

RPS

Attn: Rob Dwyer

Dear Rob,

Traffic Impact Assessment – Proposed Residential Rezoning, Speers Point, Lot 21 DP 790637, Lot 1 DP 557315, Lot 1 DP 321254, Lot 1 DP 210440, Lot 1 and 2 DP 105845

Better Transport Futures was commissioned by RPS on behalf of Lake Macquarie City Council to assess the traffic and access implications of the proposed rezoning of the land at Speers Point, the former Speers Point Quarry. A site analysis has been completed for the site that has highlighted a number of constraints on the land for future development. From this analysis, it has been determined that the site could be developed for residential use, with a range of between 150 and 200 lots.

The maximum development of 200 lots would require the land to be divided in accordance with the minimum lot size of 450 square metres which may not be realistic in this location. However, for the purposes of this traffic assessment, the maximum development of 200 lots has been assumed, to provide a worst case scenario. It can be seen that if the impacts associated with 200 lots is acceptable then the impacts for a smaller lot yield will also be acceptable. It has been assumed that the lots could be developed over a number of stages with vehicle access via Hopkins Street.

As part of the study work, the site has been reviewed and peak hour traffic in the neighbourhood observed. The following advice has been prepared in accordance with the Austroads Guide to Traffic Management, RTA Supplements and the RTA Guide to Traffic Generating Developments:

Item	Issue	Comment
2. Existing Situation		
2.1.1 Site Location and Access	NO	Site is located on the south west slopes of Munibung Hill, Speers Point, adjacent to the Boolaroo residential area to the north west and the Speers Point area to the west. The Pasminco smelter adjoins the site to the north. Vehicle access will be off Hopkins Street.
2.2.1 Road Hierarchy	NO	The Esplanade to the south of the site forms part of the regional road network and any work on or adjacent to this road will require concurrence from the RTA. The Esplanade provides a single lane of travel in each direction to the west of the Main Road intersection. To the east of this intersection The Esplanade provides two lanes of travel for the eastbound traffic while only providing a single lane of travel for the west bound traffic. Lane widths along The Esplanade are in the order of 3.30 metres. The Esplanade operates under a posted 60km/h speed limit. Main Road to the east of the site is a local collector road and forms part of the local road network. It has a single lane of travel in each direction, with a lane width in the order of 6 metres. On street parking is available along both sides of the road. Main Road operates under a posted 60km/h speed limit. There are a number of 40km/h school zones operational along the length of Main Road that is operational during the school term. The remaining roads in the vicinity of the subject site, including Thompson Street, Alley Street, Albert Street, Speers Street etc are all local residential streets under the control of Council. All of

		the local streets provide single lanes of travel in each direction with kerb side parking permitted on both sides. These local streets all operate under the posted speed limit of 50 km/h. It is noted that Alley Street at its intersection with The Esplanade is a left out intersection only.
2.2.2 Roadworks	NO	None noted in vicinity of site. It is understood that there are no road works proposed in the general locality except for normal Council maintenance work as required.
2.2.3 Traffic Management Works	NO	None noted.
2.2.4 Pedestrian and Cycling Facilities	NO	There are footpaths and cycle ways within the locality of the subject site. There is currently a shared cycleway between Booragul and Belmont along the eastern boundary of Lake Macquarie. This cycle way links Speers Point with Booragul to the south and Warners Bay and Eleebana to the east. There are footpaths provided along both sides of Main Road. It is noted that the local residential streets in the general locality of the subject site do not provide any off street footways or cycleways. Given the overall width of these roads and the comparatively low traffic flows it can be seen that pedestrians and cyclists can use the side of the existing roads.
2.3 Traffic Flows	NO	Peak hour surveys were undertaken at the intersection of The Esplanade and Main Road in June 2010 (refer Appendix B). To the immediate east of Main Road, the two-way traffic flows on The Esplanade was 3,443 vehicles in the AM peak and 3,466 in the PM peak. Based in peak hour flows typically representing 10% of the daily flows, this would indicate the daily flow would be in the order of 34,550 vehicles. The two way traffic flow for Main Road during the AM peak was 528 vehicles and for the PM peak was 684, giving some 6,000 vehicles per day. Peak hour surveys were also carried out at the intersections of The Esplanade and Albert Street, The Esplanade and Alley Street, Thompson Road and Speers Street, Thompson Road and Fairfax Road in May 2011. (Refer to appendix B)
2.3.1 Daily Traffic Flows	NO	Data from dRTA Traffic Volume Data for the Hunter and Northern Regions ^o at station 05.616, the AADT in 2004 was 24,925 vehicles per day. Further consultation with the RTA has revealed that there has been a 9-day MetroCount survey conducted in December 2008 on The Esplanade between Morse Road and Ryan Street. The AADT from this count was 30,250 vehicles per day.
2.3.2 Daily Traffic Flow Distribution	NO	Daily traffic flows would be reasonably evenly distributed between movements east and west along The Esplanade. The right turn into Main Road and the left turn out of Main Road were also fairly evenly distributed.
2.3.3 Vehicle Speeds	NO	No speed surveys were completed as part of the study work. Observations on site indicate that traffic appears to travel at the posted speed limit of 60 km/h along The Esplanade and Main Road. Main Road also has 40km/h school speed zones located at various stages along its length. Both of these roads provide a reasonably straight alignment in this location. Traffic appears in the main to travel at the posted speed limit on The Esplanade due to the presence of private driveways along the north side of the road. It can be seen however that there is potential for vehicles to speed on these roads, due to the straight alignment and generous width

		of these road.
2.3.4 Existing Site Flows	NO	The site is currently vacant which accordingly generates no traffic flows.
2.3.5 Heavy Vehicle Flows	NO	There were no heavy vehicle counts conducted. Heavy vehicles normally make up 5% of the AADT. This would equate to a heavy vehicle flows along The Esplanade in the order of 1,733 vehicles per day.
2.3.6 Current Road Network Operation	NO	Existing road network works reasonably well with minimal delays noted. It can be seen that the high volume of flows along The Esplanade during the peak periods create capacity issues at the intersection with Medcalf Street as well as at Five Islands Road. The remaining roads and intersections in the locality of the subject site operate well with minimal delays for road users.
2.4 Traffic Safety and Accident History	NO	There have been 8 recorded accidents in the vicinity of the intersection of The Esplanade and Main Road over the past 5 years. The majority of these accidents relate to traffic turning right out of or into Main Road. This is a reflection of the current issue of delays for traffic turning right out of the Main Road. The remaining local residential roads in the locality have no recorded accidents, indicating the local streets offer a safe and acceptable layout for all road users.
2.5 Parking Supply and Demand		
2.5.1 On-street Parking Provision	NO	Cars are able to park on both sides of the roads in the general locality of the subject site. Main Road has parking available on both sides of the road, while no parking is permitted along The Esplanade.
2.5.3 Parking Demand and Utilisation	NO	Limited parking demand observed on the local street immediately adjacent to the subject site. The existing houses in this locality have garages and driveways that accommodate normal daily parking demands.
2.5.4 Set down or pick up areas	NO	Bus stops located on Main Road close to site that allow for access to Newcastle Buses.
2.6 Public Transport		
2.6.1 Rail Station Locations	NO	No railway stations within the locality. Nearest station located at Cockle Creek, approximately 3kms north of the site. This station provides access to the train service that connects down to Sydney and beyond as well as services to Newcastle.
2.6.2 Bus Stops and Associated Facilities	NO	Bus stops located on Main Road provide access to route number 363 operated by Newcastle Buses. This provides a connection between Warners Bay to the west and through to the centre of Newcastle, via Glendale, Cardiff, Lambton and Broadmeadow. Further details on buses in the locality are shown below.
2.6.3 Pedestrians	NO	Pedestrians are able to use the footpaths and shared cycle ways provided in the vicinity of the site. As the majority of the local streets do not have any footpaths or cycleways, pedestrians and cyclists tend to use the side of the roads. Given the low overall traffic flows and width of these roads it can be seen that this offers a safe and acceptable solution.
2.7 Other Proposed Developments	NO	No other major development in the general locality of the subject site. There are a number of infill lots in the locality that will allow for some residential development. Some land has been rezoned for residential use to the east of the site that will gain access via the Lakelands residential area.
3. Proposed Development		
3.1 The Development	-	The rezoning application will allow for a residential subdivision. A

		minimum of 150 lots will be provided and applying the minimum lot size would give 200 lots maximum.
3.1.1 Nature of Development	-	200 lot maximum residential development.
3.1.2 Access and Circulation Requirements	NO	Access to be provided via an extension to Hopkins Street. This new connection will need to be designed and constructed in accordance with Council Design Guide for Residential Sub Division. The full details for this access will need to be reviewed as part of the future Development Application and the design and construction will need to be approved by Lake Macquarie City Council. The layout of the internal residential roads will be in accordance with Council requirements and will allow for ease of vehicle movement.
3.2 Access		
3.2.1 Driveway Location	NO	All driveways will be designed and constructed in accordance with Council Residential Design Guide.
3.2.2 Sight Distances	NO	All of the new roads will operate under a posted speed limit of 50 km/h as per normal residential requirements. From AS2890.1 Off Street Car Parking the visibility requirement is 40 metres for a domestic driveway. Internal road layout will be designed to accommodate these sight line requirements.
3.2.3 Service Vehicle Access	NO	Minimal delivery vehicles will need to access the site. Garbage collection will be via kerb side collection along the new residential roads. Occasional other larger truck access required for deliveries. As these roads are designed in accordance with Council Design Guide there will be no access issues for these size vehicles. The larger delivery trucks are typically 10.5 metre rigid trucks similar to the Council Garbage trucks.
3.2.4 Queuing at entrance to site	NO	No vehicle queues expected at site entry / exit point. Existing traffic flows along the local street are very low.
3.2.5 Comparison with existing site access	NO	None as site is currently vacant. The site access is via a simple gravel road.
3.2.6 Access to Public Transport	NO	Access can be provided along the new access road to the subdivision to allow residents to access the bus service that currently runs along Main Road.
3.3 Circulation		
3.3.1 Pattern of circulation	NO	All vehicles will be able to enter and exit the site in a forward direction. The internal site layout will be designed and constructed in accordance with Council requirements and will permit ease of movements in and through the site.
3.3.2 Road width	NO	All internal driveways to be designed and constructed in accordance with Council requirements. This will include the road widths and gradients.
3.3.3 Internal Bus Movements	NO	No internal bus movements required, as the size of the development will not generate a high number of new patrons.
3.3.4 Service Area Layout	NO	No dedicated service area required for residential development. Service (delivery) vehicles will be able to park adjacent to the kerbs as required.
3.4 Parking		
3.4.1 Proposed Supply		Each lot will provide a garage within the building footprint as per Council requirements and adequate space on the driveway for a second vehicle, as per Council Design requirements.
3.4.2 Lake Macquarie City Council parking code	NO	1 garage space per lot plus one space on the driveway. This can be achieved within the lot size and layout proposed.
3.4.3 Parking Layout	NO	Parking for the residential element to be provided within the

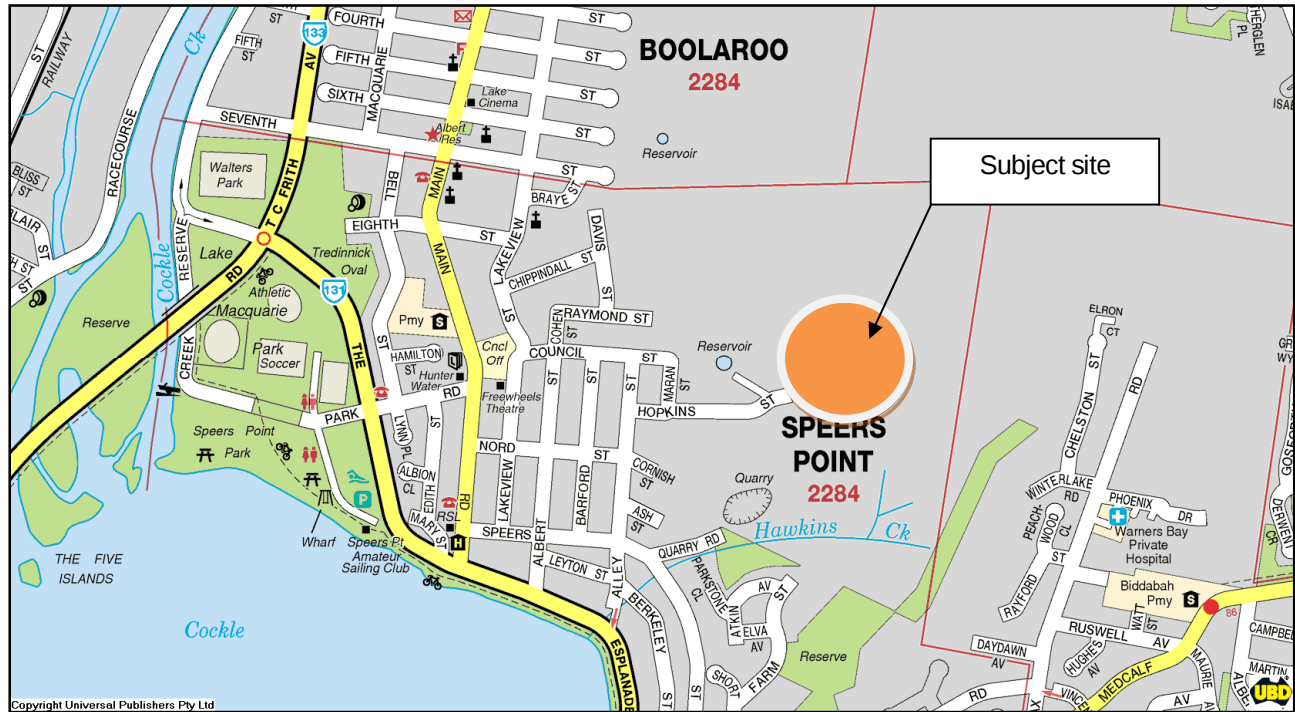
		building and driveway as per Council requirements.
3.4.4 Parking Demand	NO	The parking provision is expected to be adequate for the typical demands.
3.4.5 Service Vehicle Parking	NO	No dedicated service vehicle parking required.
3.4.6 Pedestrian and Bicycle Facilities	NO	Footpath to one side of the road will be provided in accordance with Council Design requirements.

4. Impact of Proposed Development		
4.1 Traffic Generation		<i>Note: A trip is defined as a one way vehicular movement from one point to another excluding the return journey. Therefore, a return trip to/from a land use is counted as two trips. (Source: RTA Guide to Traffic Generating Developments 2002).</i> The RTA Guide to Traffic Generating states the following traffic generation rates apply to dwelling housing: • 0.85 peak vehicle trips per dwelling during the daily peak hour, this would equate to 170 vehicle trips over the peak hour as a maximum. • 9 daily vehicle trips per dwelling. This would equate to 1,800 vehicle movements per day It is considered that these values would be the maximum value and that they could be lower, as this generation is based on all lots conforming to the minimum lot size under the Council DCP. With a lower lot yield of 150 as expected, the peak hour flows would be 128 and the daily flows would be 1,350 vehicle movements per day.
4.1.1 Daily and Seasonal Factors	NO	No variation expected
4.1.2 Pedestrian Movements	NO	Pedestrian movements expected between the site and Main Street and strong pedestrian/cyclists desire line for access to foreshore area of Lake Macquarie. It can be seen that there will potentially be a very strong desire line towards the lake foreshore, associated with leisure use along the foreshore. Major access route would be via Alley Street to the south or via a number of other residential streets. There is an existing pedestrian crossing islands to the west of Alley Street that allows for connection to the foreshore area.
4.2 Traffic Distribution and Assignments	NO	Majority of residential traffic expected to have an origin / destination towards the east and connections towards Charlestown and beyond. For the purposes of this assessment, similar splits to those observed during the traffic surveys at the adjacent intersections have been applied. This gives: • 50% towards the east along The Esplanade • 30% towards the north along Main Road • 20% towards the south via Five Islands Road
4.3 Impact on Road Safety	NO	It is considered there will be a minimal impact on overall road safety in the area generally as a result of the construction of the proposed residential lots. The local residential streets provide a safe layout and the intersections all allow for good visibility for drivers using these intersections. From SIDRA analysis of the surrounding local intersections of The Esplanade and Albert Street, The Esplanade and Alley Street, Thompson Road and Speers Street and Thompson Road and Fairfax Road, it can be seen that there is adequate spare capacity at these intersections to accommodate the proposed traffic generated by the

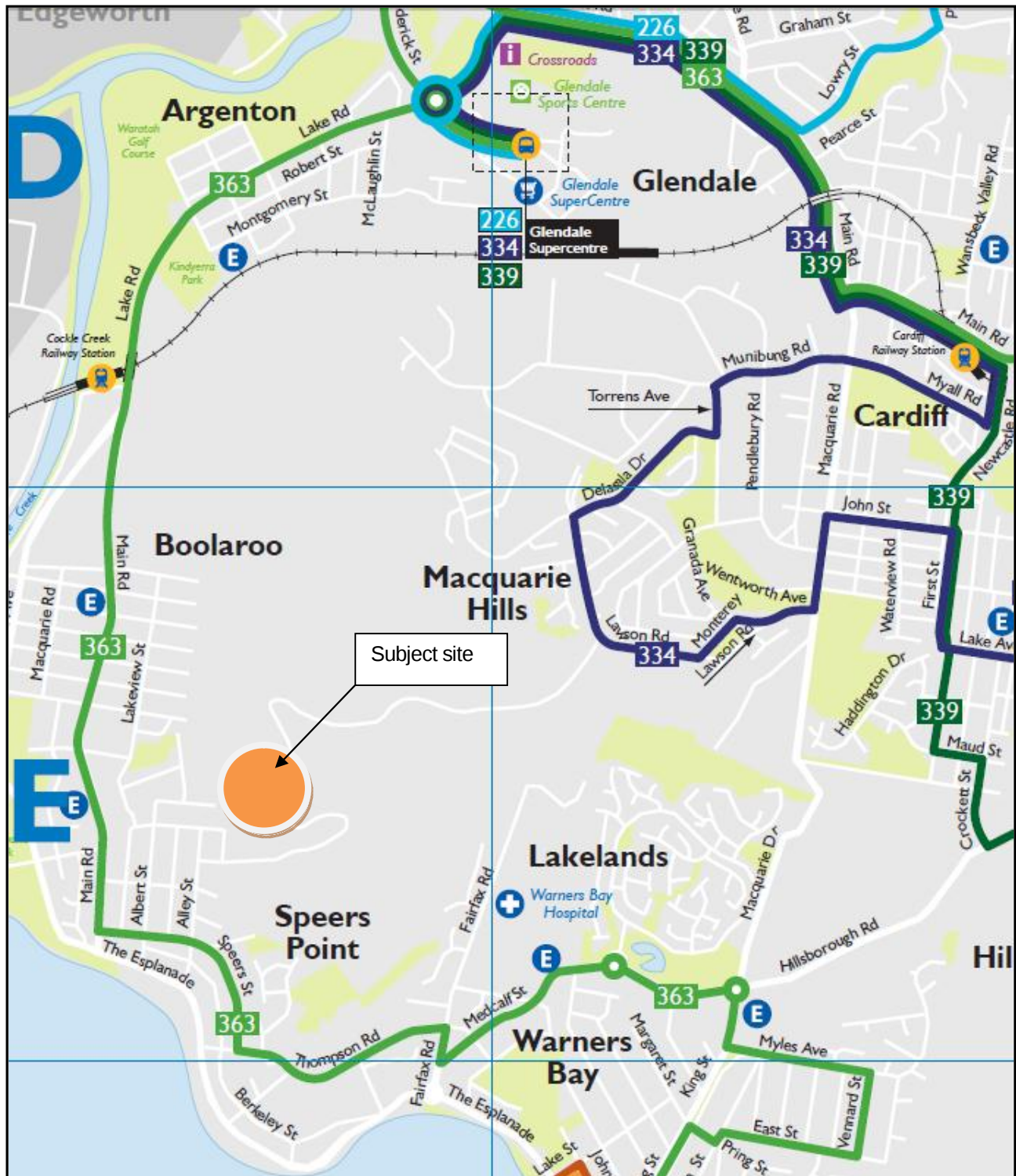
		development. The current flows through the intersection of The Esplanade and Main Road is in the order of 3,500 vehicles during the peak hours. The proposed development with 200 lots could increase this by in the order of 85 vehicles per hour (assuming 50% of the traffic associated with the development will travel east along The Esplanade in the morning peak hour). This east bound movement has been tested in the future analysis of the AM peak flows plus developmental flows for the intersection of The Esplanade and Alley Street. This decreases the intersection's Level of Service from C to a Level of Service D, which is still within the RTA intersection capacity requirements. While during the PM peak, it is proposed that if these 85 vehicles turn right at the intersection of The Esplanade and Albert Street then the analysis of the future PM flows plus the developmental growth for this intersection gives a Level of Service C which has decreased from the current intersection Level of Service of B. Again well within the intersection capacity requirements of the RTA. Overall it is considered that the additional traffic associated with the subject development will have a minimal impact upon the road safety at these intersections.
4.4 Impact of Generated Traffic		
4.4.1 Impact on Daily and Peak hour Traffic Flows	NO	The residential development could generate some 1,800 vehicle movements per day as a maximum (based on 200 lots) and 1,350 based on a more realistic development size of 150 lots. It is considered that an additional 1,350-1,800 vehicle movements per day will have an acceptable impact upon the local road network, as these roads currently operate well, with minimal delays for road users. As a local street Hopkins Street has an environmental maximum limit of 300 vehicles per hour (source RTA Guide to Traffic Generating Developments). The current traffic flows on Hopkins Street are very low, expected to be less than 20 vehicles per hour based upon the number of lots on this road currently. The additional 170 vehicles an hour that could be generated during the peak hours will therefore maintain the total flow at less than this environmental limit. With dispersment of trips through the local road network, it can be seen that the impact on any of the other local streets in the vicinity of the site will be lower than 170 and will therefore maintain flows within the environmental limits of 300 vehicles per hour.
4.4.2 Peak Hour Impacts on Intersections	NO	It can be seen that there is potential for increased traffic flows at the intersection of The Esplanade and Alley Street during the AM peak period. However, the layout of this intersection only allows for left turn out of Alley Street onto The Esplanade. For the PM Peak period there is a potential for an increase in traffic flows turning right at the intersection of The Esplanade and Albert Street as drivers make a choice of turn options depending upon traffic flow. There is a sheltered right turn lane for this movement ensuring minimal safety issues for traffic propped in the centre of the road waiting to turn right into the side road. Observations on site during both the morning and afternoon peak periods indicate that there are acceptable delays for this movement for the majority

		of road users. It is noted that there is platooning of vehicles that creates significant gaps in the traffic flows- the observations show that the variation in delay is considerable, with a high portion of vehicles only experiencing the delay associated with slowing down to negotiate the intersection. However, some drivers experience longer delay due to a near constant stream of vehicles occurring on some occasions. It can also be seen that drivers also choose to turn right into Main Road where this is also a sheltered right turn lane for traffic turning off The Esplanade. Drivers have a good line of sight for the forward visibility and tend to judge which intersection to use (Albert or Main Road) well in advance and modify their route accordingly. For the remaining intersections in the vicinity of the subject site, there will be minimal impacts, due to dispersment of trips and the existing low traffic flows. This dispersment of trips for destinations to the north, south and east (as well as the west) mean that the impact of the development traffic at any one intersection will be relatively low and will thus have an acceptable impact during the peak periods.
4.4.3 Impact of Construction Traffic	NO	There will be a requirement for construction machinery to access the site and traffic associated with workers. All construction work will be contained within the site, except for the connection to Hopkins Street. This work will be controlled in accordance with Council requirements as well as requirements under the EP&A act. This will include hours of work and access controls.
4.4.4 Other Developments	NO	No major development within the general vicinity of the subject site.
4.5 Public Transport		
4.5.1 Options for improving services	NO	Not required as a consequence of this proposal. Existing services will provide adequate capacity for additional demands associated with this development.
4.5.2 Pedestrian Access to Bus Stops	NO	Pedestrian access will be as per the existing situation.
4.6 Recommended Works		
4.6.1 Improvements to Access and Circulation	NO	No improvements deemed necessary. Design and construction will need to comply with Council Residential Design Guidelines.
4.6.2 Improvements to External Road Network	NO	No external road upgrade work required as part of this rezoning.
4.6.3 Improvements to Pedestrian and Cycling Facilities	NO	No new pedestrian or cyclists facilities required as a direct response to this rezoning.
4.6.4 Effect of Recommended Works on Adjacent Developments	-	The above works will not impact upon the operation of the local roads for existing road users and adjacent properties/developments.
4.6.5 Effect of Recommended Works on Public Transport Services	-	Nil
4.6.6 Provision of LATM Measures	-	None required
4.6.7 Funding	-	All works will be funded by development on the site.

Site Location



Bus Routes in Locality



Site Photos



Photo 1: View west along Hopkins Street showing typical street layout.



Photo 2: View south along Albert Street showing typical cross section. The majority of the local residential roads in the locality have a similar cross section.



Photo 3: View south showing typical cross section on Main Road.



Photo 4: Layout of intersection of The Esplanade and Main Road. Note turn lanes and good visibility for drivers exiting the side road.



Photo 5: View east along The Esplanade showing typical cross section and layout of intersection with Albert Street.

Summary and Conclusion

From the site work and the above review, the following points are made:

1. The site is located off Hopkins Street within Speers Point, NSW. The proposal for the rezoning application is for a residential subdivision that could provide a maximum of 200 lots on the site if the minimum lot size was applied, but a more realistic development will provide some 150 residential lots. All vehicle access will be via an extension of Hopkins Street to the immediate west of the site. Parking will be provided on site in accordance with Council requirements with the internal road network providing access to each lot.
2. Existing traffic flows on the local road network in the immediate vicinity of the subject site are relatively low and well within acceptable limits. The operation of the local roads has been observed during the peak periods and it can be seen that the existing traffic experiences acceptable delays.
3. The intersection of The Esplanade and Main Street has been assessed on site and the accident data provided by the RTA has been reviewed. The intersection provides an acceptable layout and there have been a comparatively low number of recorded accidents at this location. SIDRA assessments have been conducted for the intersections of The Esplanade and Albert Street and The Esplanade and Alley Street. Both intersections perform well with spare capacity and with the additional development traffic would continue to perform to an acceptable standard.
4. The development could generate a maximum of 170 vehicle movements during the peak periods and 1,800 vehicles per day based on a maximum lot development of 200. These values would reduce to 128 and 1,350 respectively for the lower lot density of 150.
5. The operation of Hopkins Street has been assessed against the environmental limits identified by the RTA and it can be seen that this additional traffic along Hopkins Street associated with the subject rezoning will remain well within acceptable environmental limits for this classification of road.
6. Parking on site will be provided in accordance with the Council Design Guide for residential subdivision.
7. The internal access roads that will be built as part of this development will be designed and constructed in accordance with the Council Residential Subdivision guide. This will include the connection to Hopkins Street.
8. The existing pedestrian and cycling facilities within the locality of the site will continue to offer an acceptable level of service for existing and future users, given the low overall vehicle flows in the general vicinity of the subject site.

From the study work completed for this project, it is considered that the proposed rezoning should be approved on traffic and access grounds.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Sean Morgan', is written over a light grey rectangular background.

Sean Morgan
Senior Traffic Engineer





Summary Crash Report

# Crash Type		Contributing Factors		Crash Movement		CRASHES		CASUALTIES	
Car Crash	7 87.5%	Speeding	1 12.5%	Intersection, adjacent approaches	3 37.5%	Fatal crash	0 0.0%	Killed	0 0.0%
Light Truck Crash	2 25.0%	Fatigue	1 12.5%	Head-on (not overtaking)	1 12.5%	Injury crash	4 50.0%	Injured	7 100.0%
Rigid Truck Crash	0 0.0%			Opposing vehicles; turning	1 12.5%	Non-casualty crash	4 50.0%	Unrestrained	0 0.0%
Articulated Truck Crash	1 12.5%			U-turn	0 0.0%	^ Belt fitted but not worn. No restraint fitted to position OR No helmet worn			
Heavy Truck Crash	(1) (12.5%)			Rear-end	1 12.5%	Time Group	% of Day	Crashes	Casualties
Bus Crash	0 0.0%	Weather		Lane change	0 0.0%	00:01 - 02:59	0 0.0%	2 2008	1
Heavy Vehicle Crash	(1) (12.5%)	Fine	5 62.5%	Parallel lanes; turning	0 0.0%	03:00 - 04:59	0 0.0%	4 2007	1
Emergency Vehicle Crash	0 0.0%	Rain	2 25.0%	Vehicle leaving driveway	0 0.0%	05:00 - 06:59	0 0.0%	2 2005	5
Motorcycle Crash	0 0.0%	Overcast	1 12.5%	Overtaking; same direction	0 0.0%	06:00 - 06:59	0 0.0%		
Pedal Cycle Crash	0 0.0%	Fog or mist	0 0.0%	Hit parked vehicle	0 0.0%	07:00 - 07:59	0 0.0%		
Pedestrian Crash	1 12.5%	Other	0 0.0%	Hit railway train	0 0.0%	08:00 - 08:59	1 12.5%		
* Rigid or Artic. Truck * Heavy Truck or Heavy Bus		Road Surface Condition		Hit pedestrian	1 12.5%	09:00 - 09:59	0 0.0%		
# These categories are NOT mutually exclusive		Wet	2 25.0%	Permanent obstruction on road	0 0.0%	10:00 - 10:59	1 12.5%		
* Up to 10 metres from an intersection		Dry	6 75.0%	Hit animal	0 0.0%	11:00 - 11:59	1 12.5%		
* 07:30-09:30 or 14:30-17:00 on school days		Snow or ice	0 0.0%	Off road, on straight	0 0.0%	12:00 - 12:59	1 12.5%		
Location Type		Natural Lighting		Off road on straight, hit object	1 12.5%	13:00 - 13:59	1 12.5%		
Intersection	5 62.5%	Dawn	0 0.0%	Out of control on straight	0 0.0%	14:00 - 14:59	1 12.5%		
Non Intersection	3 37.5%	Daylight	7 87.5%	Off road, on curve	0 0.0%	15:00 - 15:59	0 0.0%		
Collision Type		Dusk	0 0.0%	Off road on curve, hit object	0 0.0%	16:00 - 16:59	0 0.0%		
Single Vehicle	1 12.5%	Darkness	1 12.5%	Out of control on curve	0 0.0%	17:00 - 17:59	0 0.0%		
Multi Vehicle	7 87.5%	Speed Limit		Other crash type	0 0.0%	18:00 - 18:59	0 0.0%		
Road Classification		40 km/h or less	0 0.0%	~ 40km/h or less		19:00 - 19:59	1 12.5%		
Freeway/Motorway	0 0.0%	50 km/h zone	0 0.0%	80 km/h zone	0 0.0%	20:00 - 21:59	0 0.0%		
State Highway	0 0.0%	60 km/h zone	8 100.0%	90 km/h zone	0 0.0%	22:00 - 24:00	1 12.5%		
Other Classified Road	8 100.0%	70 km/h zone	0 0.0%	100 km/h zone	0 0.0%	Street Lighting Off/Nil	% of Dark		
Unclassified Road	0 0.0%			110 km/h zone	0 0.0%	0 of 1 in Dark	0.0%		
Day of the Week		# Holiday Periods		New Year		Queen's BD		Easter SH	
Monday	2 25.0%	Thursday	2 25.0%	Sunday	0 0.0%	Aust. Day	0 0.0%	June/July SH	1 12.5%
Tuesday	0 0.0%	Friday	3 37.5%	WEEKDAY	7 87.5%	Easter	0 0.0%	Sept/Oct. SH	0 0.0%
Wednesday	0 0.0%	Saturday	1 12.5%	WEEKEND	1 12.5%	Anzac Day	0 0.0%	December SH	0 0.0%

Crashid dataset The Esplanade and Main Rd, Speers Point - 5 years complete data - 01/10/2004 to 30/09/2009 plus provisional data to date

Note: Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

Percentages are percentages of all crashes. Unknown values for each category are not shown on this report.

Rep ID: REG01 Office: Hunter User ID: klicka

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Appendix B Traffic Survey Data

Curtis Traffic Surveys

Turning movement count

Job:

100603bt

Day, date

24/06/10

Location:

The Esplanade & Main Rd

Weather:

Fine

Client:

Better Transport Futures

Peak Hour Volumes

14

1386

19

416

235

1429

N

↑

	From The Esplanade east		From Main Rd		From The Esplanade west		
Time Period	Though	Right	left	right	left	through	Total
15:00 to 15:15	275	50	73	1	5	280	684
15:15 to 15:30	351	64	85	2	7	332	841
15:30 to 15:45	246	66	71	2	6	305	696
15:45 to 16:00	323	78	88	5	3	325	822
16:00 to 16:15	367	58	77	4	5	273	784
16:15 to 16:30	323	60	78	3	4	363	831
16:30 to 16:45	362	61	115	5	4	363	910
16:45 to 17:00	314	68	98	1	2	325	808
17:00 to 17:15	430	46	125	10	4	335	950 peak
17:15 to 17:30	340	45	69	1	5	268	728
17:30 to 17:45	393	34	66	0	4	264	761
17:45 to 18:00	428	81	74	5	2	283	873
18:00 to 18:15	336	41	64	4	4	208	657
18:15 to 18:30	272	44	39	2	6	179	542
Total	4760	796	1122	45	61	4103	

Hourly summary

15:00 to 16:00	1195	258	317	10	21	1242	3043
15:15 to 16:15	1287	266	321	13	21	1235	3143
15:30 to 16:30	1259	262	314	14	18	1266	3133
15:45 to 16:45	1375	257	358	17	16	1324	3347
16:00 to 17:00	1366	247	368	13	15	1324	3333
16:15 to 17:15	1429	235	416	19	14	1386	3499 peak hour
16:30 to 17:30	1446	220	407	17	15	1291	3396
16:45 to 17:45	1477	193	358	12	15	1192	3247
17:00 to 18:00	1591	206	334	16	15	1150	3312
17:15 to 18:15	1497	201	273	10	15	1023	3019
17:30 to 18:30	1429	200	243	11	16	934	2833

Curtis Traffic Surveys

Turning movement count

Job: 100603bt

Day, date: 24/06/10

Location: The Esplanade & Main Rd

Weather: Fine

Client: Better Transport Futures

Peak Hour Volumes

18

1650

14

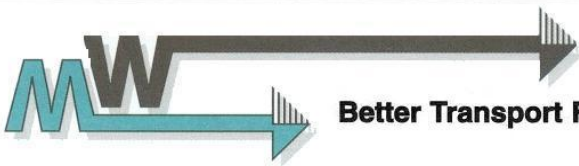
195

301

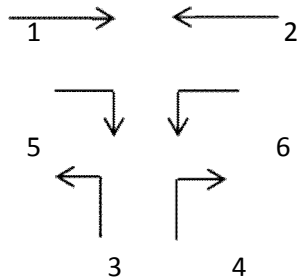
1297

N

	From The Esplanade east		From Main Rd		From The Esplanade west		
Time Period	Though	Right	left	right	left	through	Total
07:30 to 07:45	309	39	29	0	2	385	764
07:45 to 08:00	351	55	44	1	4	435	890
08:00 to 08:15	305	73	43	4	5	416	846
08:15 to 08:30	362	67	48	3	3	455	938 peak
08:30 to 08:45	297	84	48	3	5	357	794
08:45 to 09:00	333	77	56	4	5	422	897
09:00 to 09:15	254	50	45	5	6	295	655
09:15 to 09:30	249	62	33	1	5	274	624
Total	2460	507	346	21	35	3039	
Hourly summary							
07:30 to 08:30	1327	234	164	8	14	1691	3438
07:45 to 08:45	1315	279	183	11	17	1663	3468
08:00 to 09:00	1297	301	195	14	18	1650	3475 peak hour
08:15 to 09:15	1246	278	197	15	19	1529	3284
08:30 to 09:30	1133	273	182	13	21	1348	2970

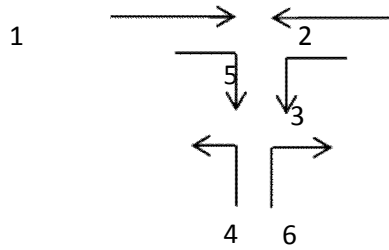


Location: Thompson Rd and Fairfax Road



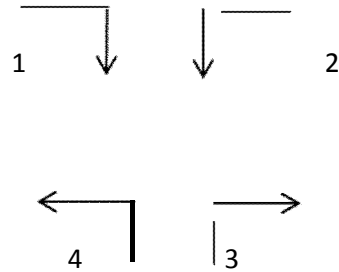
Time	1	2	3	4	5	6
0730-0745	16	9 + 1T	8	17	9	5 + 1B
0745-0800	11	15	14	24 + 1B	4	6 + 2B + 1T
0800-0815	15 + 1T	14 + 1T	18	12 + 1B	8	4 + 1B
0815-0830	16	14	11	14 + 1B	6	5 + 1T
0730-0830	58 + 1T	52 + 2T	51	67 + 3B	27	20 + 3B + 2T
1600-1615	13	16	6	10	19	14
1615-1630	18	14	12	7 + 2B	21	16
1630-1645	26	11	13	6	33	17 + 1B
1645-1700	11	12	12	9	15	18
1600-1700	68	53	43	32 + 2B	88	65 + 1B

Location: Thompson Rd and Speers St



Time	1	2	3	4	5	6
0730-0745	6	7	2	8	11 + 1B	2
0745-0800	7	8	4	14 + 1B	5 + 2B	0
0800-0815	6	1	1	7	4 + 1B	1
0815-0830	7	6	4	8 + 2B	15 + 1B	7
0730-0830	26	22	11	37 + 3B	35 + 5B	10
1600-1615	6	7	2	7	26	2
1615-1630	7	4	5	16 + 2B	20	2
1630-1645	5	4	4	8	12 + 1B	0
1645-1700	7	6	2	15	18	3
1600-1700	25	21	13	82 + 2B	76 + 1B	7

Location: The Esplanade and Albert St



Time	1	2	3	4
0730-0830	62	2	5	38
1600-1700	43	8	6	52

Location: The Esplanade and Alley St



Time	1
0730-0830	25
1600-1700	10

MOVEMENT SUMMARY

**Site: AM The Esplanade -
 Alley St**

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: The Esplanade											
2	T	1365	5.0	0.723	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		1365	5.0	0.723	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
East: Albert Street											
4	L	26	0.0	0.184	29.7	LOS C	0.6	4.2	0.90	0.97	30.1
Approach		26	0.0	0.184	29.7	LOS C	0.6	4.2	0.90	0.97	30.1
North: The Esplanade											
8	T	1737	5.0	0.460	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		1737	5.0	0.460	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
All Vehicles		3128	5.0	0.723	0.2	NA	0.6	4.2	0.01	0.01	59.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.

Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (RTA NSW).

Approach LOS values are based on the worst delay for any vehicle movement.

MOVEMENT SUMMARY

**Site: AM+Dev The Esplanade -
 Alley St**

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: The Esplanade											
2	T	1365	5.0	0.723	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		1365	5.0	0.723	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
East: Albert Street											
4	L	116	0.0	0.810	54.8	LOS D	3.9	27.4	0.97	1.24	22.4
Approach		116	0.0	0.810	54.8	LOS D	3.9	27.4	0.97	1.24	22.4
North: The Esplanade											
8	T	1737	5.0	0.460	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		1737	5.0	0.460	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
All Vehicles		3218	4.8	0.810	2.0	NA	3.9	27.4	0.04	0.04	56.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.

Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (RTA NSW).

Approach LOS values are based on the worst delay for any vehicle movement.

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%	v/c	sec					per veh	km/h
South: The Esplanade											
2	T	1392	5.0	0.737	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	45	0.0	0.247	27.1	LOS B	0.9	6.5	0.88	0.98	33.3
Approach		1437	4.8	0.737	0.9	LOS B	0.9	6.5	0.03	0.03	58.6
East: Albert Street											
4	L	55	0.0	0.394	39.0	LOS C	1.6	11.4	0.93	1.03	26.7
6	R	6	0.0	0.066	35.4	LOS C	0.2	1.2	0.92	0.97	27.9
Approach		61	0.0	0.393	38.6	LOS C	1.6	11.4	0.93	1.02	26.8
North: The Esplanade											
7	L	8	0.0	0.383	7.4	LOS A	0.0	0.0	0.00	1.18	48.6
8	T	1438	5.0	0.383	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		1446	5.0	0.383	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
All Vehicles		2944	4.8	0.737	1.2	NA	1.6	11.4	0.03	0.04	57.8

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.

Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (RTA NSW).

Approach LOS values are based on the worst delay for any vehicle movement.

MOVEMENT SUMMARY

**Site: PM+Dev The Esplanade -
 Albert St**

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%	v/c	sec					per veh	km/h
South: The Esplanade											
2	T	1392	5.0	0.737	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R	135	0.0	0.736	42.3	LOS C	3.8	26.9	0.95	1.18	26.8
Approach		1526	4.6	0.737	3.7	LOS C	3.8	26.9	0.08	0.10	54.3
East: Albert Street											
4	L	55	0.0	0.394	39.0	LOS C	1.6	11.4	0.93	1.03	26.7
6	R	6	0.0	0.075	39.5	LOS C	0.2	1.4	0.93	0.98	26.5
Approach		61	0.0	0.393	39.1	LOS C	1.6	11.4	0.93	1.02	26.7
North: The Esplanade											
7	L	8	0.0	0.383	7.4	LOS A	0.0	0.0	0.00	1.18	48.6
8	T	1438	5.0	0.383	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		1446	5.0	0.383	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
All Vehicles		3034	4.7	0.737	2.7	NA	3.8	26.9	0.06	0.08	55.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.

Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (RTA NSW).

Approach LOS values are based on the worst delay for any vehicle movement.

