - 1730			3				8				14		**25**
1730 - 1745			7				12				13		**32**
1745 - 1800			2				6				10		**18**
Period End	**0**	**0**	**34**	**0**	**0**	**0**	**44**	**0**	**0**	**0**	**79**	**0**	**157**

Others

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	307	237	0	0	0	68	234	0	90	748	102	**1786**
1615 - 1715	0	300	250	0	0	0	69	204	0	100	737	108	**1768**
1630 - 1730	0	291	213	0	0	0	64	174	0	92	678	96	**1608**
1645 - 1745	0	280	183	0	0	0	64	162	0	74	664	80	**1507**
1700 - 1800	0	245	149	0	0	0	61	163	0	57	635	54	**1364**
PEAK HOUR	**0**	**307**	**237**	**0**	**0**	**0**	**68**	**234**	**0**	**90**	**748**	**102**	**1786**

To QBV

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	0	15	0	0	0	14	0	0	0	28	0	**57**
1615 - 1715	0	0	19	0	0	0	16	0	0	0	34	0	**69**
1630 - 1730	0	0	18	0	0	0	19	0	0	0	40	0	**77**
1645 - 1745	0	0	20	0	0	0	27	0	0	0	50	0	**97**
1700 - 1800	0	0	19	0	0	0	30	0	0	0	51	0	**100**
PEAK HOUR	**0**	**0**	**15**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**28**	**0**	**57**

Combined

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	0	68	44	0	0	0	16	68	0	19	209	19	**443**
1615 - 1630	0	87	67	0	0	0	26	70	0	21	207	25	**503**
1630 - 1645	0	82	67	0	0	0	18	52	0	27	187	26	**459**
1645 - 1700	0	70	74	0	0	0	22	44	0	23	173	32	**438**
1700 - 1715	0	61	61	0	0	0	19	38	0	29	204	25	**437**
1715 - 1730	0	78	29	0	0	0	24	40	0	13	154	13	**351**
1730 - 1745	0	71	39	0	0	0	26	40	0	9	183	10	**378**
1745 - 1800	0	35	39	0	0	0	22	45	0	6	145	6	**298**
Period End	**0**	**552**	**420**	**0**	**0**	**0**	**173**	**397**	**0**	**147**	**1462**	**156**	**3307**

Peds

	NORTH	WEST	SOUTH	EAST	
	George St	*Market St*	*George St*	*Market St*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1615					**0**
1615 - 1630					**0**
1630 - 1645	*Not*	*Not*	*Not*	*Not*	**0**
1645 - 1700	*Required*	*Required*	*Required*	*Required*	**0**
1700 - 1715					**0**
1715 - 1730					**0**
1730 - 1745					**0**
1745 - 1800					**0**
Period End	**0**	**0**	**0**	**0**	**0**

Combined

	NORTH			WEST			SOUTH			EAST			
	George St			*Market St*			*George St*			*Market St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	307	252	0	0	0	82	234	0	90	776	102	**1843**
1615 - 1715	0	300	269	0	0	0	85	204	0	100	771	108	**1837**
1630 - 1730	0	291	231	0	0	0	83	174	0	92	718	96	**1685**
1645 - 1745	0	280	203	0	0	0	91	162	0	74	714	80	**1604**
1700 - 1800	0	245	168	0	0	0	91	163	0	57	686	54	**1464**
PEAK HOUR	**0**	**307**	**252**	**0**	**0**	**0**	**82**	**234**	**0**	**90**	**776**	**102**	**1843**

Peds

	NORTH	WEST	SOUTH	EAST	
	George St	*Market St*	*George St*	*Market St*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1700	0	0	0	0	**0**
1615 - 1715	0	0	0	0	**0**
1630 - 1730	0	0	0	0	**0**
1645 - 1745	0	0	0	0	**0**
1700 - 1800	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**

R.O.A.R DATA

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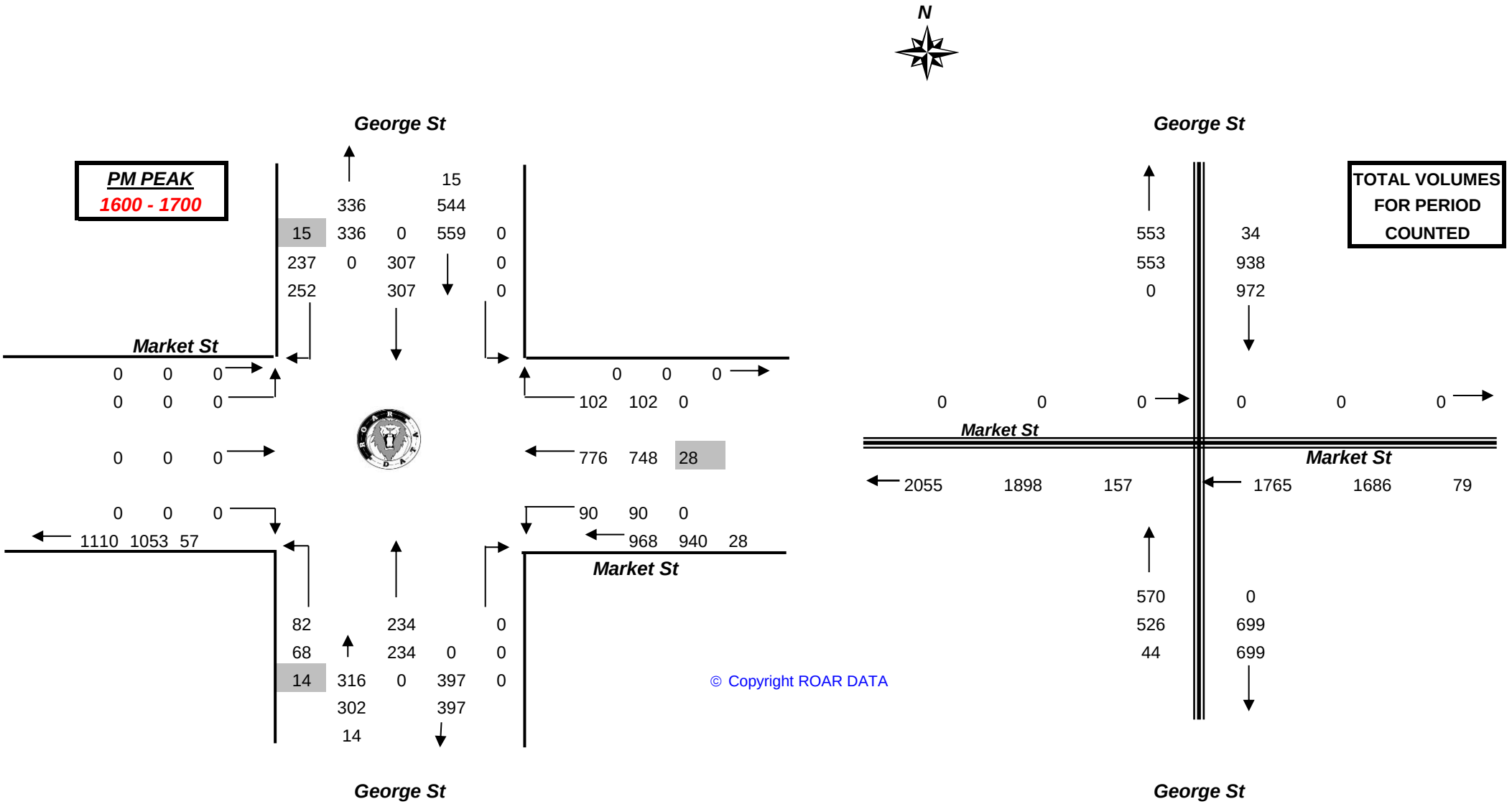
Client : BarkerRyanStewart

Job No/Name : 4930 SYCNEY CBD Geoarge St QBV Vehicles

Day/Date : Monday 2nd December 2013



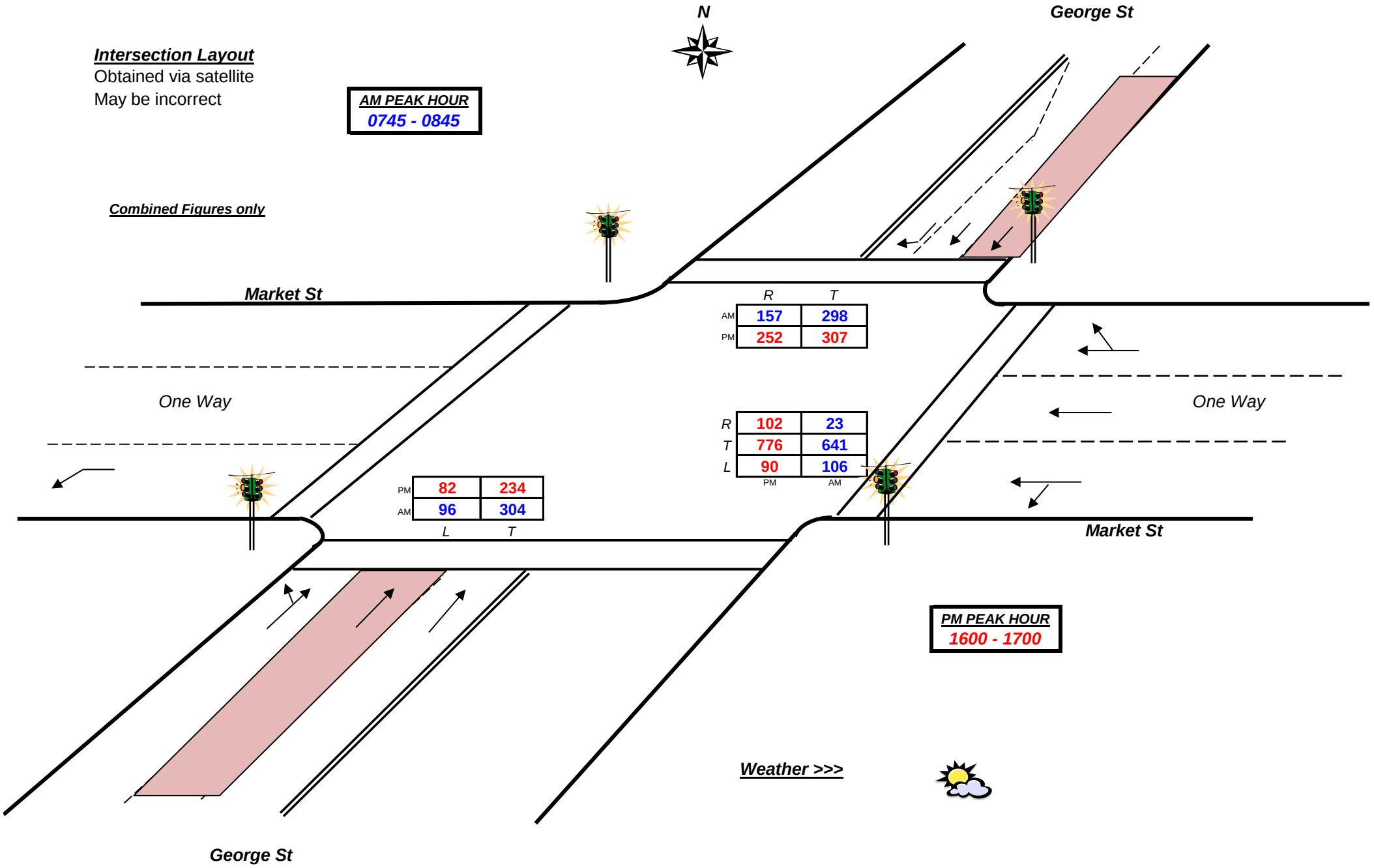
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : BarkerRyanStewart
Job No/Name : 4930 SYCNEY CBD Geoarge St QBV Vehicles
Day/Date : Monday 2nd December 2013

Intersection Layout
Obtained via satellite
May be incorrect

AM PEAK HOUR
0745 - 0845

Combined Figures only



PM PEAK HOUR
1600 - 1700

Weather >>>