CITY of PERTH

Lord Mayor and Councillors,

NOTICE IS HEREBY GIVEN that the next meeting of the **Works and Urban Development Committee** will be held in Committee Room 1, Ninth Floor, Council House, 27 St Georges Terrace, Perth on **Tuesday, 29 September 2015 at 5.30pm.**

Yours faithfully

GARY STEVENSON PSM
CHIEF EXECUTIVE OFFICER

24 September 2015

Committee Members:

Members:	**1st Deputy:**	**2nd Deputy:**
Cr Limnios (Presiding Member)		
The Lord Mayor	Cr Butler	Cr Yong
Cr McEvoy		

Please convey apologies to Governance on 9461 3250
or email governance@cityofperth.wa.gov.au

EMERGENCY GUIDE

Council House, 27 St Georges Terrace, Perth

CITY of PERTH

The City of Perth values the health and safety of its employees, tenants, contractors and visitors. The guide is designed for all occupants to be aware of the emergency procedures in place to help make an evacuation of the building safe and easy.

BUILDING ALARMS

Alert Alarm and Evacuation Alarm.

KNOW YOUR EXITS

ALERT ALARM

beep beep beep

All Wardens to respond.

Other staff and visitors should remain where they are.

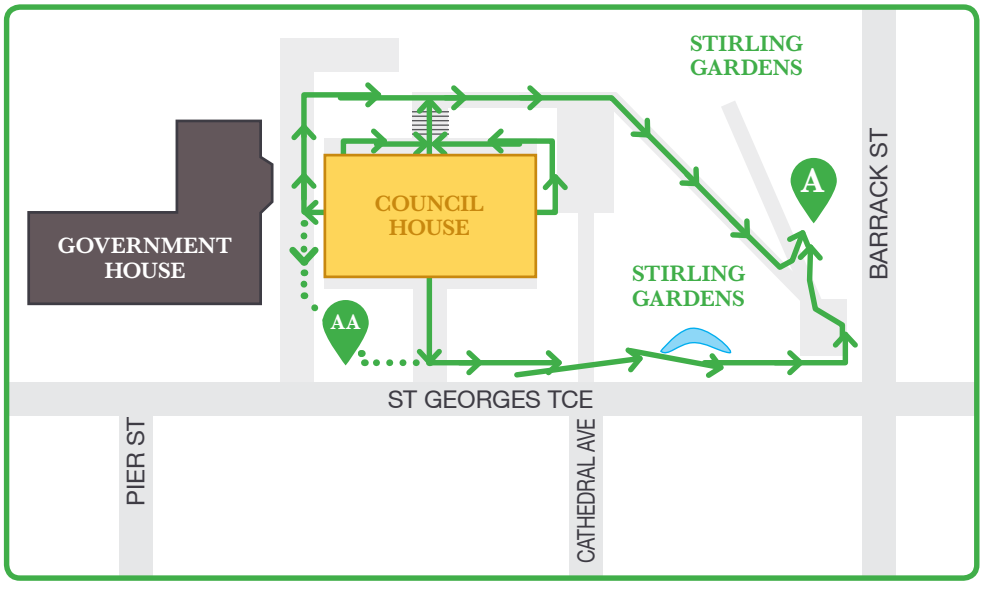
EVACUATION ALARM/PROCEDURES

whoop whoop whoop

On hearing the Evacuation Alarm or on being instructed to evacuate:

1. Move to the floor assembly area as directed by your Warden.
2. People with impaired mobility (those who cannot use the stairs unaided) should report to the Floor Warden who will arrange for their safe evacuation.
3. When instructed to evacuate leave by the emergency exits. Do not use the lifts.
4. Remain calm. Move quietly and calmly to the assembly area in Stirling Gardens as shown on the map below. Visitors must remain in the company of City of Perth staff members at all times.
5. After hours, evacuate by the nearest emergency exit. Do not use the lifts.

EVACUATION ASSEMBLY AREA



WORKS AND URBAN DEVELOPMENT COMMITTEE

Established: 17 May 2005 (Members appointed 22 October 2013)

Members:	**1st Deputy:**	**2nd Deputy:**
Cr Limnios (Presiding Member)		
The Lord Mayor	Cr Butler	Cr Yong
Cr McEvoy		

Quorum: Two

Expiry: October 2015

TERMS OF REFERENCE: [Adopted OCM 04/06/13]

To oversee and make recommendations to the Council on matters related to:

1. works required to construct, upgrade and maintain streets, footpaths, thoroughfares and other public places, including streetscape upgrades, landscaping initiatives and directional signage and graffiti;

2. design, construction and upgrading of parks, reserves, recreational and civic amenities and facilities and Council owned buildings, excluding Council House, the Perth Town Hall, City of Perth Public Lending Library and the Perth Concert Hall;

3. the façade lighting of buildings;

4. waste management.

This meeting is not open to members of the public

WORKS AND URBAN DEVELOPMENT COMMITTEE
29 SEPTEMBER 2015

ORDER OF BUSINESS

1. **Declaration of Opening**

2. **Apologies and Members on Leave of Absence**

3. **Confirmation of Minutes – 8 September 2015**

4. **Correspondence**

5. **Disclosure of Members' Interests**

6. **Reports**

7. **Motions of which Previous Notice has been Given**

8. **General Business**

   8.1. Responses to General Business from a Previous Meeting

   8.2. New General Business

   Nil

9. **Items for Consideration at a Future Meeting**

   Outstanding Reports:

   - Northbridge Piazza Screening Wall – Detailed Costings for Enhancement (Raised 18/08/14, update provided 10/02/15 and updated by CEO 18/08/15).
   - Identification and Improvement of "Neglected" Public Realm Spaces (Raised 04/11/14).
   - Beautification of the city – Landscaping Options (Raised 05/05/15).

10. **Closure**

INDEX OF REPORTS

ITEM NO: 1

PERTH CITY LINK – KINGS SQUARE: ACCEPTANCE OF CONTRIBUTED ASSETS PHASE TWO

RECOMMENDATION: ***(APPROVAL)***

That Council:

1. ***notes the current estimated asset values and financial implications of accepting the second and final phase of contributed assets from the Perth City Link – Kings Square private development;***

2. ***approves the acceptance of the second phase of contributed assets for the Perth City Link – Kings Square private development being the completed Wellington Gardens; and***

3. ***approves the acceptance of the final portion of contributed assets for Perth City Link – Kings Square being KS4 and KS1 Wellington Street Frontages and KS4 Wellington St Frontage Art Work upon their future satisfactory completion and fit for purpose construction.***

BACKGROUND:

FILE REFERENCE:	P1029786#09
REPORTING UNIT:	Construction and Maintenance
RESPONSIBLE DIRECTORATE:	Construction and Maintenance Directorate
DATE:	18 August 2015
MAP / SCHEDULE:	Schedule 1 – Kings Square Sub-Precinct Map Schedule 2 – Ripplescape Artwork Schedule 3 – Wellington Gardens Landscape Plan Schedule 4 – Assets, Estimated Values and Associated Costs.

The Perth City Link (PCL) is one of three major project developments or precincts that the Metropolitan Redevelopment Authority (MRA) has within the city which will connect the city with Northbridge given the sinking of the railway line and Wellington Street Bus Station. The 13.5 hectare site is bounded by Wellington Street in the south, the Freeway to the west, Roe Street on the north and the Horseshoe Bridge (William St) to the east creating a significant transit hub with the new Underground

Busport and a new CBD destination with Yagan Square, commercial offices, residential apartments, shops, restaurants and public open spaces.

The Kings Square precinct of PCL is a private development by Leighton Property which extends on the Wellington Street frontage from Little Milligan Street to King Street and has a small number of public realm assets to be contributed to the City. Council at its meeting on **21 July 2015** formally approved the acceptance of phase 1 of the Kings Square precinct assets under 308/15 Perth City Link – Kings Square:

Acceptance of Contributed Assets

"That Council:

1. *notes the current estimated asset values and financial implications of accepting the first phase of contributed assets from the Perth City Link – Kings Square private development;*

2. *approves the acceptance of the first phase of contributed assets for the Perth City Link – Kings Square private development being Telethon Avenue, Mall Reserve and KS2 Wellington Street frontage; and*

3. *notes the submission of a second report to Council on the final contributed assets from the Perth City Link – Kings Square private development once construction has been completed."*

This Report addresses the second and final phase of contributed assets to be considered by the City for transfer or handover.

LEGISLATION / STRATEGIC PLAN / POLICY:

Integrated Planning and Reporting Framework Implications	**Corporate Business Plan**	
	Council Four Year Priorities: Major Strategic Investments	
	S1	Ensure that major developments effectively integrate into the city with minimal disruption and risk.
	1.3	Establish site specific agreements and manage transition of Perth City Link Precinct.

Policy

Policy No and Name: 9.12 Asset Management Policy
9.15 Contributed Asset Policy

DETAILS:

The PCL Kings Square is private development by Leighton Property over multiple land holdings including DEXUS and Seven Entertainment. In agreement with Leighton Properties, the City's Construction Liaison Engineer had access to witness the construction of the assets to be gifted to the City, termed contributed assets,

monitor quality, and gain an understanding of the nature of the infrastructure for future servicing and maintenance needs.

Wellington Gardens is a small 1340m^2 section of public open space adjoining the recently completed Telethon Avenue and is on the western side of the KS3 Building (see Schedule 1). The garden is situated on top of an underground flood mitigation storage tank that is part of the broader PCL Storm water Drainage network for the area. The area is designed as a shared communal area for office workers, city visitors and future residents incorporating multiple seating options (timber and concrete 'twig' designs); soft and hard landscaping inclusive of a grassed area and an artificial turf Ripplescape Art feature on the northern side (see Schedule 2). A second Indigenous Art feature of 6 statues is yet to be installed on site but is depicted in the Landscape Plan for the Garden (see Schedule 3).

One of three sections of the Wellington Street frontage for the precinct has been completed and was included as a contributed asset in the first Report to Council on 21 July 2015; however two remaining sections affronting KS1 and KS4 buildings remain to be completed for transfer to the City.

The development applications and working drawings for clearance of conditions associated with the KS1 and KS4 frontages have been referred to the City, including designs for a third public art piece within the KS4 frontage. The City has not received formal completion dates nor detailed cost estimates for these assets therefore costs have been estimated for the two street frontages based on the existing completed KS2 Frontage (see Schedule 4). These assets will be the final contributed assets to be transferred to the City from this private development precinct upon completion.

A Bond or Bank Guarantee to the value of $2.5 million is being held by the City as per the terms of a legal agreement for the Deferral of Subdivision Conditions (Landscaping and Drainage Works: Wellington Gardens KS3) with DEXUS Funds Management Ltd as trustee for the DEXUS Kings Square Trust. Under the terms of the Agreement the City releases the bank guarantee when confirmation is received that practical completion has been independently certified. The City retains 2.5% of the Bank Guarantee amount in a Defect Bond that is exchanged with DEXUS Funds Management. The Agreement is currently being reviewed internally to trigger the release or partial release of the Bond (Withdrawal of Caveat) given the dependency upon the Practical Completion of the works; but of significance delivering fit for purpose assets within Wellington Gardens.

FINANCIAL IMPLICATIONS:

As previously advised final cost estimates for the Project will not be provided to the City until the final Asset Handover Requirements Package, as required by the City's Procedure, is submitted by the contractor through Leighton Property post the completion of the public realm assets.

Therefore preliminary values have been estimated from Budget Cost Estimates provided by Leightons for the majority of assets. As outlined in Schedule 4 the current estimated values (excluding GST) of these contributed assets for Council

consideration can be summarised as follows with a total cost estimated to be $1,719,850:

- Wellington Gardens $1,225,550 (excluding Art Works and Underground Water Tank);
- KS1 Wellington Street Frontage $254,650; and
- KS4 Wellington Street Frontage $357,650 (Including Art Work).

The annual depreciation impact upon these assets only has been estimated to be in the order of $54,850 per annum.

It must be noted that the excluded costs associated with the two Art Works within Wellington Gardens and Underground Water Tank will be significant, but are unable to be estimated by the City at this point in time given their bespoke nature and in that Leighton Properties have not provided any preliminary cost estimates.

In addition Asset Custodians and Maintainers (i.e. respective City of Perth Business Units) have provided an estimated annual cost for servicing and maintenance (estimated $116,950), in addition to any replacement costs (estimated $6,800) within the 10 year horizon of the financial plan (see Schedule 5). These costs are summarised as:

Sections of PCL – Kings Square (Phase Two)	Servicing and Maintenance Costs (Annual)	Replacement Costs**
Wellington Gardens	$ 86,010	$6,800
KS1 Wellington St Frontage	$ 3,250	
KS4 Wellington St Frontage	$ 6,520	
SUB TOTAL	$ 95,780	**$6,800**
TOTAL *Inc 15% Overhead	**$116,947**	

Note: ** Compliance Assets to be replaced every 4 years.

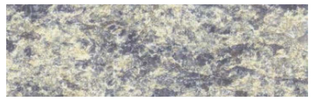
These servicing and maintenance costs have been factored into the 2015/16 Budget across the respective Business Units.

COMMENTS:

Under Policy 9.15 Contributed Assets, Council approval is required to accept contributed assets over the value of $500,000 and be advised of any future liabilities and financial implications. This Report recommends the acceptance of these final assets from the Perth City Link – Kings Square private development noting the impacts associated with servicing and maintenance costs over the coming 10 year period.


WELLINGTON GARDENS
KS3
INTERNAL ACCESSWAY
MALL
KS4 LANEWAY
KS4
KS2
KS1 & KS2 LANEWAY
KS1
Application Boundary
Detail Areas

SCHEDULE 2



PAVING TYPE 1
STANDARD C.O,P
VERDE GRANITE

PAVING TYPE 2
INSITU CONCRETE EXPOSED
AGGREGATE TO MATCH VERDE

TURF: KIKUYU

FESTUCA GLAUCA
DIANELLA TASMANICA
LEPIDOSPERMA GLADIATUM
HIBBERTIA SCANDENS

ART WORK (RIPPLE)
REFER TO ARTIST CONCEPT

STEEL FRAME TIMBER CLAD
BENCHES

CLASS 2 OFF FORM CONCRETE
STAIRS WITH GRANITE RISER

PRE-CAST GREY COLOUR
CONCRETE TWIG BENCHES

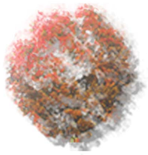
SCHEDULE 3

SIX KING
ART WORK INSTALLATION
REFER TO ARTIST CONCEPT

CORTEN STEEL TREE PLANTER

TOONA AUSTRALIS

PYRUS NIVALIS



TOONA AUSTRALIS
CANOPY COVER 2.5M WHEN
PLANTED & 9M AT MATURITY

PYRUS NIVALIS
CANOPY COVER 2M WHEN
PLANTED & 7M AT MATURITY

FESTUCA GLAUCA

DIANELLA TASMANICA

LEPIDOSPERMA GLADIATUM

HIBBERTIA SCANDENS

WELLINGTON GARDENS
PREPARED FOR LEIGHTON PROPERTIES PTY

LANDSCAPE CONSTRUCTION - HARD & SOFTWORKS

I:\CPS\Admin Services\Committees\3. Works\AS150923 Reports\Schedule 4.pdf

JOB NO. 1411301
1:100 @ A1

L4.102 REV 0 MAY 2015

0 2 4 6 10m

LANDSCAPE ARCHITECTS
414 ROKEBY RD SUBIACO WA 6008
T: (08) 9388 9566 E: mail@plane.com.au
LANDSPACE PTY LTD ACN 056 538 679

PLAN E

MRA Project	Asset Class	Asset Description	Quantum	Estimated Asset Value Total*	Asset Handover Date	Date of Service Commencement	Estimated Servicing and Maintenance (pa)	Asset Replacment Cost (2015-2025)	Useful Life^
PERTH CITY LINK Kings Square	**Wellington Gardens**								
	Infrastructure - Drainage	Wide strip drain	17m	**$82,800**	Aug-2015	**Aug-2015**	$1,000		tbd
		Underground Water Tank	1200m3	**excl.**	Aug-2015	**Aug-2015**	$20,000		tbd
		Gross Pollutant Trap	12.3m3	**excl.**	Aug-2015	**Aug-2015**	$4,000		tbd
	Infrastructure - Community Safety	CCTV	3	**$43,650**	Aug-2015	**Aug-2015**	$1,515	$6,800	4
	Infastructure -PALS	Turf	1340m2	**$328,100**	Aug-2015	**Aug-2015**	$17,000		na
		Trees	24		Aug-2015	**Aug-2015**	$2,625		na
		Softfall	145m2		Aug-2015	**Aug-2015**	$1,500		10
		Infield Irrigation	109m2		Aug-2015	**Aug-2015**	$12,000		20
	Infrastructure - Paths	Footpaths	611m2	**$420,500**	Aug-2015	**Aug-2015**	$5,000		50
		Stairs	5 sets of stairs		Aug-2015	**Aug-2015**	$2,000		20
	Infrastructure - Street Furniture	Bike Racks	8	**$202,000**	tbd		$800		10
		Rubbish Bins	1		Aug-2015	**Aug-2015**	$1,820		10
		Seating (concrete & timber with trees)	13		Aug-2015	**Aug-2015**	$4,000		10
		Bench table (metal)	6		Aug-2015	**Aug-2015**	$1,200		10
		Drinking Fountain	1		Aug-2015	**Aug-2015**	$300		10
		Ballustrade	40m		Aug-2015	**Aug-2015**	$1,800		10
		Retaining Wall	35m		Aug-2015	**Aug-2015**	$3,500		10
		Hand Rail	28m		Aug-2015	**Aug-2015**	$1,500		10
	Art	Riple Art Work (artificial turf)	tbd	**tbd**	Aug-2015	**Aug-2015**			tbd
		Indigenous Art (6 statues)	6	**tbd**	tbd				
	Infrastructure -Lighting	Lamp Columns	**9**	**$148,500**	Aug-2015		$4,450		20
				Sub Total (1)	**$1,225,550**		**Sub Total (1)**	**$86,010**	**$6,800**	
	KS4 Wellington St Frontage ^^								
	Infrastructure - Street Furniture	Bike racks	7	**$3,500**	Unknown	Unknown	$3,200		10
	Infrastructure - PLS	Trees and pit	4	**$16,000**			$420		na
	Infrastructure - Paths	Footpaths	240m2	**$180,000**			$1,900		40
	Infrastructure - Lights	Lamp Columns inc conduit	2	**$40,150**			$1,000		20
	Art	Transition Piece Art	1	**$118,000**			tbd		
				Sub Total (2)	**$357,650**		**Sub Total (2)**	**$6,520**	**$0**	
	KS1 Wellington St Frontage ^^								
	Infrastructure - Community Safety	CCTV	tbd	**tbd**	Unknown	Unknown	tbd		4
	Infrastructure - Paths	Footpaths	270m2	**$202,500**			$1,900		40
	Infrastructure - PLS	Trees and pit	3	**$12,000**			$350		na
	Infrastructure - Lights	Lamp Columns inc conduit	2	**$40,150**			$1,000		20
				Sub Total (3)	**$254,650**		**Sub Total (3)**	**$3,250**	**$0**	
				SUB TOTAL (1+2+3)	**$1,837,850**		**Sub Total (1+2+3)**	**$95,780**	**$6,800**	
							15% Administrative Overhead (on servicing costs only)	**$14,367**		
				TOTAL	**$1,837,850**		**TOTAL**	**$116,947**	**$6,800**	

***** Estimate based on Preliminary QS Figures from Developer (Asset Management)

^ Internal from Asset Management

^^ Given no approved Drawings are available estimates have been determined from KS2 Wellington St Frontage already handed to the City.

SCHEDULE 4

ITEM NO: 2

TENDER 008-15/16 WATER FEATURE MAINTENANCE SERVICES AT VARIOUS LOCATIONS

RECOMMENDATION: ***(APPROVAL)***

That Council accepts the most suitable tender, being that submitted by Poolwerx Perth City to provide water feature maintenance services to various sites, under a three year contract commencing 1 October 2015, in accordance with the Schedule of Rates (Schedule 5), subject to annual indexation to the Consumer Price Index (All Groups Perth);

BACKGROUND:

FILE REFERENCE:	P1031666
REPORTING UNIT:	Parks
RESPONSIBLE DIRECTORATE:	Construction and Maintenance
DATE:	11 September 2015
MAP / SCHEDULE:	Schedule 5 – Schedule of Rates Confidential Schedule 6 – Assessment Matrix

This tender was advertised as Tender 008-15/16 in the West Australian on Wednesday, 15 July 2015. Tenders closed at 2.00pm, on Thursday, 30 July 2015, with the following submissions received:

- Commercial Aquatics Australia
- PoolService Perth
- Bax Services
- Get Wet Solutions
- PoolWerx Perth City
- Add Landscaping

The report which follows assesses the submissions and makes a recommendation.

LEGISLATION / STRATEGIC PLAN / POLICY:

Legislation	Section 3.57 of the *Local Government Act 1995* Part 4 of the *Local Government (Functions and General) Regulations 1996* Code of Practice for the Design, Construction, Operation,

	Management and Maintenance of Aquatic Facilities (August 2013)
Integrated Planning and Reporting Framework Implications	**Corporate Business Plan** Council Four Year Priorities: Community Outcome Healthy and Active in Perth A city with a well-integrated built and green natural environment in which people and families chose a lifestyle that enhances their physical and mental health and take part in arts, cultural and local community events.
Policy	
Policy No and Name:	9.4 – Purchasing Policy

DETAILS:

As part of each submission, companies were required to address the selection criteria set out in the tender specification as well as a Form of Tender. A complete fixed price schedule of rates across stipulated categories associated with the works and services to be provided was also required.

All tenders were assessed against the following criteria:

- Compliance with specifications
- Experience with similar works
- Availability of support resources – Personnel and equipment
- Quality control procedures

Compliance Assessment:

Get Wet Solutions
This company demonstrated experience more closely aligned with the pumps, controls and hydraulics of water features as opposed to the maintenance and chemical water analysis required as part of this contract and was therefore assessed as not meeting the selection criteria.

Add Landscaping
This company demonstrated experience more closely aligned to landscaping and irrigation, as opposed to water feature maintenance and chemical water analysis and was therefore assessed as not meeting the selection criteria.

Commercial Aquatics Australia
While this company did demonstrate relevant experience, they did not provide copies of the Material Safety Data Sheets, a signed copy of the addendum, a signed form of tender or provide a full response to each of the selection criteria.

Bax Services
While the company demonstrated compliance with the specification, most experience was aligned around ponds and natural water bodies; and a limited staff base raised concerns with the availability of support resources. This company was scored third highest by the panel.

Pool Service Perth
The company demonstrated a good understanding of the work and compliance with the specification, however only listed one full-time and two part-time employees. With an existing portfolio of 20+ commercial properties, the availability of support resources was a concern. This company was scored second highest by the panel.

PoolWerx Perth City
PoolWerx demonstrated compliance with the specification, a good understanding of the scope of work, relevant experience with similar works and sufficient personnel and equipment resources to undertake the contract. Quality control procedures were also of a high standard. PoolWerx ranked the highest against the selection criteria and offered competitive rates.

In summary, the ranking outcome was:

1. PoolWerx Perth City
2. Pool Service Perth
3. Bax Services
4. Commercial Aquatics Australia
5. Add Landscaping
6. Get Wet Solutions

FINANCIAL IMPLICATIONS:

ACCOUNT NO:	Various
BUDGET ITEM:	Other Recreation and Sport
BUDGET PAGE NUMBER:	
BUDGETED AMOUNT:	$198,500
AMOUNT SPENT TO DATE:	$ 0
PROPOSED COST:	$172,900
BALANCE:	$ 25,600

All figures quoted in this report are exclusive of GST.

The preferred supplier is also the current service supplier under the existing contract. Unit prices are therefore similar; however, addition of the Plateia Hellas in Northbridge to this tender specification, and increased service requirements at the Water Labyrinth in Forrest Place has increased the estimated annual contract cost by approximately 20%. The balance of $25,600 per annum is allocated for unexpected repairs and maintenance not included in the scheduled services.

COMMENTS:

Poolwerx Perth City has adequately addressed the selection criteria and was able to demonstrate their capabilities of fulfilling the requirements of the services to be provided under the contract. The company also provided competitive rates therefore it is recommended that Poolwerx Perth City be awarded the contract.

SCHEDULE A – Price Comparison

	Commercial Aquatics Australia			Pool Service Perth			Bax Services		
	Council House 27 St Georges Terrace, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$14.80	52	**$737.36**	$16.00	52	**$832.00**	$22.00	52	**$1,140.00**
Water level check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$8.00	156	**$1,248.00**
Monitor adjust chemical levels and supplies	$7.69	156	**$1,199.64**	$8.00	156	**$1,248.00**	$25.00	156	**$3,900.00**
Litter removal/scooping	$21.27	156	**$3,318.12**	$40.00	156	**$6,240.00**	$12.00	156	**$1,872.00**
Filtered vacuum	$42.54	52	**$1,106.04**	$240.00	52*	**$12,480.00***	$17.00	52	**$884.00**
Vacuum to Waste	$85.08	12	**$1,020.96**	$240.00	12	**$2,880.00**	$17.00	12	**$204.00**
Stain removal/brushing	$14.18	52	**$737.36**	$40.00	52	**$2,080.00**	$25.00	52	**$1,300.00**
Equipment check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$12.00	156	**$1,872.00**
SUB TOTAL ANNUAL CHARGE	**$10,331.56**			**$28,256.00***			**$12,424.00**		

*contractor submitted for 40x services, recalculated for 52x services

SCHEDULE 5

	Get Wet Solutions			PoolWerx Perth City			Add Landscaping		
	Council House 27 St Georges Terrace, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$575.64**	$18.00	52	**$936.00**
Water level check	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$7.00	156	**$1,092.00**
Monitor adjust chemical levels and supplies	$135.00	156	**$21,060.00**	$11.07	156	**$1,726.92**	$22.00	156	**$3,432.00**
Litter removal/scooping	$135.00	156	**$21,060.00**	$47.19	156	**$7,361.64**	$52.00	156	**$8,112.00**
Filtered vacuum	$250.00	52	**$13,000.00**	$283.12	52	**$14,722.24**	$37.00	52	**$1,924.00**
Vacuum to Waste	$250.00	12	**$3,000.00**	$283.12	12	**$3,397.44**	$42.00	12	**$504.00**
Stain removal/brushing	$250.00	52	**$13,000.00**	$47.19	52	**$2,453.88**	$50.00	52	**$2,600.00**
Equipment check	$60.00	156	**$9,360.00**	$23.59	156	**$3,680.04**	$15.00	156	**$2,340.00**
SUB TOTAL ANNUAL CHARGE	**$83,080.00**			**$35,143.96**			**$20,940.00**		

	Commercial Aquatics Australia			**Pool Service Perth**			**Bax Services**		
	Stirling Gardens 33 St Georges Terrace, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$14.18	52	**$737.36**	$8.00	52	**$416.00**	$22.00	52	**$1,144.00**
Water level check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$8.00	156	**$1,248.00**
Monitor adjust chemical levels and supplies	$7.69	156	**$1,199.64**	$8.00	156	**$1,248.00**	$25.00	156	**$3,900.00**
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Stain removal/brushing	$21.27	52	**$1,106.04**	$40.00	52	**$2,080.00**	$25.00	52	**$1,300.00**
Equipment check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$12.00	156	**$1,872.00**
SUB TOTAL ANNUAL CHARGE	**$11,806.28**			**$27,840.00***			**$12,424.00**		

*contractor submitted for 40x services, recalculated for 52x services

	Get Wet Solutions			**PoolWerx Perth City**			**Add Landscaping**		
	Stirling Gardens 33 St Georges Terrace, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$575.64**	$18.00	52	**$936.00**
Water level check	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$7.00	156	**$1,092.00**
Monitor adjust chemical levels and supplies	$135.00	156	**$21,060.00**	$11.07	156	**$1,726.92**	$22.00	156	**$3,432.00**
Litter removal/scooping	$135.00	156	**$21,060.00**	$47.19	156	**$7,361.64**	$52.00	156	**$8,112.00**
Filtered vacuum	$250.00	52	**$13,000.00**	$283.12	52	**$14,722.24**	$37.00	52	**$1,924.00**
Vacuum to Waste	$250.00	12	**$3,000.00**	$283.12	12	**$3,397.44**	$42.00	12	**$503.00**
Stain removal/brushing	$250.00	52	**$13,000.00**	$15.73	52	**$817.96**	$50.00	52	**$2,600.00**
Equipment check	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$15.00	156	**$2,340.00**
SUB TOTAL ANNUAL CHARGE	**$83,080.00**			**$31,054.16**			**$20,940.00**		

	Commercial Aquatics Australia			**Pool Service Perth**			**Bax Services**		
	Russell Square 200 James Street, NORTHBRIDGE								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$14.18	52	**$737.36**	$8.00	52	**$416.00**	$22.00	52	**$1,144.00**
Water level check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$8.00	156	**$1,248.00**
Monitor adjust chemical levels and supplies	$7.69	156	**$1,199.64**	$8.00	156	**$1,248.00**	$25.00	156	**$3,900.00**
Litter removal/scooping	$21.27	156	**$3,318.12**	$40.00	156	**$6,240.00**	$12.00	156	**$1,872.00**
Filtered vacuum	$14.18	52	**$737.36**	$160.00	52*	**$8,320.00***	$17.00	52	**$884.00**
Vacuum to Waste	$85.08	12	**$1,020.96**	$160.00	12	**$1,920.00**	$17.00	12	**$204.00**
Stain removal/brushing	$14.08	52	**$737.36**	$20.00	52	**$1,040.00**	$25.00	52	**$1,300.00**
Equipment check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$12.00	156	**$1,872.00**
Jet wash	$85.08	5	**$340.32**	$160.00	4	**$640.00**	$25.00	4	**$100.00**
SUB TOTAL ANNUAL CHARGE	**$10,303.20**			**$22,320.00***			**$12,524.00**		

*contractor submitted for 40x services, recalculated for 52x services

	Get Wet Solutions			**PoolWerx Perth City**			**Add Landscaping**		
	Russell Square 200 James Street, NORTHBRIDGE								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$575.64**	$18.00	52	**$936.00**
Water level check	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$7.00	156	**$1,092.00**
Monitor adjust chemical levels and supplies	$135.00	156	**$21,060.00**	$11.07	156	**$1,726.92**	$33.75	156	**$5,265.00**
Litter removal/scooping	$135.00	156	**$21,060.00**	$23.59	156	**$3,680.04**	$37.50	156	**$5,850.00**
Filtered vacuum	$250.00	52	**$13,000.00**	$188.74	52	**$9,814.48**	$37.50	52	**$1,950.00**
Vacuum to Waste	$250.00	12	**$3,000.00**	$188.74	12	**$2,264.88**	$37.50	12	**$450.00**
Stain removal/brushing	$250.00	52	**$13,000.00**	$15.73	52	**$817.96**	$37.50	52	**$1,950.00**
Equipment check	$60.00	156	**$9,360.00**	$11.07	156	**$1,726.92**	$15.00	156	**$2,340.00**
Jet wash	$350.00	4	**$1,400.00**	$141.57	4	**$566.28**	$75.00	4	**$300.00**
SUB TOTAL ANNUAL CHARGE	**$84,480.00**			**$22,399.28**			**$20,133.00**		

	Commercial Aquatics Australia			**Pool Service Perth**			**Bax Services**		
	Florence Hummerston 16 Mount Street, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$14.18	52	**$737.36**	$8.00	52	**$416.00**	$22.00	52	**$1,144.00**
Water level check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$8.00	156	**$1,248.00**
Monitor adjust chemical levels and supplies	$7.19	156	**$1,121.64**	$8.00	156	**$1,248.00**	$25.00	156	**$3,900.00**
Litter removal/scooping	$7.09	156	**$1,106.04**	$40.00	156	**$6,240.00**	$12.00	156	**$1,872.00**
Filtered vacuum	$7.09	52	**$368.68**	$160.00	52*	**$8,320.00***	$17.00	52	**$884.00**
Vacuum to Waste	$21.27	12	**$255.24**	$160.00	12	**$1,920.00**	$17.00	12	**$204.00**
Stain removal/brushing	$7.09	52	**$368.68**	$20.00	52	**$1,040.00**	$25.00	52	**$1,300.00**
Equipment check	$7.09	156	**$368.68**	$8.00	156	**$1,248.00**	$12.00	156	**$1,872.00**
SUB TOTAL ANNUAL CHARGE	**$5,432.36**			**$21,680.00***			**$12,424.00**		

*contractor submitted for 40x services, recalculated for 52x services

	Get Wet Solutions			**PoolWerx Perth City**			**Add Landscaping**		
	Florence Hummerston 16 Mount Street, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$575.64**	$3.75	52	**$195.00**
Water level check	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$3.75	156	**$585.00**
Monitor adjust chemical levels and supplies	$135.00	156	**$21,060.00**	$7.86	156	**$1,226.16**	$7.50	156	**$1,170.00**
Litter removal/scooping	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$3.75	156	**$585.00**
Filtered vacuum	$150.00	52	**$7,800.00**	$47.19	52	**$2,453.88**	$7.50	52	**$390.00**
Vacuum to Waste	$150.00	12	**$1,800.00**	$47.19	12	**$566.28**	$7.50	12	**$90.00**
Stain removal/brushing	$150.00	52	**$7,800.00**	$7.86	52	**$408.72**	$3.75	52	**$195.00**
Equipment check	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$7.50	156	**$1,170.00**
SUB TOTAL ANNUAL CHARGE	**$72,780.00**			**$8,909.16**			**$4,380.00**		

	Commercial Aquatics Australia			**Pool Service Perth**			**Bax Services**		
	Mount Street 24 Mount Street, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$14.18	52	**$737.36**	$8.00	52	**$416.00**	$22.00	52	**$1,144.00**
Water level check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$8.00	156	**$1,248.00**
Monitor adjust chemical levels and supplies	$7.19	156	**$1,121.64**	$8.00	156	**$1,248.00**	$25.00	156	**$3,900.00**
Litter removal/scooping	$7.09	156	**$1,106.04**	$16.00	156	**$2,496.00**	$12.00	156	**$1,872.00**
Vacuum to Waste	$28.36	4	**$113.44**	$440.00	4	**$1,760.00**	$17.00	4	**$68.00**
Equipment check	$7.09	156	**$1,106.04**	$8.00	156	**$1,248.00**	$12.00	156	**$1,872.00**
Steam clean epoxy surface surrounding the water feature	$85.08	52	**$4,424.16**	$240.00	52	**$12,480.00**	$60.00	52	**$3,120.00**
SUB TOTAL ANNUAL CHARGE	**$9,714.72**			**$20,896.00**			**$13,224.00**		

	Get Wet Solutions			**PoolWerx Perth City**			**Add Landscaping**		
	Mount Street 24 Mount Street, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$575.64**	$18.00	52	**$936.00**
Water level check	$60.00	156	**$9,360.00**	$7.86	156	**$1,226.16**	$7.00	156	**$1,092.00**
Monitor adjust chemical levels and supplies	$135.00	156	**$21,060.00**	$7.86	156	**$1,226.16**	$22.00	156	**$3,432.00**
Litter removal/scooping	$50.00	156	**$7,800.00**	$7.86	156	**$1,226.16**	$7.00	156	**$1,092.00**
Vacuum to Waste	$250.00	52	**$1,000.00**	$471.87	52	**$1,887.48**	$25.00	52	**$100.00**
Equipment check	$60.00	12	**$9,360.00**	$7.86	12	**$1,226.16**	$7.50	12	**$1,170.00**
Steam clean epoxy surface surrounding the water feature	$350.00	52	**$18.200.00**	$23.59	52	**$1,226.68**	$75.00	52	**$3,900.00**
SUB TOTAL ANNUAL CHARGE	**$73,020.00**			**$8,594.44**			**$5,070.00**		

	Commercial Aquatics Australia			**Pool Service Perth**			**Bax Services**		
	Earth, Fire & Water Ball Forrest Place, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$14.18	52	**$737.36**	$8.00	52	**$416.00**	$22.00	52	**$1,144.00**
Monitor adjust chemical levels and supplies	$7.19	156	**$1,121.64**	$8.00	156	**$1,248.00**	$25.00	156	**$3,900.00**
Litter removal/scooping	$2.84	156	**$443.04**	$4.00	156	**$624.00**	$12.00	156	**$1,872.00**
Stain removal/brushing	$7.09	52	**$368.68**	$8.00	52	**$416.00**	$25.00	52	**$1,300.00**
Equipment check	$7.09	156	**$1,106.04**	$16.00	156	**$2,496.00**	$12.00	156	**$1,872.00**
SUB TOTAL ANNUAL CHARGE	**$4,439.76**			**$5,200.00**			**$10,088.00**		

	Get Wet Solutions			**PoolWerx Perth City**			**Add Landscaping**		
	Earth, Fire & Water Ball Forrest Place, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$575.64**	$18.00	52	**$936.00**
Monitor adjust chemical levels and supplies	$135.00	156	**$21,060.00**	$7.86	156	**$1,226.16**	$12.50	156	**$1,950.00**
Litter removal/scooping	$50.00	156	**$7,800.00**	$7.86	156	**$1,226.16**	$7.00	156	**$1,092.00**
Stain removal/brushing	$150.00	156	**$7,800.00**	$7.86	156	**$408.72**	$35.00	156	**$1,820.00**
Equipment check	$60.00	52	**$9,360.00**	$7.86	52	**$1,226.16**	$12.50	52	**$1,950.00**
SUB TOTAL ANNUAL CHARGE	**$51,260.00**			**$5,662.84**			**$3,770.00**		

	Commercial Aquatics Australia			Pool Service Perth			Bax Services		
	Water Labyrinth Forrest Place, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$25.00	365	**$9,125.00**	$8.00	365	**$2,920.00**	$22.00	365	**$8,030.00**
Water level check	$12.50	365	**$4,562.50**	$8.00	365	**$2,920.00**	$8.00	365	**$2,920.00**
Monitor adjust chemical levels and supplies	$25.22	365	**$9,205.30**	$8.00	365	**$2,920.00**	$25.00	365	**$9,125.00**
Equipment check	$12.50	365	**$4,562.50**	$8.00	365	**$2,920.00**	$12.00	365	**$4,380.00**
Monitor water feature grates and paving for debris	$25.00	365	**$9,125.00**	$16.00	365	**$5,840.00**	$15.00	365	**$5,475.00**
Cleaning of spray jet nozzles	$75.00	12	**$900.00**	$120.00	12	**$1,440.00**	$12.00	12	**$144.00**
Monitor of sand filters	$25.00	365	**$9,125.00**	$8.00	365	**$2,920.00**	$9.00	365	**$3,285.00**
Cleaning of filtration tank	$300.00	4	**$1,200.00**	$640.00	4	**$2,560.00**	$25.00	4	**$100.00**
Cleaning of Labyrinth trays	$150.00	4	**$600.00**	$200.00	4	**$800.00**	$25.00	4	**$100.00**

	Commercial Aquatics Australia			**Pool Service Perth**			**Bax Services**		
	Water Labyrinth Forrest Place, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Maintenance of Labyrinth stainless steel grates	$75.00	52	**$3,900.00**	$80.00	52	**$4,160.00**	$10.00	52	**$520.00**
Monitor main concrete water tank	$25.00	4	**$100.00**	$80.00	4	**$320.00**	$25.00	4	**$100.00**
Water return leaf and litter traps	$25.00	4	**$100.00**	$240.00	4	**$960.00**	$25.00	4	**$100.00**
Cleaning of 15x pump hair and lint pot filter screens	$150.00	4	**$600.00**	$240.00	4	**$960.00**	$25.00	4	**$100.00**
Check and record water consumption	$25.00	365	**$9,125.00**	$8.00	365	**$2,920.00**	$7.00	365	**$2,555.00**
Testing of automatic shut-down function	$25.00	1	**$9,125.00**	$16.00	1	**$16.00**	$200.00	1	**$200.00**
SUB TOTAL ANNUAL CHARGE	**$71,355.30**			**$34,576.00**			**$37,134.00**		

	Get Wet Solutions			PoolWerx Perth City			Add Landscaping		
	Water Labyrinth Forrest Place, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$4,040.55**	$18.00	52	**$6,570.00**
Water level check	$60.00	156	**$9,360.00**	$7.86	156	**$2,868.90**	$7.00	156	**$2,555.00**
Monitor adjust chemical levels and supplies	$135.00	156	**$21,060.00**	$11.07	156	**$4,040.55**	$37.50	156	**$13,688.00**
Equipment check	$150.00	156	**$54,750.00**	$15.73	156	**$5,741.45**	$33.75	156	**$12,318.75**
Monitor water feature grates and paving for debris	$60.00	52	**$21,900.00**	$15.73	52	**$5,741.45**	$33.75	52	**$12,318.75**
Cleaning of spray jet nozzles	$280.00	12	**$6,160.00**	$139.46	12	**$1,673.52**	$37.50	12	**$450.00**
Monitor of sand filters	$150.00	52	**$54,750.00**	$7.86	52	**$2,868.90**	$12.50	52	**$4,562.50**
Cleaning of filtration tank	$600.00	156	**$2,400.00**	$743.77	156	**$2,975.05**	$150.00	156	**$600.00**
Cleaning of Labyrinth trays	$600.00	4	**$2,400.00**	$185.94	4	**$743.76**	$150.00	4	**$600.00**

	Get Wet Solutions			**PoolWerx Perth City**			**Add Landscaping**		
	Water Labyrinth Forrest Place, PERTH								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Maintenance of Labyrinth stainless steel grates	$250.00	52	**$13,000.00**	$92.97	52	**$4,834.44**	$15.00	52	**$780.00**
Monitor main concrete water tank	$150.00	4	**$600.00**	$92.97	4	**$371.88**	$150.00	4	**$600.00**
Water return leaf and litter traps	$250.00	4	**$1,000.00**	$278.91	4	**$1,115.64**	$150.00	4	**$600.00**
Cleaning of 15x pump hair and lint pot filter screens	$250.00	4	**$1,000.00**	$278.91	4	**$1,115.64**	$225.00	4	**$900.00**
Check and record water consumption	$150.00	365	**$18,250.00**	$7.86	365	**$2,868.90**	$7.00	365	**$2,555.00**
Testing of automatic shut-down function	$350.00	1	**$350.00**	$47.19	1	**$47.19**	$300.00	1	**$300.00**
SUB TOTAL ANNUAL CHARGE	**$213,220.00**			**$41,047.85**			**$59,398.00**		

	Commercial Aquatics Australia			**Pool Service Perth**			**Bax Services**		
	Plateia Hellas 98 Lake Street, NORTHBRIDGE								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$14.18	52	**$737.36**	$8.00	52	**$416.00**	$22.00	52	**$1,144.00**
Water level check	$7.09	52	**$368.68**	$8.00	52	**$416.00**	$8.00	52	**$416.00**
Monitor adjust chemical levels and supplies	$14.68	52	**$763.36**	$8.00	52	**$416.00**	$25.00	52	**$1,300.00**
Vacuum to Waste	$14.18	4	**$56.72**	$440.00	4	**$1,760.00**	$17.00	4	**$68.00**
Stain removal/brushing	$85.08	52	**$4,424.16**	$24.00	52	**$1,248.00**	$25.00	52	**$1,300.00**
Equipment check	$7.09	52	**$368.68**	$8.00	52	**$416.00**	$12.00	52	**$624.00**
Coarse filter	$42.59	4	**$170.16**	$40.00	4	**$160.00**	$25.00	4	**$100.00**
SUB TOTAL ANNUAL CHARGE	**$6,863.12**			**$4,832.00**			**$4,952.00**		

	Get Wet Solutions			**PoolWerx Perth City**			**Add Landscaping**		
	Plateia Hellas 98 Lake Street, NORTHBRIDGE								
SERVICE	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**	Unit Rate	QTY	**Annual Charge**
Water testing and balance	$120.00	52	**$6,240.00**	$11.07	52	**$575.64**	$18.00	52	**$936.00**
Water level check	$60.00	52	**$9,360.00**	$7.86	156	**$408.72**	$7.00	156	**$364.00**
Monitor adjust chemical levels and supplies	$135.00	52	**$21,060.00,**	$7.86	156	**$408.72**	$12.50	156	**$650.00**
Vacuum to Waste	$250.00	4	**$1,000.00**	$471.87	156	**$1,887.48**	$25.00	156	**$100.00**
Stain removal/brushing	$150.00	52	**$7,800.00**	$7.86	52	**$408.72**	$75.00	52	**$3,900.00**
Equipment check	$60.00	52	**$3,120.00**	$7.86	12	**$408.72**	$13.75	12	**$715.00**
Coarse filter	$150.00	4	**$600.00**	$23.59	4	**$94.36**	$75.00	4	**$300.00***
SUB TOTAL ANNUAL CHARGE	**$49,180.00**			**$4,192.36**			**$6,965.00**		

*Price adjusted to represent 4x services

SERVICE	Commercial Aquatics Australia		Pool Service Perth		Bax Services	
	Monday - Friday (7am – 3:30pm)	Weekends & P/H	Monday - Friday (7am – 3:30pm)	Weekends & P/H	Monday - Friday (7am – 3:30pm)	Weekends & P/H
Call out fee (ex. GST)	$85.00	$600.00	$80.00	$165.00	$60.00	$80.00
Call out hourly rate (ex. GST)	$85.00	$150.00	$80.00	$165.00	$40.00	$60.00
Pool technician	$85.00	$150.00	$80.00	$165.00	$70.00	$100.00
Pump technician	$85.00	$150.00	$80.00	$165.00	$85.00	$120.00
Electrician	$260.00	$260.00	$125.00	$255.00	$120.00	$185.00
SERVICE	**Get Wet Solutions**		**PoolWerx Perth City**		**Add Landscaping**	
	Monday - Friday (7am – 3:30pm)	Weekends & P/H	Monday - Friday (7am – 3:30pm)	Weekends & P/H	Monday - Friday (7am – 3:30pm)	Weekends & P/H
Call out fee (ex. GST)	$70.00	$150.00	$94.37	$188.74	$95.00	$125.00
Call out hourly rate (ex. GST)	$70.00	$70.00	$94.37	$188.74	$75.00	$110.00
Pool technician	$70.00	$70.00	$94.37	$188.74	$65.00	$95.00
Pump technician	$70.00	$70.00	$94.37	$188.74	$125.00	$185.00
Electrician	$150.00	$150.00	$146.00	$292.00	$125.00	$185.00

Chemical Supply Details
All prices exclude GST.

Item	Price/kg
Commercial Aquatics Australia	
Hydrochloric acid (20L)	$16.55
Liquid chlorine (20L)	$17.55
Sodium Bicarb (25kg)	$22.43
PoolService Perth	
Chlorine, liquid sodium hypochlorite 12.5%	$1.20
Acid liquid sulphuric acid 34%	$1.34
Dry chlorine, calcium hypochlorite 65%	$22.00
Calcium, calcium chloride 99%	$6.00
Clarifier's & algaecides	$26.00
Bax Services	
Acid	$6.00
Alkalinity	$6.00
Chlorine	$9.00
Stabilizer	$7.00
Calcium	$7.00
Get Wet Solutions	
Hy-Chlor granular pool chlorine	$4.00
Hy-Chlor liquid chlorine	$7.00
Hy-Chlor algaecide	$16.00
Hy-Chlor stabiliser	$6.00
Hy-Chlor sanitiser	$45.00
PoolWerx Perth City	
Sodium hypochlorite (liquid chlorine)	$1.46
Maxi Chlor stabilised chlorine tablets (large)	$36.32
Maxi Chlor stabilised chlorine tablets (mini tabs)	$37.71
Sulphuric acid (no fume liquid acid)	$1.68
Sodium bicarbonate (alkalinity increaser / buffer)	$7.56
Cyanuric acid (sun block/stabiliser)	$17.06
Calcium hardness increaser	$9.05
Maintenance algaecide	$29.78
Algae eliminator	$30.78
Super clear clarifier	$29.78
Sodium thiosulfate (chlorine neutraliser)	$27.20
Tile and vinyl cleaner	$46.10
No foam	$33.20
Nil Phos (phosphate remover)	$32.75
Anti-crystalite	$27.25
Filter cleaner and degreaser	$49.95
No more ducks	$16.56
Add Landscaping	
Sodium bicarbonate	$4.32
Sodium bisulphate	$8.50
Calcium chloride	$4.95
Sodium hypochlorite	$3.25
Bensalkonium chloride	$4.95

Miscellaneous Works & Percentages on Costs

Rate for items additional to the maintenance contract that will be required from time to time

	Description	Hourly Rate
Commercial Aquatics Australia	Additional works	$85.00
PoolService Perth	P/H early morning service	$175.00
Bax Services	Labour services	$50.00
Get Wet Solutions	Electrical repair	$150.00
PoolWerx Perth City	P/H early morning service	$188.74
Add Landscaping	Camera/snake scope	$135.00
	Drain machine	$170.00

Percentage of cost for materials/equipment hire that may be required for the contract from time to time

	Description	% on cost
Commercial Aquatics Australia	Extra parts required	20%
	Extra equipment required	20%
Bax Services	Materials	10%
	Equipment	10%
Get Wet Solutions	Steam cleaner machine hire	15%

CONFIDENTIAL SCHEDULE 6
ITEM 2 – TENDER 008-15/16 WATER FEATURE MAINTENANCE SERVICES AT VARIOUS LOCATIONS

FOR THE WORKS AND URBAN DEVELOPMENT COMMITTEE MEETING

29 SEPTEMBER 2015

DISTRIBUTED TO ELECTED MEMBERS UNDER SEPARATE COVER

ITEM NO: 3

WILLIAM STREET PUBLIC TRANSIT ZONE STAGE 2 - TRANSPORT MODELLING AND IMPLEMENTATION

RECOMMENDATION: ***(APPROVAL)***

That Council:

1. ***receives the outcomes of the second stage of public consultation undertaken by the Public Transport Authority for public transport improvements on William Street and notes that all stakeholder issues have been satisfactorily addressed and resolved;***

2. ***notes that localised transport modelling of William Street has been undertaken by the Public Transport Authority which has provided an indication of the expected benefits to public transport reliability and pedestrian wait times at signals; however wider area transport modelling has not yet been completed to the satisfaction of the City of Perth to assess whether city traffic will be subject to additional congestion as a result of removing general traffic from part of William Street;***

3. ***notes the various options for delivery of the William Street Transit Zone project set out in this report including the relation of each option to the intended completion of the City's Barrack Street Two Way project;***

4. ***notes the acceptability of the Transit Zone (stage 2) project including its wider impact on the City road network is yet to be proven which shall be reported back to Council for consideration at a future meeting once all outstanding transport modelling information has been received and reviewed;***

5. ***notes that details of the Stage 3 William Street Transit Zone 'Urban Environment Upgrade' shall be reported back to Council for consideration at a future meeting;***

(Cont'd)

6. endorses that the City continues with completion of the Barrack Street Two Way project at the end of November 2015 in line with Option 3 of this report, separately to consideration of the Transit Zone project at a later date; and

7. authorises the Chief Executive Officer of City of Perth to negotiate with the Public Transport Authority on the timing of the relocation of the Blue CAT bus service away from Barrack Street, separately to consideration of the Transit Zone project at a later date.

BACKGROUND:

FILE REFERENCE:	P1000570-11
REPORTING UNIT:	Transport Unit
RESPONSIBLE DIRECTORATE:	Planning and Development
DATE:	18 September 2015
MAP / SCHEDULE:	Schedule 7 – PTA Fact Sheet Schedule 8 – 'Technical Report – William Street Transit Zone' Schedule 9 – 'William Street Transit Only Zone Modelling – RFQ 500011-69' Schedule 10 – 'William Street Transit Zone Stakeholder Consolation & Traffic Modelling' Schedule 11 – Analysis of Options For Delivery of Transit Zone

At the meeting of Council on **10 December 2013**, Council made the following resolution:

1. noted the outcomes from public consultation undertaken by the Public Transport Authority for public transport improvements on William Street;

2. approved the measures the Public Transport Authority propose for public transport improvements in William Street, subject to the following conditions being satisfied before Council will consider the approval of a bus-only transit mall between Hay and Murray Streets:

2.1 that all stakeholder issues have been satisfactorily addressed and resolved;
2.2 that traffic modelling has been completed demonstrating that city traffic will not be subject to additional congestion as a result of removing general traffic from part of William Street;
2.3 that Barrack Street is required to be converted to two-way traffic movement for general traffic prior to the transit zone in William Street becoming operational;

3. *noted that the Public Transport Authority will remove bus stop infrastructure from Barrack Street as part of these improvements;*

4. *approved the addition of a double bus stop in Wellington Street, east of Forrest Place, as part of the relocation of bus services from Barrack Street into William Street and Wellington Street; and*

5. *authorised the Chief Executive Officer to negotiate minor amendments to plans to optimise the number of short term parking and taxi bays.*

Part 2 of the resolution above and its conditions followed concerns expressed from the Works and Urban Development Committee regarding the proposed full closure of William Street to general traffic to create a Transit Zone and considered that the loss of all short-stay bays in William Street, as well as a loss of one Taxi Bay in Hay Street, was unacceptable and that the Public Transport Authority (PTA) investigate adding three short-stay bays in Hay Street. These investigations were completed by PTA and works to relocate and reconfigure short-stay bays and the taxi rank were completed in July 2014.

As part of the Council endorsement of Barrack Street Two Way in December 2014, it was reported to Council that the City's preference was for the northbound Blue CAT route to be relocated from Barrack Street to William Street.

At that time it was confirmed that changes to CAT routes and stop locations will ultimately be considered by PTA and the Department of Transport (DoT) as part of an overall CAT bus strategy which will form part of the State Governments future Perth Central Area Transport Plan (2016-25). One aspect of this plan will most likely reinforce the proposal for a transit zone in William Street (between Hay and Murray) which will also serve CAT buses.

Since this time, the City has been in on-going discussions with representatives from the DoT and the PTA. Both agencies have indicated their willingness to further consider the City's preferences as they recognise the merit in removing all bus stops from Barrack Street, not only from a safety point of view but also from a wider strategic perspective. On-going discussions during the development of the Transit Zone project from the beginning of 2015 have centred around PTA's requirements for the Transit Zone to be in place prior to the Blue CAT relocating from Barrack Street.

Subsequent to the Council meeting on **10 December 2013**, and following close collaboration between the City of Perth, PTA and DoT during the course of 2015, technical reports produced by the PTA and DoT were submitted to the City of Perth, most recently on 31 August 2015, detailing localised traffic modelling of William Street, (but not the requested wider area modelling), its concept design and consultation feedback as previously requested by Council. These technical reports are contained at Schedule 8 and 9 the content of which is summarised in the City of Perth's summary note 'William Street Transit Zone Stakeholder Consultation and Traffic Modelling" in Schedule 10.

This report provides a summary of the updated position in relation to conditions previously placed upon the consideration of public transport improvements in William Street, including addressing stakeholder issues and completion of traffic modelling. This report also makes recommendations for the delivery and timing of the Transit Zone project in relation to the committed City project Barrack Street Two Way and the continued operation of the Blue CAT service.

The PTA recently briefed Elected Members of the Works and Urban Development Committee on Monday, 7 September and discussed preferred project timing and delivery method, outlined the need for public transport improvements, explained the results of stakeholder consultation and explained their current position in relation to required transport modelling. This report also confirms the above, the subsequent discussions with PTA on required revisions to the transport modelling, and sets out a recommendation to reasonably consider the acceptability of the Transit Zone project.

LEGISLATION / STRATEGIC PLAN / POLICY:

Integrated Planning and Reporting Framework Implications	**Corporate Business Plan** Council Four Year Priorities: Getting around Perth S4 Enhanced accessibility in and around the City including parking. 4.1 Develop Business Plan for future car park development.

EXECUTIVE SUMMARY:

Since January 2015, the PTA and DoT have closely involved officers of the City of Perth and Main Roads WA in regular project workshops to consider the necessary project work to address the resolutions of Council and provide officers with the necessary information to report back to Council.

During the recent briefing session with members of the Works and Urban Development Committee on Monday, 7 September 2015, PTA discussed the need and justification for public transport improvements in William Street and the importance of aligning this project with the completion of Barrack Street Two Way at the end of November 2015. PTA confirmed majority support for the scheme has been received from stakeholders. Vehicles requiring access to properties within the Transit Zone shall be considered as ‘authorised vehicles’ with permissions administered by PTA.

Localised traffic modelling data has been provided by PTA which indicates expected benefits of the William Street Transit Zone in terms of improved public transport journey times and reliability for all buses and improved pedestrian wait times at signals. Based on the submitted results of the localised modelling, intersections with William Street shall continue to operate on a satisfactory basis should the Transit Zone be endorsed and implemented.

Whilst wider area traffic modelling data has not been provided to assess the impact on congestion elsewhere in the city, the data provided indicates the overall level of expected reassigned traffic is acceptable for the purposes of reviewing the benefits derived from the localised modelling assessment. The wider area modelling is currently being undertaken to assess the redistribution effect and its impact on the surrounding road network to address Council resolution 2.2 from **10 December 2013**. Council resolution 2.2 has not been satisfactorily addressed by PTA at this time.

Whilst PTA and DoT have indicated their willingness to relocate the Blue CAT bus service from Barack Street to William Street, PTA has been resistant to this if it were to occur prior to implementation of the Transit Zone. The reason for this hesitation by PTA is due to a perceived lack of capacity in William Street, capacity at intersections and reservations about William Street's ability to handle the increased volume of CAT buses without the congestion reduction shown in the modelling by implementing the Transit Zone. It should be noted that no documented evidence of William Street's inability to handle the required number of Blue CAT buses has been provided by PTA. It is recommended that Council authorises the Chief Executive Officer of the City of Perth to negotiate with the PTA on the timing of the relocation of the Blue CAT bus service away from Barrack Street, separately to consideration of the Transit Zone project.

As an alternative, the administration recommends that PTA continue to operate the Blue CAT in Barrack Street without stopping under two way conditions at the end of November 2015 prior to full consideration and installation of the Transit Zone. This scenario has also been met with resistance from PTA as they wish to serve a demand for a stop near the malls. It should be noted that for the majority of the Barrack Street Two Way construction period (including Water Corporation Works from early April to end of November 2015) the Blue CAT has not stopped in Barrack Street between St Georges Terrace and Wellington Street but continued to pass through. Continuing this from the end of November 2015 would only be a short term situation whilst the Transit Zone project was progressed further by PTA for consideration of Council at a later date.

PTA's preferred option to implement the Transit Zone, given the City's expected completion of Barrack Street Two Way at the end of November 2015, is for Council to approve the Transit Zone immediately without the benefit and understanding of the required transport modelling to identify whether the wider impact of the Transit Zone on the City road network is acceptable to City of Perth. In addition, this preferred option of PTA's would include implementation of the Transit Zone at the end of November 2015 in line with the completion of Barrack Street Two Way in order for the Blue CAT to relocate to William Street and to capitalise on a joint communications strategy. The administration advises that the risk of PTA being unable to satisfy the deadline of end of November 2015 for delivery of the Transit Zone is extremely high particularly given the amount of outstanding design work to be completed, reviewed and approved prior to implementation, as this would be within two months from the end of September 2015. This option presents significant risks to the City of Perth as described further at Option 1 of this report.

Should the above not be acceptable to Council at this time, then the fall-back position of PTA would be to delay the opening of the Barrack Street Two Way and align the

completion of both projects to open together sometime in February 2016. This option would place the responsibility of completing both projects on the endorsement and approval of the William Street Transit Zone which would present significant risks to the City of Perth as described further at Option 2 of this report.

The least risk to the City of Perth is to continue to convert Barrack Street to two way operation from the end of November 2015 as per the City's accelerated program with the Blue CAT bus service relocating to operate northbound in William Street without the Transit Zone in place. Should PTA continue to resist the relocation of the northbound Blue CAT to William Street prior to implementation of the Transit Zone, then the Blue CAT could continue to operate northbound in Barrack Street without stopping to remove associated safety concerns of the bus stopping in the new northbound cycle lane. It is strongly recommended that this option be endorsed by Council as per Option 3 described further in this report. It is also strongly recommended that no endorsement of the Transit Zone is made until reporting back to Council at a future date once all outstanding traffic modelling data is received from PTA. This would not compromise full consideration of the Transit Zone project by Council at a future date.

DETAILS:

Options for Delivery of Transit Zone and Blue CAT Bus Service Operations

Throughout the duration of the Transit Zone project development, from receiving the endorsement of Council on **10 December 2015** to proceeding with development of the project up to present, the PTA has always intended to align this project with the opening of Barrack Street Two Way in order to minimise disruption to the public, relocate the Blue CAT bus to William Street and capitalise on a joint communications strategy. The City of Perth has supported this approach, however due to a number of factors including the late development of the CBD Paramics model for wider area traffic assessment and late delivery of information for review by PTA, the timescales to align the Transit Zone project with the opening of Barrack Street Two Way at the end of November 2015 are now extremely constrained with a high probability of this not being achievable by PTA.

Given the timescale currently available to the PTA, they requested a special briefing session with Elected Members of the Works and Urban Development Committee on Monday, 7 September and put forward their preferred option for delivery of the project.

The PTA has always insisted that the Blue CAT bus service, which currently runs northbound in Barrack Street (without stopping due to construction works) is not able to relocate to William Street without the Transit Zone first being operational and releasing spare capacity due to reassigned general traffic. The PTA has confirmed that the reason the Blue CAT can not relocate to William Street before the Transit Zone is implemented is due to a perceived lack of capacity in William Street, capacity at intersections and reservations about William Street's ability to handle the increased volume of buses due to the CAT service without the congestion reduction

shown in modelling by implementing the Transit Mall. However, no documented evidence of the lack of capacity has been provided to City of Perth.

The current situation during the peak period in William Street is that the Blue CAT bus service runs southbound amongst other buses and 327 southbound general vehicles. There is no Blue CAT service currently running northbound in William Street, only other buses and 98 other general vehicles. It is therefore unclear why the northbound direction is more critical as PTA suggest, and could not otherwise cater for the Blue CAT to run northbound in the short term prior to the Transit Zone implementation.

It is preferred by City of Perth for PTA to operate the Blue CAT northbound in William Street before Barrack Street changes to two way and prior to the installation of the Transit Zone. This has always been met with resistance from PTA as above, most recently by the Executive Director of Transperth. An alternative fall-back position would be for the Blue CAT to continue operating in Barrack Street under two way conditions from the end of November 2015, without stopping, with the understanding that this would only be a short term solution whilst consideration of the Transit Zone project was progressed by PTA for consideration by Council at a future date.

Given the above situation including constrained timescales and the aspiration of PTA to improve bus journey times and reliability in William Street for all bus services, there are now three potential options for delivery of the Transit Zone project in relation to the Barrack Street Two Way project and Blue CAT operations. The administration advises that the best way forward is to choose an option which minimises, as much as possible, the risk to the City both in terms of costs, reputation of the City, any impacts to the Blue CAT service and the disadvantages of delaying the opening of Barrack Street Two Way project any further. The options for delivery are outlined below:

Option 1

Barrack Street Two Way opens at end the of November 2015 as per the City's accelerated schedule and Council immediately endorses the implementation of Transit Zone Stage 2, without the benefit and understanding of all outstanding traffic modelling data. This is also subject to implementation of the Transit Zone at the same time as Barrack Street Two Way opens at the end of November 2015 with the Blue CAT relocating to William Street. Reporting back to Council once all outstanding traffic modelling data is received would still be required.

Option 2

Barrack Street Two Way opening is delayed until approximately February 2016 to allow further consideration of the Transit Zone and align the opening of both projects. This option includes the Blue CAT to relocating to William Street. No endorsement of the Transit Zone will be made until reporting back to Council at a future date once all outstanding traffic modelling data is received.

Option 3

Barrack Street Two Way opens at the end of November 2015 as per the City's accelerated schedule and the Blue CAT relocates to William Street to operate northbound prior to the implementation of the Transit Zone. This option separated both projects with no endorsement of the Transit Zone made until reporting back to Council at a future date once all outstanding traffic modelling data is received and considered. As part of this option it is noted that high level negotiations are required between City of Perth and PTA to agree the timing of the relocation of the Blue CAT bus service to William Street or possible alternatives.

Analysis of Option 1

Option 1 is the preferred option of PTA, however this presents a significant risk to the City of Perth and, with respect, the opinion of the administration is that it is extremely unlikely PTA shall achieve implementation of the Transit Zone Stage 2 by the end of November 2015 risking works during December or delayed until January 2016. Further details of implications of Option 1 on the City of Perth are contained at Schedule 11: It is not recommended that this option be endorsed by Council.

Analysis of Option 2

Option 2 also presents a significant risk to the City of Perth in that this would delay the opening of the Barrack Street Two Way project and place the responsibility of completion of both projects on the Council's endorsement and approval of the William Street Transit Zone project. Further details of implications of Option 2 on the City of Perth are contained at Schedule 11. It is not recommended that this option be endorsed by Council

Analysis of Option 3

Option 3 presents the least risk to the City of Perth and it is the recommendation of the administration for Works and Urban Development Committee and Council to endorse this option. Further details of implications of Option 3 on the City of Perth are contained at Schedule 11.

FINANCIAL IMPLICATIONS:

There are no financial implications to the City of Perth resulting from the recommendations of this report (option 3).

However, should Council endorse the delaying of Barrack Street Two Way opening to traffic in both directions to align with the completion of the Transit Zone project, as per option 2, then additional costs in the region of $150,000 to $170,000 shall be incurred for provision of traffic management from end of November 2015 to approximately the end of February 2016. The PTA has confirmed they will only consider meeting this cost should Council provide immediate approval of the Transit Zone prior to all necessary modelling information being received and to the satisfaction of City of Perth. This presents a significant risk to City of Perth.

In addition, should Barrack Street Two Way be delayed as per option 2, the City would lose the benefit of having already increased capital expenditure by more than $300,000 gross, to accelerate the Barrack Street construction program to finish at the end of November 2015 in direct response to retailer's serious concerns.

COMMENTS:

PTA briefed Elected Members on 7 September 2015 and discussed the need and justification for public transport improvements in William Street. PTA confirmed majority support for the scheme has been received from stakeholders. Vehicles requiring access to properties within the Transit Zone shall be considered as 'authorised vehicles' with permissions administered by PTA.

Localised traffic modelling data has been provided which indicates expected benefits of the Transit Zone in terms of improved public transport journey times, reliability and improved pedestrian wait times at signals. Based on the submitted results of the localised modelling, intersections with William Street shall continue to operate on a satisfactory basis should the Transit Zone be endorsed and implemented. Wider area traffic modelling data has not yet been provided by PTA to assess the impact on congestion elsewhere on the city road network.

A number of options for delivery of the Transit Zone have been considered by City of Perth given the original intention of PTA to align the opening of the Transit Zone with the City of Perth's Barrack Street Two Way project.

The option which presents least risk to the City of Perth is to continue to convert Barrack Street to two way operation as intended from the end of November 2015 as per the City's accelerated program with the Blue CAT bus service relocating to operate northbound in William Street and consideration of the acceptability of the Transit Zone reported back to Council once all outstanding transport modelling data is received (as per option 3).

It is strongly recommended that option 3 be endorsed by Council, whilst authorising the Chief Executive Officer of City of Perth to negotiate the timing of the Blue CAT relocation to William Street and any possible alternatives. It is also strongly recommended that no endorsement of the Transit Zone is made until reporting back to Council at a future date once all outstanding traffic modelling data is received. This would not compromise full consideration of the Transit Zone project by Council at a future date.

SCHEDULE 7

Public Transport Authority

William Street bus only road
(between Hay and Murray streets)

FACT SHEET • July 2015

William Street Bus Only – looking north from Hay Street

The Public Transport Authority is working closely with the City of Perth to create a bus-only section of William Street, between Hay and Murray streets, which can also be accessed by taxis and cyclists.

How it will work

Once approved, William Street (between Murray and Hay streets only) will become a bus only road, which cyclists and taxis only can also access.

Buildings with driveways or access points in this section of road can continue to access their buildings. Pedestrians will also continue to use the footpaths.

General traffic will not be able to enter this section of William Street and will be redirected as appropriate. The City of Perth is converting Barrack Street to two-way traffic to encourage general traffic to use this route for north-south travel in the CBD.

THE BENEFITS →

Focusing all bus services along William Street provides major benefits to the CBD road network and public transport passenger:

- **Easier access for bus passengers with all north and south bus movements (excluding Red CAT service) located on the one CBD street**
- **Improved bus running time**
- **Improved CBD traffic with Barrack Street freed up for general traffic and Red CAT services**
- **Improved exiting for vehicles leaving car parks accessed from William Street**
- **Improved cycle network with dedicated lanes along Barrack Street**

These benefits are supported by independent traffic modelling which found bus services along William Street (particularly southbound services during the PM peak) will be more efficient with faster, more reliable running times.

The modelling also showed by redirecting general traffic gaps in traffic were created to provide better opportunities for William Street car park users to exit the car parks. It showed clear gains to the level of service at these intersections where exiting traffic can turn right and left from each exit.

Works completed to date

Stage 1 and 2 of this work is completed, which involved creating a left turn only lane at William-Hay Street intersection for northbound traffic and replacing street parking and a loading bay on the western side of this section of road into four bus stops.

All northbound bus services, except the Red CAT service, which previously travelled along Barrack Street were then relocated to William Street. This is to focus bus movements to this main route through the CBD, freeing Barrack Street up for general traffic.

Coinciding with these stages is the City of Perth's work to convert Barrack Street into two-way traffic between St Georges Terrace and Wellington Street (which will force Blue CAT services to use William Street) and introduce dedicated cycle lanes to significantly improve the CBD's cycle network.

NEXT STAGES

The PTA is about to seek approval to complete the final stage of this work, which will see William Street (between Hay and Murray streets only) become an exclusive cycle/bus/taxi zone.

General traffic will not be able to use William Street between Hay and Murray streets when the final conversion begins.

The bus-only section of William Street will be clearly identified with line-markings, signage and red asphalt.

This work, which sees the restricted access begin, is expected to start in late 2015 once approval is gained.

William Street Bus Only – looking south from Murray Street

PROJECT INFORMATION

Project information will be regularly updated at **www.pta.wa.gov.au**

13 62 13 • projects@pta.wa.gov.au • **www.pta.wa.gov.au**

Transperth service information **www.transperth.wa.gov.au**

Public Transport Authority

Public Transport Authority

Project Management Framework

Technical Report

William Street Transit Zone

Technical Report

[Modelling, Design and Consultation]

21 September 2015

Document Ref & Version No.: 0.2

William Street Transit Zone Technical Report
APPROVAL SHEET

DOCUMENT VERSION CONTROL

Last Updated	Version Number	Comment
03 August 2015	A	Draft prepared by Tim Judd
12 August 2015	B	Consultation Draft Comments
28 August 2015	01	Issued for Use
21 September 2015	02	Revised with Comments from CoP

Table of Contents

William Street Transit Zone

Technical Report

(Modelling, Design and Consultation)

1. Executive Summary

OUTCOME: RELIABLE BUS JOURNEY TIMES ALONG WILLIAM STREET

1. Project Scope and Staging

The project proposal is to create a Transit Zone in William Street between Murray Street and Hay Street, allowing Taxis, bicycles and authorised vehicles only to enter the Transit Only Zone. As noted in the proposed concept design (attached) this will be enforced through regularity signing, road surfacing colour differential and road markings. Traffic signal phasing will be adjusted accordingly (including removal of Phase D from the William Street/Murray Street signal cycle) and road markings to direct non-transit zone traffic along adjoin streets will be added.

The project is proposed to be implemented in two stages. Stage one (transport elements of the Transit Zone – such as signing, lining and the approach bus lanes) is required this financial year (2015/16), with stage two (urban realm street design) to be undertaken as funding becomes available – proposed to be funded from the Perth Parking Management Fund.

2. BACKGROUND, NEED & OPPORTUNITY

The William Street Transit Only Zone (previously known as the William Street Transit Mall) was originally conceived as part of the City Streets Plan by the City of Perth in 2010. It was envisioned that a transit only zone would be implemented along William Street between Hay Street and Murray Street as part of the two way streets program. The plan was endorsed by council in August 2010. While not all of this plan was supported by the state, the intention to create a Transit Only Zone on William Street has been retained.

In 2013 the PTA provided a report to council requesting approval of the Transit Zone on William Street. The City of Perth responded with '**Conditional Approval**' of the concept design with a request to go back to council once modelling of the proposal and the results of a stakeholder consultation exercise were complete.

Following this, in January 2014 the PTA relocated its northbound buses within the CBD from Barrack Street to William Street following the diversion of Riverside Drive. This provided improved legibility for the bus patrons, improved public transport efficiency, the ability to concentrate bus priority measures into one street and allowing Barrack Street to be prioritised for other modes (such as cycling).

The two way streets policy is aimed at increasing the legibility of the CBD's street network and improving accessibility and route options. While this has been a successful project for the most part, the conversion of Barrack Street to two-way (proposed to occur November 2015) requires the removal of buses from Barrack Street onto other streets in the network. While most of the services were moved in 2014, the red and blue CAT services remain in Barrack St. The PTA has now been requested to relocate the stops for these services outside of the Barrack St corridor to allow Barrack St to function as a cycle priority corridor.

The Department of Transport and the City of Perth have recently jointly funded a relocation of the Red CAT stop from Barrack St to Hay St as part of the Barrack St two-way project.

Since 2013, the PTA has been progressing with the conceptual design for the Transit Zone, which was developed with input from all stakeholders (City of Perth, Public Transport Authority, Department of Transport and Main Roads WA). Further to this, the 2013 approval condition to implement the right-turn lane from William Street (northbound) into Wellington Street has been completed.

The modelling and stakeholder consultation has now been completed. The following report outlines the results of the modelling and consultation exercises.

3. INTEGRATION WITH LONG TERM CENTRAL AREA TRANSPORT PLAN

The public transport network in the city's central area will continue to mature as inner city travel demand increases due to growth in population, employment and activity. The public transport network is required to be developed to ensure people can travel reliably and conveniently to, from and within the central area. Public transport has developed in Perth to be an integral part of the whole transport network - far more than simply a commuter service, or a service for those who don't have access to a car. A reliable public transport network will ensure the city can manage its travel demands by providing a more efficient way of moving people.

While the rail network will continue to form the backbone of the public transport network, the bus network (including the CAT service) continues to play a vital role of connecting people to their central area destinations run along key corridors such as William Street.

The William Street Transit Zone forms part of a wider planned network of bus priority improvements within the City (subject to approval) that will ensure, as demand grows, buses achieve good travel times and operate reliably. In order to fulfil their role as part of the 'mode of choice,' buses must be able to travel to and through the city efficiently, quickly and on-time. Bus priority infrastructure can also assist traffic by reducing conflict between modes on busy streets.

The strategy for bus priority is to implement infrastructure where required to achieve significant benefits to the bus network along identified strategic corridors. The bus network has been consolidated to run on a few strategic corridors, where a number of different bus routes run along particular streets. These streets, where the numbers of buses are high, will benefit from the implementation of bus priority. The William Street Transit Zone will not only provide benefit to bus travel times and reliability, but will also provide benefit to local car park access by reducing the amount of general traffic demand in the local area.

The Project is consistent with the aims of the City of Perth transport strategy.

The Transit Zone has clear and measurable benefits for pedestrians, with reduced traffic light cycle times, and greater permeability of the William St road space due to the reduction in general traffic. Cyclists benefit twice – Primarily because the transit zone allows the blue CAT to be relocated, and secondly because cyclists will be allowed to use the Transit Zone, which improves cycle connectivity in the city over the status quo. Additionally, the PTA will support the city to undertake an urban design upgrade after the implementation of the Transit Zone, including seeking funding from the Perth Parking Management Fund (PPMF)

The Benefits to public transport are clear and have been documented, but include reduced travel time and greater reliability.

Taxis are able to travel through the transit zone improving their utility compared to other vehicles.

Loading to the rear of 88 William St (McDonalds, Boffins Books, Florsheim etc.) is unchanged and loading vehicles have been catered for in previous stages with the introduction of the new loading bay in Hay St.

The users of the car parks with access from William St will notice greater gap opportunities, resulting in shorter delays on their exit. The use of William St in this way encourages a “to, not through” access to the CBD.

Each of these impacts is discussed in detail in this report below.

4. PROJECT BENEFITS - MODELLING ANALYSIS

The modelling analysis has been undertaken in two stages. The first being, a wider area model to assess the benefits of the Transit Zone and to measure the level of traffic reassignment from William Street on the wider road network.

The second modelling exercise, was a micro-simulation analysis of William Street and its connecting roads. This has allowed the PTA to understand the benefits provided by the Transit Zone to the people wishing to access William Street and the wider city centre, as well as the improvement for pedestrians within this central location.

The modelling reports for both exercises are included as an attachment to this report. The key findings are summarised as follows.

TRAFFIC REASSIGNMENT

The wider area SATURN modelling undertaken in 2013 was to inform the demand matrix build of a local area Paramics model. The SATURN models were also used to understand the wider area reassignment potential resulting from the Transit Zone proposals and incorporated into the commuter model that was developed for this project.

Within the area of interest, both models included:

- Barrack Street 2 – way conversion
- Murray Street 2 – way conversion
- Hay Street remains in its current configuration
  Riverside Drive removed, and Geoffrey Bolton Avenue included (configuration based on 2013 status)
- PCL connection between Wellington St and Roe St
- Mounts Bay Road 2 – way conversion.

The difference plots were undertaken using forecast 2016 models with and without the Transit Zone. They show the redistribution of traffic with decreased traffic in some areas and increased traffic in others.

	AM Peak	PM Peak
Decreased traffic	William St Roe St Wellington St St Georges Terrace (east of Barrack)	William St St Georges Terrace
Increased traffic	Milligan St St Georges Terrace (West of Barrack) Hay St Murray St (westbound)	Hay St Milligan St Mounts Bay Road Esplanade

The Transit Zone configuration included in the previous SATURN modelling was conservative in that it included a number of measures that are now not proposed being: bus lanes along the length of William Street with hard medians removing several turns across William Street, and a number of other turn bans now not proposed to be implemented. A network plot has been attached which shows the length of the dedicated bus lanes along William Street and the turn restrictions included in the SATURN modelling. The combination of restrictions meant that some movements were replaced by circuitous longer trips.

The current set of proposals to allow LTs and RTs from the 108 St Georges Terrace (formally Bankwest tower) car park, Right Turns from William Street at St Georges Terrace and Right turns from The Esplanade should result in less impact as there will be more direct available journey options, resulting in less additional trips on Hay Street and St Georges Tce in particular

PEDESTRIAN AMENITY

During the micro-simulation modelling process a test was undertaken, assessing the impact on pedestrian and general traffic of removing the existing dedicated right turn movement signal phase, for traffic travelling from William Street into Murray Street for the southbound movement. The reduced cycle time at this intersection performs well with an improvement to the intersection level of service in both the

AM and PM peak periods. The model also showed that the removal of this signal phase reduces the average wait time for pedestrians at this intersection. An appropriate design to accommodate the removal of this dedicated phase was then incorporated into the concept.

The planned 'Ultimate Design' for the Transit Zone, developed in consultation with the City is intended to provide an improved urban realm for the William Street precinct. This stage of the project is unfunded, however the PTA undertake to assist the City with funding for the urban environment upgrade.

Cycling and Cycle Amenity

The Transit Zone will allow cyclists to move through it, providing them with another north/south route through the city, which will be particularly appealing for those cyclists with destinations in Murray St and Hay St.

The provision of the Transit Only Zone will also allow the implementation of dedicated, separated bike facilities in Barrack St by facilitating relocation of the blue CAT.

Bus Journey Time

The modelling undertaken shows benefits from the Transit Zone to the William Street bus services, particularly the southbound services during the PM peak period, suggesting more reliable running times can be achieved.

Of note, the modelling demonstrates that with an additional 23 northbound buses along William Street during the AM peak, there is a marginal increase in the average bus running time. The difference between the average maximum running times experienced and the average minimum running times experienced has reduced, demonstrating a more reliable journey time can be achieved.

The performance benefits from the model are more pronounced in the PM peak, with slightly higher average speeds and less variability in journey time along William Street in both directions.

Car Park Access

Where general traffic reassigns away from the Transit Zone, the modelling showed an increase occurrence of gaps in traffic, providing more opportunity for car park users within this area, such as Central Park, 108 St Georges and AMP, to join the network. There were clear gains for users at these intersections where exiting traffic will still be able to turn right and left from each exit.

INTERSECTION LEVEL OF SERVICE

While the Transit Zone provides improvements for bus journey time reliability and pedestrian amenity, as well as improved access into/out of local car parks, the modelling has demonstrated the Level of Service of the intersections along the William Street corridor show little change ensuring general traffic are not negatively impacted by the Transit Zone (apart from not being allowed to travel the full length of William Street north and south).

It should be noted, that while the modelling report notes that in either the AM and PM peak, at the William Street and Wellington Street intersection, Wellington Street westbound and William Street northbound both experience a slight increase in average delay and LOS (noting queue lengths remain relatively unchanged) when the Transit Zone is tested, this is due to changes planned for the general road network, and increased demand associated with the introduction of the new Wellington St Underground Bus Station.

5. STAKEHOLDER CONSULTATION

There have been two stages to the consultation programme for this project which started in 2013 with consultation on stages 1 and 2 of this work, which involved creating a left turn only lane at William-Hay Street intersection for northbound traffic and replacing street parking and a loading bay on the western side of this section of road into four bus stops.

A community consultation was carried out for stages 1 and 2 during which the PTA completed a letterbox drop on Friday, **4 October 2013**. The letter covered the reasons for the proposed early works, the scope of works, staging, and invited to the community information session as well as what would be discussed at the session and provided feedback channels (phone number, email address and address for information of the PTA website).

The letters were delivered to all businesses/ residents on William and Barrack streets between Wellington and St Georges Terrace. They were also delivered to all businesses and residents on Hay and Murray streets between William and King streets. Approximately 200 letters were delivered. In addition a Community Information session was held on Tuesday, 22 October 2013 at 6pm.

The information presented at the community session covered background on why the proposal was getting put forward, scope, staging, benefits and the impacts to those attending, changes to bus routes and contact details for all presenters. Seven people attended the community information session, although a further three had RSVPed.

Comments
Issues identified during the 2013 consultation forum were:

- Car parks – Which will be moved?, Where will the ACROD bay go? etc.
- A few suggestions came up about buses avoiding the city and just dropping at the top and bottom of William St, including a that we re-route all buses to Wellington Street
- A suggestion that car are more important than buses so the city should make all streets one way and put in more (and free) parking to encourage business growth.
- Question about the number of bus routes that will be moved to William, concerns that it will increase congestion in William St.
- Concern about the ability for trucks get through (loading/unloading) when it becomes the transit zone.
- Concern about the bike path on Barrack St and the impact on traffic capacity
- Frequency of buses at the new stops
- What infrastructure will be put in for the new stops?

The PTA was able to respond to many of the concerns during the forum and also met with representatives from the Uniting Church to work through issues around access to the church for Weddings and Funerals. As agreed at this time the PTA

agreed to produce further community information, including flyers to advise building occupants of the changes, and conduct an extensive campaign to inform passengers of the change.

Since this early consultation in 2013 the City of Perth has been working to convert Barrack Street into two-way traffic between St Georges Terrace and Wellington Street and introduce dedicated cycle lanes to significantly improve the CBD's cycle network.

As part of the proposal for the final stage of works in 2015, to implement the William Street Transit Zone a further full and extensive consultation exercise has been carried out through both a letter drop on **20th July 2015** to all buildings and frontages and individual one to one consultations with the primary stakeholders, who front William Street. The consultation letter provided detailed information on the project, together with images of the future scheme and invited commentary on the proposals and an opportunity to provide any feedback on the final stage of the project.

The letter was delivered to all buildings on William Street and was distributed to a larger geography which included Barrack Street and extended further into Hay Street and Murray Street.

Figure 1 Letter Drop Area

In addition to the letter drop, individual meetings have been carried out with key local business and building management to discuss the plan proposals and ascertain individual comments. This provided a further opportunity for key stakeholders to ask any direct questions and for PTA officers to explain in detail the scheme and its potential impacts. A number of fact sheets and consultation information sheets were left with the building managers to distribute to building tenants.

The results of the business letter distribution in July 2015 resulted in 9 specific issues being raised, as shown in the following chart. Details of responses are appended to this report.

In addition to the business letters delivers a number of individual key stakeholder consultations were carried out and these are are tabled below:

Consultees	Commentary	Response
108 St Georges Terrace, 100 St Georges Terrace. Building Managers Clive Beeton and Andrew Pollard 11/05/15	• Access for tenants coming from north of the city is nearly impossible, with right turn bans in the city core. • Will this remove the bus stop south of Hay St, or allow it to be permanent tourist bus stop? • Improved access in (via right turn) and out will be a much welcomed improvement.	• An exemption for the approx. 30 people this applies to can be arranged to allow them to pass through the transit zone and enter the 108 car park.
140 William Street, building managers Tim Boden & Erica Brown 05/08/15.	• What are the alternative routes for car access? • Those present recognised the benefits to bus and cycling. • Question on Elizabeth Key and whether this has an impact? • Request to please advise drivers of alternative routes and local access on the PTA web site. • Request PTA to attend the 140 tenant's representative group.	• Alternatives discussed and routes confirmed. • PTA acknowledged benefits and comment. • Elizabeth Key discussed and impact not directly associated. • Completed • Meeting attended see below
140 William Street Tenants Association meeting 13/08/15 Various Tenant representatives – List to be provided.	• What are the alternative access routes for car drivers • Discussion on urban design benefits • The group see benefits for pedestrians and reduction in traffic volumes. • Fact sheets circulated for distribution • Request for digital copy of	• Presentation given to the group with images and commentary on scheme proposal.

	fact sheet to be circulated.	
Central Park building managers Tim Ward & Vino Ramasamy 05/08/15.	• Already noticed some improvements in local traffic movements and reduced congestion. • Please ask bus drivers to help allow the right turning that will be needed on exit from Central Park car park. • Traffic lights at St Georges Terrace have improved. • Support the scheme which they see as helping local traffic management and being of benefit to their tenants.	• Improvements in traffic movements acknowledged. • Bus drivers will be requested to take account of traffic. • Recognition of changes to traffic movement in St Georges Terrace / William Street intersection. • Support noted.
Raine Square building management Andrew Wilkinson, Gideon Oosthuizen & Ross Carter. 07/08/15.	• Discussions on traffic route access into Raine Square car park. • Will existing pedestrian movements across Wellington Street remain as currently (temporarily) in place? • Discussions on modelling and predicted traffic flows. • Keen to understand the urban design enhancements. Imagery was discussed. • Request for PTA to provide dates that recent works commenced.	• Routes confirmed and plan proposals discussed. • Existing pedestrian routes are as a result of current works programme which will be completed in 5 weeks. • Dates of recent works subsequently provided.

For each individual consultation a package of consultation fact sheets were handed to the building managers for distribution to building tenants which provide an opportunity to comment.

From the recent consultation that has been carried out in July and August 2015 there has been a majority support for the scheme with similar comments “needed for Perth” and which provides a “better environment for the many pedestrians and public transport users of the William Street corridor”. Concerns have been raised about local access and alternative car routing but the building managers have recognised that no access is being closed completely or restricted in its use, only requiring alternative routing to gain access to car park provision.

6. PROJECT TIME/SCHEDULE

The PTA consider this project can be delivered in line with the City's plans for Barrack St, as both Main Roads' and the City's officers have been informed of the design progression. It is important that the project be delivered simultaneously with the implementation of Barrack St 2 way, so that the changes to drivers are minimised, and so that the Blue CAT can be relocated, however the PTA concedes that major roadworks on both of the city cores major north-south thoroughfares is undesirable, and propose to complete the works once the Barrack St works are finished.

The PTA will commence construction (as night and weekend works) as soon as possible, once the Transit Zone is approved, and the detailed design has been approved by the City's officers.

7. Design Development

Stage 1 was completed in 2014.

The proposed stage 2 concept for immediate implementation is attached and has been developed in consultation with the City of Perth, Main Roads and the Department of Transport. The PTA will proceed with development of the detailed design for approval by Main Roads and the City of Perth technical staff after approval of the project.

A Stage 3 design is also included, this design depicts the 'Ultimate Design' vision for the William Street Transit Zone showing how the urban realm of the area can be improved and an ultimate vision achieved. The attached is to serve as an impression of what could be provided and is subject to further refinement through on going design development.

8. Urgency and achievability

The PTA has budget allocated this financial year for this project. It is foreseen that with the minor construction that is required, the works can be undertaken in approximately two weeks.

Delivery to coincide with the conversion of Barrack St is the preferred outcome. The project is highly related to the Barrack Street two-way project.

In particular, the requirement to move the Blue CAT can only occur once the William St Transit Zone is operational.

Transperth prefer he Blue CAT to remain in Barrack St, as the route covers a larger, more unique catchment by staying on Barrack St. It also provides a faster and more attractive route by staying on Barrack St, and there are serious reservations about William Street's ability to handle the increased volume of buses, particularly at the intersection with St Georges Terrace, without the congestion reduction shown in the modelling by implementing the transit mall.

There is also a concern about the impact on Wellington St as the Blue CAT will add hundreds of extra bus movements each day, causing problems at the CAT stops at Forrest Place and the train station.

The proposal to move the service has been agreed as a gesture of goodwill to the city to match in with the long term plans, but requires the transit mall to allow it to operate efficiently.

The closeness of the two projects means that synchronised delivery will ensure minimum disruption to traffic in the CBD. This has benefits to both the City and the PTA.

9. Summary and Recommendation

The PTA has met the conditions imposed on the project in 2013, demonstrating a clear benefit to public and private transport modes and to specific stakeholders, without showing an increase in traffic congestion.

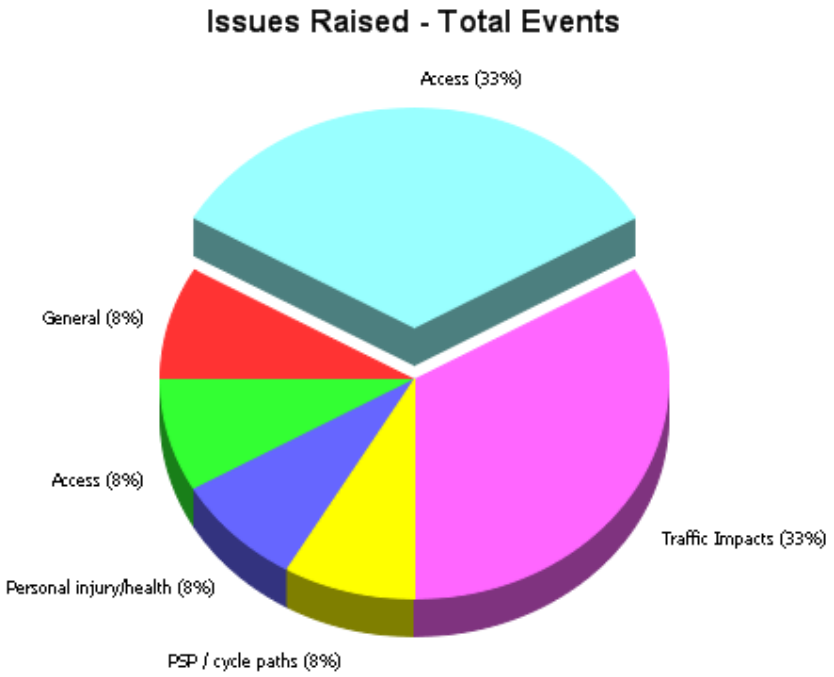
10. Attachments – Supporting Documents

11. APPENDIX - CONSULTATION UNDERTAKEN

DATE	EVENT	COMMUNICATION ACTIVITY
21 Jul 15	**Business letter distributed**	Businesses fronting William St as per map below 
w/c 27 Jul	**Property manager meetings**	Face-to-face meetings between PTA Project Managers and leasing agents for CBD buildings in this area.

Community interactions: issues raised

Issues	Events	Stakeholders distinct | total	
Traffic Impacts	4	4	4
Access	4	4	4
PSP / cycle paths	1	1	1
General	1	1	1
Access	1	1	1
Personal injury/health	1	1	1
[No Issues]	1	1	1
Total Event search	9	9	9



Enquiries

Event Type	Enquiry / CommentLine
Event Date	05 Aug 2015 6:16 PM (GMT +10)
Event End Date	05 Aug 2015 6:16 PM (GMT +10)
Location	Bus Priority: William Street bus-only
Summary	CommentLine: 279425 - Driveway access
Stakeholder Comments	Caller said he has his business at 88 William Street in Perth city. He said he recently got a letter from Transperth saying they are going to make a bus only lane between Murray and Hay Street. Caller said he has an access to the car park at William Street and the letter sent by Transperth did not give any information if the car park entry will be affected. Caller said he drives through William Street to get to the underground of car park so when that lane becomes bus only he will be affected. Caller wanted to speak to someone in Transperth to about this
Team Response	Jen called and left a message for Neal on 05/08/15 - she said local traffic whose driveways are located in this section of William Street will have an exemption to use the bus-only section to access their driveways and car parks only. Jen left her number and said Neal could call her direct if he had any other questions.
Issues	Bus Priority: Access

Stakeholders:

Full Name	Organisation	Address	Phone	Email

Full Name	Organisation	Address	Phone	Email
Neal	Solid Gold	88 William Street PERTH WA	93227166	

Event Type	Enquiry / Email
Event Date	24 Jul 2015 11:11 AM (GMT +10)
Event End Date	24 Jul 2015 11:11 AM (GMT +10)
Location	Bus Priority: William St
Summary	Vehicle access
Stakeholder Comments	Good Afternoon PTA, We have received the final stage letter for the William street bus-only project. We are located at 1/110 William Street and our fire escape is positioned at the back of the building leading into the rear laneway. This is also the only access point we have for pick-up and delivery of oversized goods. Given that we are a healthcare centre the majority of these are very bulky and cannot be hand transported over long distances. The vehicle access to this laneway is along William St between the hungry jacks and Jamaica blue coffee shop. i.e. halfway along the portion of road to be closed to general traffic. What is the current plan regarding our access to the rear entrance/exit of our building? Will we still be able to gain vehicular access to this laneway with the current proposal? or do you have plans for a permit to allow the business's located along this stretch of road to gain vehicular access to the back of their buildings. Look forward to your response. Kind Regards, Renee Cappleman Receptionist CBD Wellness Centre Level 1, 110 William Street PERTH WA 6000 P: 08 9486 8653 F: 08 9226 4180 www.cbdwellnesscentre.com.au

Team Response	Good afternoon Renee, Thank you for your email. Vehicles servicing your business will still be able to access the laneway you have mentioned below. These vehicles will be deemed local traffic and therefore access through the bus-only road will remain, signage will reflect this. Kind regards Jen | Corporate Communications Team
Issues	Bus Priority: Traffic Impacts

Stakeholders:

Full Name	Organisation	Address	Phone	Email
Renee Cappleman	CBD Wellness Centre		08 9486 8653	admin@cbdwellnesscentre.com.au

Event Type	Enquiry / Email
Event Date	03 Aug 2015 1:41 PM (GMT +10)
Event End Date	04 Aug 2015 1:41 PM (GMT +10)
Location	Bus Priority: William Street
Summary	Feedback on bus-only changes to William Street
Stakeholder Comments	Dear sir, madam I am the Property Manager for 140 St Georges Terrace. Thank you for the proposed changes, this is good news and will help reduce some of the issues for cars exiting out onto William St. While the following 2 points are not directly linked we would like to ask if the following could be considered. 1. Painting a Keep Clear Zone on the section of William St where the 140 St Georges car park exits 2. Consideration for removing the pedestrian pathway which allows people to walk past the car park exit. This is quite dangerous as cars have limited visibility as they come up the ramp and are easily distracted by watching for cars on William St. Regards Rob
Team Response	Good afternoon Rob, Thank you for your email. Unfortunately a keep clear zone would not be possible in this area as Main Roads are responsible for roads and line markings and they have set guidelines in regards to keep clear zones which are very rigid (for example they are use for emergency services and the likes). Removing the pedestrian pathway is not something the project is considering as this area is a major CBD thoroughfare for pedestrians. The driveway will be managed the same as other driveways in the area. Thanks again for your email. Kind regards Jen | Corporate Communications Team
Issues	Bus Priority: Access, Bus Priority: Traffic Impacts

Stakeholders:

Full Name	Organisation	Address	Phone	Email
Agnew, Rob	Asset Management Services - Knight Frank	Lvl 10, Exchange Tower 2 The Esplanade PERTH WA	+61 8 9225 2404	robert.agnew@au.knightfrank.com

Event Type	Enquiry / Email
Event Date	03 Aug 2015 6:58 PM (GMT +10)
Event End Date	04 Aug 2015 7:02 PM (GMT +10)
Location	Bus Priority: William Street bus-only
Summary	Suggestions to improve area
Stakeholder Comments	Hello, I wish to provide feedback on the William Street Bus only works. This section on William Street is the busiest pedestrian corridor in the state, are there any initiatives incorporated into the current works to alleviate the current peak pedestrian congestion? I understand that pedestrian demand for this section is projected to continuing increasing markedly*. Suggested improvements (I am not an expert in this area) could involve: • Removing/streamlining street furniture obstacles (see picture below, the traffic signal control box cnr William and Hay located on the Central Park corner is a prime example). • Widening area available to pedestrians • Segregating queuing pedestrians (for buses) from the foot traffic flow (see picture below) Poorly placed traffic signals control box Pedestrians queuing outside Wesley Quarter fro 950 Bus This area is unique in that it funnels people from each end of the Perth train system into their highrise, high density workplaces. The Esplanade and Perth Underground railway stations and their bus hub neighbours each feed pedestrians into this breech. Add in the Murray St and Hay St Malls and this section is effervescing with foot traffic prior to this initiative to transform it into a de facto bus station. I understand the advantage of segregating private and passenger vehicles but pedestrians are the thoroughfares main customers. I'm mainly interested in knowing if they have been considered especially their segregation from heavy vehicles. Regards, David Brockett * Reference: Ross Hamilton, Executive Director Major Projects, Public Transport Authority of Western Australia

Team Response	Good afternoon David, Thank you for your email, and your suggestions regarding William Street bus-only road, some of which are currently being investigated. In regards to the removal of street furniture, this is something we are investigating. The white traffic control box in your photo cannot be moved however we are streamlining our bus shelters and bins in this area. Unfortunately the widening of the footpaths is not possible as the road width is set. Our latest bus shelter's innovative design takes into consideration queuing and segregation of pedestrians, where possible. These new bus shelters would be introduced after William Street has changed to bus-only between Murray and Hay streets. You are correct in suggesting that t this area has high pedestrian traffic, therefore making this bus-only will make this area more attractive and safer for pedestrians. And finally pedestrian modelling was undertaken to determine the effectiveness of the footpath widths, and the City of Perth ensure that pedestrians are considered in all developments. Thanks again for your email.
Issues	Bus Priority: Traffic Impacts, Bus Priority: PSP / cycle paths

Stakeholders:

Full Name	Organisation	Address	Phone	Email
Brockett, David	Wheatstone Project		6140 1160	dbrocket@bechtel.com

Event Type	Enquiry / Phone
Event Date	23 Jul 2015 9:30 AM (GMT +10)
Event End Date	23 Jul 2015 2:30 PM (GMT +10)
Location	Bus Priority: William St (Hay-Murray St)
Summary	Access to driveway in bus only zone
Stakeholder Comments	Boffin Books Manager asked if the bus only zone meant they could not use the driveway (next to MacDonalds) to access the underground car park for staff.
Team Response	Natasha Guerinoni responded saying yes they can continue to access their driveway and use the bus lanes to turn into / access the bus only zone.
Issues	Bus Priority: Access, Bus Priority: Traffic Impacts

Stakeholders:

Full Name	Organisation	Address	Phone	Email
Lou	Boffin Books	88 William Street Perth WA 6000	9321 5755	

Event Type	Letter out / Individual
Event Date	06 Aug 2015 4:41 PM (GMT +10)
Event End Date	06 Aug 2015 4:41 PM (GMT +10)
Location	Bus Priority: William Street bus-only
Summary	Forwarded Stage 3 letter to 110 St Georges Terrace
Team Response	Good afternoon Andrew, Kevan Weaver, who I believe you meet with recently, has asked me to forward on the William Street bus-only letter to you. Please find it attached. Also for your information, the letters were distributed by hand on July 21. Please feel free to contact myself or Kevan if you have any further questions. Thanks Andrew
Issues	Bus Priority: Access

Stakeholders:

Full Name	Organisation	Address	BH Phone	Email
Pollard, Andrew	ISPT Super Property	L4 683-703 Hay St Mall, Perth WA	08 9476 7625 0417 963 684	apollard@ispt.net.au

Event Type	Project Update / Email out
Event Date	05 Aug 2015 5:30 PM (GMT +10)
Event End Date	05 Aug 2015 5:30 PM (GMT +10)
Location	Bus Priority: William Street
Summary	Letter confirming discussion
Team Response	Terry, Thanks for the call yesterday. I can confirm that your tenants will still be able to access the rear parking to the proposed bus only section of William St should it go ahead. Please see a letter attached to this outcome. Thanks, Greg The following email was received 05/08/15: Greg, Thank you for the timely reply. Regards, Terry Posma.
Issues	[none]

Stakeholders:

Full Name	Organisation	Address	Phone	Email
Posma, Terry		88 William Street PERTH WA		tposma@frandcs.com.au

SCHEDULE 9

Department of Transport

William Street Transit Only Zone Modelling

RFQ 500011-69

17 August 2015

PARSONS BRINCKERHOFF

Document information
Client: Department of Transport Title: William Street Transit Only Zone Modelling Subtitle: RFQ 500011-69 Document No: 2196794B-TPT-REP-002 RevB Date: 17 August 2015

Rev	Date	Details
A	16/07/2015	Draft
B	17/08/2015	Final

Author, Reviewer and Approver details			
Prepared by:	Sam Kendall (Flyt)	Date: 16/07/2015	Signature: **FLYT**
Reviewed by:	Kate McDonald	Date: 06/08/2015	Signature: 
Approved by:	Kate McDonald	Date: 17/08/2015	Signature: 

Distribution
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1. Introduction

The Department of Transport has engaged WSP | Parsons Brinckerhoff to investigate a proposed Transit Only Zone for William Street between Murray Street and Hay Street. The desired outcomes of the project are reliable bus journey times along the William Street corridor with minimal traffic congestion at the intersections at each end. Access and egress for existing properties will continue to be maintained. In addition to buses, taxis and bicycles will be able to use the Transit Only Zone.

Our sub-consultants Flyt conducted simulation modelling during April 2015 to test the operation of the Transit Only Zone on William Street between Hay Street and Murray Street and this was documented in the report William Street Transit Only Zone Modelling and Concept Design, 2196794B. The model was calibrated to March 2015 conditions at which time the construction zone for the Perth City Link was in place.

In the period following the data collection and model build, MRWA repaired a loop detector at the intersection of William Street and Hay Street which lead to an improvement in signal timings at this intersection. The stakeholders considered that this could have a significant impact on the operation of William Street and it was decided to undertake additional modelling to take this into account. The City of Perth also requested that the 000 buses be included in the bus movements along William Street.

The previous work presented the calibrated base year model and Transit Zone model proposals, and it was agreed that the following models were necessary to construct:

- Base Model + Adjustments
- Transit Zone Model + Adjustments

This technical note presents the results of the Base model + Adjustments and the Transit Zone Model + Adjustments.

2. Simulation modelling

2.1 Data collection

Additional SCATS data was collected for the William Street corridor to determine any change to volumetric throughput and to calculate the current signal IDM timings due to the upgrade of the Hay Street and William Street signals. A comparison of turning movement data between the original collection in February 2015 and the current collection in May 2015 show very minimal differences. For reference the turning movement difference plots are provided as Appendix A.

2.2 Calibration summary

Some minor adjustments to the original demand matrices were made during the re-calibration process, although the turning count calibration against the originally processed data remains strong. The headline outputs are shown in Table 2.1 and the full calibration tables and R2 plots are included in Appendix B.

Table 2.1 Calibration Statistics

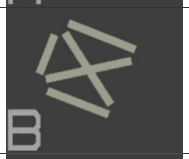
Time Period	Number of Counts	Counts match Flow Criteria	Counts matching GEH criteria	R^2 Value
AM Peak (07:45 – 08:45)	42	100%	100%	0.993
PM Peak (16:45 – 17:45)	42	100%	100%	0.983

2.3 Base Model + Adjustments

2.3.1 Hay Street signals

The original Commuter modelled network was retained for the current work with the exception of the adjusted signal timings at the William Street and Hay Street intersection and the inclusion of additional 000 buses operating along William Street. The adjusted IDM peak hour signal timings are shown in Table 2.2 alongside the previously recorded IDM data for comparison. This details the removal of the Hay Street Mall time from the peak hour operation.

Table 2.2 William Street and Hay Street stage timing

STAGE	FEBRUARY STAGE TIME AM PEAK	MAY STAGE TIME AM PEAK	FEBRUARY STAGE TIME PM PEAK	MAY STAGE TIME PM PEAK
	48	79	47	65
	19	20	19	20
	17	0	17	0
	36	21	37	35

2.3.2 000 Buses

The Public Transport Authority and Path Transit provided details of the known 000 buses that use William Street during the AM and PM peak hours modelled. The additional bus services included in the adjusted base model between the Esplanade Busport and Wellington Street are shown in Table 2.3.

Table 2.3 Peak hour 000 Buses

Time Period	Northbound	Southbound
AM Peak (07:45 – 08:45)	10	0
PM Peak (16:45 – 17:45)	0	13

The total peak hour services that have been retained from the previous work and are included in the Base Year + Adjustments model are shown in Table 2.4. The SmartRider data provided for the previous work has also been retained for the adjusted base model build.

Table 2.4 Base Year + Adjustments Public Transport Services

Route	AM Services/hr	PM Services/hr
Yellow CAT Eastbound	7	8
Yellow CAT Westbound	7	8
Red CAT EB Full Loop	12	12
Red CAT WB Full Loop	12	12
Red CAT Short Loop	5	5
Blue CAT Northbound	8	8
Blue CAT Southbound	8	8
Green CAT Southbound	8	8
William St Services Northbound	16	55
William St Services Southbound	58	18
St Georges Terrace / Busport Eastbound	71	114
St Georges Terrace / Busport Westbound	82	52
St Georges Terrace Westbound	27	26
000 Buses Northbound	10	0
000 Buses Southbound	0	13
William St NB Total (Excluding CAT services)	**26**	**55**
William St SB Total (Excluding CAT services)	**58**	**31**

2.4 Transit Zone Model + Adjustments

The Base Year + Adjustment model was taken forward, and the following Transit Zone proposals included in the model are shown diagrammatically in Figure 2.1:

1. Signal phases at Wellington Street reintroduce the bus right turn into William Street;
2. Southbound approach to Murray Street adjusted (general traffic right, bus/taxi ahead);
3. General traffic left turn only from Murray Street to William Street (taxis excepted);
4. Buses and Taxis only permitted between Murray Street and Hay Street;
5. Northbound bus embayment continuous between Hay Street and Murray Street;
6. Northbound approach to Hay Street adjusted to two lanes (general traffic left, bus/taxi ahead); and
7. Southbound approach to St Georges Terrace adjusted (kerbside lane general traffic ahead/left, median lane general traffic right/bus only ahead)

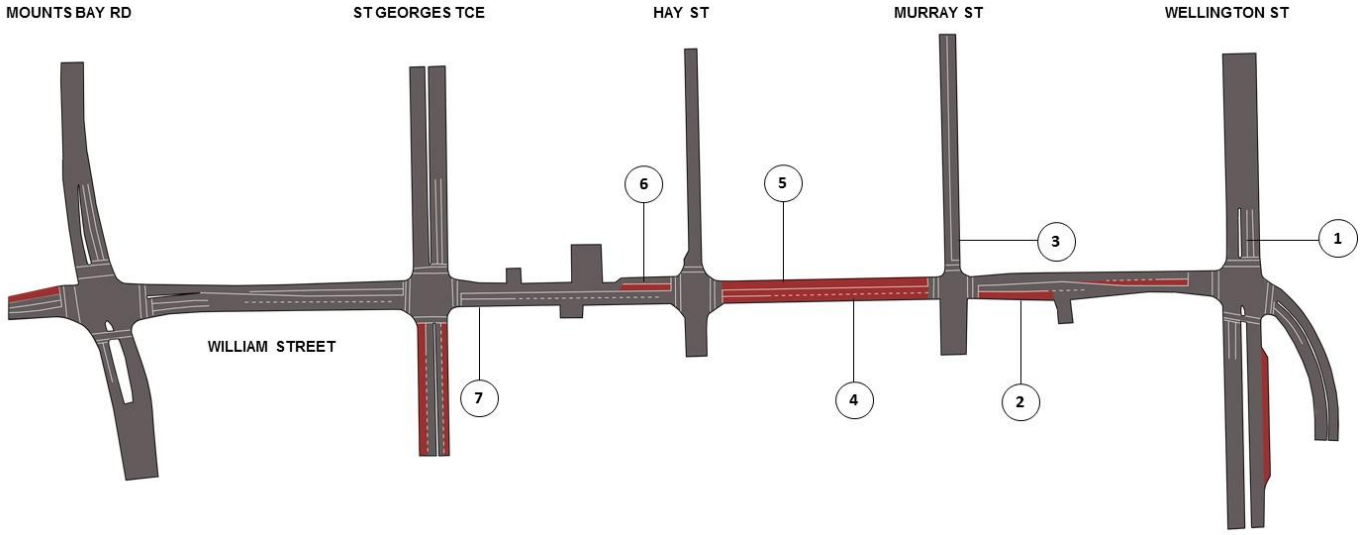


Figure 2.1 Transit Zone network adjustments

2.4.1 Bus Service Changes

The Public Transport Authority provided details of route revisions through the Transit Zone. These changes affecting William Street will be in place when the Wellington Street bus station is open, and are summarised as:

- Route 30, 31, 34, 881 and 940 will travel between Esplanade Busport and the City Busport using William Street;
- Route 16, 66, 67, and 68 will no longer use William Street, but will terminate at the City Busport using Wellington Street;

The Transit Zone + Adjustments model includes the public transport services shown in Table 2.5 below.

Table 2.5 Transit Zone + Adjustments Public Transport Services

Route	AM Services/hr	PM Services/hr
Yellow CAT Eastbound	7	8
Yellow CAT Westbound	7	8
Red CAT Eastbound Full Loop	12	12
Red CAT westbound Full Loop	12	12
Red CAT Short Loop	5	5
Blue CAT northbound	8	8
Blue CAT southbound	8	8
Green CAT southbound	8	8
William St Services northbound	13	38
William St Services southbound	39	12
William St NB to City Busport	23	14
William St SB from City Busport	15	27
St Georges Terrace / Busport Eastbound	71	114
St Georges Terrace / Busport Westbound	82	52
St Georges Terrace Westbound	27	26
Wellington Street Eastbound	5	19
Wellington Street Westbound	18	5
000 Buses Northbound	10	0
000 Buses Southbound	0	13
William St NB Total (Excluding CAT services)	**46**	**52**
William St SB Total (Excluding CAT services)	**54**	**52**

2.4.2 Demand Build and Reassignment

As a result of the Transit Zone proposals, general traffic will not be able to travel along William Street between Murray Street and Hay Street. While the Transit Zone scenario model does not represent a forecast year, and the vehicle demand matrices have been retained, reflecting no growth, adjustments were necessary to reflect the reassignment away from the Transit Zone.

Ordinarily this reassignment would be undertaken using a wider area model, for example the City of Perth SATURN model, or Central Area Transport Plan Paramics model. These models are currently being updated and were not available for use in this exercise. Previous work undertaken by WorleyParsons, took inputs from the City of Perth SATURN model (in 2013) to build a Paramics microsimulation of a core area. The project is documented in the report *Perth City Centre Transit (PCCT) Modelling, Model Build and Option Test Report*, WorleyParsons, 17 July 2013. Model difference plots from this report (Green = increase, Blue = decrease) are included as Appendix C and suggest the potential reassignment from William Street where resulting increases were concentrated around Milligan Street, Hay Street and St Georges Terrace.

A manual reassignment was undertaken through the modelled network to reflect the changes. Rather than the removal of demand from the existing matrices, movements were added to different Origin/Destination pairs where logical. For example:

- Horseshoe Bridge to Hay Street movements were reassigned to Murray Street;
- Horseshoe Bridge to Bankwest car park movements were reassigned to Wellington Street, but also added onto St Georges Terrace eastbound to enable to trip to be completed (illustrated in Figure 2.2);
- Mounts Bay Road to Murray Street movements were reassigned to Hay Street.

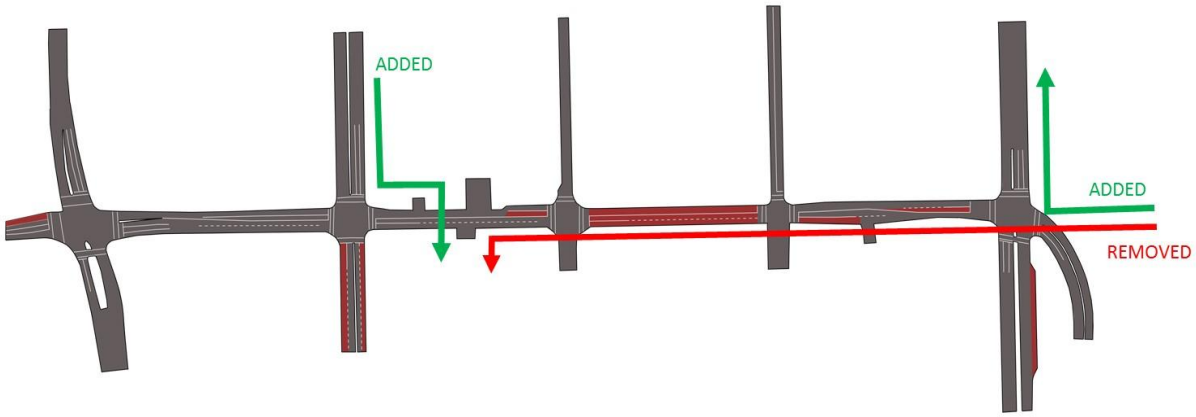


Figure 2.2 Reassignment diagram

The Base year and Transit Zone demand values are shown in Table 2.6 below demonstrating that very similar values have been retained through the modelled area.

Table 2.6 Matrix Totals

Demand	Base + Adjustments Model		Transit Zone + Adjustments Model	
	AM peak	**PM Peak**	**AM peak**	**PM Peak**
Light Vehicles	4650	4822	4602	4693
Heavy Vehicles	165	166	165	166
Taxi	332	318	332	318
TOTAL	5147	5306	5099	5177

2.4.3 Taxis

Taxi movements and volumes were retained from the original Base Year modelling work as a separate vehicle group to enable them to be treated independently of general traffic in the Transit Zone scenario.

2.5 Model Output Comparison

The Base Year + Adjustments and Transit Zone + Adjustments models were simulated and output data extracted for comparison. Turning movement difference diagrams are provided in Appendix D for reference. The following tables present the Level of Service, Average Delay and Maximum Queue (vehicles) for the intersections along the corridor.

It should be noted that the Maximum Queue reported through Commuter is, “the maximum queue size, in number of vehicles, counting vehicles in all lanes on the approach”. This queue length does not indicate a potential queue in any single lane.

2.5.1 AM Peak Outputs

Table 2.7 AM William Street and Wellington Street outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
Horseshoe Bridge	southbound	E	60.11	18	E	58	17
Wellington Street	westbound	D	49.54	31	E	58.36	33
William Street	northbound	E	62.04	10	F	86.56	9
Wellington Street	eastbound	D	36.81	19	C	31.95	22

Wellington Street westbound experiences a slight increase in average delay and LOS in the Transit Zone configuration where the signals have been adjusted to include the southbound, right turning bus phase from Wellington Street. This modification has also improved the eastbound Wellington Street performance, although the Maximum Queue does increase slightly due to the introduction of bus services and additional reassigned vehicle demands.

William Street northbound is modelled to experience slightly longer delays and a higher LOS output. The peak hour Northbound bus services proposed to travel to the City Busport are required to give way to pedestrians when undertaking the left turn into Wellington Street and therefore contribute to the increase in delays. The Maximum Queue is only 10 vehicles and does not increase which can be attributed to the decrease in northbound general traffic demand. Despite the LOS of F shown, the simulation shows the intersection continuing to operate at a reasonable level. It should be noted that the higher volume of bus services modelled in the Transit Zone scenario would be re-introduced even if the Transit Zone is not in place.

Table 2.8 AM William Street and Murray Street outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
William Street	northbound	E	56.49	5	D	54.27	2
Murray Street	eastbound	E	62.88	15	E	57.62	10
William Street	southbound	C	32.68	12	C	34.38	10

The performance of William Street and Murray Street is not modelled to change significantly. William Street northbound differs in LOS, but only where the delays fall slightly either side of the range. The modelled reduction in Maximum Queue on Murray Street can be attributed to the decrease in right turning vehicles into the Transit Zone.

Table 2.9 AM William Street and Hay Street outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
William Street	northbound	B	17.3	6	B	15.89	6
William Street	southbound	B	15.84	10	B	14.68	3

The Hay Street intersection experiences the same Level Service as the Base Year. The southbound Maximum Queue length is reduced where there is a large reduction in vehicle demand.

Table 2.10 AM William Street and Central Park carpark outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
William Street	southbound	A	8.32	5	A	6.28	2
Bankwest exit	westbound	A	4.42	1	A	4.62	1
William Street	northbound	A	4.64	3	A	5.52	3
Central Park exit	eastbound	B	10.27	1	B	14.28	2

The Transit Zone proposals are not expected to change the performance at the Central Park and Bankwest car park accesses during the AM peak.

Table 2.11 AM William Street and St Georges Terrace outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
William Street	southbound	E	67.74	15	E	60.93	8
St Georges Terrace	westbound	D	46	22	D	50.48	26
William Street	northbound	E	63.38	12	E	63.86	13
St Georges Terrace	eastbound	C	29.33	24	C	32.35	25

The LOS outputs for William Street and St Georges Terrace in the Transit Zone model show the same level of operation as the Base Year. The William Street southbound delay and queue is modelled to reduce where there is less demand travelling though from Wellington Street and Murray Street.

Table 2.12 AM William Street and Esplanade outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
William Street	southbound	E	67.35	22	E	68.3	16
Esplanade	westbound	D	49.76	30	D	46.69	27
William Street	northbound	D	51.78	29	D	48.5	27
Mounts Bay Road	**eastbound**	**E**	**70.9**	**27**	**E**	**68.46**	**30**

Similarly to the St Georges Terrace outputs, the William Street and Esplanade intersection is modelled to operate at the same level as the Base Year. The William Street southbound approach shows a reduction in Maximum Queue length.

2.5.2 PM Peak Outputs

Table 2.13 PM William Street and Wellington Street outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**
Horseshoe Bridge	southbound	E	66.36	13	E	63.86	14
Wellington Street	westbound	D	47.63	22	E	58.22	22
William Street	northbound	E	71.53	13	E	55.26	11
Wellington Street	eastbound	D	37.43	20	D	44.83	35

Wellington Street westbound experiences an increase in average delay and worsening of LOS in the Transit Zone configuration where the signals have been adjusted to include the southbound, right turning bus phase from Wellington Street. This modification has also resulted in the eastbound Wellington Street performance being maintained even though the vehicle demand has increased. This has then caused the Maximum Queue length to increase.

Table 2.14 PM William Street and Murray Street outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**
William Street	northbound	E	55.04	10	D	47.98	2
Murray Street	eastbound	E	66.03	19	E	55.34	9
William Street	southbound	D	35.92	14	C	27.44	11

A reduction of vehicle demand on all approaches has improved the delays, Maximum Queues and a reduced LOS.

Table 2.15 PM William Street and Hay Street outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**
William Street	northbound	B	16.41	6	B	16.88	9
William Street	southbound	B	18.62	14	B	13.57	4

There has been a decrease in general traffic demand and an increase in bus services through the intersection. Ultimately, the adjustment of the signal operation has given additional time to the movements between the north and south along William Street, and therefore a greater opportunity for demand to clear the intersection.

Table 2.16 PM William Street and Central Park carpark outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**
William Street	southbound	C	34.54	12	A	4.07	2
Bankwest exit	westbound	D	40.1	3	A	4.99	1
William Street	northbound	B	11.58	7	A	6.75	3
Central Park exit	eastbound	D	37.62	10	B	17.76	5

The impact of the Transit Zone has been particularly noticeable at the Central Park carpark exit where there is a large PM departure demand. The reduction of demand on William Street has provided more opportunity for exiting vehicles to join William Street. On-site visits in February and May (before and after the Hay Street signal adjustments) showed a difference in the internal queuing for Central Park. The May observation showed a better operation until just after 17:00 (Figure 2.3 overleaf) where there was minimal queuing. The flow along this section of William Street then started to break down with the large competing demands. During the May site visit, this phenomena was exacerbated by turning vehicles into Bankwest carpark being blocked. (Figure 2.4 overleaf).

Figure 2.3 Central Park Carpark exit at 17:00

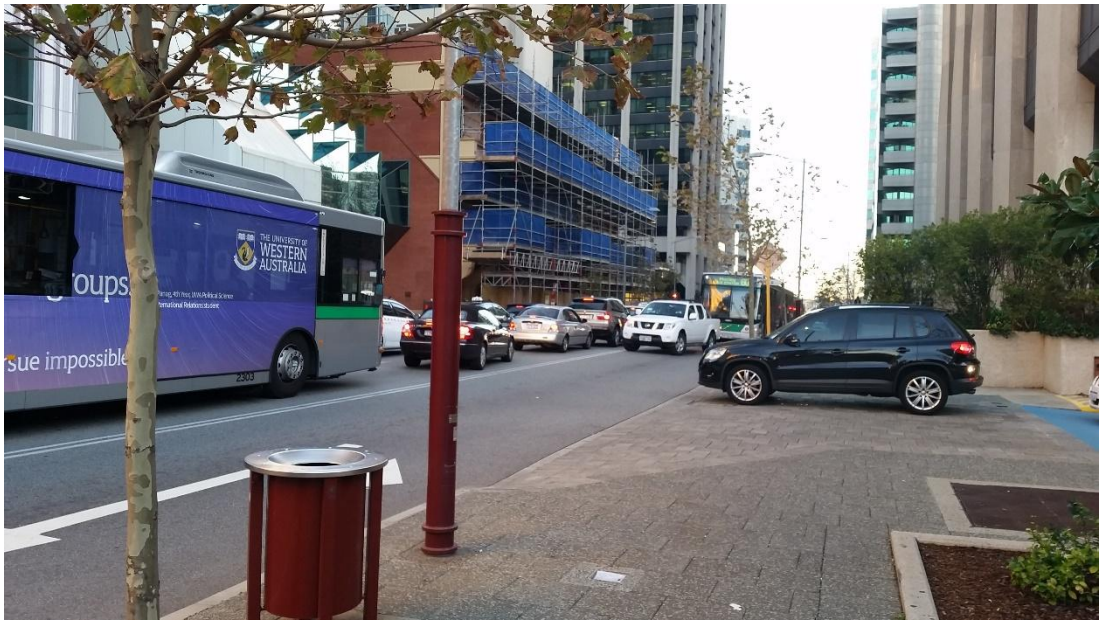


Figure 2.4 Bankwest carpark turning vehicle blockage

Table 2.17 PM William Street and St Georges Terrace outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**
William Street	southbound	F	85.99	24	D	37.6	10
St Georges Terrace	westbound	F	136.44	48	D	48.49	24
William Street	northbound	E	55	14	D	50.04	16
St Georges Terrace	eastbound	C	33.14	17	C	31.48	19

The reduced vehicle demands along William Street, which also occur on the southbound approach to The Esplanade, contribute to less blocking back along the corridor. This reduces the queuing westbound along St Georges Terrace where more left turning vehicles are able to move through the intersection. The reduction in blocking back from The Esplanade also improves the William Street southbound outputs.

Table 2.18 PM William Street and Esplanade outputs

		Base + Adjustments			Transit Zone + Adjustments		
Approach	**Direction**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**	**PM LOS**	**PM Av. Delay**	**PM Max Q (veh)**
William Street	southbound	F	89.9	28	E	67.2	23
Esplanade	westbound	E	58.48	25	E	59.14	27
William Street	northbound	E	66.42	25	E	59.73	24
Mounts Bay Road	eastbound	E	65.28	36	E	64.78	34

William Street and The Esplanade intersection is modelling to operate at the same level as the Base Year with the exception of William Street southbound which improves slightly where there has been a decrease in vehicle demand.

2.6 Bus journey time outputs

Journey time performance was extracted from the Base Year + Adjustments and Transit Zone + Adjustments models to enable a comparison to be drawn. Table 2.19 and Table 2.20 present the Average, Maximum and Minimum journey times, the average speed, and the number of William Street services (excluding CAT services).

Table 2.19 AM William Street Bus Service Outputs

	NB William Street		SB William Street	
	Base model	**Transit Zone**	**Base model**	**Transit Zone**
No. Services	29	52	69	64
Average Time	0:05:21	0:05:29	0:05:10	0:05:15
Av. Max Time	0:07:08	0:07:34	0:08:05	0:07:41
Av. Min Time	0:03:10	0:03:08	0:01:01	0:02:38
Average Speed	10	10	11	10

The performance across the AM peak period for the two models is very comparable, with slightly less variability between the average, max and min journey times for the southbound services. While the average journey time for buses travelling along William Street northbound is modelled to be slightly higher (+8 secs) in the Transit Zone model, the time is based on more services using William Street northbound in the AM peak (+23 services) as well as services from Wellington Street that turn right into William Street and incur different delays at the signals than the services modelled in the Base Year, resulting in a 5 second higher SB average time.

Table 2.20 PM William Street Bus Service Outputs

	NB William Street		SB William Street	
	Base model	**Transit Zone**	**Base model**	**Transit Zone**
No. Services	64	62	40	59
Average Time	0:06:52	0:05:45	0:06:07	0:04:36
Max Time	0:11:01	0:07:40	0:08:52	0:06:23
Min Time	0:01:01	0:02:16	0:04:09	0:02:27
Average Speed	8	9	8	11

The performance benefits from the Transit Zone model are more pronounced in the PM peak models, with faster journey times and slightly higher average speeds. The Transit Zone PM outputs also show less variability in journey time along William Street in both directions.

It should also be noted that these benefits to William Street services have been achieved alongside the re-introduction of the services that run along William Street between the Esplanade and City Busports.

2.7 Pedestrian outputs

Pedestrian Demand for each intersection in the William Street corridor was included. The peak hour demand totals modelled for each intersection are shown in Table 2.21.

Table 2.21 Pedestrian Demands

Intersection	AM Demand	PM Demand
William Street and Wellington Street	1206	1124
William Street and Murray Street	3713	3997
William Street and Hay Street	4020	2713
William Street and St George's Terrace	3607	1550
William Street and Esplanade	1094	962

These demands represent the total observed crossings, although in the model, only "legal" crossings are permitted. This results in slightly more crowding at the intersections than might be observed on site.

Summary outputs for each intersection are provided in Table 2.22 and Table 2.23. These tables present the percentage of demand simulated in the model compared to the input demand. The average wait time output from the model is an average of the time a pedestrian waits to cross including those that arrive at the end of the pedestrian stage and wait the full cycle to cross again, or those that arrive as the pedestrian stage begins.

Table 2.22 AM Pedestrian Summary Outputs

	AM Base Year			AM Transit Zone		
	Modelled	% Sim	Av. Wait	Modelled	% Sim	Av. Wait
William St and Wellington St	1152	95.5%	0:00:47	1157	95.9%	0:00:43
William St and Murray St	3563	98.4%	0:00:34	3624	97.6%	0:00:37
William St and Hay St	3970	98.8%	0:00:24	3975	98.9%	0:00:26
William St and St George's Terrace	3512	97.4%	0:00:21	3511	97.3%	0:00:22
William St and Esplanade	1075	98.3%	0:00:46	1075	98.3%	0:00:48

The percentage simulated for all intersections in both the Base Year and Transit Zone models are high, suggesting that the majority of input demand is able to cross in the given time. The average wait time between Base Year and Transit Zone models is very consistent suggesting minimal change in pedestrian operation.

Table 2.23 PM Pedestrian Summary Outputs

	PM Base Year			PM Transit Zone		
	Modelled	% Sim	Av. Wait	Modelled	% Sim	Av. Wait
William St and Wellington St	1082	96.3%	0:00:48	1062	94.5%	0:00:43
William St and Murray St	3895	97.4%	0:00:31	3916	98.0%	0:00:30
William St and Hay St	2679	98.7%	0:00:31	2679	98.7%	0:00:29
William St and St George's Tce	1518	97.9%	0:00:27	1519	98.0%	0:00:27
William St and Esplanade	941	97.8%	0:00:37	941	97.8%	0:00:38

The PM modelled outputs show consistency between the Base Year and Transit Zone models. It should be noted that the modelled values are recorded where pedestrians are able to cross legally and there has been no inclusion of informal crossing outside of the dedicated pedestrian stage times at any of the intersections. These conditions are particularly prevalent at the William Street intersections with Murray Street and Hay Street and could increase at both intersections as well as within the transit zone where the decreasing vehicle throughput will result in more gaps in traffic.

2.8 Transit Zone Scenario 2 signal test (William St / Murray St)

The City of Perth requested an additional test to the Transit Zone model be undertaken with an adjustment to the signal staging at William Street and Murray Street. The Scenario 2 test removes Stage D where the southbound William Street movement runs a dedicated through and right green arrow. The removed time was not added to the remaining movements effectively reducing the cycle time from 140 seconds to approximately 90 seconds.

The model was re-run with outputs showing minimal change to the Level of Service for all other modelled intersections. The outputs for William Street and Murray Street compared to the Transit Zone are shown in Table 2.24 and Table 2.25.

Table 2.24 AM Transit Zone Scenario 2 outputs

		Transit Zone + Adjustments			Transit Zone Scenario 2		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
William Street	northbound	D	54.27	2	C	30.06	2
Murray Street	eastbound	E	57.62	10	C	28.06	6
William Street	southbound	C	34.38	10	C	34.69	12

Table 2.25 PM Transit Zone Scenario 2 outputs

		Transit Zone + Adjustments			Transit Zone Scenario 2		
Approach	**Direction**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**	**AM LOS**	**AM Av. Delay**	**AM Max Q (veh)**
William Street	northbound	D	47.98	2	C	30.22	2
Murray Street	eastbound	E	55.34	9	C	33.05	8
William Street	southbound	C	27.44	11	C	28.26	10

The reduced cycle time is modelled to perform well in both the AM and PM peaks. The reduced cycle time has reduced the delay and improved the LOS for William Street northbound and for the Murray Street eastbound approach. The William Street southbound movement is not modelled to experience change despite the removal of the dedicated southbound signal stage suggesting that the current demand is able to be accommodated.

In addition to the vehicle outputs, the pedestrian outputs for William Street and Murray Street are presented in Table 2.26. These outputs show a reduction in the average wait time and a higher percentage of modelled demand simulated where the cycle time has been reduced.

Table 2.26 Transit Zone Scenario 2 pedestrian outputs

	AM Transit Zone			AM Transit Zone Scenario 2		
	Modelled	% Sim	Av. Wait	Modelled	% Sim	Av. Wait
William St and Murray Street (AM)	3624	97.6%	0:00:37	3688	99.3%	0:00:20
William St and Murray Street (PM)	3916	98.0%	0:00:30	3939	98.5%	0:00:20

The increase in percentage of trips simulated indicates a forecast increase in legal crossings at this intersection, likely due to the reduced wait time. It can therefore be inferred that the Scenario 2 improvements would result in a decrease in the number of illegal crossings at the intersection.

3. Conclusion

The Transit Zone simulation modelling was undertaken to understand the impact of the introduction of the William Street Transit Zone on different transport network users. This technical note summarises the modelling process where the signal timings during peak hours at William Street and Hay Street were adjusted and 000 bus services using William Street were included. The note also presents modelled outputs and commentary from the Base Year + Adjustments, Transit Zone + Adjustments and the Transit Zone + Adjustments Scenario 2 models.

Some differences to operation and performance were noted between the original April 2015 and current June 2015 observations. These have been reflected in the Base Year + Adjustments modelling, and taken forward to the Transit Zone testing to ensure that the current conditions are included in the assessment.

The reassignment away from the Transit Zone for general traffic was undertaken using a manual approach, although where possible trips were added onto alternate Origin and Destination pairs rather than their absolute removal from the model altogether. The Transit Zone + Adjustments and Scenario 2 modelled outputs also rely on this manual approach to reassignment. As agreed with the stakeholders, the reassignment was taken from SATURN modelling of the wider area previously undertaken by Worley Parsons in 2013.

Pedestrian crossings were modelled to operate consistently between the Base Year + Adjustments and Transit Zone + Adjustments models, while an improvement to the Murray Street intersection was found for the Transit Zone Scenario 2 model where a reduced cycle time was adopted.

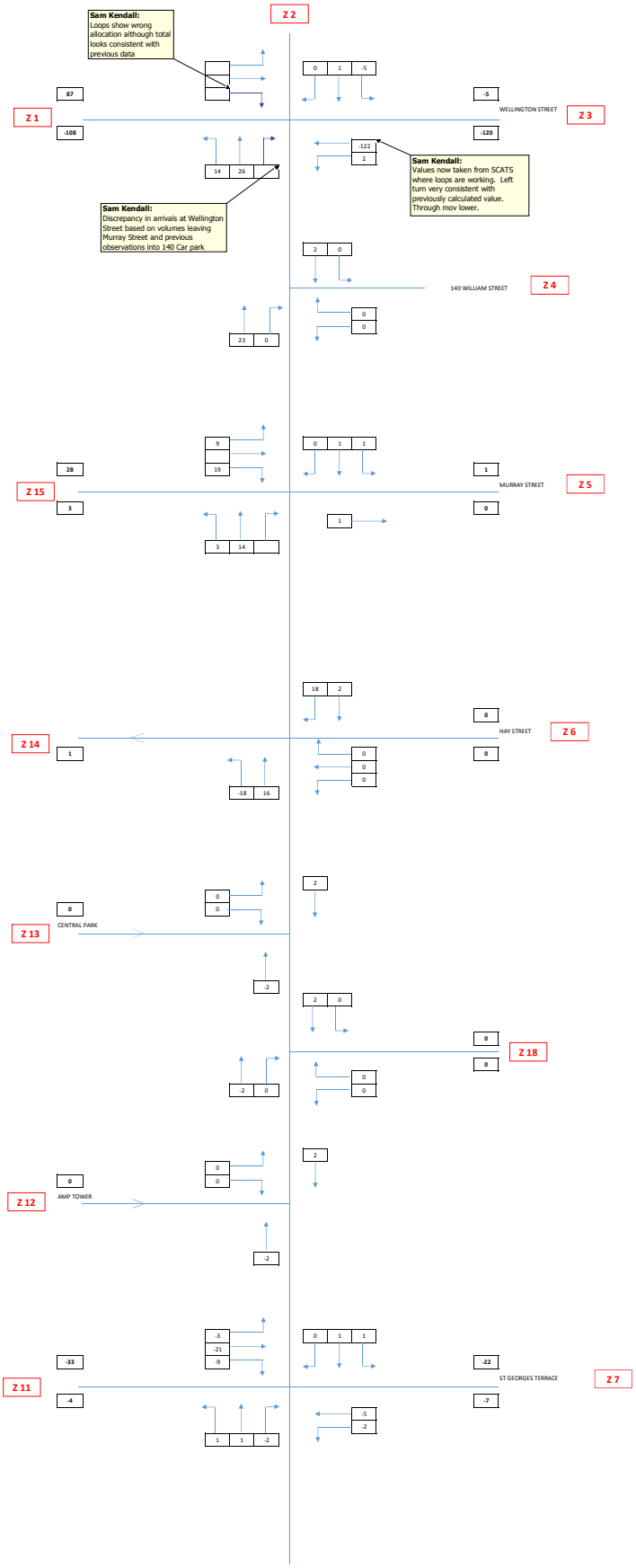
The modelling outputs showed benefits to the William Street bus services with the Transit Zone in place, particularly the southbound services during the PM peak where the modelling indicated more reliable running times can be achieved with slightly faster average speeds. Benefits to public transport services have been achieved despite the re-introduction of bus services to the City Busport.

With the introduction of the Transit Zone and associated reassignment away from William Street, the modelling showed an increased occurrence of gaps in traffic, providing more opportunity for car park users at AMP, Bankwest and Central Park to join the network. There were clear gains to the Level of Service at these intersections where exiting traffic is still able to turn right and left from each exit. The arrival to these car parks only differs for Bankwest where the access from William Street (north of Murray Street) is not able to be made. The conversion of Hay Street to two-way in the future could provide additional access for this movement.

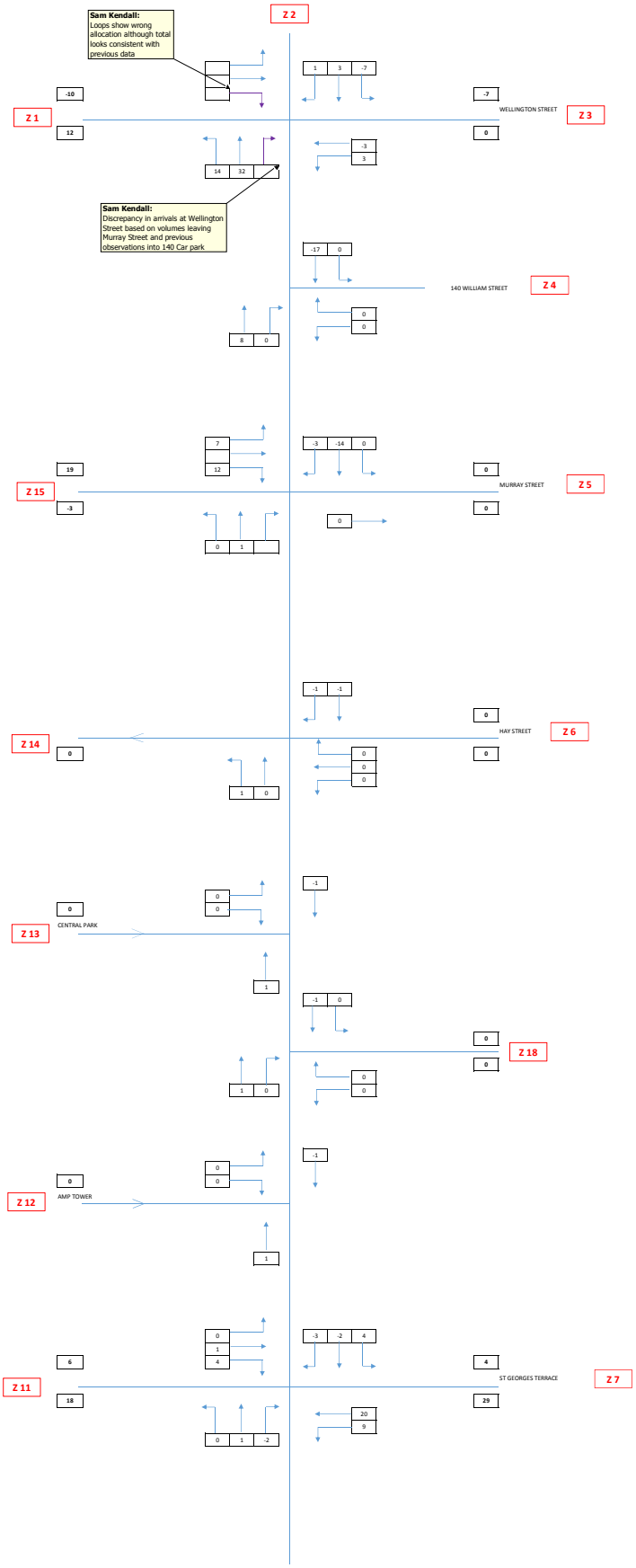
The conversion of Hay Street to two-way is yet to be tested with the Transit Zone in place. The induced demand that would use the new configuration of Hay Street should be taken from wider area models, and it is suggested that the Transit Zone is tested with this configuration and the revised wider area demands in due course.

Appendix A

Observed Turning Movement Difference Plots



AM Peak difference



PM Peak difference

Appendix B

Calibration Tables and R^2 Plots

Time period AM Peak Hour

William Street Transit Zone

Network TransitMall_BaseJune15_PedAdjust.aza

Base Year Model + Adjustments

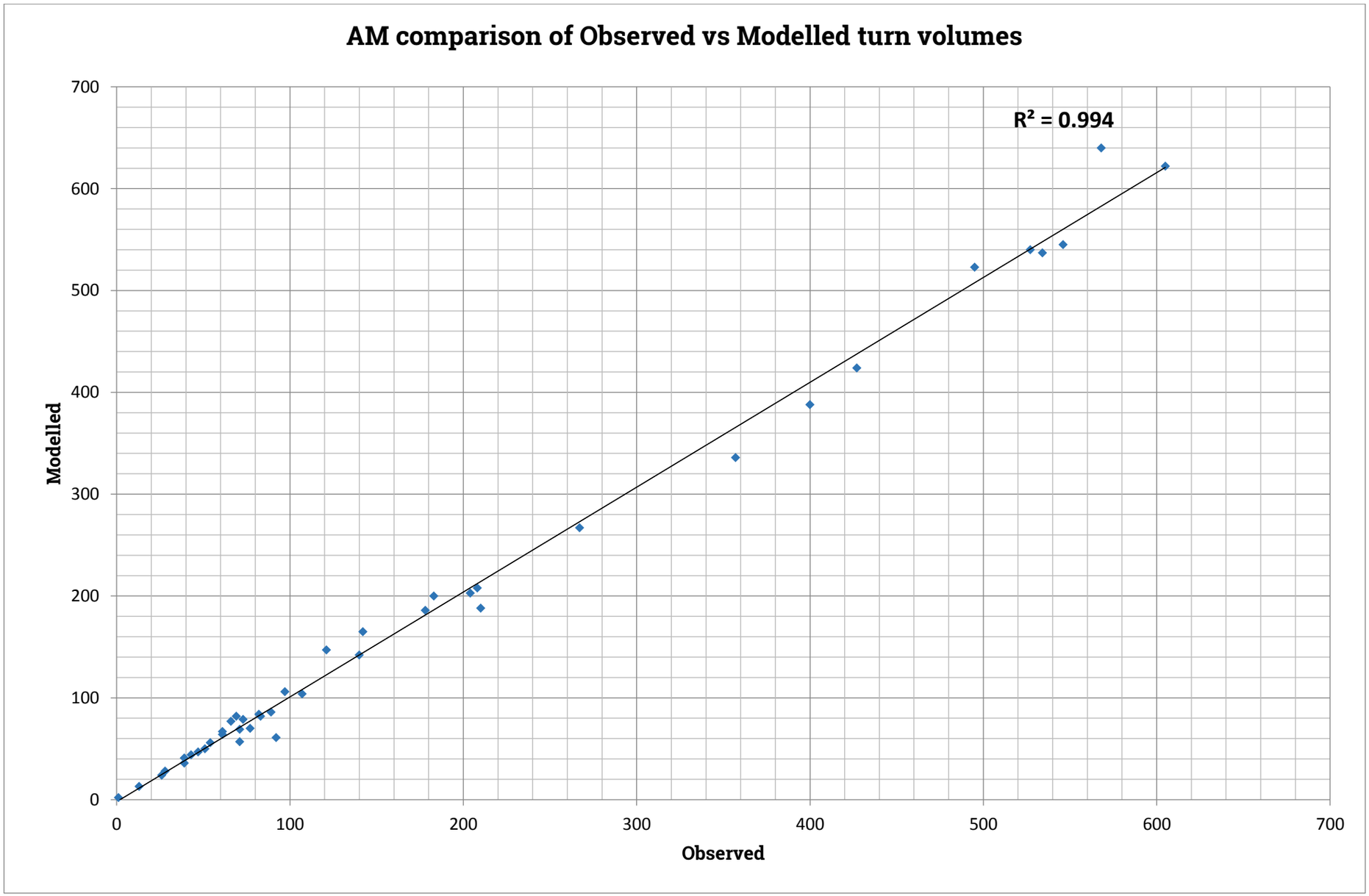
Matrices

GEH screenline criteria 4

GEH link criteria 5

INBOUND

	Traffic Flow				Validation Criteria	
Road Name	Count	Modelled	% Difference	GEH Statistic	Flow	GEH
William St / Wellington St						
Wellington EB TH	495	523	6%	1.24	✓	✓
Wellington EB LT	26	24	-8%	0.40	✓	✓
William SB RT	77	70	-9%	0.82	✓	✓
William SB TH	208	208	0%	0.00	✓	✓
William SB LT	47	47	0%	0.00	✓	✓
Wellington WB TH	605	622	3%	0.69	✓	✓
Wellington WB LT	267	267	0%	0.00	✓	✓
William NB RT	39	41	5%	0.32	✓	✓
William NB TH	51	50	-2%	0.14	✓	✓
William NB LT	28	28	0%	0.00	✓	✓
William St / Murray St						
William SB RT	54	56	4%	0.27	✓	✓
William SB TH	400	388	-3%	0.60	✓	✓
William SB LT	1	2	100%	0.82	✓	✓
William NB TH	61	67	10%	0.75	✓	✓
William NB LT	13	13	0%	0.00	✓	✓
Murray EB RT	140	142	1%	0.17	✓	✓
Murray EB LT	66	77	17%	1.30	✓	✓
William St / Hay St						
William SB RT	183	200	9%	1.23	✓	✓
William SB TH	357	336	-6%	1.13	✓	✓
William NB TH	73	79	8%	0.69	✓	✓
William NB LT	89	86	-3%	0.32	✓	✓
William St / St Georges Terrace						
William SB RT	43	44	2%	0.15	✓	✓
William SB TH	210	188	-10%	1.56	✓	✓
William SB LT	107	104	-3%	0.29	✓	✓
St Georges Tce WB TH	527	540	2%	0.56	✓	✓
St Georges Tce WB LT	178	186	4%	0.59	✓	✓
William NB RT	39	36	-8%	0.49	✓	✓
William NB TH	69	82	19%	1.50	✓	✓
William NB LT	61	64	5%	0.38	✓	✓
St Georges Tce EB RT	97	106	9%	0.89	✓	✓
St Georges Tce EB TH	568	640	13%	2.93	✓	✓
St Georges Tce EB LT	71	57	-20%	1.75	✓	✓
William St / Esplanade						
William SB RT	121	147	21%	2.25	✓	✓
William SB TH	204	203	0%	0.07	✓	✓
William SB LT	82	84	2%	0.22	✓	✓
Esplanade WB TH	83	82	-1%	0.11	✓	✓
Esplanade WB LT	546	545	0%	0.04	✓	✓
William NB RT	534	537	1%	0.13	✓	✓
William NB TH	142	165	16%	1.86	✓	✓
Mounts Bay Road EB RT	71	69	-3%	0.24	✓	✓
Mounts Bay Road EB TH	427	424	-1%	0.15	✓	✓
Mounts Bay Road EB LT	92	61	-34%	3.54	✓	✓


AM comparison of Observed vs Modelled turn volumes
R² = 0.994
Modelled
Observed
0
100
200
300
400
500
600
700

Time period PM Peak Hour

William Street Transit Zone

Network TransitMall_BaseJune15_PedAdjust.aza

Base Year Model + Adjustments

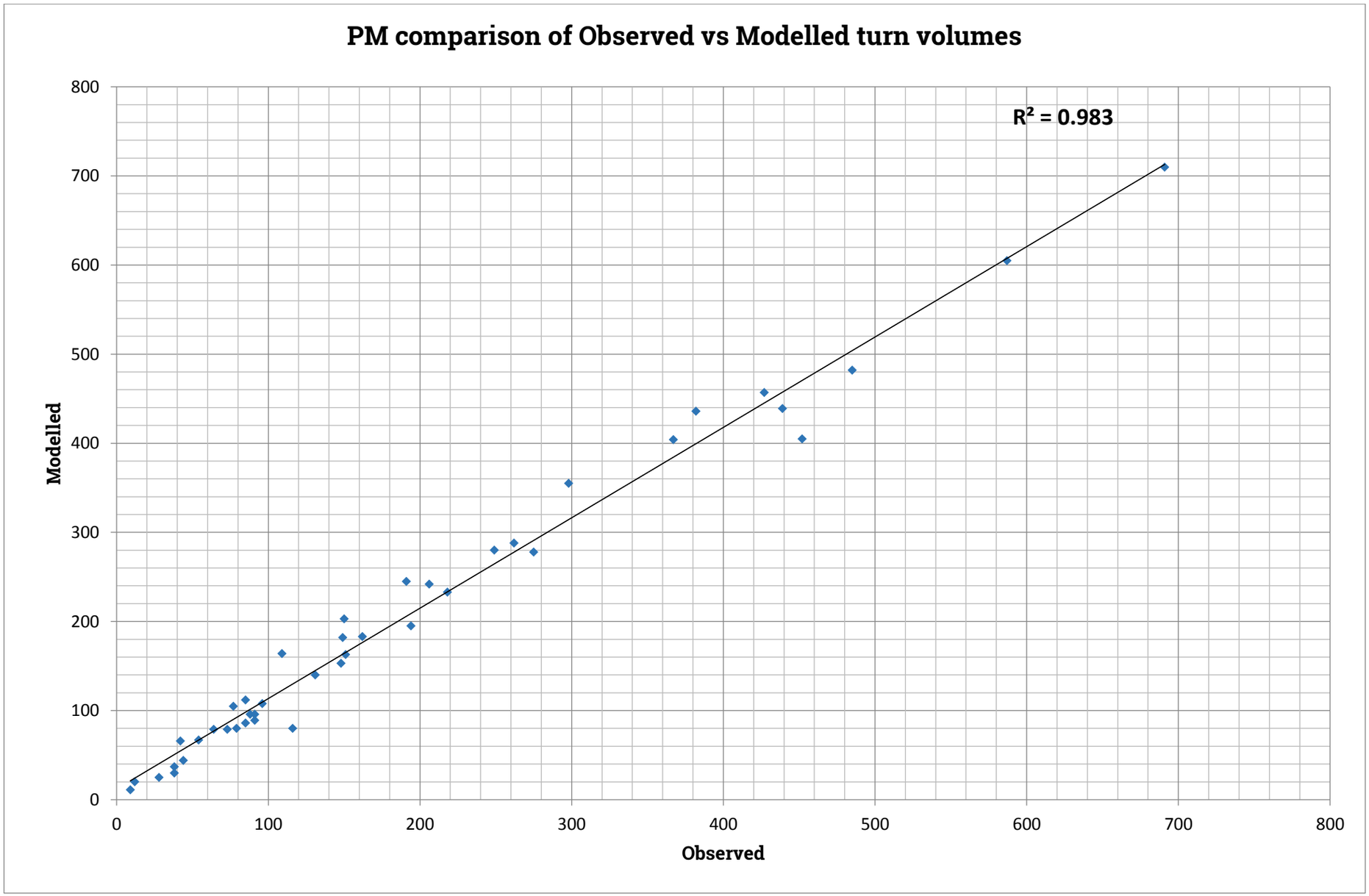
Matrices

GEH screenline criteria 4

GEH link criteria 5

INBOUND

	Traffic Flow				Validation Criteria	
Road Name	Count	Modelled	% Difference	GEH Statistic	Flow	GEH
William St / Wellington St						
Wellington EB TH	691	710	3%	0.72	✓	✓
Wellington EB LT	85	86	1%	0.11	✓	✓
William SB RT	28	25	-11%	0.58	✓	✓
William SB TH	131	140	7%	0.77	✓	✓
William SB LT	38	37	-3%	0.16	✓	✓
Wellington WB TH	452	405	-10%	2.27	✓	✓
Wellington WB LT	249	280	12%	1.91	✓	✓
William NB RT	54	67	24%	1.67	✓	✓
William NB TH	148	153	3%	0.41	✓	✓
William NB LT	64	79	23%	1.77	✓	✓
William St / Murray St						
William SB RT	38	30	-21%	1.37	✓	✓
William SB TH	367	404	10%	1.88	✓	✓
William SB LT	9	11	22%	0.63	✓	✓
William NB TH	151	163	8%	0.96	✓	✓
William NB LT	12	20	67%	2.00	✓	✓
Murray EB RT	149	182	22%	2.57	✓	✓
Murray EB LT	85	112	32%	2.72	✓	✓
William St / Hay St						
William SB RT	218	233	7%	1.00	✓	✓
William SB TH	298	355	19%	3.15	✓	✓
William NB TH	162	183	13%	1.60	✓	✓
William NB LT	206	242	17%	2.41	✓	✓
William St / St Georges Terrace						
William SB RT	42	66	57%	3.27	✓	✓
William SB TH	262	288	10%	1.57	✓	✓
William SB LT	96	108	13%	1.19	✓	✓
St Georges Tce WB TH	427	457	7%	1.43	✓	✓
St Georges Tce WB LT	191	245	28%	3.66	✓	✓
William NB RT	44	44	0%	0.00	✓	✓
William NB TH	109	164	50%	4.71	✓	✓
William NB LT	79	80	1%	0.11	✓	✓
St Georges Tce EB RT	88	96	9%	0.83	✓	✓
St Georges Tce EB TH	587	605	3%	0.74	✓	✓
St Georges Tce EB LT	73	79	8%	0.69	✓	✓
William St / Esplanade						
William SB RT	91	96	5%	0.52	✓	✓
William SB TH	382	436	14%	2.67	✓	✓
William SB LT	77	105	36%	2.94	✓	✓
Esplanade WB TH	91	89	-2%	0.21	✓	✓
Esplanade WB LT	485	482	-1%	0.14	✓	✓
William NB RT	275	278	1%	0.18	✓	✓
William NB TH	150	203	35%	3.99	✓	✓
Mounts Bay Road EB RT	194	195	1%	0.07	✓	✓
Mounts Bay Road EB TH	439	439	0%	0.00	✓	✓
Mounts Bay Road EB LT	116	80	-31%	3.64	✓	✓

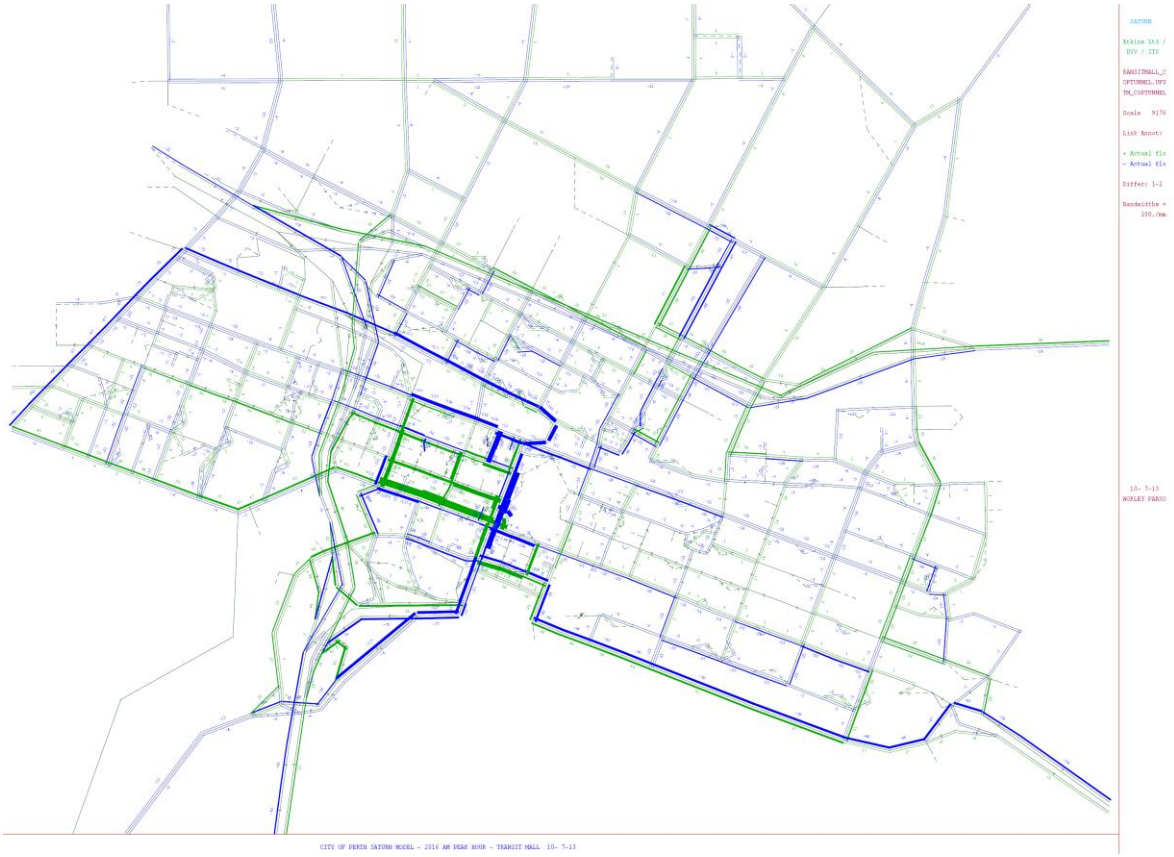

PM comparison of Observed vs Modelled turn volumes
R² = 0.983
Modelled
Observed
0
100
200
300
400
500
600
700
800

Appendix C

Saturn difference plots - PCCT Modelling, WorleyParsons

DEPARTMENT OF TRANSPORT
PERTH CITY CENTRE TRANSIT (PCCT) MODELLING
MODEL BUILD AND OPTION TEST REPORT

AM 2016 SATURN DIFFERENCE PLOT



PM 2016 SATURN DIFFERENCE PLOT

Appendix D

Turning movement difference plots

AM turning movement differences
between Base and Transit Zone

PM turning movement difference
between Base and Transit Zone

William Street Transit Zone Stakeholder Consultation & Transport Modelling

SUMMARY NOTE 18 SEPTEMBER 2015

Introduction

This summary note provides the salient points extracted from technical reports provided by the Public Transport Authority and Department of Transport with regards to the stakeholder consultation process for the William Street Transit Zone project and the current transport modelling undertaken to assess the localised expected benefits of the project to bus journey time reliability and improvements to pedestrian wait times at traffic signals on William Street. This report also summarises other issues of cycle amenity and car park access.

Stakeholder Consultation

Stage 1 stakeholder consultation was previously undertaken by Public Transport Authority (PTA) on the short term (Stage 1) and long term (Stage 2) proposals for improved public transport improvements in William Street, the results and details of which were reported and noted by Council at its meeting on 10 December 2013. The first round of consultation resulted in PTA being requested to produce further community information, to advise building occupants of the changes to William Street and conduct an extensive campaign to inform bus passengers of the change. The PTA was also requested to engage specifically with major building occupants with access to William St and hence these requirements triggered a necessary second round of consultation.

Stage 2 stakeholder consultation, which this report provides detail on below, was undertaken by PTA and comprised an extensive consultation exercise including a letter drop on 20 July 2015 to all buildings and frontages and also one to one consultations with primary stakeholders, which front William Street. The consultation letter was distributed on a large scale including Hay Street and Murray Street and the length of Barrack Street between St Georges Terrace and Wellington Street. The individual

meetings with stakeholders gave opportunities to ask questions of the PTA and enabled them to explain in detail the scheme and its potential impacts.

PTA confirm that as a result of this consultation, majority support for the scheme has been received from stakeholders. Concerns were raised regarding local access and the alternative routing of vehicles, however stakeholders have noted that no access along the length of William Street is being closed or restricted, rather requiring alternative routing to access the private car parks and service areas.

PTA confirm that vehicles requiring access to properties within the Transit Zone shall be considered as 'authorised vehicles' and issued with official passes and letters administered by PTA to exempt them from the restrictions otherwise to be placed upon general traffic between Hay Street and Murray Street.

Copies of the commentary from stakeholder submissions and meetings are contained within PTA's Technical Report – William Street Transit Zone together with PTA's response to satisfy those concerns and requests. The successful satisfaction of all consultation responses and individual concerns has resulted in majority support from stakeholders which satisfies Council's resolution 2.1 from the 10 December 2013 meeting.

Transport Modelling and Impacts

Resolution 2.2 from the meeting of Council on 10 December 2013 requested traffic modelling to be completed demonstrating that city traffic will not be subject to additional congestion as a result of removing general traffic from part of William Street.

Traffic Reassignment

It has always been the intention of PTA to undertake wide area traffic reassignment modelling to identify the impacts of redirected general traffic on the City road network as a result of the Transit Zone. It was intended to utilise the CBD Paramics model which has been under on-going development by DoT, however at present only the AM peak period model has been agreed by all transport agencies with the PM peak model still being developed and due for completion by the end of this year.

In lieu of the wider area model being available to identify the level of redistributed traffic and assess its impact, the City of Perth SATURN model was used to simplistically determine the level of diverted traffic in order to feed into a localised model of the William Street corridor. The localised model has been used to provide an indication of

the expected benefits of the Transit Zone on public transport journey times, reliability and also the effects on pedestrian wait times at signals. It is indicated that some of the diverted traffic shall be reassigned to Barrack Street under its two-way configuration and the overall level of diverted traffic is accepted for the purposes of the localised modelling assessment

The level of reassigned traffic is in the order of 44 cars northbound and 331 southbound in the AM Peak with 98 cars northbound and 327 cars southbound in the PM Peak. These numbers include the authorised vehicles to be allowed through the Transit Zone to access businesses and properties along its length, as a result of the recent public consultation outcomes, and hence the actual level of reassigned traffic is45 vehicles fewer overall.

Subsequent discussions with PTA have confirmed the need to provide updates to the localised traffic model; however for the purposes of reporting the expected localised benefits of the project the submitted information is satisfactory for use at this time. Additional modelling is also currently being undertaken by PTA to assess the reassignment effect and impact on the wider area to address Council resolution 2.2. It should be noted that this additional wider area modelling has not yet been provided to the satisfaction of City of Perth and therefore Council resolution 2.2 has not been satisfactorily addressed at this time.

Pedestrian Amenity in William Street

The localised traffic modelling provided includes an assessment of proposed traffic signal phase modifications to the intersection of William Street/Murray Street. In removing the dedicated right turn arrow phase for vehicles turning from William Street into Murray Street, made possible due to the reduction of northbound general vehicle trips in the Transit Zone, the effect of reducing the signal cycle time creates corresponding significant reductions in pedestrian wait times throughout the entire day. The pedestrian crossing phase shall appear more frequently under these proposed changes to the benefit of pedestrian wait times.

The reduced cycle time at this intersection also has the effect of improving traffic flow and reducing congestion and vehicle queuing in Murray Street on the eastbound approach to William Street given the Murray Street vehicle phase also occurs more frequently.

The PTA plan to develop a third stage of Transit Zone project, this being an ‘Urban Environment Upgrade’ which is currently being developed in consultation with the City and Main Roads WA. PTA intends to improve the public realm including bus stop

facilities for the William Street precinct. This stage of the project is currently unfunded by PTA, however the PTA intend to undertake to assist the City to seek funding for this stage from the Perth Parking Management Fund.

Cycling and Cycle Amenity

The Transit Zone will authorise cyclists to traverse through the area on road through use of regulatory signage. The removal of general vehicles in this area shall provide a less congested environment for cyclists to travel north/south through the City in addition to the option of dedicated on road cycle lanes in Barrack Street once that project is completed.

Bus Journey Time Reliability

The localised traffic modelling undertaken has provided an indication of the expected benefits to bus journey times and reliability through this section of William Street, particularly for the PM peak period. The modelling of the Transit Zone scenario includes an additional 16 northbound and 18 southbound services on William Street as a result of the opening of the future Wellington Street Bus Station in 2016.

The modelling suggests a reduction in the average maximum running times of bus services suggesting that even with the additional bus services due to operate in William Street, the congestion is predicted to reduce leading to more reliable and consistent journey times can be achieved by public transport on a more regular basis than at present. The benefits of the project appear more pronounced during the PM peak period with the results showing slightly higher average speeds due to reduced congestion and less variability in journey times, a key driver of public transport uptake and loyalty by patrons.

The recently released DoT Draft Central Area Transport Plan discusses a potential future reduction in bus services across the City by up to 40%. DoT has indicated these reductions shall be due to a number of bus improvement projects which are yet to funded or progressed. PTA has confirmed these measures are likely to be 7 to 10 years before completion. Given the draft nature of the Central Area Transport Plan and uncertainty surrounding these aspirations, it has been agreed with PTA that this scenario will not be used in assessing the merits of the William Street Transit Zone Project at this time.

Car Park Access

A key issue for the expected implementation of the William Street Transit Zone project was for the PTA to satisfactorily address and resolve all stakeholder issues in line with Council's resolution 2.1 at the meeting of 10 December 2013.

PTA undertook to consult with the car park users of buildings such as Central Park, 108 St Georges Terrace and AMP amongst others previously explained in the stakeholder section of this report. The traffic modelling undertaken on the localised section of William Street has indicated that increased gaps in traffic are predicted to occur, due to the removal of most general traffic in William Street. This is predicted to allow greater opportunity for car park users to enter/exit left and right from car parks and crossovers improving the ease of which these stakeholders can access the road network. The issue of car park users being delayed from exiting onto William Street has historically been a big issue in these locations and the stakeholders are fully supportive of these expected improvements as a side effect of the William Street Transit Zone project implementation.

Intersection Level of Service

The localised modelling provides an assessment and comparison of the operation of the intersections on William Street between and including the intersections with St Georges Terrace and Wellington Street. The modelling indicates that the Level of Service of each intersection within the study area shall continue to operate with no material detriment to operation, which is likely to be within the range of day to day fluctuations in traffic flow and operation. This is at the same time as providing greater bus journey time reliability and pedestrian amenity improvements on the corridor.

The results of the modelling indicate that during both AM and PM peak periods, the Wellington Street westbound and William Street northbound approaches, at their intersection, are predicted to experience slight increases in average delay and level of service, but again these variations are not material and are unlikely to be perceivable from the day to day fluctuations in traffic flow and operation that can occur on any given day. These increases are due to the increased number of northbound and southbound bus services predicted to operate in William Street, specifically an increased number of northbound buses turning left from William Street to Wellington Street against the north/south parallel walk pedestrian crossing. Also the minor increases in queue length and delay experienced to westbound traffic on Wellington Street is due to the modest increase in bus services turning right from Wellington Street to William Street given the expected extension of green arrow time as the signals respond with increased time to the higher bus demand across the stop line.

Based on the submitted results of the localised model provided, it is suggested that these intersections shall continue to operate on a satisfactory basis with similar levels of service should the Transit Zone be endorsed and implemented.

What is not currently understood is the wider area impact of reassigned traffic on the city road network, which is critical to understand in order to consider the acceptability of the Transit Zone Project.

Conclusions

The completion of stakeholder consultation on the proposed Transit Zone project has secured majority support from which satisfies Council's resolution 2.1 from the 10 December 2013 meeting. It is recommended that PTA continue working on the wider area modelling to assess the impact of the Transit Zone on the city road network and report back to City of Perth at a future date for consideration.

Option	Analysis	Financial Implications
1 Barrack Street Two Way opens at the end of November 2015. Council endorses the implementation of Transit Zone Stage 2. Outstanding approval of traffic modelling data. Implementation of Transit zone Blue CAT relocates to William Street	Preferred option of PTA. Significant risk to the City of Perth as it is extremely unlikely PTA shall achieve implementation of the Transit Zone Stage 2 by the end of November 2015. Option 1 comprises the following: • Significant work involved in producing traffic signal and line marking design, to reviewed and submitted for formal approval by Main Roads WA. • Civil works may take up to 2 weeks to complete. • Recent performance of PTA controlled construction projects on City of Perth roads raises doubts as to whether a deadline of end of November 2015 could be achieved. • Requires immediate endorsement of the Transit Zone project by Council without the benefit and understanding of the currently outstanding and required wider area traffic modelling data to the satisfaction of past Council resolutions. • It is not recommended that this option be endorsed by Council.	Potential risk of $2,000 per day of delay to opening of Barrack Street.
2 Barrack Street Two Way delayed until February 2016. Council further considers the Transit Zone Stage 2, once all traffic modelling data received.	Significant risk to the City of Perth in that this would delay the opening of the Barrack Street Two Way project and place the responsibility of completion of both projects on the Council's endorsement and approval of the William Street Transit Zone project. Option 2 comprises: • Barrack Street continuing to operate under one-way northbound traffic configuration during the delayed period. • Significant traffic management costs in Barrack Street ($150,000 - $170,000) for a period of approximately three months from the end of November 2015 to maintain only one lane for general traffic northbound. • PTA has confirmed in writing that they shall not meet these traffic management costs in the absence of immediate Council approval of the Transit Zone. Should Council provide immediate approval then PTA would only consider meeting the necessary cost for traffic management.	Additional $150,000 - $170,000 required.

Option	Analysis	Financial Implications
Blue Cat remains in Barrack Street	• Risk of Transit Zone project over-running program and delaying the opening of both projects beyond February 2016. • Risk of significant complaints from Barrack Street retailers due to a renege on completion date of end of November 2015 for Barrack Street Two Way. • Loss of benefits to retailers through otherwise increased business exposure before the Christmas period due to the two way configuration for general traffic and cyclists. • Loss of the benefits of increased capital expenditure of more than $300,000 to accelerate the Barrack Street construction program in response to retailer concerns • No cycle linkage in Barrack Street before the end of 2015 which would otherwise be in place for the opening of Elizabeth Quay.	
3 Barrack Street Two Way opens at the end of November 2015. Council further considers the Transit Zone Stage 2, once all traffic modelling data received. Blue CAT relocates to William Street (timing to be agreed)	Least risk to the City of Perth. Option 3 would comprise: • Opening of Barrack Street Two Way as per the accelerated construction program at the end of November 2015. • Maintain the benefits of increased committed capital expenditure (in excess of $300,000 gross) to accelerate the construction program in response to retailer concerns. • Maintain assurances to Barrack Street retailers that works be finished in Barrack Street at the end of November 2015. • Removal of all visual barriers associated with traffic management and construction at the end of November 2015. • Provide two way cycle linkage in Barrack Street before the opening of Elizabeth Quay. • Reporting back to Council at a later date on the acceptability of the Transit Zone once all outstanding information has been received from PTA and reviewed. • It is noted that high level negotiations are required between City of Perth and PTA to agree the timing of the relocation of the Blue CAT bus service to William Street or possible alternatives.	None