17 August 2021

TfNSW Reference: SYD19/00599
PP_2019_CUMB_002_00

Planning Panels Secretariat
Locked Bag 5022
Parramatta NSW 2124

Attention: Suzie Jattan

Dear Ms Jattan,

RESPONSE TO AMENDED PLANNING PROPOSAL - 1 CRESCENT STREET, HOLROYD

Transport for NSW (TfNSW) advises the Planning Panel that TfNSW has been working with the Department of Planning, Industry and Environment and the proponent's consultant to better understand and quantify the traffic impacts of the planning proposal on the adjacent regional road network. This has included TfNSW engaging Stantec to undertake an independent peer review of the mesoscopic modelling undertaken to date by TTPP for the planning proposal.

The independent peer review of the mesoscopic modelling has included a sensitivity test of a revised traffic distribution based on data from a neighbouring travel zone (Zone 1221) with the Sydney Travel Forecasting Model (STFM). The travel zones within STFM is based on a wide range of data sources including work, shopping, education, recreation, etc, which takes into account the future distribution pattern including demographics and land use. This revised traffic distribution has a higher proportion of development trips travelling towards the east along Parramatta Road (**Tab A**), as compared with the proponent's traffic distribution.

The model sensitivity test by Stantec based on the above revised trip distribution has identified that the planning proposal will have the following traffic impacts on the adjacent regional road network:

- Travel delays and travel times across the model network will increase by up to 13% with approximately $60 million in additional travel times costs per annum;
- Travel times along Parramatta Rd (in peak directions) will increase by 3-4 minutes; and
- In the morning peak, eastbound drivers along Crescent Street will experience delays of over 3 minutes (approximately 3 signal cycles).

The modelling undertaken by Stantec indicated that the above road network performance statistics would noticeably change only, if there were about a 50% reduction in development yields for residential and retail. Full details are provided in **Tab B,** Stantec Summary - Development Impact Assessment Review.

Following the above mesoscopic modelling analysis provided by the independent peer review, the proponent has proposed to reduce the traffic generation of the development by reducing the retail and commercial yield of the development as follows:

Transport for NSW
27-31 Argyle Street, Parramatta NSW 2150 | PO Box 973, Parramatta CBD NSW 2124
P 131782 | **W** transport.nsw.gov.au | ABN 18 804 239 602

- A proposed reduction in the retail development yield being 2,500sqm (GFA) to include a maximum of 1500sqm for a supermarket and 1000sqm for supporting retail use reflecting a neighbourhood scale;
- A reduction in commercial development yield being 5,000sqm (GFA);
- No change to the residential development yield being retained at 1255 units.

It is noted that the above reduction to retail and commercial yield will result in a reduction in traffic generation of 33% in the AM peak and 47% in the PM peak.

TfNSW agrees in principle to support the proposed reduction in the retail and commercial yield and the retention of the existing 1,255 residential units, subject to the following requirements:

1. A site specific clause in the LEP that will prohibit further development beyond the above yields.

2. Reduction in vehicular traffic generation of the residential component by encouraging a mode shift towards public transport, walking and cycling via the following measures:

    a) The provision of a pedestrian bridge across Woodville Road in order to improve pedestrian connectivity and provide safe access to Granville Station from the development. The full cost for the pedestrian bridge shall be provided at no cost to Government. The funding mechanism for the pedestrian bridge should be identified, addressed and agreed prior to the making of the plan.

        A copy of a preliminary sketch of a pedestrian bridge at this location undertaken by TfNSW is provided in **Tab C** and is subject to further investigation and planning by the proponent and consultation with Council for landing the bridge on the park on the south-west corner of the Woodville Road/Crescent Street intersection.

    b) The proponent shall prepare a Travel Demand Management Plan (TDMP) to minimise the traffic generating impact of the proposal. This TDMP should include, but not limited to, the following:

        - Improving pedestrian and active transport connections to the Harris Park and Granville rail stations and improving security for pedestrians/cyclists on the shared path under the M4.

        - Maximum parking rates should be provided under the LEP provisions and reference should be made to the maximum parking rates for the Granville Frame Area within the Parramatta Road Urban Transformation Strategy as illustrated in the table below.

Table 3.2 Maximum Car Parking Rates

CATEGORY	RESIDENTIAL (MAXIMUM SPACES PER DWELLING)					OTHER (MAXIMUM SPACES/M² GFA)		
	Studio	1 bed	2 bed	3 bed	Visitor	Commercial	Retail	Industrial
Camperdown Precinct and Frame Area Leichhardt Precinct and Frame Area Taverners Hill Precinct and Frame Area	0	0.3	0.7	1	0	150	100	150
Kings Bay Precinct and Frame Area Burwood Precinct and Frame Area Homebush Precinct only Granville Precinct Only	0.3	0.5	0.9	1.2	0.1	100	70	120
Auburn Precinct Homebush Frame Area Granville Frame Area	0.6	0.9	1.2	1.5	0.2	70	50	100

c) A car share target of 10-15% (rate adopted by PRUCTS) should be provided for residents within the proposed development.

d) Provision of cycle parking facilities.

3. The following road works shall be undertaken on Crescent Street on approach to the signalised intersection on Woodville Road at no cost TfNSW or Council (Refer **Tab D** for further details):

   - Provision of an additional eastbound left turn lane;
   - Extension to the existing dual left turn bay from 30 metres to 140 metres in length on The Crescent.

TfNSW welcomes the opportunity to further discuss our advice, if required. Should you have any questions or enquiries in relation to this matter, Ilyas Karaman would be pleased to take your call on 0447 212 764 or email: development.sydney@transport.nsw.gov.au

Yours sincerely

RJCumming

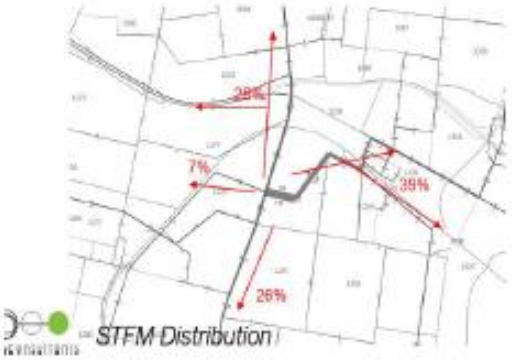
Rachel Cumming
Director Land Use
Land Use, Network & Place Planning
Greater Sydney Division

TAB A – Traffic Distribution Sensivity Test Based on STFM Data

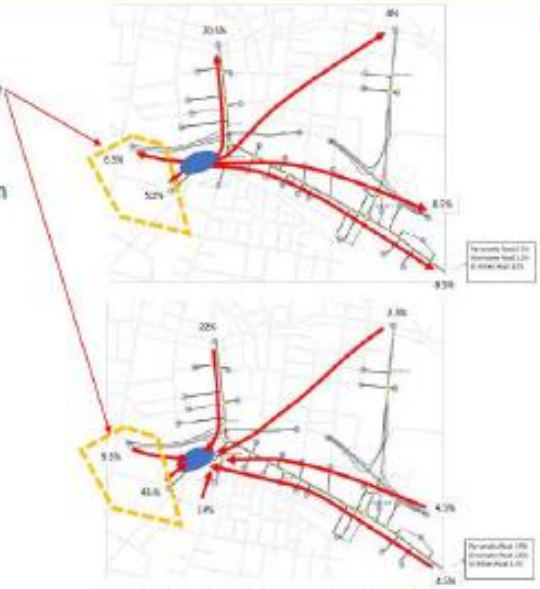
NETWORK AND LOCALISED IMPACTS

Development Traffic Distribution – Sensitivity

- Existing adopted distribution – heavily skewed towards the west and south-west
- Differs from the STFM distribution for the adjacent travel zone to the east
- Increased trips to the east will have even greater impact on the network performance

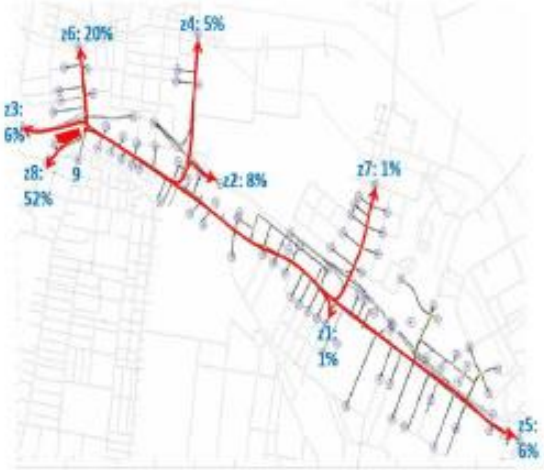


STFM Distribution

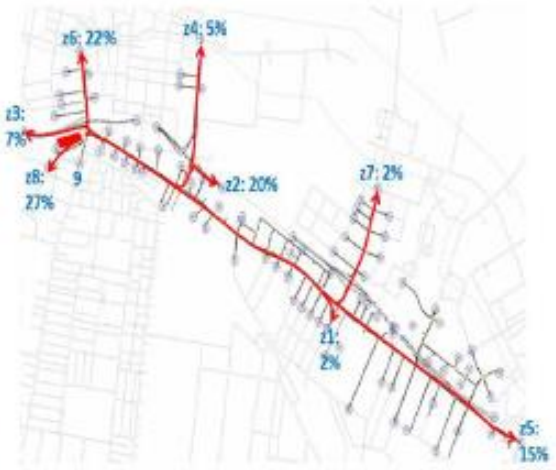


Proponent Adopted Distribution

Development Traffic Distribution – Sensitivity



AM Adopted (from development)



AM Sensitivity Test (from development)

TAB B: Stantec Summary - Development Impact Assessment Review

\\corp.trans.internal\User\Profile\Profile047\ikaraman\Desktop\Stantec Summary Development Impact Assessment Review.pdf

TAB C: High Level Strategic Sketch of Pedestrian Bridge on Woodville Rd

TAB C – High Level Preliminary Sketch of Pedestrian Bridge on Woodville Rd

TAB D – Indicative Layout of Roadworks on Crescent Street

Source: GTA Consultants

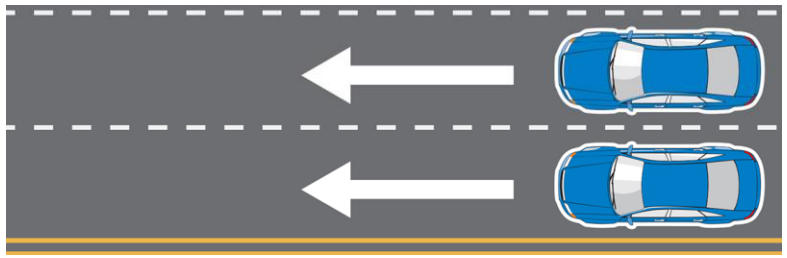
1 CRESCENT STREET

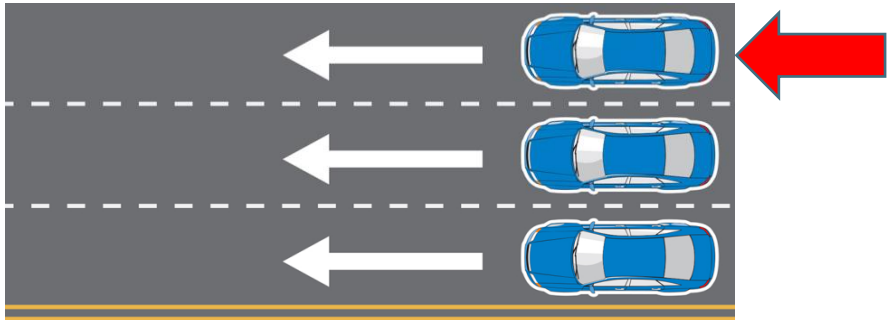
Development Impact Assessment Review

TfNSW

KEY FINDINGS – POTENTIAL TRAFFIC IMPACTS [1]

- Development will generate additional 900veh/h in each peak hour





This represents one additional lane of traffic with 900veh/h

- Travel delays and travel times across the modelled network will increase by up to 13% ~ approx. $60M in additional travel time costs per annum [2]
- Travel times along Parramatta Road (in peak directions) will increase by 3-4 minutes [3]
- In the morning peak, eastbound drivers along Crescent Street will experience delays of over 3 minutes (approximately 3 signal cycles).

[1] Key findings based on maximum development yield from planning proposal and revised traffic distribution from neighbouring travel zone.
[2] Economic analysis is based on travel time impacts alone (which typically account for around 70% of the benefit stream), with no consideration of safety, vehicle operating costs, emission, maintenance, etc.
[3] AM Peak – Eastbound, PM Peak – Westbound

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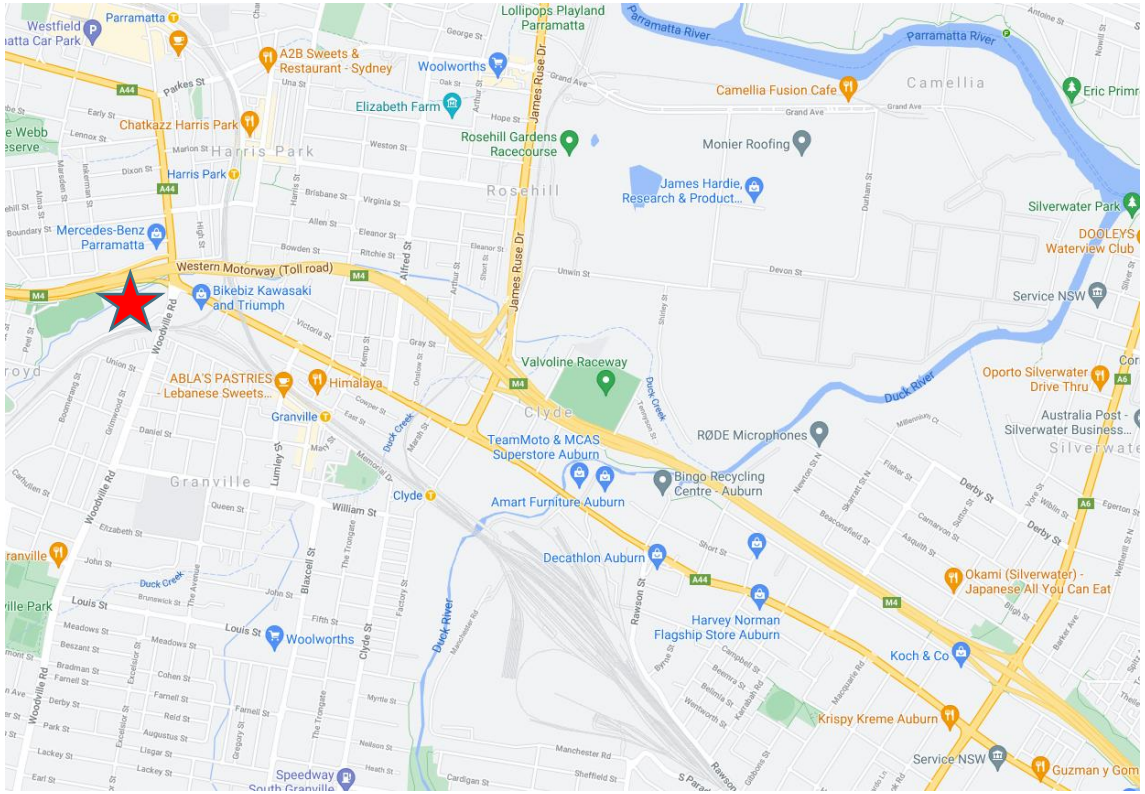
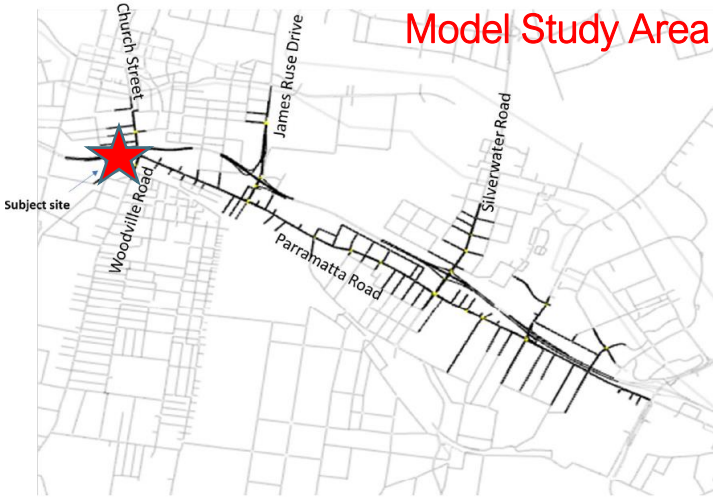
INTRODUCTION

01

INTRODUCTION

- The proposed development is located at the western extent of the adopted model area and its generated traffic would be expected to influence the operation of a wider network.





Source: TTPP Modelling Report

INTRODUCTION

- Development

Table 3: Summary of Traffic

Land use	Yield
Residential	1,255 units
Retail	5,627 m2 GLFA
Office	7,503 m2 GFA
Existing Industrial Site Traffic	-
Total	-

Source: TTPP Modelling Report

	AM Trips	PM Trips
Residential	364	364
Retail	397	545
Office	196	86
	922	**961**

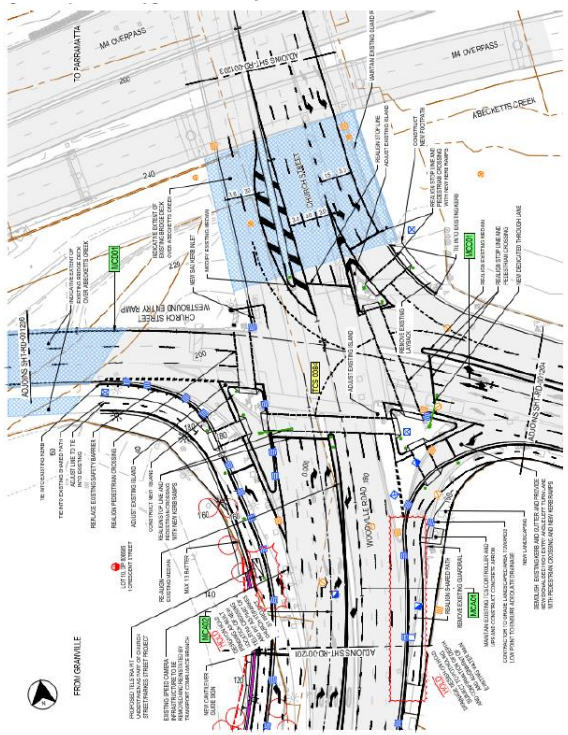
Non- retail	61%	45%
Retail	43%	55%
Total		
In	39%	61%
Out	61%	39%

- Retail represents 43% and 55% of all development generated trips in the AM and PM peaks respectively.

INTRODUCTION

- We have reviewed the operation of the latest 2031 models with the particular aim of identifying the congestion hotspots. This was intended to see if the model performance could be improved and the number of unreleased trips reduced. However, it is apparent that the congestion in future models (2031) due to background traffic growth as well as the development traffic is too severe to simply manage through model improvements or techniques alone.
- Given the above a different approach was adopted. The (pivot point modelling) approach utilises the base model to test the impacts of the proposed development 'today'. This removes the uncertainty and bias caused by the background traffic growth.
- It is noted there is an additional variable that should be considered when assessing the likely impacts of the development on the road network performance – intersection improvements proposed at the Parramatta Rd/Woodville Rd/Church St intersection. As such, we have looked at the following scenarios:
  - Base + Intersection Improvements
  - Base + Intersection Improvements + Development Traffic
  - Base + Intersection Improvements + Development Traffic (Sensitivity)

Parramatta Rd/Church St/Woodville Rd Intersection Improvements



Source: TTPP Modelling Report

NETWORK AND LOCALISED IMPACTS

02

NETWORK AND LOCALISED IMPACTS

Network Statistics

- AM
  - The addition of the development traffic increases the level of congestion with total travel times and delays increasing by up 4%.

- PM
  - The introduction of the development traffic increases travel times and delays by up to 5-6%.

Statistics	Base + Layout Update	Base + Layout Update + Development
Input – all (veh)	105,263	106,954
Input – dev (veh)	0	1,837
VKT (km)	171,689	173,320
VHT (h)	6,394	6,646
Delay (s/km)	74.9	77.8
Ave Speed (km/h)	55.0	54.4
Unreleased (veh)	2,814	2,945
Unreleased wait time (s)	32	40

Statistics	Base + Layout Update	Base + Layout Update + Development
Input – all (veh)	118,350	120,182
Input – dev (veh)	0	1,835
VKT (km)	187,961	190,040
VHT (h)	6,52 9	6,946
Delay (s/km)	65.9	69.9
Ave Speed (km/h)	54.8	54.1
Unreleased (veh)	1,299	1,338
Unreleased wait time (s)	23	24

NETWORK AND LOCALISED IMPACTS

Travel Times

Travel Times were recorded for eastbound and westbound trips between:

- Church Street / Marion Street (7.5km)
- Parramatta Road / Marlborough Road (7.5km)

NETWORK AND LOCALISED IMPACTS

Travel Times

- Travel time results show that the addition of development traffic has the biggest impact on westbound travel times along Parramatta Rd in the PM peak (peak direction), which increases from 23:28 to 26:42.
- It should be noted that while the increase to eastbound travel time along the Parramatta Road corridor in the morning peak caused by the development appears to be minor, this delay would further increase if unreleased vehicles entered the model study area.

Travel Time (mm:ss)	AM		PM	
	Base + Future Layout Upgrade	Base + Future Layout + Development	Base + Future Layout Upgrade	Base + Future Layout + Development
Eastbound	27:09	27:20	27:33	29:59
Westbound	26:21	26:45	23:28	26:42

NETWORK AND LOCALISED IMPACTS

Intersection Performance – AM

- It should be noted that while the increase in delays on Woodville Road and Parramatta Road corridors in the morning peak caused by the development appears to be minor, this delay would further increase if unreleased vehicles entered the study area.

	Base + Future Layout Upgrade		Base + Future Layout + Development	
Intersection	Delay	Throughput	Delay	Throughput
Woodville Rd / Cresecent St	24.9 B	1187	26.7 B	1085
Church / Parramatta / Woodville	47.8 D	2359	46.3 D	2125
Church / Freeway Off-ramp	50.1 D	1475	50.4 D	1367

Intersection Performance - PM

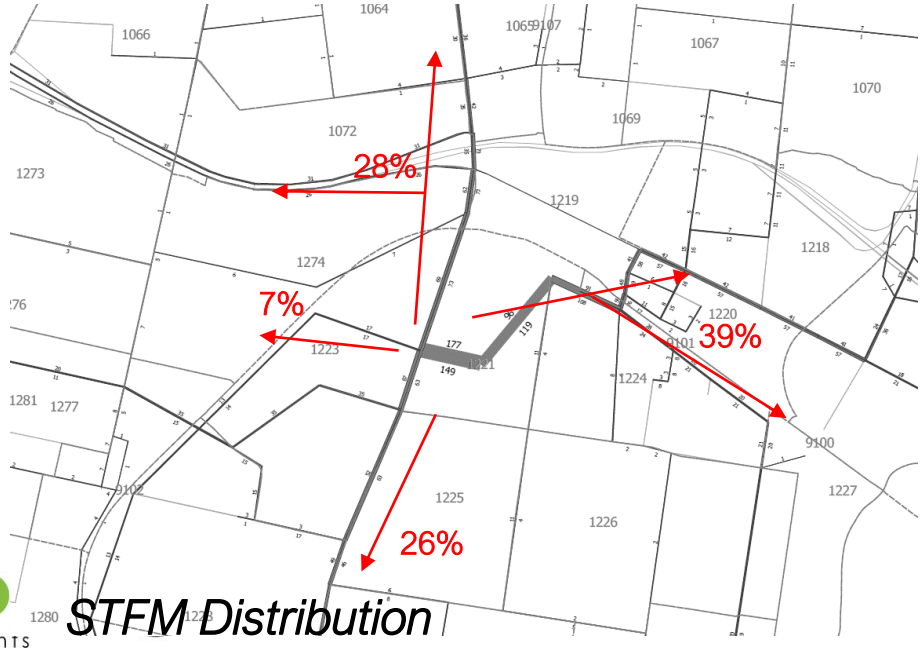
- The introduction of the development traffic increases delays at all three intersections with Parramatta Road westbound approach and the overall westbound travel times increases by approximately 3 minutes (as demonstrated by travel time results earlier).

	Base + Future Layout Upgrade		Base + Future Layout + Development	
Intersection	Delay	Throughput	Delay	Throughput
Woodville Rd / Cresecent St	19.1 B	1271	21.3 B	1355
Church / Parramatta / Woodville	49.3 D	2421	49.7 D	2602
Church / Freeway Off-ramp	55.5 D	1649	55.7 D	1763

NETWORK AND LOCALISED IMPACTS

Development Traffic Distribution – Sensitivity

- Existing adopted distribution – heavily skewed towards the west and south-west
- Differs from the STFM distribution for the adjacent travel zone to the east
- Increased trips to the east will have even greater impact on the network performance

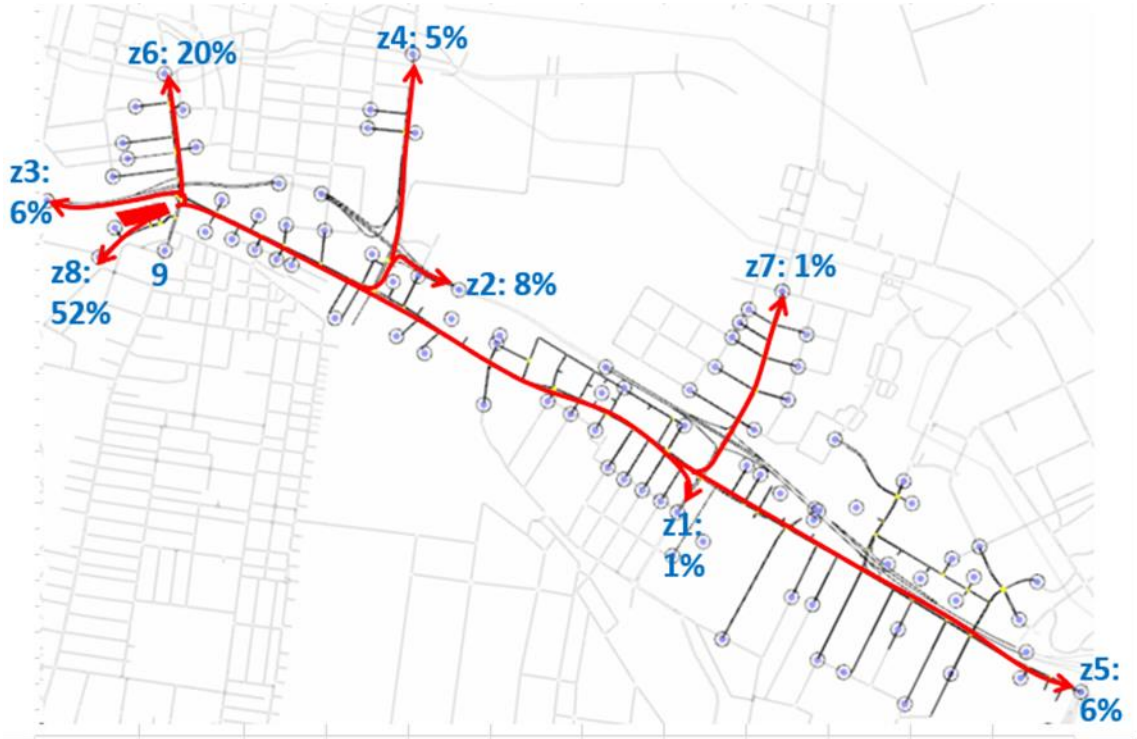


STFM Distribution

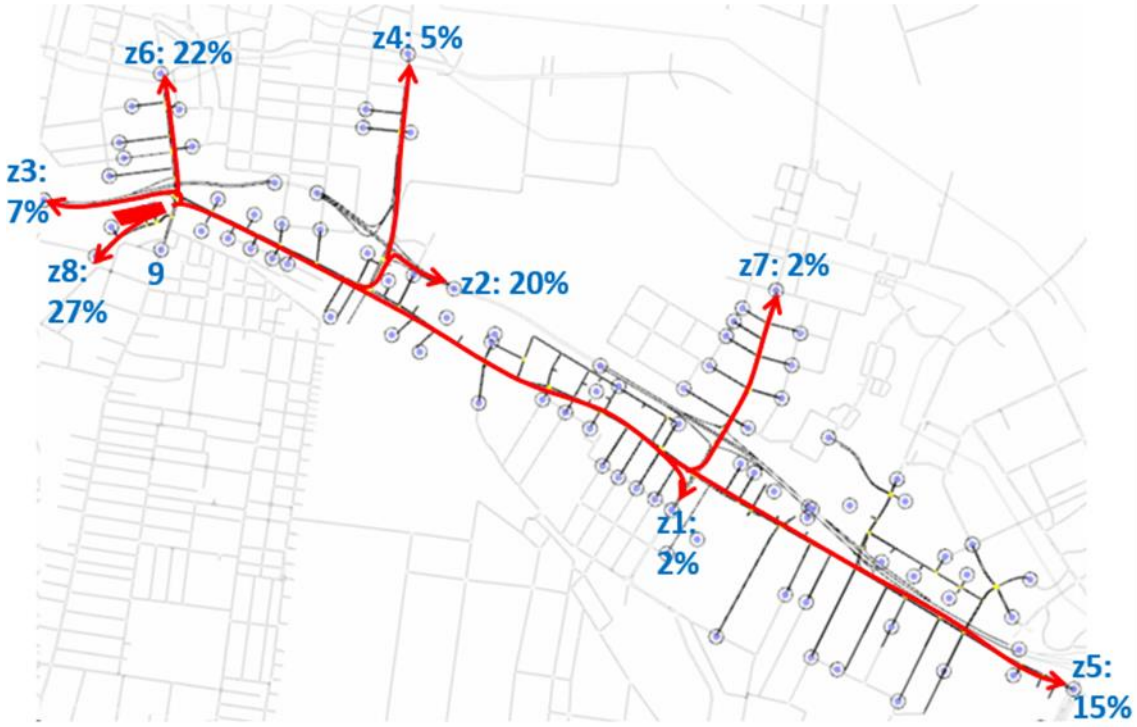
Proponent Adopted Distribution

NETWORK AND LOCALISED IMPACTS

Development Traffic Distribution – Sensitivity



AM Adopted (from development)



AM Sensitivity Test (from development)

NETWORK AND LOCALISED IMPACTS

Development Traffic Distribution – Sensitivity

AM Network Performance

Network Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	3. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Input - all	105,263	106,954	106,430
Input - dev	0	1,837	2,015
VKT	171,689	173,320	172,942
VHT	6,394	6,646	7,103
Delay	75	78	84
Ave Speed	55	54.4	53.9
unreleased	2,814	2,945	3,843
unreleased wait time	32	40	61

- Change in development traffic distribution results in further 7% deterioration in network performance.
- $60M per annum in additional travel time costs[1]

AM Travel Times

Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	3. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Travel Time			
Eastbound	27:09	27:20	29:55

- Average travel times in peak direction along Parramatta Rd increase by additional 2 minutes and 46 seconds.

GTAconsultants now Stantec

[1] *Based on value of travel time of $31.53 per vehicle hour. Source: Table 4 TfNSW Economic Parameters Values*

NETWORK AND LOCALISED IMPACTS

Development Traffic Distribution – Sensitivity

AM Intersection Performance

Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	3. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Intersection LOS			
Woodville Rd / Crescent St	25 (B)	27 (B)	45 (D)
Church / Parramatta / Woodville	48 (D)	46 (D)	53 (D)
Church / Freeway Off-ramp	50 (D)	50 (D)	50 (D)

- Intersections LOS – biggest impact on Woodville/Crescent intersection.
- Crescent St eastbound approach delay increases to 3 minutes and 40 seconds.
- Woodville Rd south approach delay doubles.

Network Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	4. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Woodville Rd / Crescent St			
West Approach	68 (E)	71 (F)	220 (F)
South Approach	26 (B)	27 (B)	35 (C)
North Approach	10 (A)	13 (A)	16 (B)
Church / Parramatta / Woodville			
South Approach	33 (C)	35 (C)	63 (E)
South Approach - Slip	14 (A)	16 (B)	16 (B)
North Approach	48 (D)	48 (D)	49 (D)
North Approach - Slip	14 (A)	14 (A)	15 (B)
East Approach	96 (F)	87 (F)	88 (F)
East Approach - Slip	76 (F)	69 (E)	69 (E)
Church / Freeway Off-ramp			
West Approach	67 (E)	68 (E)	68 (E)
South Approach	30 (C)	31 (C)	29 (C)
North Approach	37 (C)	38 (C)	40 (C)

NETWORK AND LOCALISED IMPACTS

Development Traffic Distribution – Sensitivity

PM Network Performance

Network Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	3. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Input - all	118,350	120,182	119,383
Input - dev	0	1,835	1,788
VKT	187,961	190,040	189,781
VHT	6,529	6,946	7,362
Delay	66	70	76
Ave Speed	54.8	54.1	54.0
unreleased	1,299	1,338	2,099
unreleased wait time	23	24	29

PM Travel Times

Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	3. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Travel Time			
Westbound	23:28	26:42	27:53

- Average travel times in peak direction along Parramatta Rd increase by additional 4.5 minutes.

- Change in development traffic distribution results in further 6% deterioration in network performance.
- $60M per annum in additional travel time costs[1]

GTAconsultants now Stantec

[1] *Based on value of travel time of $31.53 per vehicle hour. Source: Table 4 TfNSW Economic Parameters Values*

NETWORK AND LOCALISED IMPACTS

Development Traffic Distribution – Sensitivity

PM Intersection Performance

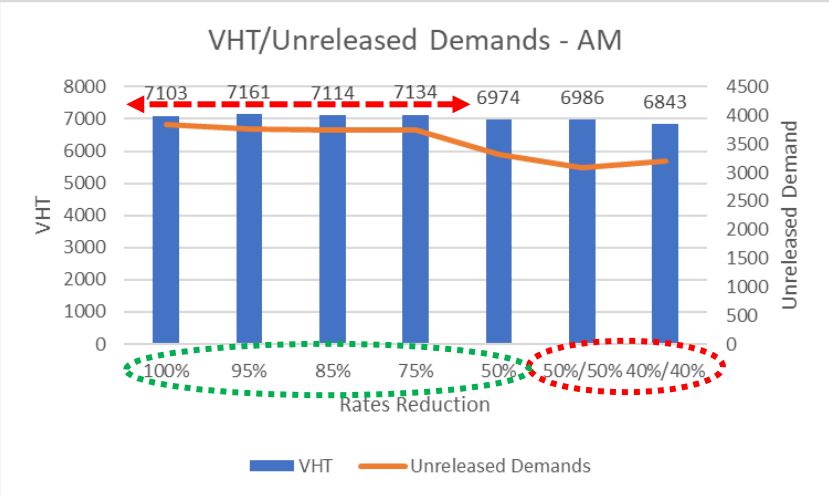
Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	3. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Intersection LOS			
Woodville Rd / Crescent St	19 (B)	21 (B)	25 (B)
Church / Parramatta / Woodville	49 (D)	50 (D)	50 (D)
Church / Freeway Off-ramp	56 (D)	56 (D)	57 (E)

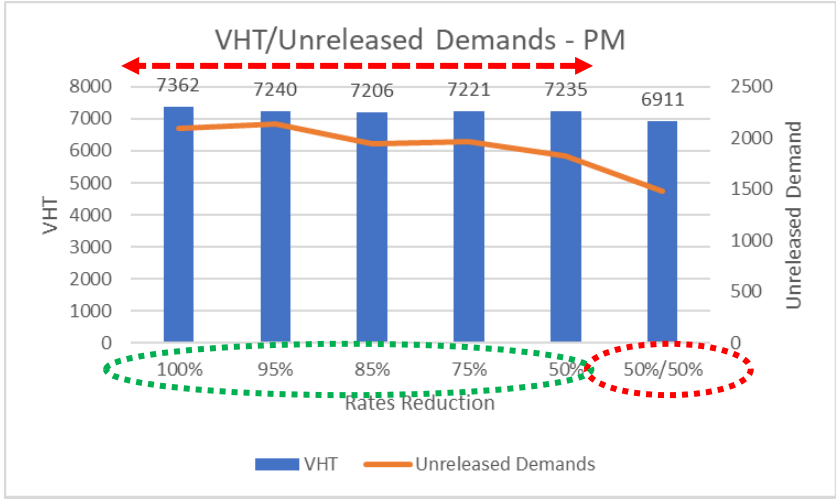
- Marginal impacts on intersections or approaches LOS.
- LOS at the east approach of the Church St/Woodville Rd/Parramatta Rd intersection and the west approach of the Church St/M4 Off-ramp intersection remained as F across all options.

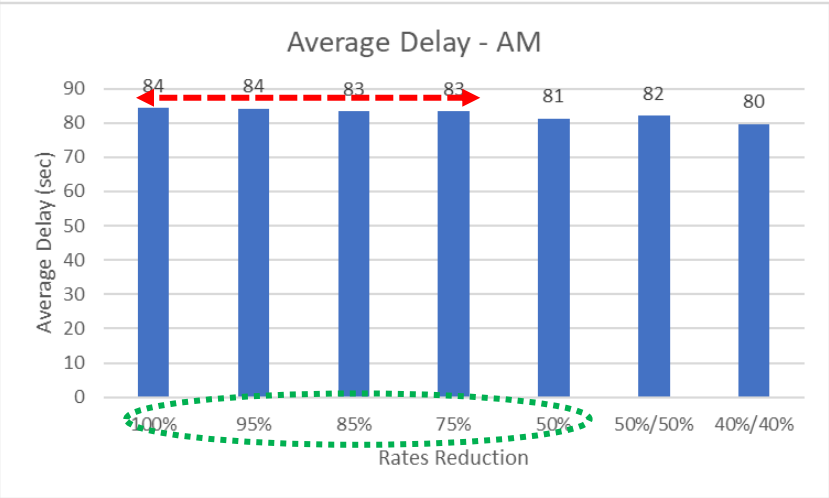
Network Statistics	1. Base + Intersection Upgrade	2. Base + Intersection Upgrade + Development (Original Distribution)	4. Sensitivity 2: Base + Intersection + Development (Revised Distribution)
Woodville Rd / Crescent St			
West Approach	68 (E)	69 (E)	71 (F)
South Approach	21 (B)	21 (B)	22 (C)
North Approach	12 (A)	16 (B)	23 (B)
Church / Parramatta / Woodville			
South Approach	35 (C)	33 (C)	36 (C)
South Approach - Slip	19 (B)	19 (B)	20 (B)
North Approach	38 (C)	36 (C)	39 (D)
North Approach - Slip	13 (A)	13 (A)	14 (A)
East Approach	101 (F)	107 (F)	99 (F)
East Approach - Slip	108 (F)	106 (F)	106 (F)
Church / Freeway Off-ramp			
West Approach	77 (F)	77 (F)	78 (F)
South Approach	25 (B)	25 (B)	24 (B)
North Approach	45 (D)	48 (D)	50 (D)

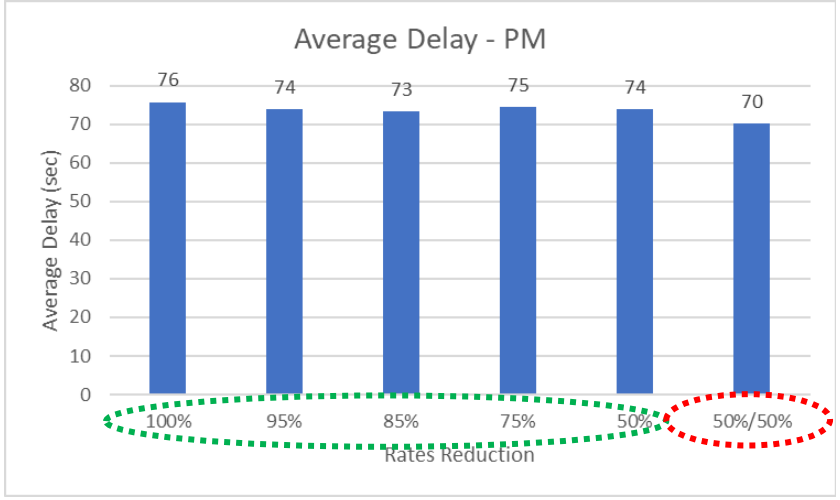
NETWORK AND LOCALISED IMPACTS

Development & Retail Proportion - Sensitivity









- Network statistics would experience noticeably change only if there were about a 50% reduction in residential and retail yields.

Retail only reduction

Retail and residential reduction

CONCLUSIONS

03

CONCLUSIONS

- The results of the analysis show that the proposed development generated traffic is expected to increase delays and travel times across the wider network with additional travel time costs in the order of $60M per annum.
- The proponent's adopted traffic distribution is heavily skewed towards the west and south. The results of the sensitivity analysis which distributes a higher proportion of the development traffic towards the east (via Parramatta Road) showed that from the network performance perspective there will be a further increase in delays and network travel times (up to 13%).
- The planning proposal in its current form would result in additional travel time delays along Parramatta Road and Crescent Street:
  - AM Peak Eastbound Direction – an increase of 2 minutes and 46 seconds
  - PM Peak Westbound Direction – an increase of 4.5 minutes
  - AM Peak Crescent St Eastbound – delays increase to 3 minutes and 40 seconds.
- Network performance statistics would noticeably change only if there were about a 50% reduction in development yields of residential and retail.

VIC NSW QLD SA WA

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